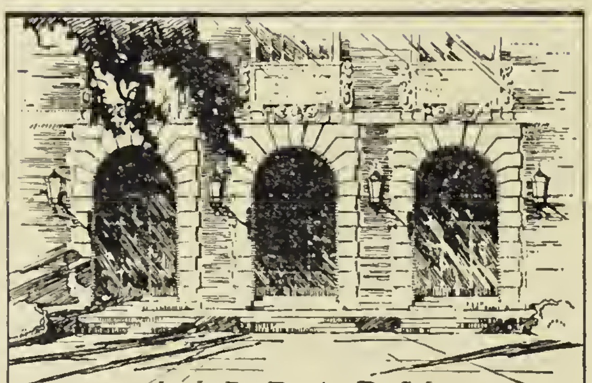

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GEORGE H. SIMMONS, M.D., LL.D.

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MANAGEMENT OF A SURGICAL SERVICE *

EUGENE H. POOL, M.D.
NEW YORK

Not many years ago, the small surgical staffs, simple diagnostic and therapeutic measures and slow turnover required little management. Case records were largely a matter of memory, or consisted in brief notes. Under present conditions, however, with more active services, larger staffs, and more elaborate and complicated methods, systematization of the work has become essential, in order that time and energy may be conserved, thorough study of cases insured, and complete records made and filed. No service can be excused from making effective efforts toward these ends. The details, however, have not been standardized; therefore, individual experiences are of value, since they further a more general agreement on the proper methods to be employed.

Some years ago, we presented our ideas as to the systematization of a surgical service, and attempted to put the theories into execution.[1] Those initial efforts have been persisted in for about eight years. Although the ideals of those early days have become somewhat subdued and the enthusiasm less aggressive, the original plan has been followed with few changes. Our experience indicates that the principles originally advocated by Codman can be followed to advantage.

I will confine my remarks to general problems, and will avoid lengthy discussion of details of local interest, such as full time, the resident surgeon, duties of the house staff and the record system. Full time is still in the experimental stage; many of its former advocates are now its apologists; and in practice, much full time actually proves to be part time with explanations. When fully carried out, the expense is out of proportion to the results; stimulating contacts with the outside are not developed, and a man is legislated into research instead of pursuing it of his own volition.

Resident surgeons are necessities in the large and highly organized clinics and in certain teaching institutions, but elsewhere they function as luxuries for the senior attending surgeons and obstacles for the junior attending surgeons and the house staff. Now, training of the house staff is one of the most important duties and privileges pertaining to a service. It is a question whether, in the aggregate, more productive and effective training is not accomplished through the shifting house staff than through a resident staff. It is really a balance between a few men highly trained and many men well started. Obviously, however, both methods meet essential needs of the community.

At the outset, it must be emphasized that our Eastern ward services, and it is to them I refer particularly, differ from those which prevail in some parts of the country, in that the professional services are entirely gratuitious, no fees being allowed. This has evils, as well as advantages, but the custom is prevalent and promises to persist. The absence of pay cases facilitates a uniform system. This hospital rule has been extended to advantage in some services so that a patient referred by one of the staff ceases to be the exclusive property of that member. Such cases are not allowed to disrupt or interfere with the routine; they are handled according to the system outlined for all ward cases. Under these conditions, every case is a service case, never an individual's case.

Whether, however, an institution or service harbors free patients or pay patients, or both, the general principles pertaining to the handling of those patients does not differ in kind. Yet, the features on which I shall dwell can be applied only to a limited extent, if at all, in the private patient pavilion with innumerable independent privileged surgeons under little or no authority or control.

The average hospital has one or more ward surgical services, which are usually independent of one another, but occasionally, especially in teaching institutions, a surgical director presides over all surgical activities, the individual services then being independent units closely harmonized. This appears to be the ideal arrangement.

I will take a surgical division or service as the unit for discussion, assuming that there is no general director. The primary essentials are a continuous service and a graded staff. As no two men in a division are on the same plane, questions of prerogative and authority are largely avoided. The juniors rise in the absence of a superior; and in the absence of the senior, his associate acts for him, not independently. The policies decided on for the division are thus carried out continuously, and the acting senior does not attempt impetuously to blaze a new trail, a policy that seems at the moment to redound to his credit but in reality tends to disrupt the service. This plan gives an unvarying system, a consecutive and unchanging policy by which steady improvement can be maintained. It is in marked contrast to the obsolete shifting services, the chief changing every three to six months, a policy which, unfortunately, even now may be seen in a few otherwise modern hospitals. In some of our large hospitals there seems to be a revulsion of sentiment among the younger members of the staffs against the continuous service; this is due partly to a wholesome feeling of unrest, but chiefly to selfish motives, that is, undue eagerness to advance. Those who have worked under both methods recognize that there is no comparison on the basis of efficiency, and that reversion to the shifting services would be a sacrifice of the institution to placate a small number of unduly restless and dissatisfied individuals. The present method, however, means the subordination of the individual to the welfare of the whole. It demands team play, not individualism. This is the keynote of the highly developed modern service. In a service of from sixty to seventy surgical beds, five graded attending surgeons can effectively function with routine duties outlined according to position. This ideal can be accomplished by making the work worth while, making it impersonal, and allowing individual expression and initiative. Two or more similar services with men in corresponding positions in each service afford the necessary competition as regards both excellence of work and promotions.

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*Chairman's address, read before the Section on Surgery, General and Abdominal, at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

[1] Pool, E. H., and Bancroft, F. W.: Systematization of a Surgical Service, J. A. M. A. **69**: 1599 (Nov. 10) 1917.

STAFF CONFERENCE

The staff conference is an essential feature, and is preferably held once a week. The week's work is analyzed, all unfavorable results being reported and discussed. The conference must be brief and impersonal, and speech free; moreover, the work of the senior members of the staff must be subjected to the same criticism as that of the juniors. A definite order of business is followed. For instance,

1. List of operations.
2. Diagnostic errors.
3. Casualty record (deaths, pneumonias, infections, hematomas, phlebitis).
4. Follow-up analysis.
5. Committee reports:
    1. Operating room, first Friday.
    2. Follow-up system, second Friday.
    3. Dispensary, third Friday.
    4. Records and case histories, fourth Friday.
    Other standing or special committees.
6. Unfinished business.
7. New business.

A large amount of work can be covered in a short time because uncertain points and discussions are referred to individuals or committees to decide and report at the next conference. The conference is thus a clearing house, not a forum.

Regularity and punctuality are essential. If the seniors conform, no trouble is likely to arise. If they presume on their positions and assume prerogatives not granted to their juniors, the latter will adopt the same lax methods. Conferences will then either terminate acrimoniously or quietly peter out. Some sacrifice is necessary, and all must hold this duty sacred and dedicate the necessary hours once a week to this branch of the service. With us, the conference is held each Friday from 12 to 1, and general rounds are made from 2 to 4. A long, tiring period is thus avoided, and the staff luncheon from 1 to 2 offers an opportunity for informal discussions.

Certain features of the conference warrant elaboration, notably, diagnostic errors and follow-up system, and it is on these that I wish to dwell.

DIGNOSTIC ERRORS

The rule of the division requires that a single diagnosis be made prior to the beginning of every operation. This diagnosis is written by the anesthetist on the anesthesia slip. At the end of the operation, the correct diagnosis is recorded. Occasionally, this final diagnosis must be deferred until a report is returned by the pathologist after study of the tissue removed. In rare cases, no accurate diagnosis is possible; but the course of the disease or the information gained through the follow-up system sometimes clears up such uncertain cases. All diagnostic errors are discussed at the weekly staff conferences.

It is found that the "single diagnosis" rule stimulates interest, careful observation and thoughtful study of cases. The single system, though more difficult than the multiple or percentage diagnosis systems, has seemed to us better, since it leads to greater efforts toward accuracy.

Although comparison of the first and last years of the system shows that improvement has occurred, the results are still far from what could be desired. An analysis and classification of the errors has been undertaken in the hope that such a study may suggest means whereby greater accuracy can be attained.

The figures show to what extent patients were operated on in whom no lesion was found to justify operation. They emphasize the cases in which error depended on an incomplete history, incomplete examination or imperfect deductions. But the particular interest in the analysis of such a series is that it demonstrates the types of cases in which mistakes are frequently made. For instance, seven out of a total of fifty-seven cases of perforated ulcer of the stomach or duodenum were wrongly diagnosed. In this connection it is often said that the correct diagnosis of a perforated ulcer can be made over the telephone. That is true in most cases, but in some there is little to suggest it. Thus, a man, aged 49, admitted thirty-six hours after the onset of the attack, gave a history of severe, continuous abdominal pain, first in the upper part of the abdomen, then generalized. He had had obstipation for four days and frequent vomiting. The temperature was normal; leukocytes, were 17,000, and polymorphonuclears 89 per cent. There was no distention or rigidity, but some tenderness over the region of the pancreas.

Striking mistakes are noted under the diagnosis, "chronic appendicitis"; in acute appendicitis there were twenty-one errors in 1,058 cases.

The fact that in all the eight cases of acute pancreatitis the diagnosis was missed is a stimulus toward more careful study of the clinical picture in connection with this lesion. In eighty-one cases of ectopic gestation the condition was wrongly diagnosed in twenty-three; moreover, the diagnosis of ectopic was made in twenty-two cases in which ectopic was not present. However, all cases of ruptured ectopic were correctly diagnosed. Such examples might be multiplied. In ectopic gestation and pancreatitis it has been shown that relatively numerous mistakes were made. Such findings should direct greater attention to the study of cases of these types and lead to greater accuracy in diagnosis. The analysis likewise demonstrates peculiarities or leanings of an individual operator; for instance, one man twice made an incorrect diagnosis of hypernephroma, once in an appendix case. The same operator repeatedly diagnosed gastric ulcer in cases in which there was none. After his attention was called to these slips, he made fewer errors in such cases.

The importance of a thorough examination has become clear. Our rule is that the operator must examine his patients, other than emergencies, on the day before operation. This acts as a check on the history, physical examination and tests, any of which, if found imperfect, may be completed before operation. If this rule is conscientiously followed, patients will not be operated on with scant consideration; due thought will be given as to the operative procedure and necessary rest and preparation will be insured prior to operation. Cancer of the rectum will not be served up as hemorrhoids; abscess of the prostate or multiple polyposis of the colon will not be overlooked through neglect of a rectal examination; the diagnosis and operative resistance will not be left to the judgment of an immature house officer, or the operation casually planned on the telephone without seeing the patient. Yet many mistakes are made in spite of reasonable care and effort. Some of them appear, in cold retrospect, impossible and unwarranted. Moreover, errors dependent on incomplete physical examination even now are recorded.

As has been stated, improvement has occurred with progressing years. Greater efforts are now made. There is often much discussion as to cases of doubtful diagnosis and considerable figuring and thought is given to the establishment of a correct diagnosis. In hernias, differentiation between direct and indirect is usually made without mere guessing. In 487 direct hernias, forty-eight errors were made; in 1,007 oblique hernias, there were forty mistakes. The mistakes in hernia, that is, an oblique inguinal hernia being mistaken for a direct, and vice versa, are of academic rather than of practical interest. Operation must be undertaken in either case. But the effort to differentiate the type adds an interest to an otherwise dull subject and necessitates careful examination of all cases before operation, and this, we believe, should be insisted on.

FOLLOW-UP SYSTEM

The follow-up system and end-result analysis are of vital importance.

By end-result is meant the ultimate outcome in respect to general health, symptomatic relief, anatomic condition of the parts affected and economic efficiency of the patient, especially the period and degree of disability.

This information is obtained through the follow-up clinic. We find a weekly Sunday morning clinic best, since the working classes are then free. Two attending surgeons, three members of the house staff and one nurse serve each Sunday from 10 to 12. All patients are examined three months after discharge, and thereafter as often as is indicated.

In 1922, after eight years' experience with the system, there were followed 86.8 per cent. of the 2,996 patients whom we tried to trace; 71.5 per cent. of the whole number reported in person; 15.3 per cent. were heard from either by letter or by report from a social service nurse.

Some of the advantages are that the examinations often result in timely advice; and failures or complications are recognized and corrected early.

The failures are discussed at the weekly conference and the aggregate gathered from month to month. A mass of material rapidly accumulates which can be made of great value if carefully classified and studied. The failures are often disheartening because exact figures give to the poor results a far more conspicuous place and a far higher percentage than is derived from impressions. Convenient forgetfulness becomes impossible. Yet such facts show up one's weaknesses and thus stimulate the conscientious worker, whose work from year to year as a direct result becomes more reliable and careful. The grouping and analysis of results should be carried out by the allotment of subjects to men on the staff and to outside workers who are interested in special subjects.

Such group analyses, when collected from a number of clinics so that convincing statistics become available, will ultimately clear up many of the uncertainties of surgery. For instance, the amenability or resistance of various doubtful lesions to surgical efforts; the relative merits of roentgen-ray treatment and surgery in exophthalmic goiter, as well as the indications for surgery and radium in types of malignant growths.

The fact that these studies are not conducted in the laboratory and are not experimental in nature have caused them to be viewed as less attractive than pure research and even the product of an inferior type of mind; but such studies on the basis of truths attained may be fairly balanced against most of the results that reward the time-consuming efforts of the average research worker.

Through the follow-up system, then, the surgeon becomes more proficient. As surgery improves, the community is benefited by curtailment of economic waste; the institution profits in respect to turnover, and patients, present and prospective, for whom, on last analysis, all efforts are directed, gain greatly.

COMMENT

A warning must be sounded lest any system becomes a fetish and figures and records be reverenced for their own sake. They are of value only if used, or if susceptible of use. Experience, however, indicates that such records, if accurate and full, constitute a mine of valuable information. At the end of five years, we began to summarize results. The gynecologic material with history, operative findings and follow-up has been culled over so much that we have some information on such features as the effects of leaving an ovary in hysterectomy, and the contrast between delayed and immediate operation in cases of ruptured ectopic gestation in shock.[2] Among general subjects studied are recurrences and complications after herniotomy,[3] the fate of necrosed bone in osteomyelitis,[4] and late results of gastro-enterostomy.[5]

Exchange of ideas in the form of frequent consultations between medical and surgical staffs is a desideratum, but a difficult feature to bring about. In New York, surgeons are usually active in the morning hours, medical men in the afternoons; consequently, meetings are often difficult. This is probably the weakest detail of our system; fortunately, the same difficulties do not prevail generally.

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[2] Hawks, E. M.: The Ovary After Hysterectomy for Fibroids, Am. J. Obst. & Gynec. **1**: 959 (June) 1921; Immediate Versus Delayed Operation in Cases of Collapse Following Ruptured Ectopic Pregnancy, Surg., Gynec. & Obst. **36**: 232 (Feb.) 1923.

[3] Erdman, S.: Inguinal Hernia in the Male, Ann. Surg. **77**: 171 (Feb.) 1923.

[4] Bancroft, F. W.: The Fate of Necrosed Bone in Chronic Osteomyelitis, Tr. Sect. Surg., General and Abdominal, A. M. A., 1922, p. 154.

[5] Pool, E. H., and Dineen, P. A.: Late Results of Gastro-Enterostomy for Gastric and Duodenal Ulcers, Including Acute Perforated Ulcers, Ann. Surg. **76**: 457 (Oct.) 1922.

Many important features, such as record system and dispensary, have not been discussed, since they pertain to hospital management rather than to the management of a surgical service. Yet the importance of close cooperation between the outpatient department and the wards must be emphasized, for the dispensary both feeds and drains the wards.

Pathology being the basis of surgery, regular conferences must be held to stimulate and instruct. Moreover, they act as a close bond of union between the clinical and laboratory units. An exchange of ideas and knowledge results, not merely the usual exchange of a bit of tissue for a paper slip. It may appear incongruous for the mature surgeon to sit in with his young staff and be instructed on gross specimens by a youthful pathologist and to observe under the microscope sections of syncytioma, chordoma, myeloma, adamantinoma or the nodes of Hodgkin's disease. But if that surgeon does not know these pictures, he is not too old, if working, to learn them; if he does know them, that fact will be a stimulus to his younger colleagues.

It is surprising that the managers of hospitals have not shown more interest in, or even knowledge of, such contemporaneous efforts to promote professional economy and efficiency. These matters are of interest not only to the patient, surgeon and science, but also to the institution. Yet governors or trustees are, for the most part, ignorant of the fact that efforts of the sort described are being made. The reason is that the average professional and lay boards are separated by an impassable quasisocial barrier which precludes a free exchange of ideas and cooperative efforts. When this barrier is removed, and this can be done only through the initiative of the lay board, conditions in a hospital are more progressive, harmonious and effective because all shoulders are impelled to push the wheels in the same direction and in cooperation.

CONCLUSION

It should be emphasized that in any effort toward systematization, the physical mechanism and duties alone must be regulated, not the spirit and thought. A routine, inelastic mode of treatment, an inhuman, mechanical attitude toward the patients especially should be avoided. Developments or changes should be in the nature of an evolution, being incorporated as far as possible with existing customs; the disturbing upheavals of revolutionary methods should rarely, if ever, be employed.

107 East Sixtieth Street.

The Antiquity of Disease.—Pathologic conditions among fossil animals are known as far back in geological time as the early Paleozoic; hence it may be proper to state on the basis of our present knowledge that disease began among both plants and animals at this time. One of the oldest known evidences of pathologic conditions among fossil animals is found in the enlarged stems of fossil crinoids, which have been known for many years. They were described by Robert Etheridge, from the Carboniferous of Scotland. Five years later a correct interpretation of these deformities was given by L. von Graff. He showed, on the basis of similar enlargements among recent crinoid stems, that these enlargements were due to the parasitic action of myzostomids. Graff supported his interpretation by describing the carbonized remains of some worm to which the tumor was due, preserved in a channel of one of the fossil lesions.—Moodie: The Antiquity of Disease, University of Chicago Press, 1923.

ROENTGENOGRAMS OF THE FETAL SKELETON AS A POSITIVE SIGN OF PREGNANCY *

IRVING F. STEIN, M.D.
and
ROBERT A. ARENS, M.D.
Associate Attending Gynecologist and Obstetrician, and Roentgenologist, Respectively, Michael Reese Hospital
CHICAGO

The positive signs of pregnancy are those objective signs referable to the fetus appearing after the quickening, any one of which can definitely establish the diagnosis of pregnancy. They become positive only when elicited by the examining physician, to wit: (1) the fetal heart tones, heard by the physician; (2) fetal movement, felt by the physician, and (3) fetal parts palpated and differentiated by the physician. Some of the recent textbooks, such as that of De Lee, mention roentgen-ray examination of the fetal skeleton in the last trimester as an additional sign, but place very little emphasis on its value or range of usefulness. A final sign, the presence of chorionic villi in uterine scrapings, is also a positive sign, but obviously does not concern us in this presentation.

Granted that the fetal roentgenogram is a positive sign, what is its practical value? Several articles have appeared on this subject within the last few years, but we find that the latest works on the roentgen ray are still skeptical as to the possibility of clear fetal shadow; for instance, Tousey[1] says: "The fetal head shows well when it occupies the lowest part of the uterus, . . . but when it occupies the fundus, the surrounding fluid produces so much dispersion as to make radiography unsatisfactory. The fetal bones are small and almost cartilaginous, so that it is difficult to distinguish them in a radiograph before birth." We held a somewhat similar view until about a year ago, when by reason of two generous grants we were able to begin a systematic investigation in this subject. We are now able to show the whole fetus on the film, even to the extent of hands, feet, orbits, sphenoid sinus and sella turcica, under favorable conditions. The hands and feet of the fetus are clearly visible in some of our films at about six months.

We feel that in the last trimester the fetus can quite regularly be clearly demonstrated so as to be helpful, convincing, corroborative, and even solely diagnostic in puzzling and atypical circumstances which present themselves to the obstetrician. The following cases are illustrative:

Case 1.—A girl, aged 15, was recently brought to the office of one of our surgeons for diagnosis. He suspected from the symptoms that she was pregnant, and examination of the abdomen revealed a symmetrical tumor reaching as high as the umbilicus. Both the girl and her mother stubbornly denied the possibility of pregnancy, and the latter, incensed at such an insinuation on the part of the physician, threatened to bring suit against him for defamation of character. The doctor referred the girl to us for a roentgen-ray examination, and when the full fetal skeleton on the film was shown to the girl's mother, her wrath cooled, and she made the necessary provision for her daughter's confinement.

When an attempt is made to conceal pregnancy, wilful or otherwise, the roentgen ray supersedes all other positive signs, and is convincing beyond further question.

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* From the Adolf Stein Memorial for Research in Roentgenology. This work was supported by a grant from the Otto Baer Fund for Clinical Research.

[1] Tousey: Medical Electricity and Roentgen Rays, Philadelphia, W. B. Saunders Company, 1921, p. 1067.

Case 2.—A few months ago, a woman, aged 21, who said that she was in the last month of her pregnancy, consulted us because she menstruated through her pregnancy. She felt fetal motion, and the physician who had cared for her told her that he had heard heart tones (?) for the last two months. She gained 50 pounds (23 kg.) in seven months. Examination disclosed an obese young woman with a normal, nongravid uterus, and no signs of pregnancy. It was clearly a case of pseudocyesis, but this patient was not to be convinced by a statement from us after a single examination, when on repeated examinations by her physician she had been assured that she was pregnant. A roentgenogram, however, soon convinced her by its total negative result that she might cancel her hospital reservation and indefinitely postpone engaging her nurse. On a regimen of diet and exercise she rapidly lost her excess adiposity.

Case 3, reported to the Chicago Gynecological Society in January, 1923, demonstrates the corroborative value of roentgenograms in pregnancy.

Case 3.—Mrs. M. G., a primipara, aged 19, entered the Michael Reese Hospital, Dec. 30, 1922, in her thirty-sixth week because of rupture of the membranes. She was kept quietly in bed under observation. A roentgenogram on admission clearly showed a well flexed fetus in right occipito-anterior presentation, with the head floating. Liquor continued to escape freely for the next few days, and the uterine tumor shrank considerably. January 3, the fourth day after the rupture of the membranes, the patient said that the baby was unusually active and that she was having regular contractions about every ten to twelve minutes. External examination now revealed a hard, round, ballotable body in the right fundus, and a breech presentation was diagnosed. A second roentgenogram showing a breech presentation corroborated the diagnosis of spontaneous podalic version. She was delivered the same night, there being a double footling presentation, and practically no liquor accompanying the birth.

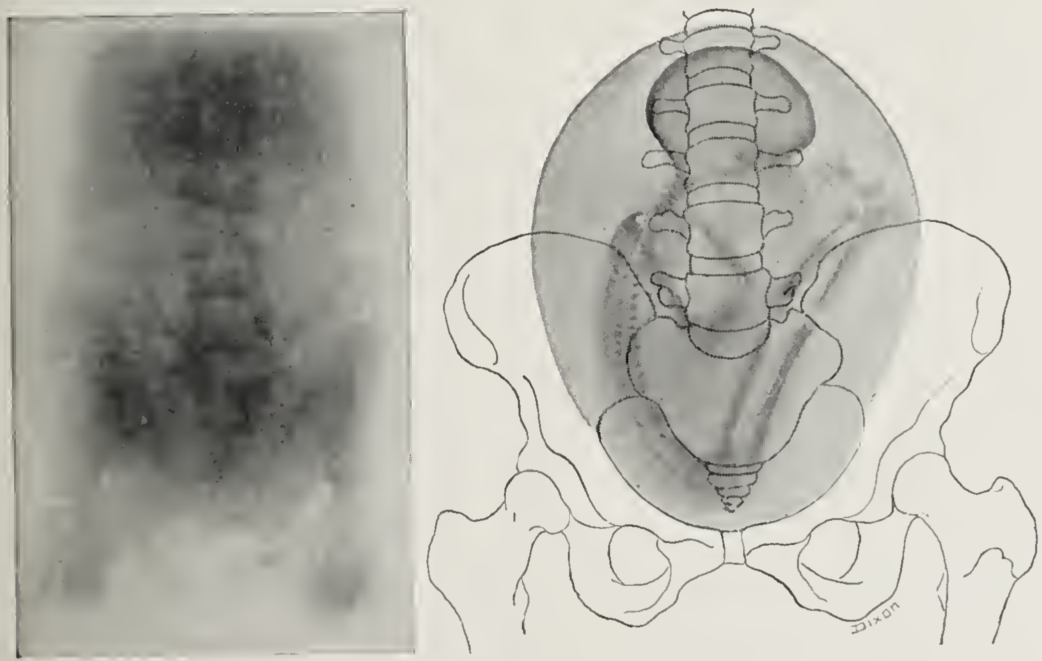

Fig. 1.—At left, roentgenographic appearance in single breech presentation at seven months, from reduced print of film, not retouched; at right, wash drawing from original film.

It is almost incredible that in a primipara the fetus will change from the normal cephalic to a breech presentation three days after rupture of the membranes and in the first stage of labor. This change of polarity can only be attributed to fetal movement, for gravity certainly played no part, as the patient was quiet in bed, and adaptation would favor the original relationship. To report such an observation would be folly without the roentgen-ray corroboration. As verified by the roentgenograms, this case report is unique.

In the checking up of deflexion attitudes and suspected transverse, breech and oblique presentations, and for verifying occiput posterior positions, not always easily recognized clinically, judging from the numerous surprises encountered in the maternity from this dreaded position, the roentgen ray is of great value.

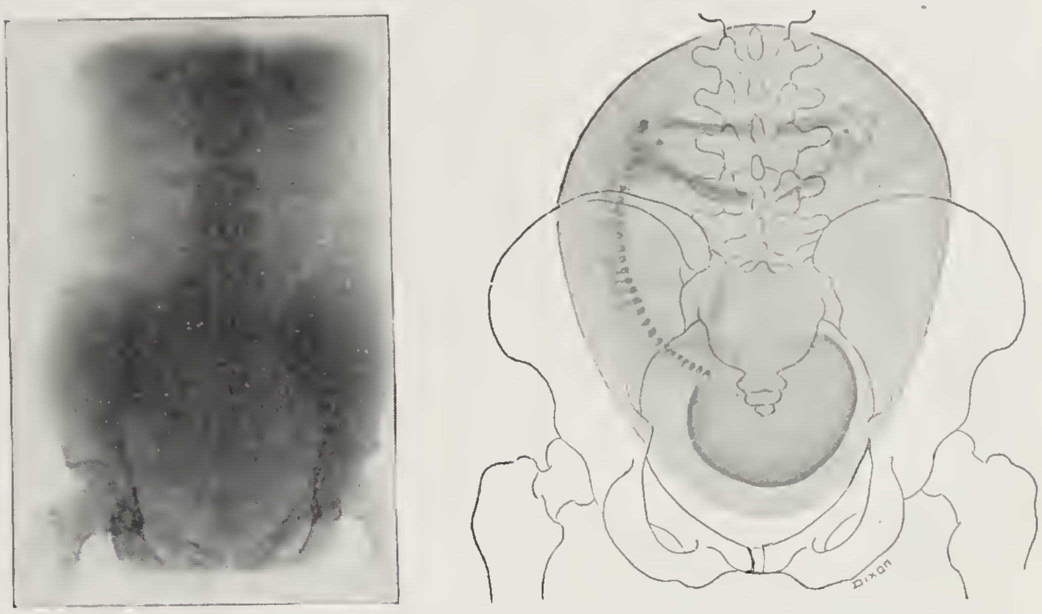

Fig. 2.—At left, appearance in cephalic presentation, at six months from reduced print, not retouched; at right, wash drawing made from the film.

In breech presentation the complete is readily differentiated from the incomplete varieties, Figure 1 clearly showing a single breech. Stereoscopic films of pregnancy at term show not only the relation between the fetal head and the bony inlet, but also bony anomalies, and give a birds-eye view of the bony birth canal.

PSEUDO-STEREO GLASS

An aid in the study of roentgenograms is the ordinary reducing glass, or biconcave lens. In utilizing the glass for condensing small, vague, fetal bony shadows, we observe that the image stood out with increased clarity. It acquires depth and perspective as do films in the stereo shadowbox. A roentgenogram of the bony pelvis viewed through the reducing glass appears like a stereoroentgenogram, and the whole fetus seems to stand out as though mounted in glass. In visualizing the bony pelvis and in differentiating various positions of the fetus, the lens has proved most useful to us. We urge the utilization of the biconcave lens in the study of skull, chest, abdominal and pneumoperitoneum films, as well as those in pregnancy. Although the effect is pseudostereoscopic, it does not detract from its value in studying single films and plates.

We wish to sound a note of warning concerning the interpretation of the size and age of the fetus from the shadow cast on the film. The unstable positions of the fetus, and the distance of the parts from the film, produce shadows of different size and intensity. Figures 3 and 4 illustrate the difference produced in a full term fetus with the patient in the prone and the dorsal postures. In the case of a primiparous breech presentation we were confused by the roentgenogram to the extent of making preparations for craniotomy on the after-coming head. We were sure we were dealing with a hydrocephalus. Both dorsal and lateral views showed a skull enlarged out of all proportion to the rest of the fetus. A normal baby was readily delivered some hours later, with only the usual difficulty with the after-coming head. The fetal posture was responsible for the aberation.

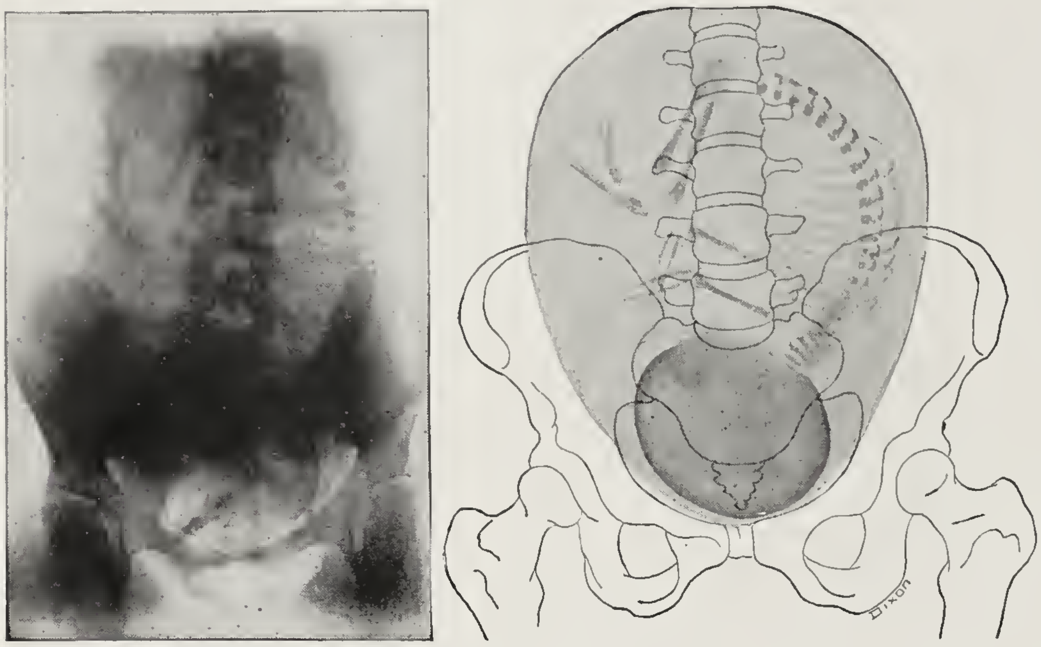
Fig. 3.—Appearance in normal cephalic presentation, full term, with subject in prone position.

At six months we can almost invariably demonstrate a clear fetal shadow (Fig. 2) when the differential diagnosis between pregnancy and fibroids, ovarian cyst, obesity, ascites, pseudocyesis and menopause can be made with certainty. From six months to term our results are now constantly satisfactory. The most gratifying results in our series, however, were when the patient presented a tense abdomen with the fundus reaching higher than the estimated month of pregnancy would warrant, and in whom abdominal palpation gave little or no information as to the uterine content. In several of these we demonstrated twins by the roentgen ray (Fig. 5). The presence of hydramnios, which is usually associated, is liable to interfere with a clear fetal shadow. A change in the posture of the patient, however, will aid in clearing the situation. For instance, in the dorsal posture one head may be seen in the inlet of the pelvis, and the other so distorted and diffused as to be obliterated on the film. A second, lateral view may show the other head in the uterine fundus. The differential diagnosis between twins, monstrosity and hydramnios with a normal fetus can usually be made. No monstrosities were seen in our series of more than 400 cases, but Case [2] demonstrated the possibility of recognizing anencephaly by roentgen ray in 1916. Triplets were demonstrated on the roentgenogram by Möller [3] in 1920. Peterson [4] recently reported the verification of a full term abdominal pregnancy by the roentgen ray.

In his report of 250 cases in which the roentgen ray was employed in pregnancy at the Chicago Lying-In Hospital, Horner [5] stated that his youngest fetus was one of five months. He felt satisfied that the fetus could not be demonstrated before quickening. In the discussion of his paper before the Chicago Gynecological Society, we demonstrated the roentgenogram of a dead fetus in utero estimated to be one of from four to four and a half months. Quickening had not been experienced by the mother, and repeated examinations by us while the patient was in the hospital under observation failed to reveal signs of life. Until recently, this was the youngest fetus demonstrated in our series.

A patient was referred to us, April 6, 1923, from the gynecologic dispensary with the diagnosis of suspected ectopic pregnancy. She gave a history of irregular bleeding with the last regular period, January 5. In the last week of January she complained of the subjective symptoms of early pregnancy. April 4, the patient spotted and complained of sharp pain in the left pelvis.

Our examination the following day revealed a uterus enlarged to about the size of a three months' pregnancy, with tenderness to the left but no adnexal mass palpable. To rule out the possibility of an ectopic pregnancy, a transabdominal pneumoperitoneum was done by the Peterson technic, a liter of carbon dioxid being introduced. The roentgenogram revealed a definite intra-uterine fetus (Fig. 6), which we demonstrated to the Rock Island (Ill.) County Medical Society, April 10. One can readily distinguish above the uterine isthmus shadow the fetal head with the face in profile and an arm raised above the head, the humerus, radius and ulna appearing very distinct. The orbit, maxilla and mandible are visible, and, just below the face, several ribs which appear like fish bones. A considerable number of the spinal vertebrae are visible, and the pelvic girdle faintly so. One femur is distinct in flexion.

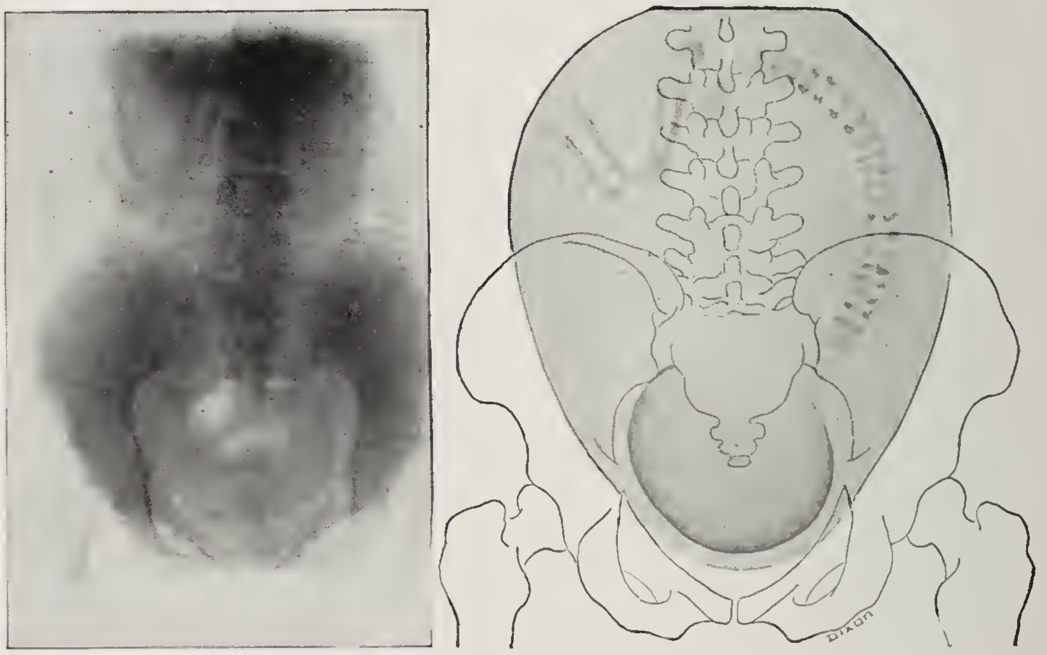
Fig. 4.—Appearance in normal cephalic presentation, full term, with subject in dorsal position.

The exact age of this fetus cannot be determined at this writing, but will be checked back when the patient delivers. The roentgenogram was taken three weeks before fetal movement was demonstrated, and about the same time before quickening occurred. We believe that this fetus was between three and four months, probably of about fourteen weeks' gestation. Hess'[6] description of the osseous development of from thirteen to sixteen weeks corresponds to our case.

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[2] Case, J. T.: Surg., Gynec. & Obst. **24**: 312 (March) 1917.

[3] Möller, E. E.: Gynéc. et obst. **2**: 145 (Sept.) 1920.

[4] Peterson: Personal communication to the authors.

[5] Horner, D. A.: Surg., Gynec. & Obst. **35**: 67 (July) 1922.

The uterus in early pregnancy can be demonstrated by pneumoperitoneum and is quite typical of gestation;[7] but only when the fetal skeleton can be demonstrated on the film does the roentgenogram become a positive sign of pregnancy.

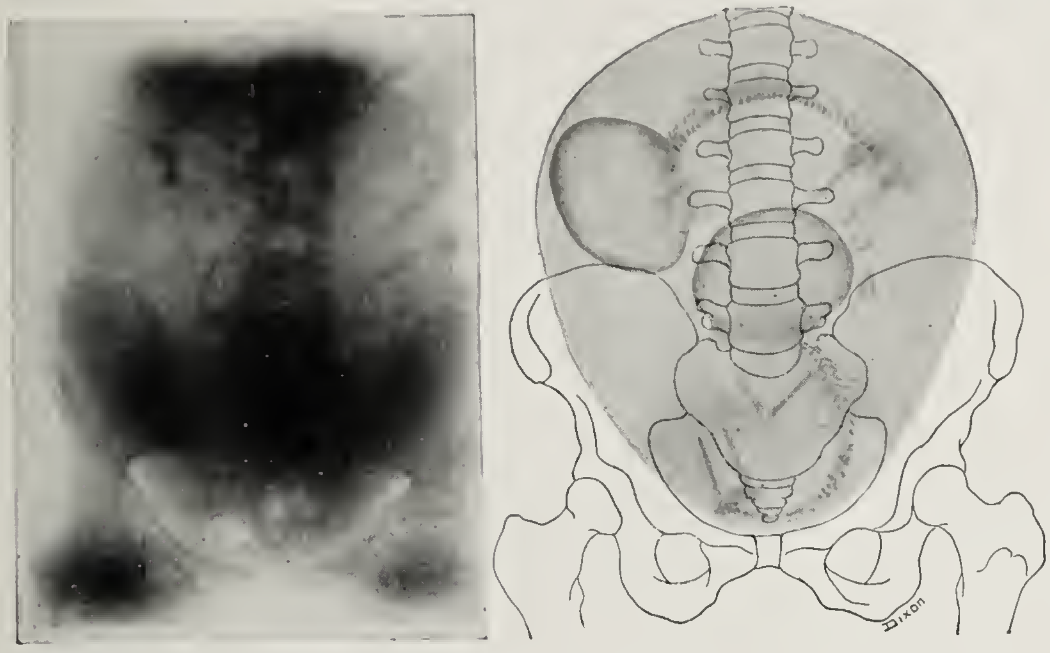

Fig. 5.—Twins, eight months, transverse over breech: at left, from reduced print, not retouched; at right, wash drawing made from film.

According to Edling,[8] early in the third month it is possible to obtain good roentgenograms of the fetus. Edling's short article is not illustrated, nor does he describe such early fetuses. Kuegle[9] reported that he had demonstrated a three months fetus by the roentgen ray, and he was of the opinion that no difficulty should be encountered in showing the three months fetus in a high percentage of cases. His article was illustrated, but nothing could be seen in the reproduction of his film. He said: "The two femora are clearly shown, as are also *the umbilical cord and the placental attachment*" (italics ours). We believe that this requires no comment. With a painstaking technic we have been unable to demonstrate the fetus with regularity before five months. In only three cases of more than 400 do we feel sure of a fetus before quickening. However, in these three we have demonstrated the one positive sign of pregnancy obtainable before quickening.

The technic of obtaining satisfactory fetal roentgenograms so that one can be assured of a high percentage of satisfactory exposures was a difficult problem to work out, not only on account of the inherent difficulties of exposures due to inability of the patient to cooperate and the thickness of the parts to be roentgenographed, but also on account of the varied and numerous positions of the fetus in the uterus. Taking up these difficulties in the order mentioned, we must consider first the inability of the patient to cooperate. It is well known that immobilization of the diaphragm by suspending respiration is of the utmost importance, since diaphragmatic excursion imparts motion to practically all of the abdominal contents. It is surprising how many women are absolutely unable, or do not understand how, to hold their breath. This difficulty is increased by an additional respiratory embarrassment due to a pregnant uterus, becoming more so as the patient approaches full term, when a condition of mild asphyxia is often present. Every patient should be taught before an exposure is made just how to hold her breath. Unless the patient cooperates, it is useless to proceed. Once this has been accomplished, the only other interference will be that of fetal movement. This factor offers a real difficulty, and often prevents a satisfactory result. The difficulties of obtaining a satisfactory roentgenogram of any anatomic structure increases progressively with the thickness of the part. The average pelvis, as measured anteroposteriorly, measures from 18 to 25 cm. In the later months of pregnancy, this anteroposterior dimension increases to 40 or 45 cm. Added to this, the thickness of the uterine wall, and the large amount of amniotic fluid present, which in itself offers a tremendous resistance to the ray, plus the production of a large number of secondary radiations, increase the difficulty of properly exposing films.

If the position of the fetus were the same in every instance, it would be a simple matter to roentgenograph every patient from the same angle. This, however, is not the case, and one must consider the tremendous distortion produced in fetal shadows cast on the film of whatever part happens to be farthest away from the film surface. If all the structures lie in a plane, or very nearly so, parallel to the surface of the film, then one exposure in this position should bring out all the parts with uniform sharpness. The fact is, however, that not all the fetal parts are in a plane parallel to the film. For instance, the head with the patient prone may be 10 or more centimeters closer to the plate than the fetal pelvis. In this case, the head would be sharply defined, whereas the fetal pelvis may not show on account of its distance from the film and its subsequent distortion and diffusion. This distortion may be so great that if only one position were used constantly it would be possible to overlook twins. It has been our

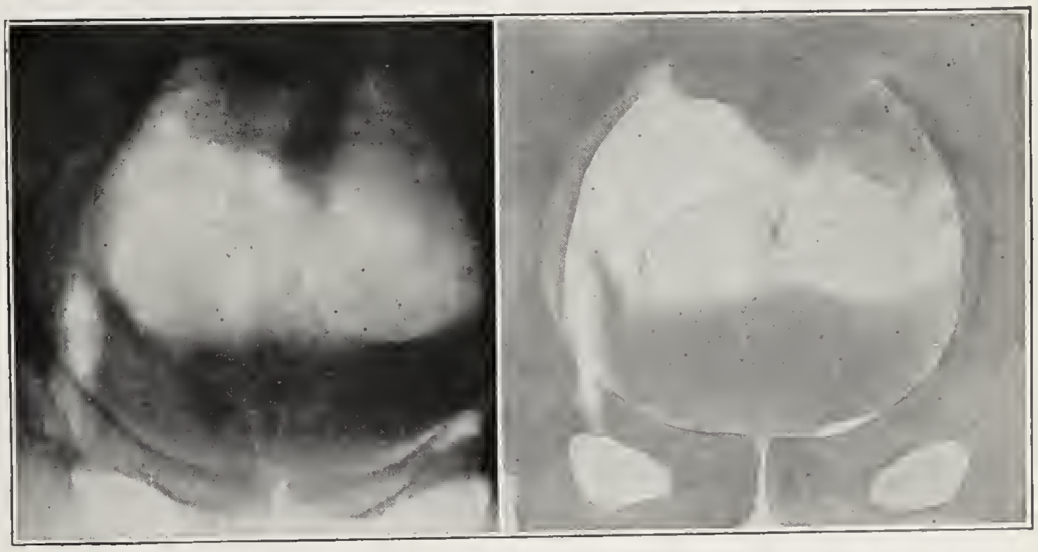

Fig. 6.—Fetus three weeks before quickening; pneumoperitoneum: at left, direct print from film; at right, wash drawing of shadow on film.

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[6] Hess, J. H.: Ill. M. J. 33: 73 (Feb.) 1918.

[7] Peterson, Reuben: Value of Pneumoperitoneal Roentgenography in Obstetrics and Gynecology, J. A. M. A. 78: 397 (Feb. 11) 1922.

[8] Edling, Lars: München. med. Wchnschr. 58: 567, 1911.

[9] Kuegle, F. H.: J. Radiol. 2: 16 (March) 1921.

practice, therefore, to roentgenograph every patient in both the dorsal and the prone position, and often in the right and left lateral positions as well. In many cases, only by a careful analysis of these four positions were we able to come to a definite conclusion.

The technic that was finally evolved was worked out on the basis of exposure, depending on the thickness of the maternal abdomen, each patient being measured beforehand, and the technic as outlined in the accompanying table followed. In every case the Buckey diaphragm was used, as well as double intensifying screens with duplitized films.

Technic

Milliamperes	Voltage Between Point Gaps	Time, Seconds	Plate Target Distance Inches	Thickness of Part Inches
WITH EASTMAN DUPLITIZED FILMS				
20	7	8	28	10
20	7½	8	28	11
20	7½	10	28	12
20	8	10	28	13
20	8½	10	26	14
20	8½	11	25	15
20	8½	12	25	16
WITH AGFA DUPLITIZED FILMS				
20	5	8	28	10
20	5½	8	28	11
20	6	8	28	12
20	6½	9	28	13
20	7	9	28	14
20	7½	10	28	15
20	8	10	28	16
20	8½	10	28	16½

CONCLUSIONS

1. In the second half of pregnancy, fetal roentgenograms are of definite confirmative value:

(*a*) In recognizing clinically obscure presentations and positions, the roentgenogram clinches the diagnosis.

(*b*) In differential diagnosis between pregnancy and other abdominal enlargements, the roentgen-ray evidence is the deciding factor.

2. By pneumoperitoneum, the gravid uterus can be quite typically shown on the film in the early months of pregnancy. This may be considered a probable sign. Its value in differential diagnosis is obvious.

3. The demonstration of the fetal skeleton by the roentgen ray is the only positive sign of pregnancy possibly obtainable before quickening.

Radiant Energy Within the Body.—In estimating the effects of radiant energy in our cells and tissues, we usually leave out of consideration the presence of a considerable source of it within the body. Lazarus-Barlow found in certain individuals the presence of radiant energy which may be attributed to the taking up of radium emanation. He used the emanation electroscope for its determination and he found this substance especially in the tissues of persons affected by cancer; usually, but not in every case, the cancerous tissue itself was found to be more radioactive than the normal tissues of the same individual. This radioactivity may communicate itself even to gallstones situated in a cancerous gallbladder, while stones found in noncancerous gallbladders are not radioactive. It is difficult at present to interpret these findings; it may be that cancerous tissue of a certain kind is especially liable to retain the emanation. We may also have to reckon with the somewhat more remote possibility that in persons in whom radium emanation is retained in larger quantity, the factors which tend to produce cancer find a more responsive substratum on account of the presence of the radioactive substance. Nothing has to our knowledge been published as to the finding of such a radioactive substance in animal cancers and especially in transplanted tumors.—Leo Loeb: *J. Cancer Res.* 7:229 (Oct.) 1922.

INFLAMMATION OF THE DEEP CALCANEAL BURSA

ARTHUR E. HERTZLER, M.D.
HALSTEAD, KAN.

The name deep calcaneal bursa is selected in order to distinguish the bursa here described from the subcutaneous calcaneal bursa, and yet show the relation of the two bursae to each other.

While dissecting some knees under the supervision of Prof. Hans Virchow, more than twenty years ago, he demonstrated to me the trick of finding inconstant bursae. While dissecting a foot, I found a bursa not described in the anatomies. It lay between the flexor group of muscles of the foot and the long plantar ligament. Subsequent study showed it to be inconstant; in just what proportion of feet it occurs, I cannot say.

This bursa lies under the beginning portion of the abductor hallucis muscle, extending laterally to the point of origin of the flexor brevis digitorum. Beneath it lies the sheath of the tibialis posticus. The flexor hallucis longus and the flexor longus digitorum lie lateral to it. The bursa is separated by these tendons from the long plantar ligament. The bursa is best exposed in the dissecting room by severing transversely the abductor hallucis 2 cm. from its origin. If one carefully raises the severed ends (Fig. 1 *a*, *b*), a bursa may be found. It is usually 1 cm. broad and half again as long (Fig. 1 *c*). Its relation to the os calcis is shown by exposing the bursa and placing a bullet in the cavity and then making a roentgenogram of the foot (Fig. 2). From this it will readily be noted that the sustentaculum tali forms a convenient bony landmark.

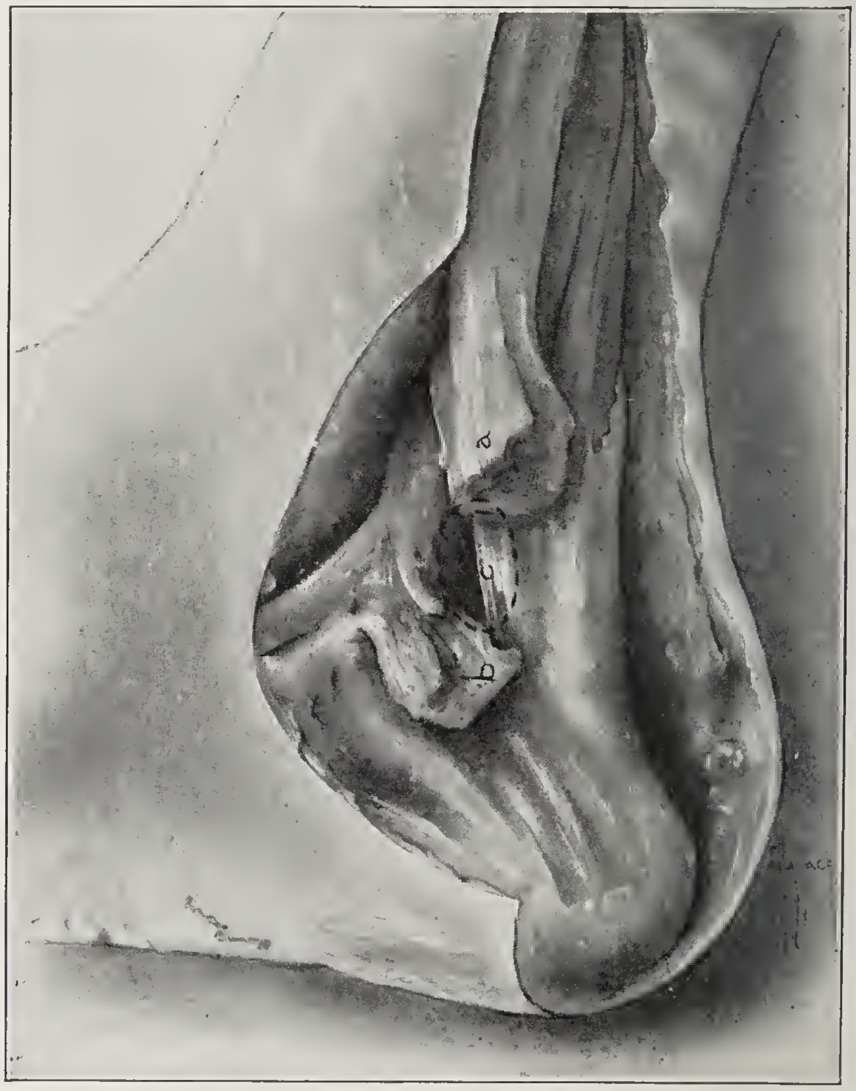

Fig. 1.—Dissection exposing bursa: *a*, *b*, severed ends of the abductor hallucis muscle elevated to show the situation of the bursa, *c*.

At the time these observations were made, they were regarded as merely of anatomic interest. Some years ago, however, I was consulted by a patient with pain and tenderness in the region in which I had previously observed the bursa. The intense character of the pain and the tenderness to deep pressure caused me to suspect that this bursa was at fault. In harmony with this theory, I made an incision into this area and exposed a bursa of the size indicated above. The bursa was curetted with a mastoid curet and drained with a gauze wick, the tip of which was moistened with compound tincture of iodin. Recovery was complete, and she has remained free from pain to date.

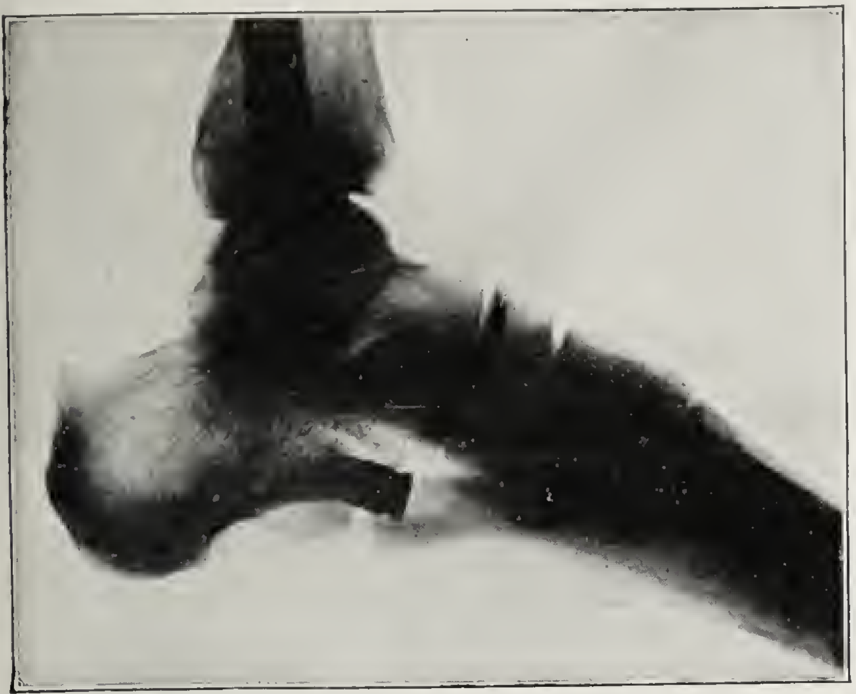

Fig. 2.—A 0.38-caliber bullet was placed in the bursa, after dissection as in Figure 1, and the foot then exposed to the roentgen ray. The bullet lies just below and in front of the sustentaculum tali.

Clinically, the disease is characterized by tenderness in the front part of the heel just in front of the attachment of the flexor group of muscles previously noted, and lateral to the sustentaculum tali. The patients do not indicate the exact point in giving the account of their complaint, and they know of no posture that affords relief. It is the pronounced pain on deep pressure over the site of the bursa that is characteristic. There are no other points of tenderness, and the usual signs and symptoms of flatfoot are absent. A number of my patients had been treated by orthopedists under this diagnosis, with merely an increase in the symptoms.

TREATMENT

A line of skin 5 cm. long below the lower margin of the sustentaculum tali anterior to the spine is infiltrated. From this line, the deeper tissues are infiltrated by passing the needle over the long plantar ligament about the tendons of the muscles previously mentioned and into and about the heads of the short flexors. An incision is then made along the line of skin infiltration extending through the skin and fascia just below and in front of the sustentaculum tali.

An elevator is then passed between the sheath of the tendon of the tibialis posticus tendon and the overlying soft parts. The bursa should be reached at a depth of from 3 to 5 cm. Sometimes the bursa cannot be identified because of the presence of the anesthetic fluid in the tissues. Usually, however, the cavity can be discovered easily with the elevator. The site of the bursa is vigorously curetted, even if no definite sac is made out. A small gauze drain is then passed into this area and allowed to remain three or four days. This is for the purpose of continuing the irritation produced by the curet. I formerly used an iodin pack, but so much irritation has been found to be unnecessary.

The treatment has been uniformly successful. The first patient was operated on eighteen years ago, and has remained free from trouble since. A number of others have remained well for more than ten years. Of the twenty or more patients on whom I have operated, not one, to my knowledge, has had a recurrence.

HEREDITARY CLEIDOCRANIAL DYSOSTOSIS

I. J. McCURDY, M.D.
AND
R. W. BAER, M.D.
FREDERICK, MD.

The rare syndrome of hereditary cleidocranial dysostosis is characterized by defective ossification of the clavicles and the membranous bones of the cranium. The first case was reported by Morand, in 1766, and the second by Barlow,[1] in 1883. It was not until 1898, however, that the affection was brought into prominence by Marie and Sainton,[2] who described the condition under the name of hereditary cleidocranial dysostosis. In 1905, Villaret and Francoz[3] reported an instance of a woman and her three children who were all affected, and compiled forty-one additional cases from the literature. Fitzwilliams,[4] in 1910, observed two cases, and compiled and analyzed fifty-eight others. Langmead,[5] in 1916, reported the occurrence of eighteen cases in four generations, and observed seven of them.

In the family forming the basis of this communication, nine cases have occurred in three generations. Five of these subjects have been observed by us: a father and four daughters. In the father's generation, ten children died and no data concerning them was obtainable. It is probable that some of them were affected. The tenth case was seen by one of us at Bay View Hospital, Baltimore.

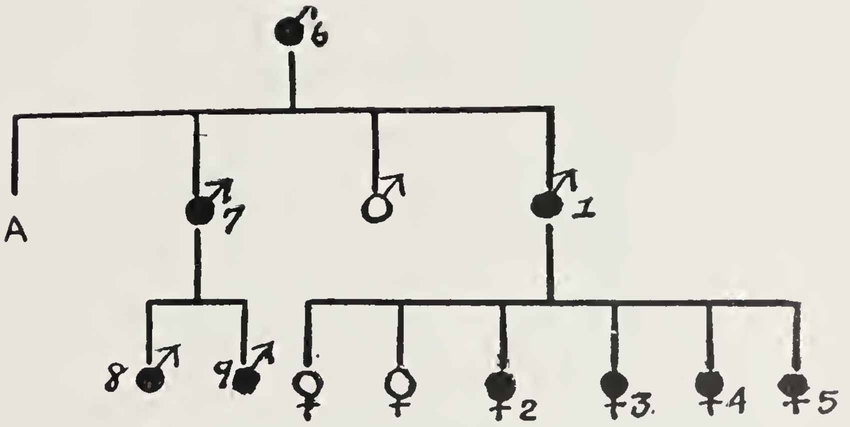

Fig. 1.—Pedigree of family showing hereditary cleidocranial dysostosis: dark symbols, affected members; *A*, ten dead; particulars not known.

REPORT OF CASES

Case 1.—W. M., a man, aged 58, height 5 feet 6 inches (167 cm.) and weight, 145 pounds (66 kg.), had a large head, of the brachycephalic type, measuring 56 cm. in cir-

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1. Barlow, T.: Brit. M. J. **1**: 909, 1883.
2. Marie and Sainton: Sur la dysostose cleido-cranienne héréditaire, Rev. neurol. **6**: 835-867, 1898.
3. Villaret and Francoz: Nouvelle iconographie de la Saltpêtrière **18**: 302, 1905.
4. Fitzwilliams Hereditary Cleidocranial Dysostosis, Lancet **2**: 1466, 1910.
5. Langmead: Proc. Roy. Soc. Med., 1916, Dis. Child., p. 1.

cumference. The fronto-occipital and biparietal diameters were 20 and 16.3 cm., respectively. The sutures and fontanels were closed. There were six prominent bosses on the head, three on each side arranged in pairs, corresponding to the frontal, parietal and occipital bones. Longitudinally, the three pairs of bosses were separated by a wide median sulcus, which was more marked between the frontal bones, and gradually decreased both in width and in depth as it proceeded backward. Two lesser sulci separated the bosses transversely, corresponding to the coronal and lambdoidal sutures. The brow was overhanging, the facial bones were small, and the jaw was prognathous. Dentition was late and irregular. The second teeth did not appear until puberty, and decayed early.

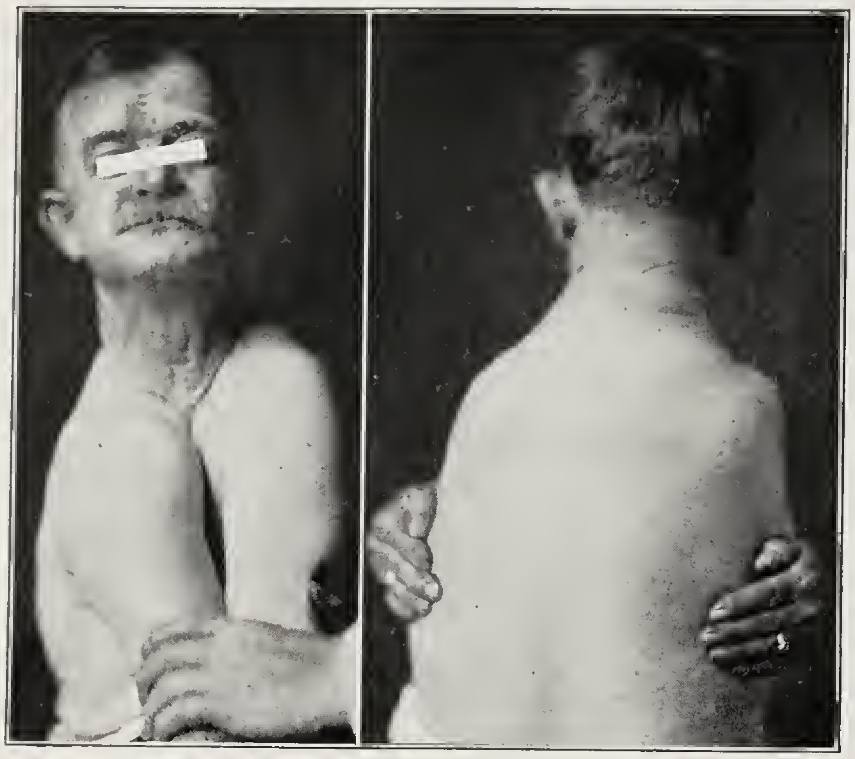

Fig. 2 (Case 1).—Appearance of patient: To be noted are the frontal bosses, median sulcus, overhanging brow, sunken bridge of nose and prognathous jaw.

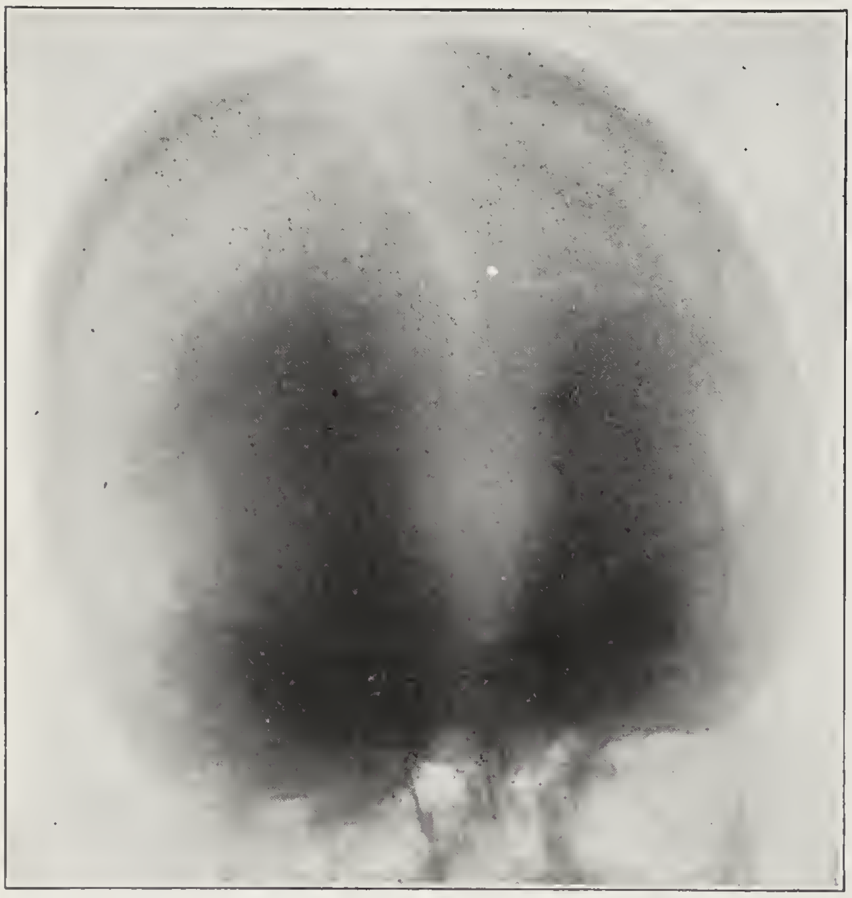

Fig. 3 (Case 2).—Patent sutures and anterior and posterior fontanels.

The patient's shoulder and neck muscles were exceptionally well developed, no gross anomalies appearing. The shoulders were very slanting, and their position was that assumed in bilateral clavicular fracture. The upper part of the chest was much more conical than normal. A roentgenogram showed the first five ribs to be depressed. The acromial half of the left clavicle was absent; the sternal half was present and well developed. Ligamentous tissue joined the clavicle to the acromion. The middle third of the right clavicle was absent; both the sternal and acromial thirds were rudimentary, the former being represented by a spur of bone 3 cm. in length. The clavicular fragments were joined by ligamentous tissue.

Case 2.—V. M., a girl, aged 16 years, height 4 feet 10 inches (147 cm.) and weight 88 pounds (40 kg.), had a head of the brachycephalic type. The circumference was 54 cm., the fronto-occipital diameter was 19.3 cm., and the biparietal diameter was 16.3 cm. The sagittal suture and both the posterior and anterior fontanels were patent. The posterior fontanel measured 2 cm. in width and 3 cm. in length; the anterior measured 3 cm. in width and 5 cm. in length. The sagittal suture measured 1 cm. in width between the frontal bosses. The six bosses were very prominent, and the sulci separating them were wide and deep. The bridge of the nose was depressed, the facial bones were small, and the lower jaw protruded. Dentition was late and irregular. The first teeth were retained until puberty. The second teeth were good, and the roof of the mouth was normal.

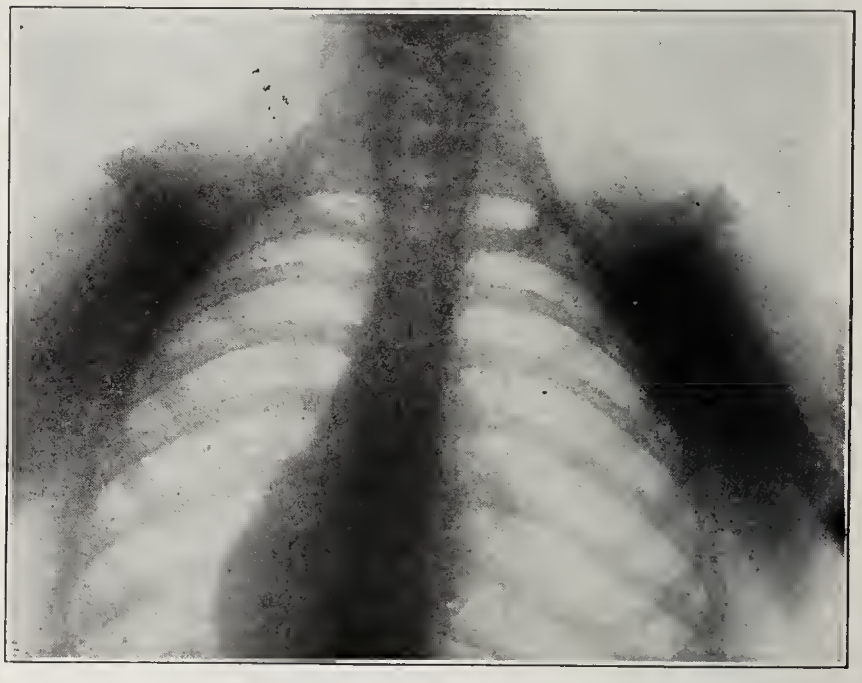

Fig. 4 (Case 2).—Acromial halves of both clavicles missing.

The musculature of the neck and shoulder girdle was well developed, no abnormalities appearing. The acromial halves of both clavicles were missing. The sternal halves were present and well developed. Ligamentous tissue extended outward from the clavicular ends toward the acromion.

Case 3.—R. M., a girl, aged 13 years, height 4 feet 8 inches (142 cm.) and weight 75 pounds (34 kg.), had a head of normal size. The circumference was 52 cm., the fronto-occipital diameter was 18.7 cm., and the biparietal diameter was 15 cm. The anterior fontanel and sutures were closed. The posterior fontanel was patent, measuring 2 cm. in length and 1 cm. in width. The occipital bosses were very large. The frontal and parietal bosses were absent. The bridge of the nose was sunken, and the lower jaw prominent. Dentition was late and irregular. The patient retained all of her first teeth. The roof of the mouth was abnormally arched.

The outer fourth of the left clavicle was missing. On the right, nearly all of the clavicle was absent; the middle third was rudimentary, and was represented by two small pieces of bone. A roentgenogram showed the upper right chest to be more conical than the left. The little fingers were very short.

Case 4.—M. M., a girl, aged 5 years, height 2 feet 10½ inches (87.6 cm.) and weight 27 pounds (12 kg.), had a large and decidedly brachycephalic head. The circumference was 51 cm., the fronto-occipital diameter was 16.9 cm., and the biparietal diameter was 14.4 cm. The sagittal suture and both fontanels were patent. The anterior fontanel measured 6 by 5 cm., and the posterior 1 by 1 cm. The six cranial bosses were very prominent, especially the parietals. The facial bones were small and poorly developed. The roof of the mouth was normal. Dentition was late and irregular. The patient was poorly nourished and small for her age. The outer third of the left clavicle was absent. The right clavicle was represented by rudimentary sternal and middle portions.

Case 5.—M., a girl, aged 2 years 6 months, height 2 feet 7 inches (79 cm.) and weight 23 pounds (10.4 kg.) had a brachycephalic head. The circumference was 49 cm., the fronto-occipital diameter was 15.6 cm., and the biparietal diameter was 13.7 cm. The sagittal suture and both fontanels were patent. The sagittal suture measured 1.5 cm. in width between the frontal bones. The anterior fontanel measured 9 by 7 cm., and the posterior 1 by 1 cm. The facial bones were very small. Twelve teeth were present, and the palate was abnormally arched. The acromial third of the left clavicle was absent. On the right, the outer half of the clavicle was absent. The little fingers were short.

We did not see the remaining subjects. The data concerning them were obtained from Patient 1.

Case 6.—A man, who died at the age of 87, whose height was 4 feet 9 inches (145 cm.) and weight 108 pounds (49 kg.), had no clavicles.

Case 7.—A man, aged 65, height 5 feet (152 cm.) and weight 110 pounds (50 kg.), had part of a clavicle on each side.

Case 8.—A man, aged 24, height 5 feet 6 inches (167 cm.) and weight 124 pounds (56 kg.), had part of a clavicle on each side.

Case 9.—A boy, aged 18, height 5 feet (152 cm.) and weight 100 pounds (45 kg.), had part of a clavicle on each side.

Case 10.—W. B., a man, aged 52, negro, height 5 feet 5 inches (165 cm.) and weight 145 pounds (66 kg.), had a head of normal size, but it was brachycephalic in type. The sutures and both fontanels were closed. The cranial bosses were quite marked. The facial bones were small, and the lower jaw was prognathous. The outer halves of both clavicles were absent. A roentgenogram showed the upper ribs to be depressed and the upper part of the chest to be more conical than normal. The patient was mentally defective.

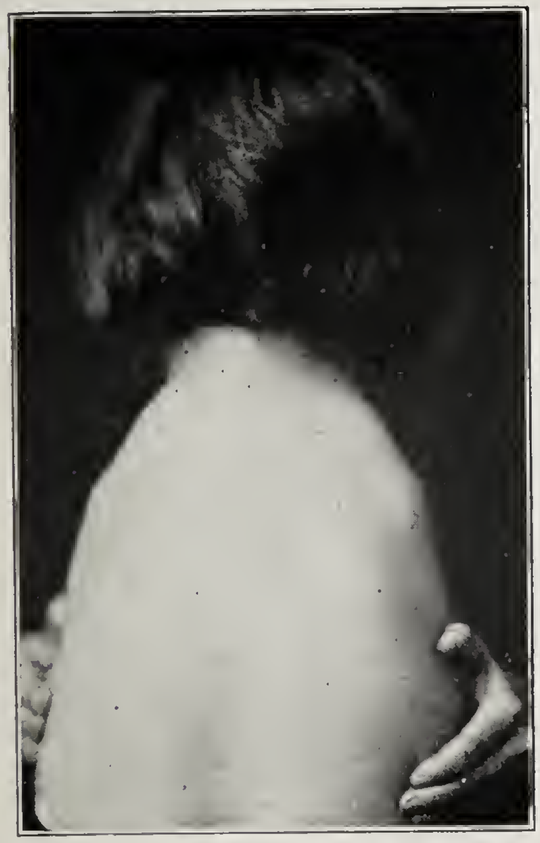
Fig. 5 (Case 2).—View of back.

COMMENT

All of these patients were of small stature. Their heads were relatively large and brachycephalic in type. Closure of the fontanels and sutures was greatly delayed: in one case, at least, until the sixteenth year (Fig. 3). Six more or less prominent cranial bosses were found, corresponding to the frontal, parietal and occipital bones. Sulci corresponding to the cranial sutures separated the bosses. Both the bosses and sulci remained throughout life (Cases 1 and 2). A great number of wormian bones were found along the suture lines (Fig. 3). Roentgenograms showed the sellae turcicae to be normal. The bridge of the nose was sunken and the facial bones were small. The lower jaw was prognathous. Dentition was late and irregular, the first teeth were retained until puberty (Cases 1, 2 and 3). The second dentition was irregular. The palate may be abnormally arched (Cases 3 and 5). The clavicles were defective. The acromial end of the clavicle was usually absent. The remaining portion of the clavicle may be either rudimentary or well developed. The shoulders assumed the position of bilateral clavicular fracture. The upper part of the chest in the older subjects became more conical than normal, and was bilaterally flattened (Cases 1 and 10). This is probably due to the weight of the arms and shoulders pressing on the upper ribs. The general musculature was good. There appeared to be a compensatory development of the neck and shoulder muscles. The patients were not physically incapacitated in any way. Mobility of the shoulders was increased, and they could be forced to meet in the midline under the chin. All of the pateints showed genu valgum. Shortening of the middle phalanges of the toes, mentioned by Jensen, was not present in any. With one exception, they were mentally normal. There were no stigmas of syphilis, and the Wassermann reaction in Case 10 was negative.

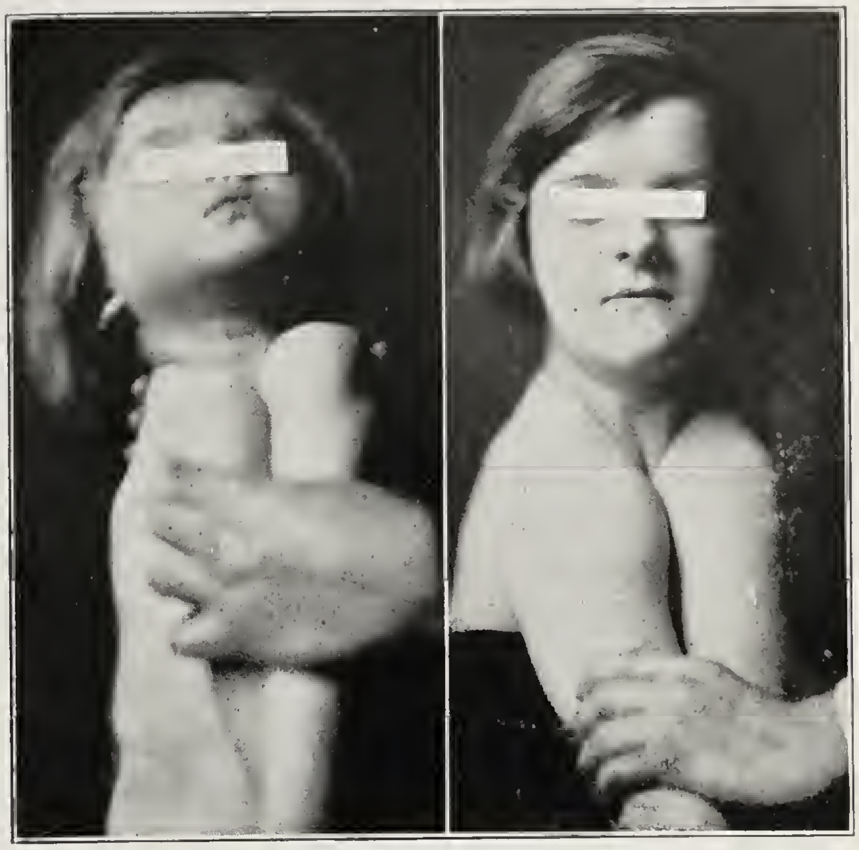
Fig. 6 (Case 2).—At right may be noted the frontal bosses, median sulcus, sunken bridge of nose, prognathous jaw and extreme mobility of shoulders; at left, a hand spanning the shoulders.

Nothing is known concerning the etiology of the affection save that it is hereditary and familial, that both sexes are affected, and that it may be transmitted through either parent.

Masonic Temple Building.

Meat Inspection in London.—During 1922, about 1,800 tons of meat a day passed through the central market of London. One ton in 320 of meat paying toll was condemned, whereas in 1921, one in 169 was condemned. Of the fish delivered at Billingsgate market in 1922, one ton in 107 was condemned, as compared with one ton in eighty-eight in 1921.

A FORM OF POLYPOID COLITIS AS A LATE STAGE OF AMEBIC DYSENTERY

REPORT OF CASE

LAURENCE E. HINES, M.D.
CHICAGO

History.—A druggist, aged 41, a patient of Dr. W. H. Burmeister, was admitted to St. Joseph's Hospital, Feb. 12, 1922, complaining of diarrhea, rectal tenesmus, weakness, abdominal pain and insomia. He was a native of the United States and had never lived in tropical or other foreign countries. In 1912, he developed a mild diarrhea with from three to five soft stools daily, which persisted in attacks of a mild form for many years with little or no discomfort. In 1917, attacks of severe diarrhea became frequent; the stools became more watery, and numbered from ten to fifteen daily, and occasionally the patient had abdominal cramps. The diarrhea slowly and progressively became worse until, six months before entering the hospital, he was too weak to work. In November, 1921, there was about one-half ounce of blood on the top of the stool, and, after this, blood was noticed frequently. Various diets did not better the diarrhea, although the patient was more comfortable on a diet of soft starchy or carbohydrate foods.

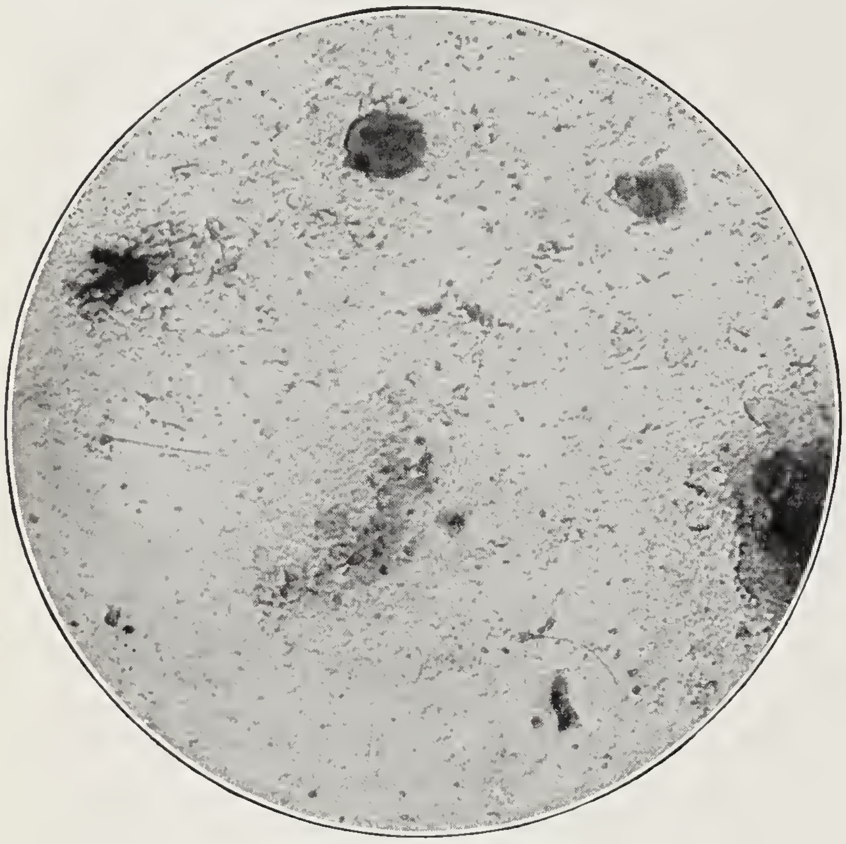

Fig. 1.—Section of colon showing projecting masses of necrotic substance and inflammatory tissue.

The patient was well developed but poorly nourished, with pale, sallow skin and slightly protruding eyes. There was slight tenderness in the lower left abdominal quadrant. Rectal examination was negative. A blood examination revealed 81 per cent. hemoglobin; 4,450,000 erythrocytes; 10,200 leukocytes; 64 per cent. polymorphonuclears; 26 per cent. small lymphocytes; 9 per cent. large lymphocytes, and 1 per cent transitionals; a Wassermann test of the blood serum was negative. There was a trace of albumin in the urine and a few hyaline casts. He passed from ten to fifteen dark brown, foul, liquid stools daily, all containing large amounts of mucus. No blood was seen grossly, but erythrocytes and leukocytes were observed microscopically; and the Weber test for blood was positive. No amebas were found, although fresh, warm stools were frequently examined. A roentgenogram of the colon after a barium enema showed a pronounced series of small uniform defects, which gave the bowel from sigmoid to cecum a spongy or wormy appearance. A diagnosis of polypoid colitis was made, and the diarrhea was treated symptomatically with a soft, bland diet, and rectal irrigations of dilute potassium permanganate solution. The patient had been given several intravenous injections of neo-arsphenamin before entering the hospital. No emetin was given at any time. Aug. 14, 1922, a blood examination showed 41 per cent. hemoglobin, and 3,450,000 erythrocytes. He became weaker and more anemic, and died, August 21.

Necropsy.—This was performed four hours after death. The body was 174 cm. long, and weighed about 125 pounds (57 kg.); it was greatly emaciated; the skin and mucous membranes were pale, and the eyeballs bulged slightly; subcutaneous fatty tissue was scanty; the omentum was attached by a narrow fibrous band to the sigmoid colon, which was kinked and located high in the peritoneal cavity; there were adhesions between the sigmoid colon and the lateral abdominal wall; the coils of small intestine were free in the peritoneal cavity. The mesenteric lymph glands were slightly swollen. The mucosa of the small intestine was slightly congested and covered with mucus, but the wall was not thickened. The wall of the entire colon was greatly thickened, from 4 to 6 mm., in all parts except the portion of kinked sigmoid colon, in which the diameter was from 8 to 11 mm. From the lower part of the ascending colon to the distal part of the pelvic colon, the mucosa was studded with numerous confluent dirty gray nodules. The crescentic folds (plicae semilunaris coli) were greatly exaggerated, and covered with similar elevations. Some of the nodules projected into the lumen of the bowel 3 mm., while others were flat. The diameter of the nodules varied from 2 to 6 mm., the base usually being about the same diameter as the top. A thick coat of glairy mucus covered the mucosa. In the pelvic colon the nodules were less numerous and discrete, and none were present in the rectum or pouch of the cecum. The elevations in the greatly thickened portion of kinked sigmoid were wider, and submucosal hemorrhages gave the lining a mottled, purple and gray appearance. No recent or healed ulcers could be distinguished grossly in any part of the colon. There were no ulcers or areas of hyperplasia in the mucosa of the esophagus, stomach or small intestine. Other findings were: numerous patches of fatty changes in the intima of the aorta; patchy sclerosis of the epicardium and endocardium; slight atrophy and fatty infiltration of the heart muscle; early sclerotic changes in the kidneys; fibrosis of the spleen, and slight perisplenitis. There were no abscesses in the liver or any gross changes in the pancreas, suprarenals, testes, epididymides or lungs.

Examined microscopically, the nodular elevations of mucosa were composed of granular necrotic material, inflammatory cells and fragments of intestinal glands. In many of the crypts between the nodules, slight ulceration was present. The surface of the nodules was necrotic, and the fragments of intestinal glands, below this layer, showed advanced stages of necrosis, while deeper in the mucosa the outline of the glands was well preserved, but the cells showed varying degrees of degeneration. The lumen of many of the glands contained desquamated epithelial cells and cellular débris. The thickening in most parts of the intestinal wall was due to the cellular infiltration and edema of the mucosa, but in the sigmoid portion much of the thickening was in the submucosa. Plasma cells and lymphocytes were numerous in the stroma of the mucosa, more abundant in the submucosa, and present in small numbers in the muscular coat. Polymorphonuclear leukocytes were seldom found. In the submucosa and inner muscular coat there were many oval and round ameba-like bodies, from 12 to 14 microns in diameter (the plasma cells in this tissue measured from 3 to 5 microns). Some of the bodies were homogeneous and granular with no visible nuclei, while others contained a poorly defined nucleus, eccentrically placed and containing a karyosome-like structure in the center. Red blood cells were present in some of these bodies. Within the epithelial cells of the intestinal glands there were many small deeply staining bodies from 1 to 3 microns in diameter, some ovoid in shape, others irregular. In some of the glands all the cells contained these bodies; in other glands only a few of the cells contained them, and some were free in the lumen or in the desquamated epithelial cells in the lumen. Some of the bodies were free in the cell, while others were surrounded by a well defined halo. These bodies were somewhat similar to forms of *Endameba histolytica,* which Jackson[1] found in the kidneys of a child and described as vegetative or schizogonic forms.

COMMENT

Polypoid colitis, colitis polyposa, or enteritis polyposa are names applied to adenomatous growths which project or hang by a stalk from the intestinal mucosa. Usually such masses are composed of numerous, irregular, partly cystic glands of greater length than normal glands and embedded in a loose stroma, which, on account of the traumatism to which it is exposed, is constantly inflamed. The growths are often multiple and sometimes so numerous and small as to give the mucosa a shaggy appearance. The polypoid masses in the mucosa of the colon in this case were not adenomatous, but the result of undermining of the mucosa by an inflammatory process. In the process of healing of dysenteric lesions, similar polypoid masses are often formed at the margin of ulcers. Kaufmann[2] calls attention to their presence in tuberculous ulcerative intestinal lesions, and writers on amebic dysentery describe such nodules as a part of the intestinal lesions.

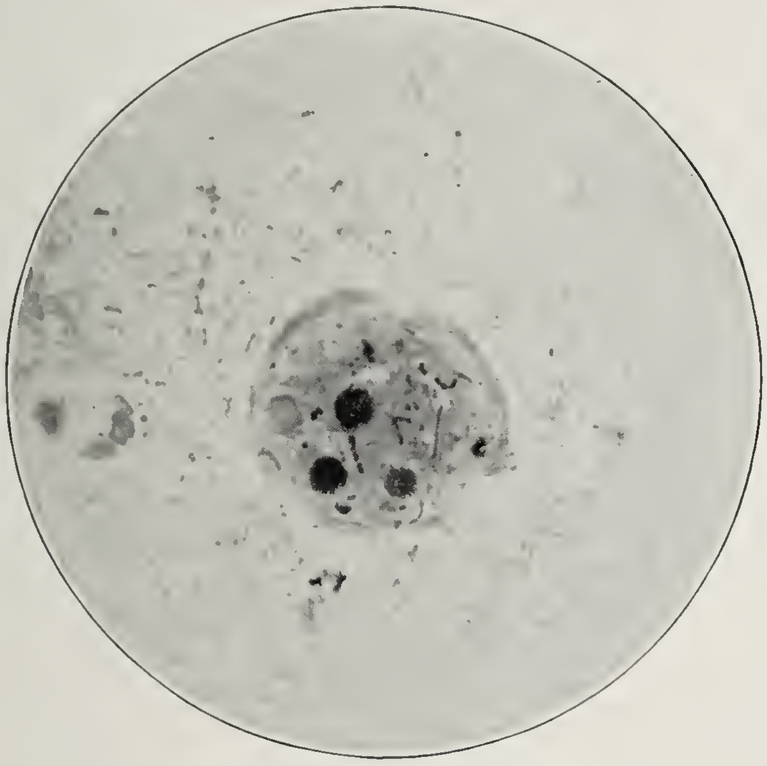

Fig. 2.—Amebas in wall of sigmoid colon.

The earliest changes of the colon in amebic dysentery appear as elevations in the mucosa, with a hyperemic or hemorrhagic zone at the periphery and a central plug of yellowish necrotic material. According to Strong,[3] if a small capillary hemorrhage occurs in the elevation, nourishment of the overlying epithelium is disturbed and erosion and ulceration occur; but if there is no hemorrhage, the nodules increase in size through edema and round cell infiltration. The inflammatory process is essentially slow and chronic; few polymorphonuclears are found, while plasma cells and lymphocytes are numerous. The erosions and simple ulcerations usually heal completely or progress to large suppurative, undermined ulcers whose healing is associated with scar formation and contraction.

The appearance of amebas in tissues is apt to be misleading, because they are likely to degenerate quickly after death. Dobell,[4] in his studies on fresh *Endameba histolytica,* describes the typical ones as actively motile bodies from 18 to 40 microns in diameter, with clear cytoplasm, finely granular endoplasm, indistinct, vesicular spherical nuclei, eccentrically placed and containing a central karyosome. As the nuclear characteristics of dead amebas are not clear cut, he believes that the most serviceable criterion for diagnosis is the presence of erythrocytes in the cytoplasm.

The postmortem diagnosis of amebic colitis in the present case is made on the presence in the intestinal wall of bodies morphologically like *Endameba histolytica,* some of which contain erythrocytes. The chronic inflammatory reaction with a large number of plasma cells, which this specimen presents, is the usual finding in amebic dysentery. In amebic dysentery, however, it is unusual to find a colon with no gross signs of ulceration, but with extensive confluent, polypoid masses that give the mucosa a uniformly shaggy appearance. Councilman and Lafleur,[5] Christofferson,[6] Musgrave,[7] Bartlett,[8] Reed,[9] Wooley and Musgrave,[10] and Harris[11] describe the postmortem findings in large series of cases, but no cases were mentioned that were like this one.

SUMMARY

In a case of amebic dysentery, the colon mucosa presented no gross signs of ulceration, but was the site of multiple confluent polypoid masses.

RESIN DERMATITIS

REPORT OF CASE

L. G. BEINHAUER, M.D.
PITTSBURGH

Within the last few years, the number of cases of "trade dermatitis" reported has increased rapidly. This is probably due to a number of factors more in evidence at present than they have been during the past. These factors may be thus classified: (1) the almost universal workingman's compensation acts enacted in most states, whereby the working man is protected against any medical illnesses or accidents which may be caused by his regular occupation; (2) the increased variety of minerals, chemicals and drugs used by the various manufacturers in producing their products, and (3) the increased interest on the part of the employers and medical men to alleviate the causative factors of the so-called occupational diseases that may be caused from trades or occupations.

From the point of view of the dermatologist, we are greatly interested in the unusual diseases of the skin that are related to occupation. Interesting cases[1] are being reported from all sections of the country, and the so-called trade or occupational diseases are readily being studied, prevented and treated in all branches of medicine. To limit ourselves, we might define trade dermatitis, occupational dermatitis, trade eczema or occupational eczema as names used interchangeably to designate a pathologic condition of the skin due, directly or indirectly, to the individual occupation.[2] Often the dermatologist is called on to treat an apparently benign skin condition that has continuously resisted the usual routine treatments for eczema or dermatitis, only to find the case to be an unrecognized recurrent trade dermatitis.

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[1] Jackson, Leila: An Ameba-Like Organism in the Kidneys of a Child, J. Infect. Dis. **30**: 636 (June) 1922.

[2] Kaufmann, E.: Spezielle pathologische Anatomie **1**: 512, 1911.

[3] Strong, R., in Osler's Modern Medicine **1**: 503, 1904.

[4] Dobell, C.: The Ameba Living in Man, 1919.

[5] Councilman, W. F., and Lafleur, H. A.: Amebic Dysentery, Johns Hopkins Hosp. Rep. **2**: 393, 189, 1891.

[6] Christofferson, D. R.: Zur pathologischen Anatomie d Amöbendysenterie, Arch. f. path. Anat. **223**: 350, 1917.

[7] Musgrave, W. E.: Intestinal Amebiasis Without Diarrhea: A Study of Fifty Fatal Cases, Philippine J. Sc., B, **5**: 229, 1910.

[8] Bartlett, G. B.: Pathology of Dysentery in the Mediterranean Expeditionary Force, Quart. J. Med. **10**: 185, 1915.

[9] Reed, A. C.. Diagnosis and Treatment of Amebic Colitis, Am. J. M. Sc. **164**: 587 (Oct.) 1922.

[10] Wooley, P. G., and Musgrave, W. E.: The Pathology of Intestinal Amebiasis, Rep. 32, Dept. of Interior, Bureau of Govt. Laboratories, 1905.

[11] Harris, H. F.: Amoebic Dysentery, Am. J. M. Sc. **115**: 384, 1898.

[1] Pusey, W. A.: Lacquer Dermatitis, Arch. Dermat. & Syph. **7**: 91 (Jan.) 1923.

REPORT OF CASE

G. G., a man, aged 56, married, a violinist, referred to me in June, 1922, for a recurring eruption located on the second and third fingers of the left hand, first noticed the eruption five years before, when he was subjected to the first attack over the areas named. A physician gave him an ointment to apply. The lesions did well until the protection was stopped, after which the eruption recurred. The summer months found the patient free from any eruption. The series of attacks described above recurred each fall and spring months, only to disappear during the summer months which followed. At times, the lesions became infected, fissured and painful, and caused the patient to lose a few days of his routine work. Especially during the last two years, the patient noticed a dry brittleness of the finger nails of the affected fingers only, and an associated dry pruritic scaly eruption about the external nasal orifices. These lesions, however, were not so constant as the finger lesions, but, when present, were more persistent. The patient's occupation required his playing a violin in the orchestra of a local theater from September to April of each year. No history of drugs was elicited, the patient stating that he had not taken any internal medication for years.

At the time of examination, the patient showed the condition pictured in Figure 1. The right hand was free of all lesions except a small pinhead-sized follicular pustule located on the right dorsal index finger. The left hand was entirely free from eruption except for the second finger, which showed on its dorsolateral aspect a fine, discrete, pinhead-sized, vesicular eruption extending from the web of the finger to the most distal joint. The vesicles were clear, tense and fairly deep set, but did not rupture spontaneously. The skin of this area was dry, harsh, thickened and slightly scaly. The adjacent side of the opposite finger showed a similar, less productive eruption. There was a slight, dry brittleness present on the finger nails of the first two fingers, with a marked flattening of the nail of the third finger with numerous striations; and both nails were of a dirty grayish hue. The matrices of all the nails were not affected. The routine dermatologic examination of the body revealed no eruption. Especial attention was given to the webs of the toes, soles of the feet, axillary region and the perineal-crural regions, which were carefully examined and found clean. The possible fungus infection was ruled out by scraping examinations and cultures. As the patient was an ardent admirer of plants, these were carefully investigated, skin tests applied, and negative results obtained. The various local irritants, such as soaps, water, hand lotions and drugs, were investigated with negative results. Because of the continued persistent and repeated eruption, always in the identical regions previously mentioned, a careful examination was made to ascertain whether or not the patient could have feigned the eruption; but after repeated examinations, the possibility of a dermatitis factitia was eliminated. At this point, the patient stated that, about five years before, he had changed the type of violin resin which he had used, and was using a new kind which, at present, he was manufacturing on a moderate scale. This was immediately investigated, and the hands were purposely exposed to cause a recurrence of the eruption, which is shown by Figure 2. It is easily conceivable how the parts exposed should be so affected. In the position of violin playing, it was found, when covering the entire hand with a dark ointment, that the resin dust particles from the bow fell directly over the fingers that show the eruption, because of the prominence of these fingers in the string manipulations and the apparent protection of the underlying fingers.

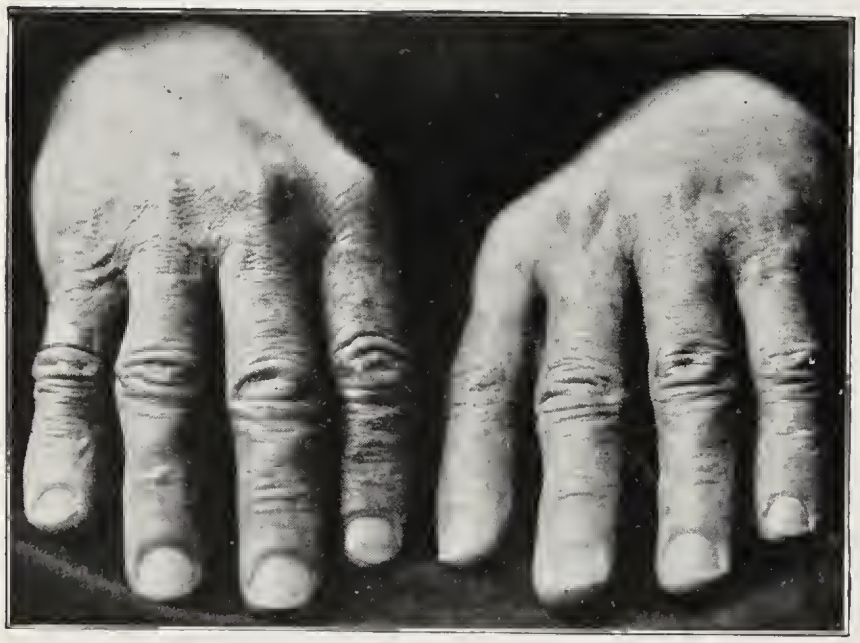

Fig. 1.—Apparent quiescent state: small vesicles on dorsolateral aspect of index finger of left hand; the flatness of the finger nail of the middle (left) finger is noticeable.

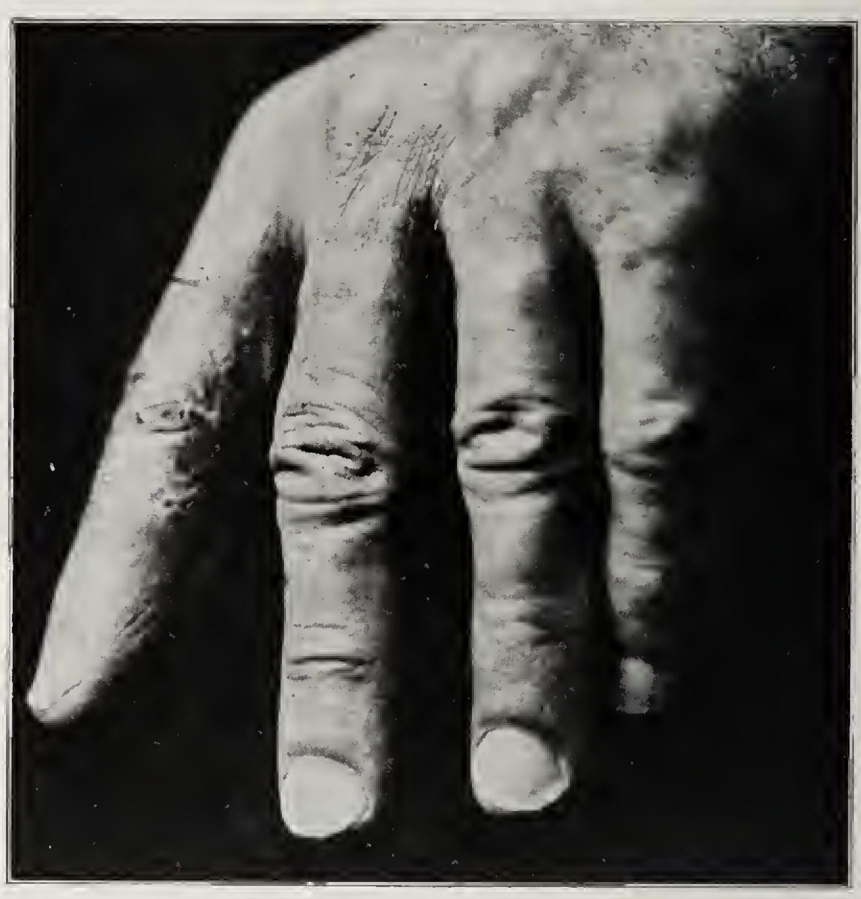

Fig. 2.—Recurrence of eruption on exposure to the resin applied as an ointment; on the left middle finger nail are dark, irregular striations.

Laboratory skin tests for primrose, geranium and rambler rose (plants present in the household) were negative. Tests of the urine and stool were negative. Blood examination revealed: erythrocytes, 5,100,000; leukocytes, 7,200; small lymphocytes, 16 per cent.; large lymphocytes, 6 per cent.; polymorphonuclear neutrophils, 71 per cent.; transitionals, 6 per cent.; eosinophils, 1 per cent.; hemoglobin, 85 per cent.

Cultures and scales for tinea were repeatedly negative. Culture from vesicles revealed mixed *Staphylococcus albus* and *aureus*. The blood Wassermann reaction was negative.

Analysis of the violin resin compound disclosed red resin, I, dark resin, F; white resin, W W and pitch No. 1, to employ the trade letters under which they are sold commercially. These special types are obtained from North

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[2] Stelwagon: Diseases of the Skin, Philadelphia, W. B. Saunders Company, 1916, p. 242.

Carolina. Skin tests of the resin in the compound were negative to red resin, positive to dark resin (+++), negative to white resin, and doubtful as to pitch. The skin tests were controlled on two other subjects with negative results.

CONCLUSIONS

1. Occupational dermatoses are more common than usually thought.
2. Occupational dermatoses are almost always mistaken for, and treated as, an "eczema" or "dermatitis" in a routine way.
3. Resin is capable of producing a dermatitis.
4. Treatment consists of the removal of the cause, which is, by far, the most important factor in obtaining a cure.

5026 Jenkins Arcade.

THE THERAPEUTIC VALUE OF EGG YOLK IN RICKETS [*]

ALFRED F. HESS, M.D.
NEW YORK

Yolk of egg has frequently been employed in the diets of infants, and is brought forward here not as a new food, but rather as a therapeutic agent. Generally it has been resorted to with the purpose of increasing the percentage of fat or the caloric value of the food. Recently, De Sanctis [1] has suggested this addition in order to augment the content of water soluble vitamin, which, according to the investigations of Osborne and Mendel,[2] is present in yolk in moderate degree. Some years ago, egg yolk was employed on an extensive scale in the Home for Hebrew Infants, and was found a most valuable supplement to milk formulas. Not only did the infants gain steadily in weight, but their general appearance was healthy, the tonicity of their muscles was exceptionally good, and their stools seemed normal. Indeed, the gains in weight were better than those obtained with any other artificial feeding. In the course of one year, some fifty babies were given this food for periods of about six months, and no instance of sensitization or anaphylactic reaction was observed. The only peculiarity was the occasional yellowish discoloration of the skin—carotinemia [3]—which has been described elsewhere in connection with feeding young babies foods rich in carotin. The routine procedure was to prescribe milk of the customary dilution, for example, a mixture of two-thirds milk and water for an infant 3 months of age, with the addition of sugar, and to add the yolk of one raw egg after the completion of the formula. It is surprising how well young infants tolerate this food. Figure 1 illustrates the weight curve of a baby who received egg yolk when 5 weeks old. In the case of infants under 2 months of age, in some instances it has seemed advisable to begin with the addition of half a yolk.

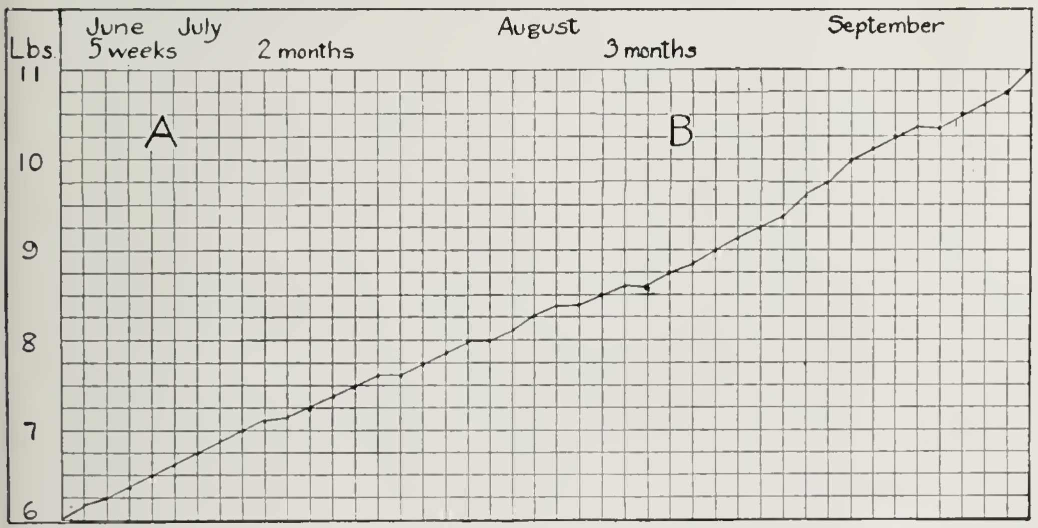

Fig. 1.—Weight curve of infant who received egg yolk from the age of 5 weeks: *A*, milk, 18 ounces; barley water; 18 ounces; cane sugar, ¾ ounce; one egg yolk. *B*, milk, 24 ounces; barley water, 12 ounces; cane sugar, ¾ ounce; one egg yolk.

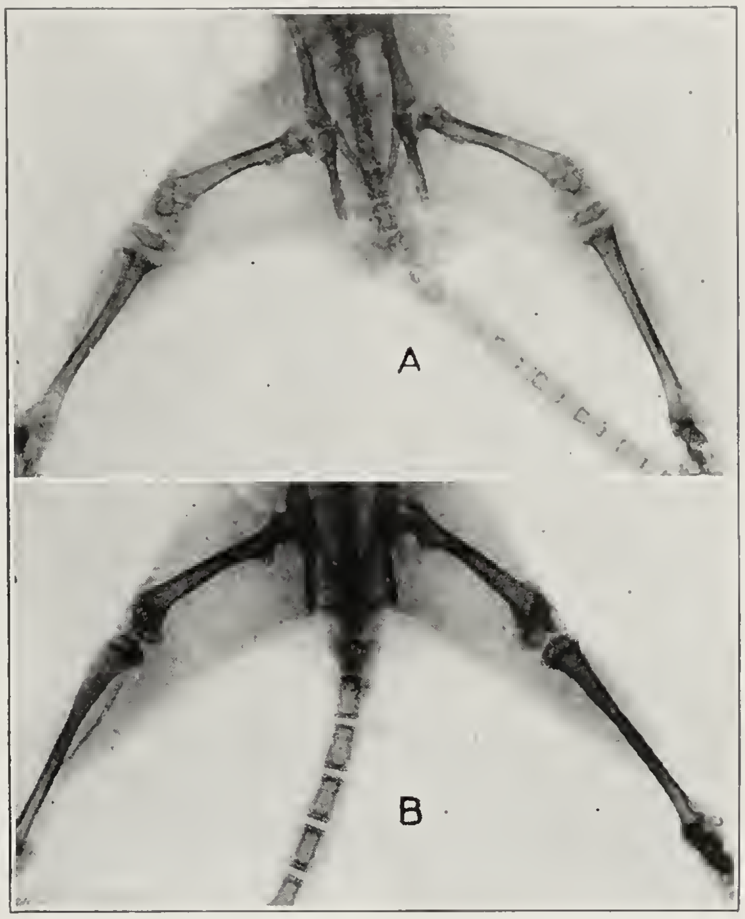

Fig. 2.—Prophylactic teratment: appearance of epiphyses of rats (*a*) on standard rickets-producing diet, and (*b*) on same diet with the daily supplement of 0.25 gm. of yolk of egg.

In view of the high content of fat soluble vitamin in egg yolk, and the close association in nature of this vitamin with the antirachitic factor, as best exemplified in cod liver oil, it appeared worth while to test the potency of the yolk in relation to its prophylactic and curative value in rickets. Mellanby [4] carried out one experiment of this kind, adding two yolks to the dietary of a dog that had developed rickets, and found that this addition exerted a curative effect. In our experiments, rats were employed, the same technic being followed as in the previous experimental work carried out in this laboratory. The Sherman and Pappenheimer low phosphorus diet was used as the basic rickets-producing dietary. To this diet 0.5, 0.3, and 0.25 gm. of egg yolk was added daily. This was given to each animal separately, either by pipet or on a watch glass.

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[*] Read before the Society for Experimental Biology and Medicine, April 18, 1923.

[*] From the Department of Pathology, Columbia University College of Physicians and Surgeons.

[1] De Sanctis, A. G.: Egg Yolk in Infant Feeding, Arch. Pediat. **39**: 104 (Feb.) 1922.

[2] Osborne, T. B., and Mendel, L. B.: Eggs as a Source of Vitamin B, J. A. M. A. **80**: 302 (Feb. 3) 1923.

[3] Hess, A. F., and Myers, V. C.: Carotinemia: A New Clinical Picture, J. A. M. A. **73**: 1743 (Dec. 6) 1919.

[4] Mellanby, E.: Experimental Rickets, Special Report 61, M. Research Council, London, 1921.

It is remarkable with what avidity this addition to the dietary is welcomed. Table 1 shows the result of an experiment of this kind. It will be noted that even 0.25 gm. of yolk (5 drops) was sufficient to protect a rat on a diet which, without this supplement, led to marked rickets. The contrast is well illustrated in the roentgenograms of the epiphyses (Fig. 2); when yolk was fed, normal bones; when it was not fed, the classical picture of rickets.

Table 1.—*Prophylactic Treatment of Rats with Egg Yolk*

Rickets-Producing Diet	Daily Amount of Egg Yolk, Gm.	Weight, Gm. At Onset	Weight, Gm. After 28 Days	Roentgenographic Rickets	Pathologic Rickets Gross	Pathologic Rickets Microscopic	Blood Phosphate, Mg. per Cent.
No. 84 (High calcium, low phosphorus)	....	50	44	Marked	R.	R.	2.5
		40	44	Marked	R.	R.	
		50	38	Slight	R.	R.	
No. 84 (High calcium, low phosphorus)	0.25	50	50	Neg.	Neg.	Neg.	4.0
		40	40	Neg.	Neg.	Neg.	
		50	60	Neg.	Neg.	Neg.	
		40	50	Neg.	Neg.	....	
No. 84 (High calcium, low phosphorus)	0.33	30	66	Neg.	Neg.	Neg.	4.5-4.6
		40	60	Neg.	Neg.	Neg.	
		50	58	Neg.	Neg.	....	
		40	58	Neg.	Neg.	....	
No. 84 (High calcium, low phosphorus)	0.5	30	60	Neg.	Neg.	Neg.	5.0-5.0
		40	70	Neg.	Neg.	Neg.	
		40	60	Neg.	Neg.	Neg.	
		40	70	Neg.	Neg.	Neg.	

There are some points in Table 1 to which attention should be called. Especially noteworthy is the marked gain in weight when as little as 0.3 or 0.5 gm. of yolk was added, particularly when compared with the lack of gain evidenced on the standard dietary, as exemplified in the control rats of this series. In this connection it should be emphasized that the bones not merely showed an absence of rachitic lesions, but, according to Dr. Pappenheimer, who carried out the histologic examinations, were particularly strong and well developed. It will be noted also that the rats receiving egg yolk had a higher percentage of blood phosphorus than the control animals, and that this percentage increased in direct ratio to the amount of yolk that had been fed.

Table 2.—*Curative Treatment of Rats with Egg Yolk*

Rickets-Producing Diet	Daily Amount Egg Yolk (8 Days)	Weights, Gm.	Roentgenographic Rickets	Pathologic Rickets, Gross	Blood Phosphorus, Mg. per Cent.
No. 84 (High calcium, low phosphorus)	....	50-84	Moderate	Marked	
	....	40-40	Marked (mod. healing)	Marked	
Dry milk (5%) diet	....	34-64	Marked	Marked	
		40-50	Marked	Marked	
		50-80	....	....	1.5
No. 84 (High calcium, low phosphorus)	0.5 gm.	50-74	Moderate healing	Healing	3.6*
		40-40	Moderate healing	....	4.0
Dry milk (5%) diet	0.5 gm.	50-74	Slight healing	Healing	5.1
		44-80	Marked healing	Healing	5.5
No. 84 (High calcium, low phosphorus)	1.0 gm.	50-72	Marked healing	Healing	
		40-74	Moderate healing	Healing	
Dry milk (5%) diet	1.0 gm.	40-84	Marked healing	Healing	
		38-68	Complete healing	Healing	

* These analyses were made on the blood of a rat receiving 0.5 gm. pooled with one receiving 1 gm. of egg yolk.

The protective effect cannot be ascribed simply to the phosphorus content of the yolk. This content, as determined by the ashing and molybdate titration of a composite sample, was 450 mg. per hundred grams of substance. When 0.25 gm. is fed daily, this addition is equivalent to about 16 mg. of phosphorus per hundred grams of diet, an amount quite insufficient to give this diet protective properties.[5] In our experience, it generally requires 50 or more milligrams additional phosphorus to protect, and less than 35 mg. does not bring it about. These rats were from the stock raised in this laboratory, which, in the course of the last three years, has been used in a large number of similar tests.

Further experiment showed that egg yolk is able not only to protect young rats from rickets, but also to cure them of rickets. Table 2 illustrates a series of tests of this nature. For this purpose, two diets were employed, the low phosphorus flour and salt diet (No. 84), and one in which 5 per cent of dried milk is substituted for an equivalent percentage of flour. These tests proved that 0.5 gm. of yolk suffices to bring about calcification within a period of eight days (Fig. 3). Probably less will answer the purpose. The rats benefited by this means had a percentage of blood phosphorus considerably higher than those which were not given yolk of egg.

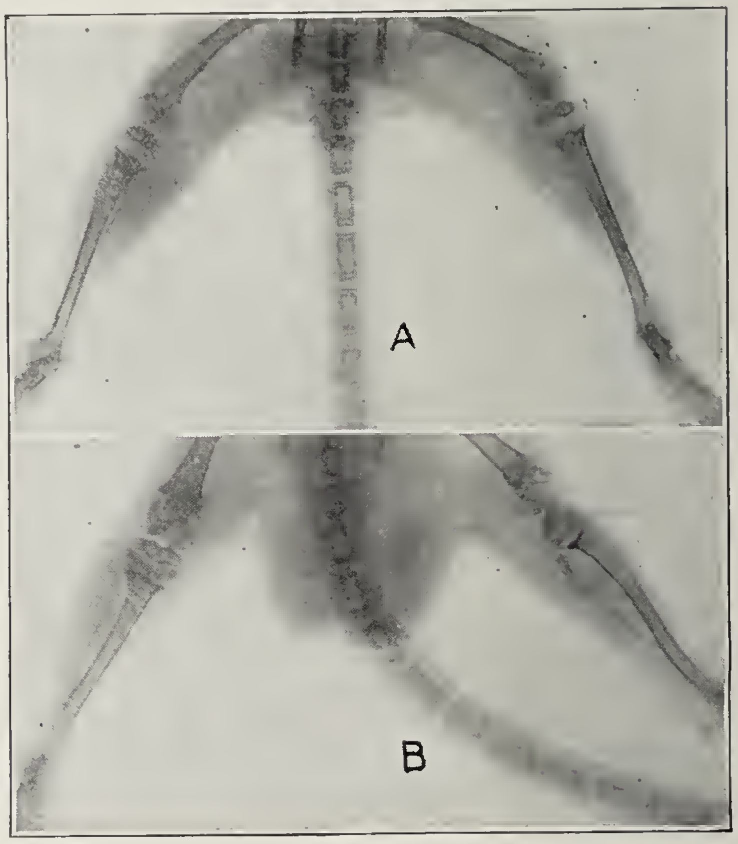

Fig. 3.—Curative treatment: appearance of epiphyses of rats (*a*) on standard rickets-producing diet, and (*b*) on same diet with the supplement of 0.5 gm. of egg yolk for period of eight days.

Experiments carried out a year or more ago showed, on the other hand, that white of egg is not merely devoid of antirachitic properties but seems to enhance the rickets-producing quality of a dietary. Table 3 illustrates this point. In this experiment, young rats were fed the low phosphorus diet and irradiated daily with sunlight. It will be noted that they were protected, although incompletely, from rickets—the incompleteness resulting from a deficiency of sunlight during this period. When 10 per cent. of egg albumin was substituted for 10 per cent. of flour in the dietary, the rickets was increased rather than lessened. That this result cannot be ascribed to the withdrawal of the small amount of phosphorus contained in the flour is evident from the third part of the experiment, in which this withdrawal was compensated for by the addition of an equivalent amount (50 mg.) of potassium phosphate. The rickets in these animals was also of greater degree than in the control rats, and the percentage of blood phosphate, less. It is due probably to this adverse action of the egg albumin that Czerny and others proscribe eggs in the dietary in rickets.

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[5] For this calculation, the young rats are estimated to consume about 7 gm. of food daily. It is probable that these rats, in view of their exceptional growth, consumed more than normal, which would render the percentage of added phosphorus still less. (Later experiments have shown that 0.15 gm. of egg yolk daily suffices to protect.)

Table 3.—*Effect of Addition of Egg White to the Dietary on the Protective Action of Sunlight*

Diet	Weights, (36 Day Period)	Total Irradiation, Hours	Rickets: Roentgenographic	Rickets: Gross	Rickets: Microscopic	Blood Phosphorus, Mg. per Cent.
No. 84 (High calcium, low phosphorus)	28-40	23.5	Slight	?	Slight	4.4
	30-44	23.5	Very slight	Very slight	Very slight	
	34-50	21.5	None	None	None	
30 days: Diet No. 84 + 10% egg albumin						
No. 84 + 10% egg albumin	34-62	23.5	Slight	Moderate	Moderate	3.47
	34-70	23.5	Silght	Moderate	Moderate	
	36-68	20.5	Moderate	Slight	Slight	
36 days: Diet No. 84 + 10% egg albumin + 50 mg. dipotassium hydrogen phosphate						
No. 84 + 10% egg albumin + 10 mg. P	34-62	23.5	Moderate	Moderate	Moderate	3.42-3.24
	30-68	23.5	Moderate	Moderate	Moderate	
	36-70	23.5	Slight	Slight	Slight	

As is well known, cod liver oil is a specific therapeutic agent for human rickets. Its great drawback lies in the fact that it is poorly borne or not tolerated at all by many infants. It seemed of advantage, therefore, to ascertain whether the same beneficent results could be obtained with yolk of egg in infants as in animals. Our previous experience had shown that the great majority of bottle-fed infants develop rickets during the winter; in this regard there is not only a seasonal but an intraseasonal incidence—the curve rising steadily throughout the winter to its summit at the end of March. Coincident with this wave, there is a seasonal curve of the inorganic phosphate of the blood, which was found to reach its lowest ebb during the month of March.[6] With these experiences in mind, the yolk of one raw egg was added to the regular formulas of each of twelve infants, in an attempt to forestall the occurrence of rickets and the seasonal ebb of the blood phosphate. In most instances, this addition was made in December, when the tendency to rickets becomes acute. Table 4 shows the result of this protective therapy. By this simple supplement to the diet, all the infants were protected from rickets, as judged by clinical, roentgenologic and chemical criteria. It will be noted that the percentage of inorganic phosphate in the blood, instead of falling to 3.6 mg., the ebb observed last March, was maintained at 4 mg. or more, a level encountered during the summer months. The calcium content of the serum also was unusually high. These results require but little comment. It is evident that yolk of egg possesses considerable protective value in rickets.[7] It should also be remembered that it is exceptionally rich in iron.

Table 4.—*Prophylactic Treatment of Infants with Egg Yolk*

Case	Age, Mos.	Weight, Lbs.	Egg Yolk Begun	Rickets Roentgen-Ray (March)	Rickets Clinical (March)	Feb. and March: Phosphorus	Feb. and March: Calcium
1	12	19½	12/14/22	Negative	Negative	3.8	11.0
2	10	18	1/16/23	Negative	Negative	3.7	12.4
3	14	20¼	1/ 3/23	Negative	Negative	4.6	10.8
4	11	18	12/24/22	Negative	Negative	3.9	12.0
5	6½	16½	12/22/22	Negative	Negative	4.5	....
6	6½	12¼	12/14/22	Negative	Negative	4.5	11.2
7	12½	16¾	12/14/22	Negative	Negative	4.1	11.8
8	10	17	12/14/22	Negative	Negative	4.3	12.0
9	12	17¼	12/14/22	Negative	Negative	4.0	12.0
10	13½	18¾	12/14/22	Negative	Negative	4.0	....
11	10	15¾	1/ 8/23	Negative	Negative	4.3	....
12	13	25	12/20/23	Negative	Negative	4.0	11.4

The curative results were not so striking, as might be expected, for much larger quantities of the antirachitic factor are required to bring about a cure. When cod liver oil is given to the amount of one teaspoonful three times a day, healing frequently cannot be observed by roentgenogram for several months; in a series of cases the average period was two and one-half months and still longer in some cases during the winter months. In the cases in which egg yolk was employed, calcification was observed in one instance after a month, and in another after one and a half months. In other cases it seemed decidedly less potent than cod liver oil, nor did the percentage of blood phosphate respond so promptly. This effect will be found to vary with the severity of the case, the adequacy of the diet, and the amount of sunlight to which the infant is exposed.

CONCLUSION

Egg yolk possesses marked antirachitic properties for animals and for infants. It has proved itself of great value in protecting infants from rickets during the season when the incidence is greatest, and, with this in view, can be recommended as a supplement to the dietary comparable to orange juice in the protection against infantile scurvy. It has also curative value, but less than cod liver oil, and therefore should not be relied on for cure except when the oil is not well borne.

16 West Eighty-Sixth Street.

THE TREATMENT OF VOMITING

BERNARD FANTUS, M.S., M.D.
CHICAGO

Vomiting, one of our protective reflexes, not infrequently requires treatment because of uselessness, excess, or a tendency to self-perpetuation.

USEFUL VOMITING

Is there irritating material in the stomach? should be the first question in the treatment of vomiting. If there is, as in a case of drug or food poisoning, emesis should be encouraged by copious drinking of lukewarm water, unless a stomach tube is available. The use of this is preferable, as with it one can cleanse the stomach much more thoroughly. When offending food is vomited, the emesis requires no direct treatment. All that is necessary is to give the stomach rest for a few hours. We must, however, beware of falling into the facile error, so commonly committed by the laity, of incriminating whatever food has just previously been eaten, when, in reality, the vomiting frequently is symptomatic of some disease like cholelithiasis or appendicitis. Earmarks of the presence of one of the latter conditions are the irregularity of its occurrence, and the fact that a certain food at times disagrees and at other times is well digested. Such patients often go on eliminating food after food from their diet because of supposed idiosyncrasy, until they have reduced the dietary to mush and milk, which also disagrees at times. Food idiosyncrasy is usually constant and limited to a few definite articles of diet. Spoiled food generally affects all those who partake of it.

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[6] Hess, A. F., and Lundagen, M. A.: A Seasonal Tide of Blood Phosphate in Infants, J. A. M. A. **79**: 2210 (Dec. 30) 1922.

[7] It is impossible to compare its value with cod liver oil. The prophylactic dose of cod liver oil is not known. Probably the amounts customarily used are unnecessarily large, and 10 drops three times a day will suffice to afford protection. A definite amount cannot, however, be arbitrarily fixed, as this will vary with the nature of the diet which the infant is and has been receiving.

The lusty baby often overdistends its little stomach by taking more milk than it can hold, and then it regurgitates the excess. Better for it to do this than to suffer from indigestion due to excessive feeding. Mothers consult physicians about this physiologic vomiting. All that is required to prevent its occurrence is nursing at a slower rate—by the mother's pinching the nipple of the breast with her fingers—or by nursing for a shorter time, or both. When the baby is fed artificially, the fault lies generally with the holes in the nipple being too large. From the nipple of the inverted nursing bottle, the drops should come but slowly. Fast dropping of the milk means that the holes are too big. We must be careful to distinguish this simple form of infantile vomiting, which is of no more danger than a sneeze, from the serious vomiting of hypertrophic pyloric stenosis, which presents the combination of excessive vomiting, constipation and wasting. The vomiting in these cases is very forcible, most of the milk taken being violently rejected with but little alteration. The presence of a small tumor in the epigastrium, visible gastric peristalsis, and the results of roentgen-ray examination would make the diagnosis complete. The antispasmodic treatment suitable for this condition will be discussed later.

The vomiting so commonly occurring at the onset of febrile diseases, such as scarlet fever or pneumonia, may have a beneficial tendency. At any rate, it stops in the natural course of events and needs no special treatment. A person suddenly taken ill with fever, who has a full meal in the stomach, is better off getting rid of it by emesis than having it pass all the way through the alimentary tract and adding intestinal intoxication to the poisoning of the disease. Our forefathers in medicine regularly induced emesis at the beginning of treatment of severe diseases, and probably not always injudiciously. If the vomiting continues with fever and there is abdominal pain, tenderness, and rigidity from the onset, we should suspect the presence of an acute surgical condition of the abdomen, e. g., of appendicitis. Continuance of painless vomiting in a feverish child should lead to inquiry for meningitis, uremia or acidosis. Abdominal pain and tenderness may develop from muscular strain in any patient vomiting excessively, but this occurs only after the vomiting has lasted several days and then there is a feeling of soreness, especially at the points of muscular insertions,

NEGLIGIBLE VOMITING

In quite a number of cases, emesis is merely accidental or incidental, bearing no relation to the condition of the stomach or to the functional capacity of the alimentary tract. In such conditions, it is wise, unless the vomiting is excessive, to ignore it as far as the therapeutic program is concerned. The application of the standard treatment for excessive vomiting, a gastric rest cure, would be a mistake in these cases, because gastric rest means starvation, and this brings with it acidosis and increased irritability of the vomiting center in the medulla. It is in this manner that vomiting has a self-perpetuating tendency. Children, diabetic patients, and probably also pregnant women, are especially prone to the development of acidosis, and should most especially be protected against it.

It will readily be understood what a mistake it would be to stop feeding a child that suffered from whooping cough or some other form of emetic cough. Since the stomach here is sinned against and not sinning, abstention from food would not only do no good but might harm the patient by lessening resistance and possibly also by increasing the tendency to vomit by the production of acidosis. In the adult, emetic cough is much less common than in the child and requires more serious consideration, chiefly because it is occasionally due to tuberculosis. Here, again, it will be seen what a mistake it would be to restrict the patient's diet because of it.

No less irrational would be diet restriction in those cases of emetic cough occurring in the bronchitis and even the pharyngitis of the neurasthenic patient. Here, liberal feeding and the appropriate treatment of the pharyngitis and bronchitis, aided possibly by a course of bromid to lessen reflex excitability, will give the desired result. The morning vomiting of the drunkard, being due to the night's accumulation of mucus in the pharynx and stomach, which the patient gets rid of by the emesis, might possibly be even considered a useful form of vomiting. At any rate, it is not to be treated by withholding food, but rather by the diet suitable to the form of gastritis present, by treatment of the pharyngitis, and by protecting the patient against further injury from the poison.

The vomiting of seasickness does not require abstention from food and drink. The patient should eat sparingly of simple foods, such as gruel, dry toast, plain biscuit or chicken; he should avoid distention of the stomach by the consumption of liquids and fruits; and, as soon as a feeling of nausea develops, at once go to his berth and keep his head down. Complete rest, with the head low, is one of the safest and surest preventives not only for this but also for many other forms of emesis. Should the patient have to keep up and about, or not be relieved by the recumbent posture, atropin treatment, such as advocated by Girard,[1] may be tried. It consists of the hypodermic injection of 0.5 mg. of atropin sulphate, possibly combined with 1 mg. of strychnin sulphate, repeated twice at hourly intervals if required, unless incipient dryness of the throat and disturbance of vision warn one that atropinism has been reached. If this fails, and it sometimes does, some of the means of treatment for obstinate emesis will have to be employed.

The ordinary vomiting of pregnancy, as distinguished from hyperemesis gravidarum, is a similar condition. One should encourage the patient to go on eating bravely, even if the food is vomited shortly after, because some of it will stay down and sustain the body, surely more than if no food were taken. It is well not to let the patient raise her head from the pillow in the morning without previously putting something into her stomach, such as a cup of hot coffee. It has been suggested that the special prominence of the vomiting of pregnancy in the morning is due to the development of a slight degree of acidosis from food abstinence during the night. This would explain the reason for the good results so frequently obtained from the simple measure indicated.

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[1] Girard, A. C.: Atropin and Strychnin Combined. A Specific for Seasickness, J. A. M. A. **46**: 1925 (June 23) 1906.

EXCESSIVE VOMITING

Like many other blind reflexes, emesis is frequently useless and excessive, as when it is maintained by abnormal irritability of the vomiting center or by a peripheral irritation that it cannot remove; and it threatens by increase of the excitability of the vomiting center from starvation acidosis to establish a vicious circle.

When the stomach has become inflamed, vomiting continues because of the gastritis, even though the stomach is empty. Irritation anywhere else in the vast domain of the pneumogastric nerve will produce the same result. Excitation of the glossopharyngeal nerve, especially its pharyngeal expansion, and of some of the other cranial nerves, as well as stimuli arising within the central nervous system, varying from disgust and hysteria to excessive intracranial pressure and locomotor ataxia, are all capable of producing and maintaining emesis. It is a clinical fact that, excepting in the young, vomiting is more commonly due to extragastric than to gastric causes; in other words, it is more frequently useless than useful.

From the considerations given it will be obvious that there are two fundamentally different modes of attack applicable to the treatment of any case of vomiting: to remove the irritation and to lessen the irritability; and either may be peripheral or centric. The various modes of attack are, on the whole, in inverse proportion of importance to one another in accordance with the underlying cause; but, in many cases of obstinate vomiting, they may usefully reinforce one another.

REMOVAL OF PERIPHERAL IRRITATION

Gastric rest is the single most important means of lessening the stream of afferent stimuli affecting the vomiting center in almost any variety of excessive vomiting. Such gastric rest treatment practiced *secundum artem* should include not only the withholding of all food and drink, but also keeping the mouth and lips moist, as well as parenteral administration of fluid, antiketogenic regimen, and complete rest in the horizontal position. In many forms of vomiting, emesis does not take place as long as the patient keeps his stomach empty and does not raise his head. Teaspoonful doses of very hot or very cold water or of seltzer water may be given—but not oftener than every fifteen minutes—to keep the mouth moist; and petrolatum should be applied to the lips to keep them from chapping or cracking. Medicine must not be permitted to interfere with the gastric rest. Local antiemetic medication is often a delusion and a snare. When a medicine given to stop vomiting is promptly rejected, one cannot blame the patient if he loses confidence in its prescriber. It is best, therefore, not to risk this occurrence, especially at the beginning of treatment. The administration of cathartics must likewise not interfere with the gastric rest. If the patient's bowels can move, they will whether a cathartic is given or not; if they cannot move by reason of intestinal obstruction or other surgical condition of the abdomen, the administration of cathartics is a serious error. To relieve thirst and to antagonize starvation acidosis, which in turn tends to maintain emesis, retention enemas of sodium bicarbonate solution (2 per cent.), to which glucose (5 per cent.) can be added, may be employed. Hypotonic solution is preferred, as it prevents thirst better than isotonic solution. The principle underlying the determination of the quantity of the solution to be used by rectal administration is to inject the most that can be retained. To arrive at this amount, it is best to commence with rather small quantities, say 100 or 200 c.c., given high by catheter or rectal tube and slowly, the solution being at body temperature. If these quantities are well retained, the amount injected is gradually increased. The injections may be repeated every two to four hours, as long as small amounts are given; and, as the quantity is increased, the intervals may be increased also to six or eight hours. This is preferable to the rectal drip, which is generally very annoying to the patient. In infants, from 25 to 50 c.c. of the solution may be injected every two hours. A catheter, with the glass barrel of a small piston syringe serving as a funnel, is probably the best and generally most easily obtainable means of giving these retention enemas; though, for infants, a soft rubber so-called ear syringe, manipulated so as to secure slow injection, has served so well that even inexperienced mothers have little difficulty in carrying out the treatment. Once daily, an evacuant enema of the same solution is given, administered with the same technic, excepting that enough is injected to excite expulsion of the colonic contents.

Every now and then, cases are encountered in which the mere giving of an enema excites emesis. We must be on the lookout for such cases, and promptly stop the enemas should they seem to maintain vomiting. In such cases, as well as in neglected cases of obstinate emesis, when dehydration of the system has occurred to a considerable extent, duodenal administration, as described below, or hypodermoclysis should be resorted to. In bad cases of this kind, intravenous injection of glucose solution, and in children its intraperitoneal administration, may be of lifesaving importance.

Obviously, an antidote is indicated when the presence of a chemical irritant can be proved, and an antidote is available, as in acid or alkali poisoning, or when the vomitus shows the presence of hyperchlorhydria, as indicated by dark blue coloration of Congo paper. The best antacids in cases of vomiting are chalk or magnesium oxid, selection between the two being made according to whether we desire the constipating tendency of the calcium or the laxative action of the magnesium. Of course, when these are not at hand and sodium bicarbonate is available, this might be administered as an antacid, though it is more likely to be rejected by vomiting.

Lavage is the supreme remedy for removing irritant material from the stomach. It is absolutely indicated in poisoning unless of deep, corrosive variety. Fecal vomiting presents another absolute indication for lavage. It is nothing less than inhuman to let a patient bring up such revolting material through the mouth, when it may be so much more mercifully removed by washing the stomach. This, of course, does not cure the patient under these circumstances of intestinal obstruction; but it gives temporary relief and is an excellent method in preparing the patient for operation.

Lavage is frequently the best measure to check bile vomiting, because we have to deal here with a vicious circle. Each time the patient vomits, the forcible compression of the gallbladder causes ejection of bile, which then is forced into the stomach, there precipitating recurrence of the act. Washing of the stomach until the fluid returns clear may be the very thing required to put an end to this chain of events. When motor insufficiency of the stomach, with or without pyloric stenosis, causes food retention for a sufficient length of time to result in the formation of irritant material, which damages the gastric mucous membrane before it is eliminated by vomiting, lavage is again a method of breaking in on a vicious circle and should be performed regularly once or twice daily at a time when it is certain that the food still remaining in the stomach will do more harm than good. This time is perhaps, in most cases, just before going to bed.

Surgical removal of the peripheral irritation should be undertaken as soon as the diagnosis of the necessity of surgical intervention has been made. Every hour of delay increases the danger to the patient, not only by way of increase in the local pathologic condition or the accession of surgical complications, but also because the dehydration and the starvation with its accompanying acidosis make the patient a poorer surgical risk the longer the condition lasts. Therefore, when we suspect a surgical condition of the abdomen, no time should be wasted in futile attempts to check the vomiting by medicinal means. On the other hand, the absolute gastric rest with or without lavage, as indicated, constitutes the best possible preparation of the patient for operation. So important is prompt diagnosis and surgical treatment, that the mere suspicion of the possibility of necessity for operation should make us urge hospitalization, the means for careful study and prompt treatment of the case being so much better in the hospital than in the home. In such cases, it is not only merciful but true to tell the patient that one advises removal to a hospital for careful study of the case, and that operation will, of course, only be resorted to if there is no safer way of relief. We must be just as careful of avoiding the appearance of rushing a patient to an operation as we must of delaying an operation too long. Surgical consultation should not be deferred in such cases; but the surgeon to be chosen should be one who does not suffer from "furor operandi."

Of course, even at the first visit, the patient has been given a careful physical examination with particular attention to the abdomen, and a conscientious attempt has been made to arrive at a diagnosis. Nevertheless, there are occasions when it is necessary to place the patient on the treatment just outlined, a diagnosis being impossible without further examination. We should never neglect to obtain at the very first visit a specimen of the urine for examination. The importance of this will be appreciated from the fact that in nephritis and nephrolithiasis, as well as in diabetes, it will put us far along the way toward the correct diagnosis and treatment. It is probably less well known that, in the differential diagnosis between appendicitis and the periodic acidemic vomiting of children, which sometimes—remarkable as it may seem—presents difficulty, the early, pronounced and constant presence of ketone bodies in the urine would point to the vomiting of acidosis, while its absence at the first examination would exclude this condition. Later on, the urinary findings of acidosis may appear in any case of excessive emesis.

It is unfortunate that the laity nearly always promptly throws away the vomitus and bowel evacuations. It is necessary, therefore, to lay down the specific rule that, should the patient vomit, the evacuation be saved, and that a specimen of the bowel movement likewise be kept for examination.

At the physician's next visit, after twelve or twenty-four hours of such treatment, one of two conditions may be found: either the patient has vomited or he has not. In either case, it is necessary to modify the treatment. If the patient has vomited, continuance of the gastric rest treatment is indicated, with the additional effort to be discussed under the treatment of obstinate emesis. If the patient has not vomited, then the gastric rest may be gradually relaxed. In the majority of cases, the amount of water may be increased to a tablespoonful every half hour, and this may be alternated with a teaspoonful each of milk and seltzer water every half hour. For children who, as a rule, dislike seltzer water, barley water or lime mater may be substituted for the dilution of the milk. If the patient has constipation, and no contraindication to catharsis exists, a few doses of magnesia magma may be substituted for the seltzer water or lime water. After eight or twelve hours, if no emesis has occurred, a tablespoonful each of milk and seltzer water or other fluid may be allowed; and, a few hours later, conditions continuing favorable, a wineglassful of the mixture may be given every hour.

In favorable cases, on the third day, the patient should be well on the road to recovery. The nausea having disappeared, the patient may now be placed on the customary liquid diet of hospitals, and the rectal administration of fluid discontinued as soon as it is evident that the patient retains a sufficient amount of fluid. If, however, nausea still persists, it is better to avoid distending the stomach with fluid. Small quantities of soft food, such as farina or oatmeal gruel, may be given every two hours, and restricted amounts of fluid given alternately every two hours.

REMOVAL OF CENTRIC IRRITATION

In proportion to the degree in which acidosis dominates the causation of vomiting, the administration of carbohydrates is of importance. We now know that oxidation in the body in the absence of a sufficient amount of carbohydrate yields acid products such as diacetic and oxybutyric acids, which in turn increase the irritation of the medullary centers to such an extent as to produce and maintain vomiting even without the cooperation of any other cause. We also know that, in this kind of vomiting, carbohydrate is the chief remedy. A special problem of this kind occurs in the treatment of diabetes, in which the lately popular starvation treatment occasionally precipitates acidemic vomiting, for which the prompt recourse to carbohydrate feeding, coupled with the administration of insulin and given intravenously in great emergency, is specifically antagonistic.

Alkali may also be resorted to in this condition, though it is less likely to be successful, as it does not strike at the cause of the disorder, and practically impossible quantities may be required to neutralize the acid continually formed in metabolism. Oral administration of alkalis in the quantities required is impossible because of the emesis. Giving the solution by rectum may well be carried on in the routine treatment of emesis, as previously directed, but its value in severe cases of acidosis is limited by the rather poor retentive and absorptive quantities of this organ. Hypodermic administration is out of the question, because of the danger of the production of necrosis. Intravenous infusion of from 1,000 to 1,500 c.c. of a 4 per cent. sodium bicarbonate solution may be required by a serious emergency. It is too heroic a procedure to be repeated sufficiently often to do more than tide the patient over a grave crisis, and intensive repetition of the treatment is liable to cause edema. It is possible that duodenal tube administration of alkali (as described below) may be found to be the most efficient method.

Certain mechanical measures may be instrumental in lessening centric excitability. Thus, lumbar puncture, and the lowering of pressure produced thereby, may be of value in those cases of cerebral vomiting associated with excessive subdural pressure. This cerebral vomiting is characterized by the absence of nausea so common in vomiting, due to abnormal states of the gastro-intestinal tract and of other abdominal viscera. It may also be accompanied by a normal tongue and absence of other evidences of disordered digestive function. The triad of vomiting of this type, headache and ocular changes should arouse suspicion of the presence of organic cerebral disease, such as tumor, abscess, meningitis or sinus thrombosis; and the surgery appropriate for some of these conditions should be instituted as promptly as possible.

OBSTINATE VOMITING

Thus far, antiemetic drug treatment has not been brought into requisition, chiefly because it is generally useless, unless the measures previously discussed are also employed; and, when these measures are instituted, other antiemetic treatment is not required in a large number of instances. When, however, vomiting proves obstinate, whether because of essential incurability of the disease, or of obscurity of diagnosis, or because medical treatment should be employed only as a last resort, as induction of labor in hyperemesis gravidarum, then definite results may be secured by the skilful use of antiemetics that lessen either peripheral or centric irritability. For the simple reason that they do not require peroral administration and a retentive stomach, the centric antiemetics are more reliable in action and, on the whole, more important than the local or gastric antiemetics.

LESSENING OF CENTRIC IRRITABILITY

Among the sedatives that may be useful in the treatment of vomiting, bromids, though feeble in action, are the first to be considered because they have less undesirable side effects than other more powerful agents. Being endowed with local irritant action and being capable of producing emesis, bromid should, of course, in the treatment of this condition, not be given by stomach, but by means of retention enemas. A dose of 1, 2 or 4 gm. of sodium bromid may be added to the previously described retention enemas. It is best not to exceed a concentration of 1 per cent.

When the nervous element is a prominent feature in the causation of vomiting, as in the crises of locomotor ataxia or in some cases of hyperemesis gravidarum, it is well to make the effect more certain by reinforcing the bromid with chloral. This should be given in full dose so that a reliable effect can be obtained from the first. Success has an important psychologic effect in giving a patient confidence in his physician as well as in himself. This prescription might be employed:

		Gm. or C.c.	
℞	Chloral hydrate	4	ʒ i
	Sodium bromid	8	ʒ ij
	Water ....to make	60	fl ℥ ij

M. Label: Tablespoonful in starch water to be given as enema.

When the use of chloral is objectionable by reason of circulatory depression, the rectal administration of 0.5 gm. of barbital sodium may be resorted to instead. It is generally advisable to continue such medication every four or eight hours for several days; and, when the desired effect has been obtained, to discontinue by a gradual reduction of the dosage.

In serious cases, in which the other remedies fail, the most efficient agent, provided no idiosyncrasy exists against its use, is morphin given subcutaneously in doses of 0.01 gm. every hour or two for, at most, three doses, or else in the form of suppositories. Morphin is required chiefly in those cases of emesis accompanied by pain, provided we do not deal with an acute, surgical condition of the abdomen, in which the administration of morphin is strongly contraindicated. While in cholelithiasis and nephrolithiasis the employment of morphin, preferably associated with atropin, is of the greatest possible help in relieving the agony of the attack, the same action in such conditions as acute appendicitis or intestinal obstruction might so obscure the symptoms as to delay the necessary surgical procedure, thus lessening the patient's chances of recovery. It is a curious fact that the action of the very drug most potent in checking vomiting is followed by vomiting as a common after-effect. It is well, therefore, to make provision for this action in all cases in which morphin is administered, and most especially when it is used in the treatment of emesis, by directing that when the patient awakes from sleep, he should not be permitted to raise the head for several hours. Meanwhile, he should be given nourishment, including preferably the use of coffee. When the tendency to nausea asserts itself strongly, it is best to continue the administration of morphin with atropin in progressively descending dosage, using perhaps every four hours one half of each previous dose.

Psychotherapy is of greater importance in the treatment of vomiting than is generally realized. When we recollect the fact that disgust may translate itself into nausea and even vomiting, that seeing another person vomit nauseates a great many persons and might even cause them to vomit, it will perhaps be easier to understand the importance of the psychic element in the treatment of emesis. It is well known, for instance, that seasickness may be voluntarily inhibited to a considerable degree by keeping the mind occupied with other things than one's own sensations. One of the reasons why staying on deck as much as possible somewhat protects against mal de mer is that the very odor of the ship's cabin is frequently nauseating and not calculated to help in self control. The mental state has probably also a great deal to do with excessive vomiting in some cases of pregnancy, as when the woman is pregnant with an unwelcome child; and this without necessary connection with voluntary reinforcement of the condition, as might occur if the patient knows that abortion is the final remedy for the uncontrollable vomiting of pregnancy. It is well, therefore, in all cases of obstinate emesis not only to suggest to the patient to resist, all he can, the desire to vomit, but also to protect the patient from unfavorable suggestions. In some cases, the seclusion insisted on in connection with the Weir Mitchell rest cure is of importance in protecting the patient against the unfavorable suggestions emanating from anxious questions and tactless remarks by solicitous relatives.

Maintaining nutrition might as well be discussed under this heading, because a person with a starved brain will be least able to exercise control, and because malnutrition of the central nervous system increases its irritability. Furthermore, in any case of vomiting uncontrolled for a great length of time, it becomes a matter of life and death whether nutrition can be maintained or not. Stomach tube feeding is especially likely to be of help in cases of otherwise uncontrollable vomiting in which the hysterical element is prominent. That food, such as predigested milk, is sometimes retained when given by stomach tube, even though the stomach has previously been absolutely nonretentive, is a clinical fact. Probably the very disagreeableness of this mode of feeding may have a wholesome psychic influence in these cases, especially if the patient knows that, should the food come up, down goes the stomach tube again. As a final resort, we have duodenal alimentation. Thus, Einhorn[2] cites three examples of succcessful feeding of patients by means of the duodenal tube, when they were unable to take nourishment on account of vomiting. None of the patients thus fed lost weight appreciably. Milk and eggs were the main food material forced through the tube.

An interesting case of obstinate vomiting with semicoma and muscular twitchings from reflex anuria has been reported by McCarthy, Killian and Chace.[3] All the customary remedial measures, such as medication by mouth, rectal drips, colonic irrigations, hypodermoclyses, and bloodletting, with intravenous infusion of glucose solution and sodium bicarbonate, were exhausted, and the patient still continued in a bad condition. A spectacular result was secured from the use of the duodenal tube and the introduction, by means of it, of 5 per cent. glucose solution, 2 per cent. sodium bicarbonate, and, for catharsis, sodium sulphate. Feedings were also given through the duodenal tube, consisting of peptonized milk, sodium bicarbonate, cream, water and glucose solution, about 1,000 calories every twenty-four hours. The vomiting ceased, the urine output increased tremendously, and so great was the effect of the sodium bicarbonate in causing a rise in the carbon dioxid combining power of the blood that it became necessary to discontinue the alkali. Four or five days later, a lavage of the entire intestinal tract by duodenal tube with from 2 to 4 liters of tap water, three times a day, was undertaken, and a pronounced reduction in the blood retention of urea nitrogen and creatinin was secured.

LESSENING OF PERIPHERAL IRRITATION

To the extent to which excessive gastric irritability exists, local measures for its control may be of advantage. First and foremost among these are protectants, such as the insoluble salts of bismuth. Among them, bismuth subcarbonate probably deserves preference to the subnitrate, because of the possibility of nitrite poisoning occurring from administration of the latter. It is, of course, illogical to administer this or any other antiemetic in tablet or capsule form. Even the voicing of this proposition might seem unnecessary, had it not happened that a hospital pharmacist dispensed bismuth subnitrate tablets, which were promptly vomited, while the powder suspended in a little water was retained.

Local anesthetics may be of help, especially when a focus of local irritation, such as cancer or ulcer, is responsible for the vomiting. Of these, benzocain (anesthesin) is possibly the agent of choice, as it may be safely given in doses as high as 0.50 gm., though a dose of one-tenth this amount may suffice to exert a sufficient degree of anesthetic action. As a preventive of postanesthesial vomiting, the administration of chlorbutanol (chloretone) in doses of from 0.5 to 1 gm. as a preliminary to the giving of a general anesthetic may be useful, as it not only lessens local irritability but also is of value in the production of general anesthesia. Procain or cocain hydrochlorid in doses of 0.01 gm. may also be given. It may possibly be combined with menthol, as in this prescription, recommended in the treatment of seasickness:

	Gm. or C.c.		
℞ Menthol		10	gr. iss
Cocain hydrochlorid		20	gr. iii
Alcohol	90		fl ℥ iii
Saccharin		09	gr. iss

M. Label: Teaspoonful in water every half hour until relieved.

Tincture of aconite, in minim doses repeated every hour, may be thought of for its depressant action on nerve endings in those cases in which its action as a circulation depressant might possibly be of value by lowering intracranial tension.

Such agents as phenol (carbolic acid) and creosote in small doses might be considered the local anesthetic of choice in cases of vomiting in which excessively prolonged gastric retention is responsible for fermentation. Such cases would, however, be managed more efficiently by means of lavage.

How irritants given by stomach check vomiting is one of the puzzles to be solved. It is a fact that 15 drops of tincture of capsicum given in a cupful of hot milk will often be retained by a patient suffering from alcoholic gastritis when other things, even liquor, are being vomited. Since an alcoholic patient under these conditions is a candidate for delirium tremens, which is in part, at least, due to starvation, this trick of treatment is worthy of recognition. The time honored recommendation of drop doses of tincture of ipecac or of iodin is probably based on psychic action. They have the reputation of succeeding when everything else has failed. It may be that such remedies do so because they happen to be given at a time when the condition under treatment has come to its natural end.

Counterirritation over the epigastrium is another time honored remedy supposed to succeed when other measures fail. The simplest way to obtain such effect would be the application of a mustard plaster to the epigastrium for from fifteen to thirty minutes. Heat applied to the epigastrium might help in retaining a meal otherwise vomited. Winternitz's supreme "stomach remedy" consists of a heating coil over the epigastrium enclosed in a trunk compress applied cold, covered with flannel and permitted to remain until it is thoroughly warmed up. The recumbent posture forced on the patient by this treatment is at least one of the reasons for its success.

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[2] Einhorn, Max: Duodenal Alimentation, M. Rec., July 16, 1910.

[3] McCarthy, J. F.; Killian, J. A., and Chace, A. F.: Reflex Anuria, J. A. M. A. 80: 1043 (Oct. 14) 1923.

An antispasmodic regimen should not be overlooked in cases of obstinate emesis. Attention has already been called to its value in the treatment of seasickness, and also to its use in connection with morphin in the treatment of gallstone or renal colic. Obviously, the greater the importance of spasm in the emesis, the more important is atropin therapy. Thus, in pylorospasm, it is the most important means of medicinal treatment. As this condition occurs chiefly in children, it must be borne in mind that these bear much larger doses of atropin than that arrived at by applying the classical dose rules. Enough should be given either to control the symptoms or to produce undesirable side-effects, such as marked flushing of the skin or dryness of the mouth. As aqueous solutions rapidly deteriorate, it is best to dissolve a 1 mg. tablet of atropin sulphate in 1 c.c. of water and to start with 1 drop of this solution before each feeding. In the milder cases, the dose may be given in the bottle of artificially fed infants, or, if the child is breast fed, in a teaspoonful of water before nursing. In severe cases, the drug should be administered hypodermically. Should 1 drop fail to relieve, the dose is increased progressively to 2, 3 or more drops. Haas[4] reports his experience with more than forty cases of pylorospasm, in nearly all of which this treatment was successful. The largest dose employed was a little less than 1 mg. at each feeding, or 8 mg. in the twenty-four hours. Such treatment may be required for only a few weeks or for the greater part of the first year. When constipation with rectal tenesmus occurs during the course of this treatment, the omission of a few doses of atropin usually relieves this.

An interesting controversy regarding the effect of atropin on gastric motility, as observed roentgenoscopically, has arisen between Lasch[5] and Oetvös,[6] due, as will be noted, to difference in dosage occasioned by difference in mode of administration. Lasch gives from 1 to 1.5 mg. of atropin intravenously, while the patient is being observed with the fluoroscope, and reports—after a transient increase in peristaltic action in some cases—the regular and definite lessening of tone and of the peristalsis in cases of hypertonus and hyperperistalsis, while normal or deficient tonus or peristalsis is not influenced. Oetvös, on the other hand, finds that 1 mg. of atropin solution injected subcutaneously causes pylorospasm in patients with deep ulcer in the vicinity of the pylorus so regularly that he proposes this as a test for deep pyloric or duodenal ulcer, as such an effect is not obtained when the ganglion cells in Auerbach's plexus are not affected by deeply extending disease. These studies obviously point to the practical fact that we must not hesitate to push the dose to the physiologic limit, as a large dose may succeed when a small dose fails; and they also prepare us to understand why atropin may fail as an antispasmodic in certain cases of peptic ulcer.

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[4] Haas, S. V.: Congenital Hypertrophic Pyloric Stenosis and Its Treatment by Atropin, J. A. M. A. **79**: 1314 (Oct. 14) 1922.

[5] Lasch, C. H.: Röntgenologische Untersuchungen über den Einfluss des Atropins auf die Magenmotilität, Klin. Wchnschr. **1**: 840 (April 22) 1922.

[6] Oetvös, Erwin: Röntgenologische Untersuchungen über den Einfluss des Atropins auf die Magenmotilität, Klin. Wchnschr. **1**: 362 (Feb. 18) 1922; **1**: 1209 (June 10) 1922.

THE TREATMENT OF CONGENITAL DACRYOCYSTITIS [*]

LEWIS W. CRIGLER, M.D.
NEW YORK

The term "congenital dacryocystitis" is a misnomer. The condition develops after birth, and not before, and is not a true inflammation of the sac wall, but an infection of the retained excretions from the conjunctival sac. The condition that predisposes to this postnatal infection, however, is congenital in the sense that there has been a delay in Nature's process of canalization of the lacrimal passageways. This is manifest in at least 95 per cent. of all cases by delayed opening into the inferior nasal wall.

We are indebted to Born, Legal, Kolliker, Ewetzky, Schaéffer and others for our knowledge concerning the embryologic development of the nasolacrimal passageways; but to Schaeffer, perhaps, belongs the credit of a more thorough study of the subject in the human embryo, commencing when the initial cells are laid down and continuing the study until it is complete at the end of gestation. From his investigations, we learn that this development begins at about the end of the fifth week, in the naso-optic groove, by a process of proliferation, and continues until the cells are finally submerged in the mesenchymal tissues by a gradual closure and obliteration of the groove or fissure. These epidermal cells now become a detached cord, having no communication with the surface at either extremity. By a process of "budding," the ends of this cord find their way to the surface epithelium again, the superior end forming the dome of the sac and canaliculi, the lower end terminating in the inferior nasal meatus. As this development progresses, there is, at the same time, a rearrangement of the cells so that distinct walls are formed; the lumen of the passageways become manifest, and the innermost cells become necrotic and ready for expulsion as soon as the passage is opened, which usually occurs at, or before, birth. The nasal opening is the last to form; in a great many instances it is impervious at birth, but canalization may continue until the nasal mucosa is reached, or until the retained secretions, with the aid of the muscular action of the lids, cause the thin partition wall to rupture.

It is this delayed opening of the nasal end of the duct with which we are chiefly concerned in the treatment of congenital dacryocystitis. It is a well known fact that a great many cases of this nature recover spontaneously. Cases in which there has been a persistent epiphora for several weeks or months after birth, followed by cessation, are undoubtedly due to Nature's completion of the process of canalization.

But the cases with which the ophthalmic surgeon has to contend are those in which no such favorable termination is achieved. Relief is sought for a purulent discharge from the eye, which was preceded by a persistent overflow of tears. There is usually no history of pain, redness or swelling, either of the lids or of the conjunctiva. The sac wall may appear distended when the purulent fluid has been allowed to accumulate, but there is no real inflammatory infiltration unless the infection has persisted for a long time. The lacrimal sac has simply become a culture tube, and the fluid mixed with retained necrotic débris, a favorable culture medium. As soon as proper drainage is established, recovery is prompt and complete.

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[*] Read before the Section on Ophthalmology, New York Academy of Medicine, Feb. 19, 1923.

At the St. Louis session of the American Medical Association, May, 1922, there was a discussion before the Section on Ophthalmology on the use and abuse of the probe in the treatment of dacryocystitis in general. In discussing the congenital type, no reference was made to a method of treatment that has been successful in my hands for the last seven years, during which time I have never found it necessary to resort to the use of the probe.

The treatment is simplicity itself. A few others have practiced it in the past, but it has never been put before the profession in such a way as to cause its adoption in preference to the more difficult and painful method of probing. It is conceded, of course, that one successful passage of a medium size probe usually suffices to cure the condition (and, in rare instances, may have to be done), but an anesthetic is usually required to avoid the danger of unnecessary traumatism, and even then there is the danger of forcing a false passage into the nose or its adjacent tissues, to say nothing of the dangers from the anesthetic.

METHOD OF PROCEDURE

1. The tear sac is allowed to become fully distended. We caution the mother not to wipe the eye or in any way to press on the tear sac before coming to the clinic or office. She is given a 25 per cent. solution of protargin mild (argyrol) or other antiseptic eye lotion, to be dropped into the culdesac three times a day, to protect the eyeball from infection.

2. The infant's head is held between the surgeon's knees in a manner similar to the method in vogue of inspecting the eyeball. Assuming that it is the right sac that is affected, he places his right thumb over the sac in a way to shut off the return flow through the puncta. This is done by holding the thumb sidewise, with the thumb nail outward and forming an acute angle with the plane of the iris. The edge of the thumb is now pressed downward over the puncta, compressing it against the rim of the orbit; with this point of pressure maintained, the thumb is rotated to the right, at the same time pressing downward, abruptly, over the sac. The fluid, now being compressed by the thumb, transmits the pressure to the walls of the sac, which must give way at its weakest point, which happens to be the site of the nasal opening. Repeated cures after one manipulation of this sort, and no failures so far, extending over a period of seven years, convince me that the probe should never be resorted to except as a last resort.

The salient points to be remembered are: (1) Pressure must be made over the sac only when it is distended; (2) care should be taken that the thumb is applied in such a way as to prevent regurgitation into the conjunctival sac, and (3) sudden pressure over the sac causes the retained fluid to burst through the persistent fetal membrane which separates the mucous lining of the nose from that of the nasal duct.

COMMENT

On reviewing the literature of this subject further, we find little or no stress laid on this particular mode of treatment. The late Dr. Kipp, however, was a strong advocate of it. In the discussion of a paper on this subject by Dr. William Zentmayer, in 1908, he said:

> In all cases treated within the last ten years, I have used simply cleansing and pressure, and have not had to use a probe in any case. The cases that come with abscesses of the lacrimal sac are those that have been probed by other oculists. Cases that come to me within a couple of weeks after birth are cured in a very short time by simple cleansing and pressure. You must instruct the nurse or mother to exert pressure properly to direct the secretions downward. If you do it yourself, you can often feel the obstruction give way.

Fuchs, in the last edition of his textbook, dismisses the subject with the following remarks: "Usually repeated expressions of the lacrimal sac suffice to cure the disease; if not, we must make the nasal duct pervious by the use of sounds."

Roemer says that we need only to teach the mother to press the contents of the sac out regularly (meaning into the conjunctival sac), and the passage into the nose will open spontaneously. If the suppuration should not disappear in a few days, the stenosis may be easily removed by the careful passage of a probe.

Crawford makes use of pressure applied over the sac, and repeats this several times a day as an adjunct to other remedies.

Fage recommends expression, probing and incision if necessary.

Norris and Oliver[1] advise expression, and, in the event of failure, four or five probings with gradually increasing sizes.

Zentmayer is a strong advocate of the probe, while Jackson states that he avoids the use of the probe whenever possible, and relies on gentle pressure. When necessary to resort to the probe, he prefers one of moderate size, for, he says that this is not wholly without risk even in skilful hands, but the risk from attempting to force a passage with fluid from a syringe is at least as great.

The foregoing method, of course, is based on the assumption that we are always dealing with an imperforation at the nasal end of the duct. If the obstruction is due to a diverticulum or fold of mucous membrane, congenital stricture or bands in any portion of the canal, such treatment is of no avail, and, for that matter, probing would not suffice. On the contrary, it might do more harm than good. Such conditions are extremely rare, and treatment by any method other than extirpation of the sac is unsatisfactory.

The simplicity and efficacy of the treatment here described should appeal to the pediatrician, the obstetrician, and to the general practitioner as well, to whom these cases are first brought. If they will recognize the condition before infection has taken place, and will practice the procedure described above when the sac is distended with lacrimal secretion, and not with pus, they will relieve many a fond mother's anxiety by promptly curing the condition.

40 East Forty-First Street.

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[1] Norris and Oliver: Diseases of the Eye, Philadelphia, J. B. Lippincott Company, 1907.

Diphtheria Immunization of School Children.—The *Monthly Bulletin* of the department of health for April contained a report of the work of the bureau of laboratories, which shows that in 1922 more than 157,000 persons, chiefly school children, have been Schick tested and immunized, when necessary. This year's work has extended the number of protected school children in Greater New York to more than 250,000. Deaths from diphtheria continue to decline. The report announces that a modified Schick outfit has been devised which will be placed on the market within the next month, and eliminate the difficulties of the old capillary tubes due to breaking up of the column of toxin. Occasionally some of the toxin entered the closed ends of the tube, making the outfit useless. During the year the laboratory produced 1,411,300 c.c. of diphtheria toxin and 1,993,100 c.c. of diphtheria antitoxin. The value of the antitoxin was $135,245.80.

Clinical Notes, Suggestions, and New Instruments

RIBS FRACTURED BY COUGH

Gerald B. Webb, M.D., and G. Burton Gilbert, M.D.,
Colorado Springs, Colo.

The occurrence in three patients of fractured ribs following a cough, and the fact that none had been recognized by good clinicians, prompt the recording of these cases.

REPORT OF CASES

Case 1.—*Fracture of fourth and fifth left ribs.* Mr. B., aged 34, with extensive pulmonary tuberculosis, was attacked with a very sharp pain in the left side following a severe nocturnal cough. The diagnosis of pleurisy was made. The side was strapped without relief. Finally, morphin had to be administered to control the pain and cough. The left lung having active disease throughout, artificial pneumothorax was attempted, but failed. As the disease was progressing, surgical collapse was decided on, and an operation was performed three weeks after the onset of the severe pain, which had persisted. To the surprise of the surgeon, two ribs, the fourth and fifth, between the internal border of the scapula and the spine, were found completely broken through, with little attempt at healing.

Case 2.—*Fracture of sixth right rib.* Mr. K., aged 52, with an advanced condition of pulmonary tuberculosis in the right lung with cavity formation, during a spell of wet weather, while sitting in a rocking chair, coughed violently, and had a sudden severe pain located chiefly in the upper right abdominal quadrant. A diagnosis of diaphragmatic pleurisy was made. The patient was strapped, but this gave little relief because of the severity of the pain, and the fact that it was intensely aggravated by coughing. Morphin was administered. About a week later, after his arrival in Colorado, the patient was seen by us, and the diagnosis of fractured rib was suggested. The patient was quite obese, but by careful examination, a definite ridge across the sixth right rib, just below the angle of the scapula, could be made out. Occasionally a slipping motion, which the patient also would feel, could be detected. The pain lasted several months, and was always conspicuous over the upper abdomen on the right side. Very little pain was ever felt at the site of fracture, but discomfort was elicited on deep pressure. A roentgen-ray examination confirmed the diagnosis.

Case 3.—*Fracture of ninth left rib.* Mrs. K., aged 58, who had pulmonary tuberculosis thirty years ago, now completely arrested, with no signs of activity for many years, and who was very susceptible to attacks of acute bronchitis, during a recent visit to New York contracted bronchitis. The cough was very severe and in paroxysms. Pain developed below the right costal margin, and the patient was treated for pleurisy. Two days later, severe pains developed in the lower axilla on the left side. The patient was then strapped for pleurisy, but with no relief. The distressing cough was controlled by opiates. On her return to Colorado Springs, the patient was still coughing and suffering severely. A diagnosis of fracture of the ninth rib on the left side in the midaxillary line was made. A definite ridge could be felt across the rib, and the patient was very sensitive over this spot. There was no pain at the termination of the nerve over the abdomen, but there was quite a severe pain on the opposite side in this area of distribution. Definite slipping could be heard with the stethoscope over the course of the rib, following a slight cough. A roentgen-ray examination showed a definite break of the ninth rib in the midaxillary line. Strapping, and opiates to control the cough, gradually brought relief, and the pain on the opposite side was also relieved at the same time.

COMMENT

So far, we have been unable to find mention of rib fractures resulting from cough in any textbook on diseases of the chest or on tuberculosis. On the other hand, textbooks on surgery and fractures frequently mention this association. Keen states that fractures of the ribs are rarely the result of violent muscular efforts, such as sneezing and coughing. Stimson says, "Fractures of the ribs may be caused by muscular action or by external violence. Of muscular action the most common form by far is coughing; others are sneezing, lifting a heavy object, even turning in bed." He also says it is much more common on the left side than on the right, and cites forty cases compiled by Tunis,[1] and thirteen personal cases by Chelmonski.[2]

Although Scudder does not mention cough as a cause of fracture, he says that pain may be felt at the seat of fracture on any forcible expiration, as in sneezing, coughing or laughing. The patient may be able to place his finger accurately on the seat of fracture, although this was not the case in any of our patients.

Von Bergmann-Bull states that fracture of the ribs has been reported after slight exertion, such as sneezing or coughing. In these cases, the fracture probably takes place during the violent expiratory efforts. It is a peculiar fact that most of these fractures were on the left side. This author cannot agree with Bahr, at least in cases of the upper ribs, that the liver protects on the right side. Most of these fractures were near the cartilaginous junction in the anterior third. None of those reported here were in this location.

Such fractures must occur more commonly than internists suspect. Sudden severe paroxysmal pains which persist in patients with pulmonary tuberculosis should suggest a search for a fractured rib. In these cases, cough is very troublesome and tends to make the broken ribs somewhat intractable in healing.

402 Burns Building.

SUPPORT FOR HERNIA, RELAXED SACRO-ILIAC LIGAMENTS AND VISCERAL PROPTOSIS

Edward J. Brown, M.D., Minneapolis

The great comfort I have experienced leads me to describe this support in the interest of the thousands of sufferers from hernia, relaxed sacro-iliac and visceral proptosis.

I have worn hernial supports for thirty or more years with varying discomfort. About fifteen years ago, an orthopedic friend advised me to lie on a hard board for an attack of sacro-iliac lameness. After two hours I rebelled, went to my harness maker, and ordered a heavy surcingle of webbing 4 inches wide and three-sixteenth inch thick, fitted with straps and buckles one-half inch from the upper and lower edges. This was buckled tightly about my hips, and I then went about my business. For comfort and cleanliness I wore a double thickness of canton flannel underneath. This is 2 yards in length, which allows several thicknesses to be folded in front over the hernia, affording an extra protection from the pressure of the hernial supporter, which is worn outside the surcingle, and at its lower edge. As a later development, I had two 4-inch rolls of muslin sewed to the back of the surcingle above which the strap of the hernial supporter is placed. The lifting of the abdominal viscera by the surcingle greatly simplifies the task of the hernial truss.

TROUSERS SUPPORTER

In yielding to convention by discarding visible suspenders, I have found both invisible suspenders and tight belts an unsatisfactory substitute. Last year I bought a piece of upholsterer's 4-inch webbing, long enough to encircle the body with something to spare, sewed to it at the middle an old belt, to the upper border six buttons to which a pair of suspenders were attached, and to the lower border, at each side, a 4-inch roll of muslin about an inch in diameter, to afford a support for the trousers. A heavy tape, tied through the buckle in front and to the truss below, stabilized both. I have found this trousers supporter so comfortable and satisfactory that I have used it all the year.

No doubt an appliance maker can make an equally comfortable and much more expensive combination, but I see no reason why the average person desiring such supports should not be enabled to fit himself with this perfectly simple combination automatically adaptable, comfortable and inexpensive.

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[1] Tunis University M. Mag., November, 1890.

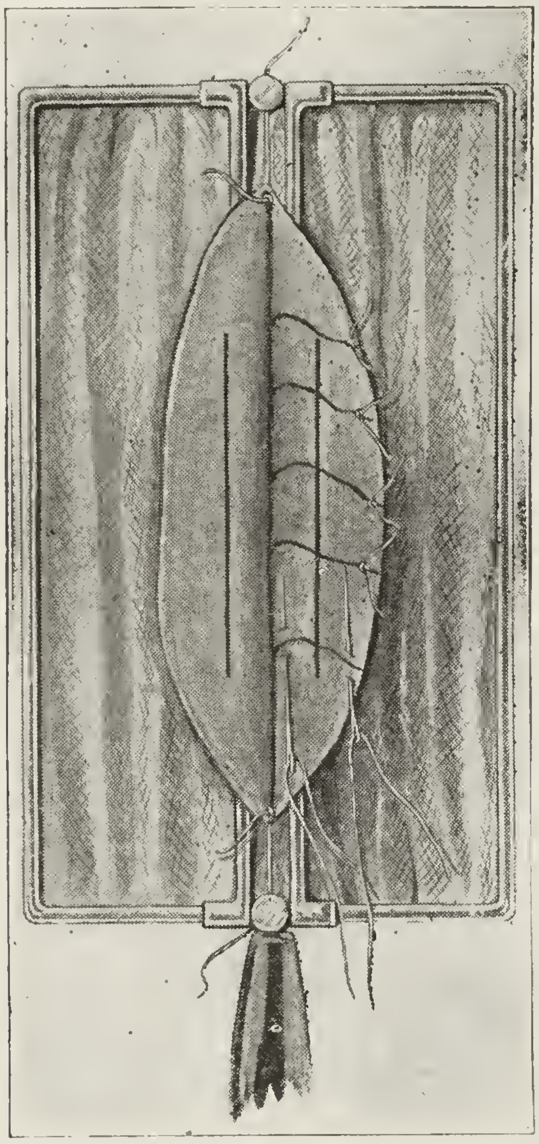
[2] Chelmonski: Centralbl. f. Chir., 1901, p. 1188.

900 Nicollet Avenue.

A GASTRO-INTESTINAL HOLDER FOR VISCERAL ANASTOMOSIS

Chauncey E. Tennant, M.D., Denver

Modern visceral surgery has been much simplified during the last ten years. Prior to this it was deemed necessary to use clamps for hemostasis, both in gastro-enterostomies and intestinal anastomosis.



Gastro-intestinal holder for visceral anastomosis.

Many have been the clamps devised for this purpose, and perhaps the most popular of all has been the compound three bladed clamp known as the Roosevelt clamp. I had much to do with its development, and used it first, after many experiments, in the early days of gastro-enterostomy. While many surgeons still find this clamp very satisfactory, and seldom, if ever, have postoperative hemorrhage directly traceable to its use, yet reputable and successful surgeons have had this misfortune, and I am willing to concede that such accidents will happen, especially when this instrument is used as a *clamp* rather than as a simple, light hemostat and holder.

In order to safeguard the patient from this unfortunate experience, and to meet the objection of these well known surgeons, I have devised a simple visceral anastomotic frame to meet the needs of a visceral holder for modern anastomosis. Its weight approximates that of the original Roosevelt clamp, so that it steadies the visceral contents, without the aid of an assistant's hands, which are so often in the way. The middle blade, or holder, is discarded and two anchoring catgut strands are used in its stead, thus better approximating the structures to be anastomosed, and also to facilitate the placing of a gauze strip underneath and between the two viscera. The blades are then approximated close up to the outer margins of the viscera sufficient to hold them firmly; yet the pressure from these lateral blades is so light that it is impossible to produce necrosis or postoperative hemorrhage. The tissues now being held firmly in position in the center of the frame, the operator may proceed without assistance, especially when the Balfour retractor is in position.

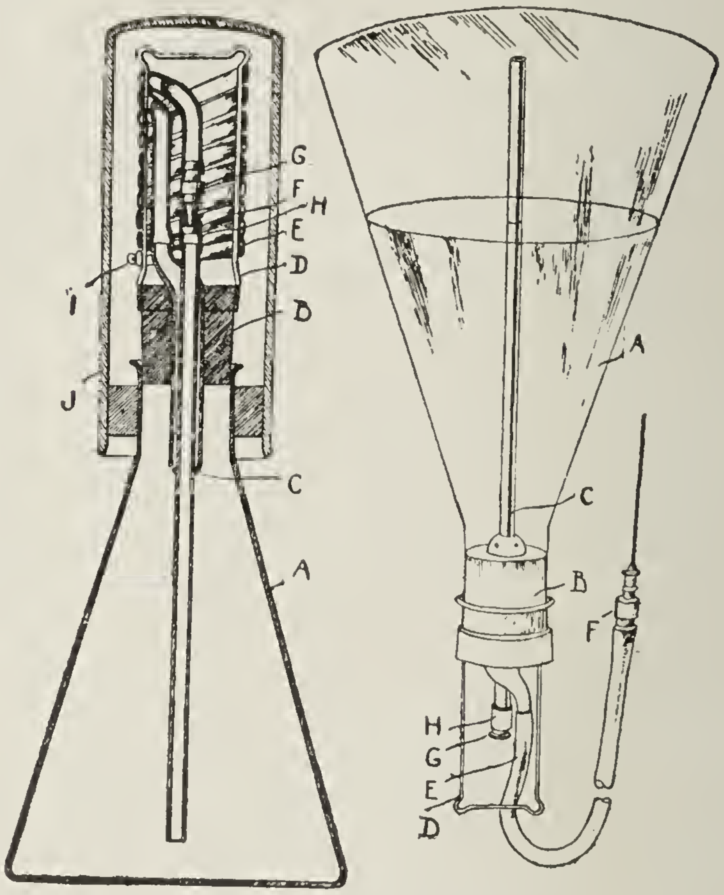
A much better stoma may be made and a decidedly better approximation, because the tissues are free to give when more margin is required. The few blood vessels along the greater curvature are ligated, both above and below the stoma, after fixing the organ in the holder, and before the opening is made. In intestinal anastomosis this is, of course, unnecessary, although the holder works equally well here. The handle is removable, making its use optional with the operator.

A NEW APPARATUS FOR THE ADMINISTRATION OF FLUIDS *

Edward F. Lane, New Brunswick, N. J.

This apparatus has been designed with a view to providing a safe, easy method for the intravenous, intramuscular, intraperitoneal and subcutaneous administration of fluids—saline, glucose and sodium bicarbonate solutions. It is simple and at the same time surpasses in asepsis, convenience and adaptability any apparatus at present in common use.

The instrument consists of a flask (*A*) of any desired capacity, though I have found that one of 500 c.c. is the most suitable for general use, with the highest graduation at the top, provided with a rubber stopper with a single hole (*B*) through which passes a glass tube (*C*) so constructed that it at the same time empties the flask and admits the air necessary to empty the flask. Attached to the rubber stopper is a framework (*D*) of German silver, on which the rubber tubing (*E*), of sufficient length to allow a good head of pressure, is conveniently wound. The apparatus, when packed, is self-sealing by means of two adapters, one of which (*F*) is attached to the rubber tubing, and so provides a quick, sure attachment for the needle, and the other (*G*) is attached to the second outlet of the glass tubing by means of a rubber connection (*H*) to give pliability and so prevent breakage. The adapter *F* is slipped into the adapter *G*, and the rubber tubing wound around the frame and fastened by



Apparatus for administering fluids.

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* From the Department of Pathology and Experimental Medicine, Middlesex General Hospital.

means of the lug (*I*) provided. A glass cover (*J*) fits over the top of the flask, enclosing the rubber tubing, frame, stopper and adapters, so that no dust or organisms can enter.

To prepare the apparatus for use, it should be filled, sealed, and sterilized in an autoclave, and is then ready for use. It can be easily carried in the physician's bag or placed in a convenient place in the operating room.

The preparation of sodium bicarbonate solution is somewhat different from other solutions, because of the fact that it is broken down by the heat in autoclaving. In the preparation of it, after autoclaving, carbon dioxid is bubbled through the solution for several minutes to replace that which was lost. The adapter is cleansed with alcohol and the flask is sealed again for future use.

In the physician's bag there is no danger of leakage when the flask is placed on its side, provided the stopper and adapters have been securely placed.

REMOVAL OF ADHESIVE BANDAGE

Harper F. Zoller, Detroit

Medicated tape or adhesive bandage can readily and painlessly be removed from the patient by moistening the bandage with a little pure ethyl acetate held in absorbent cotton, by sopping lightly over the entire surface of the bandage or tape. In a few seconds the adhesive surface is killed and the bandage can be pulled free from the skin or hairy surface without the least "pull" to the patient. The ethyl acetate possesses a rather penetrating odor, but, because of its high vapor pressure, it evaporates entirely in a few minutes, leaving neither odor nor ill effect.

When the adhesive tape or bandage covers areas or surface which may become infected, a few drops of tincture of iodin or a few crystals of pure iodin may be added to the ethyl acetate (the latter is an excellent solvent for iodin) for purposes of disinfection. The solution may then be used as before for the removal of the bandage.

REMOVING ADHESIVE SPOTS

It is frequently necessary to remove from a skin surface the grimy portions of adhesive left from strips of tape torn away by other means. Ethyl acetate on a tuft of absorbent cotton will do this nicely. Ethyl acetate acts as a solvent for a portion of the body of the adhesive, and this is a very safe and satisfactory solvent to employ about the sick or convalescent ward. There are other esters that can be employed in lieu of ethyl acetate, but it is doubtful whether they will ever be as suitable both from the odor, vapor pressure and economic standpoints. Several physicians and hospital attendants who have tried this solvent at my suggestion have praised it highly. I present it herewith so that others may benefit too.

COMMENT

It is no uncommon experience to have nurses and attending physicians in hospitals and homes tear the adhesive bandage loose from the patient, at the expense of pain and ill feeling. Whenever the hair has not been shaved, this mode of operation causes additional discomfort. Frequently recourse is had to gasoline and other solvents, but gasoline may prove very unsatisfactory at times; nor is it as good a solvent for the adhesive. A small bottle of ethyl acetate in the physician's kit or in the medical chest of the hospital, or further, in the first aid cabinet, will greatly lessen the torture from adhesive bandaging.

3345 Grand River Avenue.

Introduction of Disease in Brazil.—Smallpox prevailed in Brazil from remote times; trachoma was brought by the negro slaves in 1830; scarlet fever appeared in 1835 from Argentina; typhoid fever was imported from the Canary Islands in 1836; measles epidemics occurred in 1834 and 1844; yellow fever, after putting in brief appearances in 1555, 1685-1692, 1828, 1839 and 1842, finally became endemic in 1849; cholera arrived from Europe in 1855, causing about 200,000 deaths; plague was imported in 1899.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

SOFOS.—A mixture of sodium dihydrogen phosphate and sodium hydrogen carbonate (sodium bicarbonate), rendered stable by coating the particles of one of the constituents with sugar (2 per cent.). One part of sofos has the same phosphate value as 1.75 parts of sodium phosphate, U. S. P.

Action and Uses.—When sofos is treated with water, sodium phosphate (Na_2HPO_4) is formed and carbon dioxide is set free. (The reaction does not go to completion, some sodium dihydrogen phosphate remaining; but this is not considered important, as primary phosphate is also formed when sodium phosphate is taken into the acid gastric fluid.) Sofos has the physiologic action of sodium phosphate. It differs from the effervescent sodium phosphate preparations in that it is free from citrate or tartrate.

Dosage.—For adults, from 5 Gm. to 15 Gm. (from 1 to 4 drams) in a glassful of water, taken before effervescence ceases.

Manufactured by the General Chemical Company, New York City. U. S. patent 1,037,078 (Aug. 27, 1912; expires 1929) and 1,150,901 (Aug. 4, 1915; expires 1932). U. S. trademark 116,426.

Sofos is a white powder, having a slightly acid taste. It is permanent in dry air. On the addition of water, effervescence occurs with formation of secondary sodium phosphate and evolution of carbon dioxide. (When treated with water at room temperature, about 70 per cent. of the available carbon dioxide is liberated; when treated with human gastric fluid, about 93 per cent. of the available carbon dioxide is set free.)

Assay.—Dissolve about 0.5 gm. of sofos, accurately weighed, in 100 Cc. of water, and, after effervescence ceases, acidify with a small excess of hydrochloric acid. Boil the solution until the carbon dioxide is removed, cool and render ammoniacal. The phosphorus content is then determined in the usual manner, weighing as magnesium pyrophosphate. The amount of phosphate radical (PO_4) present should not be less than 46 per cent.

POLLEN EXTRACTS-P. D. & CO.—Liquids obtained by extracting the proteins from the dried pollen of various species of plants. The products are standardized in "units," a unit being the extractive obtained from 0.002 mg. of pollen.

Actions and Uses. — See Pollen and Epidermal Extract Preparations and Biologically Reactive Food Proteins, New and Nonofficial Remedies, 1923, page 234.

Dosage.—See Pollen and Epidermal Extract Preparations and Biologically Reactive Food Proteins, New and Nonofficial Remedies, 1923, page 234.

Pollen Extracts-P. D. & Co. are marketed in the following forms: (1) A package of 5 tubes for diagnostic purposes, each tube containing enough solution (1,000 units per cubic centimeter) for one test. (2) For diagnosis, prophylaxis and treatment, one set of four bottles of 5 Cc. each, representing graduated concentration, namely: No. 1, 10 units per cubic centimeter; No. 2, 100 units per cubic centimeter; No. 3, 1,000 units per cubic centimeter; No. 4, diluent consisting of physiological solution of sodium chloride. (3) For diagnosis, prophylaxis and treatment, 1 bottle of No. 2, 5 Cc., 100 units per cubic centimeter. (4) For diagnosis, prophylaxis and treatment, 1 bottle of No. 3, 5 Cc., 1,000 units per cubic centimeter.

Manufactured by Parke, Davis & Co., Detroit, Mich.

Pollen Extract Ragweed-P. D. & Co., and Pollen Extract Timothy-P. D. & Co., are prepared by the following method:

The dried pollen is ground in a ball mill with physiological solution of sodium chloride and sand for five days, after which the suspension of pollen in solution of sodium chloride is mechanically shaken for twenty-four hours. It is then clarified by filtration and standardized, so that each cubic centimeter contains the extract from 2 mg. of pollen. Weaker solutions are prepared by diluting with physiological solution of sodium chloride.

PROCEEDINGS OF THE SAN FRANCISCO SESSION

MINUTES OF THE SEVENTY-FOURTH ANNUAL SESSION OF THE AMERICAN MEDICAL ASSOCIATION, HELD AT SAN FRANCISCO, JUNE 25-29, 1923

(*Continued from page 1938*)

HOUSE OF DELEGATES

First Meeting—Monday Morning, June 25

The House of Delegates met in the Civic Auditorium, San Francisco, and was called to order at 10 a. m. by the Speaker, Dr. F. C. Warnshuis, Grand Rapids, Mich.

ADDENDUM

(Refer page 1911, preceding Reports of Officers)

The Vice Speaker, Dr. Rock Sleyster, Wauwatosa, Wis., was called to the chair, after which the Speaker delivered his address.

Address of the Speaker, Dr. Frederick C. Warnshuis

Members of the House of Delegates:

In opening the deliberations of this House of Delegates, I am again confronted with the duty of calling to your official attention the death of an officer of our association.

On Sept. 2, 1922, Dr. Alexander R. Craig, our Secretary, answered the final summons that terminates man's earthly activities. We mourn his death and voice our loss. We revere him in our memory far more sincerely than words can express. We pay tribute to him for years of activity and service that he contributed to our organization and for what he was as a man, possessed of noble and endearing qualities that commanded our respect and admiration. There was much in his life and work that we failed to recognize, fully interpret and adequately appraise. As he mingled among us, he exercised an influence that was elevating and inspiring. We shall miss him in our deliberations.

With your approval, I am appointing a special committee composed of Drs. Dowling of the Board of Trustees, Donaldson of Pennsylvania and Taylor of Texas to formulate suitable resolutions to be spread on our records for the better recording of our testimonial and tribute to our deceased co-worker and Secretary, Dr. Alexander R. Craig.

Mr. Vice Speaker, shall we rise, and with bowed heads, pay respect and honor to him who so long was one of us but now rests in eternal sleep?

. . . .

As delegates, representing component units of our national organization, we are assembled in annual session for deliberation and the enacting of policies and principles that your combined wisdom and judgment proclaim are paramount for the better achievement of the objects that formulate the foundation of our Association, and which justifies its existence among the institutions and people of this nation. A duty and trust is assumed by every delegate and rests on this house as a whole. It is imperative that, individually and collectively, we recognize our obligation when participating in the business of this legislative body. By the agency of events which are now happening, the old landmarks and courses are fast disappearing. Experience is robbed of half its value. New difficulties obstruct our paths, new burdens weigh us down, while new and more serious problems, which are certainly approaching, must be averted from our national and state organizations. Our individual relationship to patients and the public is rapidly passing through a transitional stage, with changes that shall ever after mark an era in our professional history. We stand as actors on the stage, and in these occurrences and events, as we appear in the scenes, we are confronted with a duty that calls on us to strive honestly and earnestly to understand the philosophy of these events and to recognize the weaknesses of our organization. If we are imbued with such a zeal and spirit, we can turn our faces to our constitutents, and to the people, voicing our pronouncements and attitude with a serenity and sincerity that will at once command confidence and approbation.

It may seem superfluous that I should voice a plea for unity of purpose and sincerity of action that is void of all semblance of personal ambition. In doing so, I recognize that this session will mark the enactment of policies that will direct our associational activities into new channels and toward strange objectives that will either uproot our foundations or enhance our activities. To that end, then, let me urge that you acquit yourselves of the trust that has been reposed in you so that no man can impugn your acts or motives.

Your Speaker does not presume to direct your deliberations. I avail myself, however, of the opportunity of briefly calling to your consideration certain outstanding features that should command your attention and thought.

SEMIANNUAL SESSIONS OF THE HOUSE OF DELEGATES

In my address one year ago it was recommended that earnest consideration be given to the advisability of holding semiannual sessions of the House of Delegates. In this recommendation I was supported by President de Schweinitz. The Reference Committee did not deem it expedient to recommend the adoption of that plan.

I am fully aware of the expense that would be entailed by reason of such a midyear session. I also recognize the demand that would be made on the time of the delegates. Nevertheless, I desire to repeat that recommendation. The conditions under which we are living and the relationship we bear to these changes indicate that we cannot progress without undergoing profound changes ourselves. The problems that come before us for solution are momentous. They merit more deliberate consideration than can be given them in the four days that we now annually devote to our discussions. It would therefore seem wise and for our profession's interest that we accord more time and more deliberation in the formulation and promulgation of plans and policies that are of such vital concern to our future. To do so we must provide for an extra session. It is recommended that the requisite amendment be introduced, and until it can become effective, that you authorize your Speaker to call an extra session of this House at a time deemed most expedient by the Trustees in the month of January, 1924.

SECTION RESOLUTIONS

Last year we had the inconsistent incident of this House of Delegates formulating a policy and enunciating a position in regard to the Shepard-Towner Law. During the same session one of the scientific sections assumed to adopt a set of resolutions which in word and purport was diametrically opposite to the opinion and position expressed by this House of Delegates. This situation embarrassed many state society legislation committees in their legislature activity. To prevent a repetition of such a situation it is recommended that the Scientific Assembly as a whole, or as component sections, shall be interdicted from voicing policies, opinions or recommendations of the Association; that when, in the opinion of the Scientific Assembly or any of its component sections, public pronouncement on any scientific subject or public policy is deemed expedient, then the section delegate from the section wherein such action may arise shall present the resolution or recommendation to the House of Delegates, and that this House shall be the only official body empowered to adopt or convey to the public opinions, recommendations or policies of our national association. The wisdom of this recommendation must be self apparent, and while I am aware that such a provision does now partly exist, it is urged that emphasis be given to it by the adoption of a new amendment to be formulated by the Reference Committee that sets forth such specific provisions, and that section officers be instructed annually as to its enforcement.

SOCIALIZATION OF MEDICINE

"State medicine" was defined by this House during our last session. That definition is clear and conclusive. I assume that the formulation and adoption of that defining statement was for the purpose of establishing a policy and a principle for the guidance of our state and county units. I assume, further, that activity, on the part of members individually, collectively or as public officials would be subject to the jurisdiction of component units of which they are members when the provision of that resolution was violated. The events of the past year, in many states and localities, are indicative that but little, if any, consideration has been given to the policy enunciated. It is apparent that certain members assume that they and their associates are neither amenable nor subservient to the acts of this body; that they are self-sufficient and supreme unto themselves.

If we are to endure, if we are to be more than word formulators, if we are to exercise full organizational prestige and influence, then it becomes imperative that every member of this Association be made to realize that our policies are not idle compositions or vague or visionary speculations. To remain affiliated with this national body, it must be impressed on those who comprise its membership that such membership entails the willingness to keep inviolate the laws and rules that govern our federacy. I therefore deem it advisable that you direct that a compilation of the policies of this Association be promptly undertaken by the Secretary; that this compilation shall plainly set forth the position that state and county units shall assume in meeting the problems of public health movements and in particular to the activity of group clinics, community and hospital clinics, national and state health clinics, health boards and health officers; that this compilation shall conclude with the statement that any action controversial to the announced policies of this Association, either by individuals, groups or component units, shall be submitted to review by state councils and our Judicial Council, and subjected to such action as these respective bodies many deem advisable. Further, that our Secretary be instructed to cause the distribution of such compilation to be accompanied by a letter directed to state and county officials conveying the recommendation of this House that they take requisite action that will obtain a general observance of the policies enunciated by this body.

I distinctly wish it understood that I do not criticize efforts directed to strictly public health measures. These have our unqualified support. But when that purpose is used as an excuse to justify the institution of socialized medicine for all classes of society, and in so doing condemnation and ridicule are directed to the profession as a whole, as well as to individuals, we emphatically declare that the time has come to call a halt and that they who thus conduct themselves shall be called to account; that their right to continue as members of this organization shall be inquired into, and if the facts reveal that they are unworthy, that their membership shall be promptly terminated.

Unless we insist on a united observance of our policies, then as an Association divided in opinion and action, we surrender our right to every prestige and the public acceptance of our recommendations. A much twanged string is the subject of cooperative unity of purpose and deed. Unless we cease our twanging and create unity of action, it would be better for us to renounce every intent or purpose of participating in the deliberations of those who are conducting the councils of this nation and who seek the solution of its problems. The past year has witnessed attack after attack on the integrity of our profession in many legislatures. Our response, our refutation of the charges, our requests and recommendations received but scant consideration. A few years hence they will obtain no consideration, unless we become unitedly active in the reestablishment of a unity of purpose that is not nullified by the derogatory words, acts and attitude of individuals and special groups holding membership in our association. I emphasize again that this subject merits your serious consideration and deliberate action. I further recommend that, if a midwinter session of this House is determined on, you authorize your Speaker to appoint a special committee that will present a detailed discussion of the situation and present such recommendations as to plans to be adopted that will lead to the creation of organizational influence and power in the legislative and health movements of this nation.

An association and activity extending over a period of eighteen years of organizational work and executive duties with a faithful study of our problems cause me to conclude that this is the most momentous and important subject that now confronts us and presses for solution. And unless we do concern ourselves with it, we might as well rewrite the preamble and object of our federacy and openly announce that, as an organization, we are concerned only with the scientific features of our profession, and withdraw from further participation in matters of public concern and public consideration. It remains for you, the members of this House, to determine whether we shall conserve and strengthen our Association and cause it to be an organization that exercises a potent influence in national affairs, or whether we shall withdraw from the public arena and concern ourselves only with purely scientific topics.

NATIONAL WELFARE DEPARTMENT IN THE PRESIDENT'S CABINET

During the first of the year there was called for conference with President Harding's personal representative a group of men, representing several medical organizations of this country, for the purpose of discussing plans for the organization of a national welfare department in Washington under the control of our national government. At this conference our Association was represented by but one individual. It may be anticipated that several such conferences will be held during the coming months. I recommend that the House of Delegates designate a special committee that shall be instructed to represent this Association at such future conferences. It is recommended that that special committee shall consist of the President, Secretary, Chairman of the Board of Trustees, Executive Secretary of the Legislative Bureau and the Speaker of the House of Delegates. If this recommendation is concurred in, it is further recommended that the Secretary be instructed to inform President Harding's personal adviser of the action taken. It must be self-apparent that this Association should be adequately represented in these important deliberations.

FIELD SECRETARY

While undoubtedly our Board of Trustees has been mindful of the need of securing an efficient Field Secretary, it is urged that they be directed to secure at the earliest possible moment a capable representative to fill that office and to perform its duties. Never was it so imperative as now that the cooperative efforts of our component state units should be enlisted and made effective for the furtherance of our organization and individual interests. The need presses for a directing liaison officer. Unnecessary delay should not be permitted in his selection. Generous monetary remuneration should be appropriated to secure a capable Field Secretary.

RED CROSS MEDICAL ACTIVITY

We reiterate that no need now exists for the entrance of this great war-time organization into the field of public health work or community clinic work. It is recommended that such representation be expressively made to the officials of the Red Cross by such representatives of this Association as you, in your judgment, deem most expedient and efficacious.

NURSES AND NURSES' TRAINING SCHOOLS

We commend most heartily the work that has been so efficiently undertaken by the special committee of the Council on Medical Education and Hospitals in the study of the problem of Nurses and Nurses' Training Schools. It cannot be expected that their work could be terminated in the brief space of one year. It is recommended that that committee be continued and that it be instructed to remain active in the performance of its task until a successful solution of the problem has been formulated and instituted.

BOARD OF TRUSTEES

It has been my privilege to attend the sessions of our Board of Trustees during the past year. I desire specifically to record the opinion that our Trustees individually and collectively assume the responsibility placed on them with but one motive—the best interests of the Association and its members. I am convinced that its deliberations and actions are void of every semblance of selfishness. There is wholly no evidence of any intent to assume dictatorship, closed corporation policy, or the tendency to group, district or class protectionism or favoritism. Our trust has been well placed and its administration is conscientiously executed. Our Trustees merit our every confidence.

While it is desirable to have sections of our country represented on our Board of Trustees, I am of the opinion that individual merit should be recognized and that the Trustees who manifest such merit and contribute such desirable service and zeal should be perpetuated in office just as long as it is possible to receive those services that reveal satisfactory accounting of their stewardship and confirm the implicit confidence that we have placed in them. I desire emphatically to repudiate the charges and allegations that apparently arise from the disgruntled who as yet have revealed not a single trait or contributed a single suggestion for the betterment of our Association. I am convinced that he who has carefully, and with some degree of hypercritical attitude, studied and observed the action and activity of our Board of Trustees must come to the same conclusion and opinion. I seek simply to convey to you the conclusions reached by reason of personal observations on the part of your Speaker.

BULLETIN OF THE ASSOCIATION

By your enactment, the Speaker of the House of Delegates is designated as an associate editor of the Bulletin. It is impossible and inexpedient for him to participate in its editorial management. No basic reason exists for him to serve in that capacity, for in the interval between the sessions of this House, the Speaker is possessed of no executive powers.

The Bulletin is of but limited value in that it is of limited circulation. Its content matter should be made to reach our entire membership. Every member should be enlightened as to our associational activity, and be fully conversant with that which we are seeking to attain. If a need exists for more intimate communication between our general headquarters and officers of component units, that need can be supplied by means of monthly letters from our executive officers.

It is recommended that the Bulletin be discontinued and that in one issue, each month, sufficient space be allotted in The Journal to our Secretary and Field Secretary for the presentation of that which is being done along organizational lines. I am of the opinion that, as our members recognize what this Association and its component units are accomplishing, there will be awakened greater interest, more complete confidence and a more pronounced desire to subscribe personal support to local, state and national bodies. The Journal of our Association should be utilized to give to all our members the information that is now being published in the Bulletin.

FULL-TIME SECRETARIES

I proffer the suggestion that our Board of Trustees, if it meets your approval, be directed to arrange so that desirable individuals may be taken into the offices of our national headquarters to receive requisite training that will qualify them to accept positions as full-time secretaries of our state societies.

If we are concerned, as we needs must be, with the influence that current events are exerting on our profession, considerate thought must be given to the training of men who shall represent us in the councils of our several states and of the nation. We should cause to be created a corps of trained state executives whose services will be available to our state societies. Several of our state societies have full-time secretaries. Some smaller states possibly could not afford them; but, in such instances, one trained man might well and efficiently represent and direct the organizational work of a coalition of several states.

RULES OF THE HOUSE OF DELEGATES

During the year, for the sole purpose of more expeditiously and effectively conducting the transactions of the House of Delegates, I addressed a letter to each delegate soliciting suggestions and criticisms of the methods now in vogue. A representative response was received. These communications were carefully and thoughtfully studied and discussed with the Secretary. Two recommendations predominated: the first, that sufficient time was not provided for more deliberate and broader discussion of the questions that arose or the resolutions that were presented; the other, that committees have insufficient time to consider referred business, and that full opportunity is not always afforded at committee hearings.

Your Speaker has repeated his recommendation for a midyear session to provide greater opportunity for fuller consideration of the business that arises within this body. That is the only solution, unless we extend our annual session.

To meet the other recommendation, your Speaker sought to appoint the Reference Committees in advance of this session, and thus provide opportunity for more thorough study of the reports that are submitted to them in advance of our meeting. I felt that they could then devote more time to committee hearings. However, our by-laws prevented the taking of such action. I believe that such a plan would be most expedient. If it appeals to your judgment, it is recommended that a change be effected in the by-laws that will validate the Speaker's appointment of reference committees thirty days previous to our meetings. It is recommended that the Reference Committee submit such an amendment for adoption at this session.

During this annual meeting I will endeavor to announce at each session the time and place of all committee meetings. Reference committees are requested to adopt the policy of giving the greatest latitude and the largest possible amount of time to hearing the arguments of those who desire to appear before them. I realize the work that devolves on committeemen, but feel assured that they will undertake their duties and unselfishly contribute their time so as to afford wide opportunity for hearing the views of all who appear before them.

CONCLUSION

By your sufferance you permit me the sincerely appreciated honor of presiding for a second time during your annual session. I have sought to meet the confidence and trust imposed. Your Speaker openly avows that but one motive governs him in the performance of his official duties, and that is to cause this House of Delegates to recognize that it represents before the world the medical profession with all its ideals, hopes, ambitions and humanitarian principles. In thus representing the medical profession of this nation, this House of Delegates purposes by its enactments, the enhancement and maintenance of confidence and trust on the part of the public whom we serve. The great end sought is that we shall be better doctors and better men.

Address of President George E. de Schweinitz

The Speaker introduced the President, Dr. George E. de Schweinitz, Philadelphia, who delivered the following address, which was referred to the Reference Committee on Reports of Officers.

Mr. Speaker, Members of the House of Delegates, and Ladies and Gentlemen:

One year ago an address as President-Elect contained in its opening paragraphs some of the favorable impressions of the activities of the Central Offices gained during the period f the business which pertains to that position. An additional ear of duty, now completed, has served to increase in firmness such impressions, which have become settled convictions.

But it is altogether fitting and proper that a moment or two hall be occupied in speaking of our Board of Trustees, and what I shall say is not based on casual knowledge, but on ntimate acquaintanceship and association which it has been privilege to enjoy. The earnestness and fidelity with which he members of this board and the Editor-Manager perform heir duties; the insistent, untiring attention which they devote to the work which falls to their share in solving and onsidering the numerous problems called to their attention, highly deserves our gratitude and our admiration. They work or the work's sake; they strive for the common good of our Association, the largest of its type in the world today, and, we fondly believe, the best.

THE BOARD OF TRUSTEES

The success of any large organization and its steady advancement must always be associated with supervision made possible through a Board of Direction. And in this respect *our* Board of Trustees has given us an unselfish service. Naturally, in a great organization such as ours, differences of opinion as to its policies and methods of procedure arise, and it is wise that they should exist. But, as Dryden said, "They wholly mistake the nature of criticism who think its business is principally to find fault." Not at all. From the days of Aristotle to our own, it was meant to be a standard of judging well, and if so utilized, and being constructive in character, is always a basis of improvement in effort and accomplishment.

The conviction of one man may differ from that of another, and all of us will surely agree with Huxley that "there is no one of our surest convictions which may not be upset, or, at any rate, modified, by a further accession of knowledge." Such knowledge finds one of its most direct pathways along the avenue of proper suggestion and criticism, which are therefore always welcomed. Indeed, discontent itself possesses a quality of importance in this respect, not the discontent which Emerson defined as "an infirmity of the will," and which, as has been said, is petty and personal, but that discontent which one of America's most distinguished essayists has described as one which has in it "a notable attribute of grace."

Working thus for the best interests of the Association, endeavoring with effective result to meet the obligations imposed by their office, the Board of Trustees, sustained by the courage of their convictions, arrived at after careful investigation, and helped by the suggestions and judgments of others, have established a record which has prominent place on the credit page of the ledger of our National Organization. On this day of parting, I take this opportunity, in the presence of this distinguished body, to express my congratulations to our Board of Trustees and the Editor-Manager, and to convey my thanks in that the privilege and profit have been mine to be present at most of their deliberations during the past two years.

Both the presidential address of last year and that to the House of Delegates were concerned in part with reference to medical instruction, and contained certain suggestions and recommendations related to undergraduate, graduate and medical-extension education.

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

In referring to the work of the Council on Medical Education and Hospitals, an appeal was made that this Council should include in its next yearly deliberation on the undergraduate curriculum the views of senior and qualified students and recent graduates of medicine as to changes in its construction. Evidently a similar thought was in the mind of its distinguished chairman, and all those who attended the instructive sessions last March listened with interest to the data which a questionnaire sent out from his office was able to gather.

Since then, in more than one county society an evening has been devoted to medical education and its problems, and in one at least, my own county society, by no means the least important discussion came from a recent graduate in an essay written entirely from the standpoint of the undergraduate. Such cooperative work, which may well be recommended to other county societies, and be further elaborated, is sure to be of material assistance in the work of reconstructing the undergraduate curriculum, which, in spite of the large attention which it has received, is still far from satisfactory.

The amount of attention which should be paid to the manifold specialties is always an insistent, and at times, one might almost say, an irritating one. Far from lacking investigation, this becomes more prominent in discussion, and received, as you know, comparatively recently, a full measure of consideration in the opening address of an important continental congress on internal medicine. Opinions as to how these problems shall be met have ranged from the obviously improper and stupid one that they, the important special branches, shall be eliminated from the curriculum and their instruction delegated entirely to a postgraduate period, to the equally and obviously improper and stupid one that the hours assigned shall be greatly increased and the curriculum cumbered with technical teaching and special instruction which manifestly *does* belong to the postgraduate years.

Conferences between teachers of the fundamental branches, and those of the so-called specialties, often, for reasons which are evident enough, have not resulted in satisfactory agreements. It is time to stop the constant academic discussions which have surrounded this problem, and to stop talking about this and that "course," and the "number of hours" which shall be accorded to one or the other, and to endeavor to ascertain of how much value the time spent on certain specialties during the undergraduate years has been to the practitioner of medicine in the largest acceptation of that term, in his professional life. This has been attempted by one specialist, in this case an ophthalmologist, by writing to one hundred graduates of an important eastern school of medicine, and it is interesting to observe that less than 10 per cent. believed that such instruction should be eliminated from the curriculum, while the others acknowledged, in greater or less degree, the value of such instruction in their practical work, and had no thought that it should be discontinued.

All this is a preamble of the suggestion or recommendation that from the Central Offices a questionnaire of much larger scope shall be sent to graduates of representative schools of medicine in various parts of this country prior to the next meeting on medical education in Chicago, and an analysis of the replies shall be presented as a basis of discussion as to how the departments of special instruction in undergraduate years can best be utilized.

The evaluation of such departments should not be determined alone according to the number of "hours" assigned to each, that is, according to a percentage of the whole number of hours required by the curriculum, for it is also high time to get away from the limitations imposed by thinking alone in the terms of giving "such and such a course," of which expression the incoming President of this Association says he is "thoroughly sick," and well he may be.

Without for a moment permitting the departments which by common consent are described as specialties to lose their autonomy, their value to the student of medicine as an essentiality in his general education and future career can readily be exhibited without the addition of a single hour to the proportion of independent hours which should be assigned to the department concerned, and without increasing the total number of hours comprised in the curriculum, if their intimately important relation to the fundamentals, medicine, surgery and obstetrics, is also blended into the scheme of general instruction, not in casual mention, but in definite demonstration.

If it is true, as has recently been said, that the basis of teaching should be sought in training exact observation, such a plan should be a useful method of procedure. Viewed from this standpoint, it has been discussed by Dr. Wilbur, it was touched on by various physicians in the Congress on Medical Education last March, and has been previously referred to in less exact terms by the present speaker (not the Speaker of the House, although I believe he is in accord with the thoughts expressed).

But no definite plan which may be recommended by the Council on Education has been formed, and therefore this is again a preamble of a recommendation that a subcommittee of that Council, or, if preferred, of one chosen by direction of the House of Delegates, shall be formed to take this matter into exact consideration; and I frankly hope, should such a committee be organized, that I may have the privilege of consulting with its members in their deliberations, or if not, some member of my staff who is familiar with the methods we are endeavoring, we believe with satisfaction, to put into operation in the school of medicine with which I am associated.

The impetus which systematic graduate medical education and its great department, medical-extension education, has received within the last few years is known to the satisfaction of all, and the effort and encouragement along these lines which have emanated from this Association, its officers, Councils and members, have had a large influence in the notable achievements which have been and are being attained. No recommendation is required to stimulate still further this advance in medical education.

FOREIGN MEDICAL-EXTENSION EDUCATION

Accustomed as we are to obtain the advantages of visits from foreign physicians and to welcome them to address our scientific meetings, and in turn to accept invitations from medical gatherings abroad to participate in their deliberations, the time is ripe, I think, to go a step further and establish what may be called foreign medical-extension education.

For this purpose the machinery of the American Medical Association, synchronized with that of similar associations in the available countries of Europe, could be utilized. A bureau should be established wherein the plans of systematic cooperative work could be formulated and put into operation. The unusual success and satisfaction which attended a comparatively recent series of lecture-demonstrations on ocular pathology, presented in a number of cities of our country, and engineered by the local societies, is an example of the admirable results which are obtainable in such circumstances. During a recent visit in England and Scotland, it became evident that such a plan would be welcomed, that it would be mutually beneficial, and that it would prove to be an important method of rehabilitating international scientific effort. It is hoped that the House of Delegates will accept this recommendation for consideration and action.

WORK OF THE PRESIDENT

Although the duties of the President of this Association are defined in Chapter V of the By-Laws, the sphere of his activities is by no means as limited as the words of Section 1 seem to imply. He can always concern himself with the duty of large opportunities freely offered.

During the periods of his incumbency, his participation in the deliberations of the Board of Trustees and of those of their Executive Committee is welcomed; he is always free to make recommendations which receive sympathetic and careful attention and the required action; he is the recipient of numerous cordial invitations to attend medical and state and society meetings from all over the country; his desk is freely supplied with communications from members of the Association relating to questions of policy, containing suggestions, and not infrequently urging modifications or elimination of existing conditions which in the opinion of the writers are imperative; he is constantly consulted by those who are interested in the improvements in medical education in all its departments, and by those who are concerned with the problems of public health, trained nursing, scientific advancement, and pending legislation related to medical matters; he is questioned almost invariably about the reports on so-called "cures," and on medical and surgical discoveries, which dot the pages of the public prints, and he is well-nigh compelled to disconnect his telephone from the newspaper offices of his immediate vicinity; he is asked insistently to contribute articles to various journals on all subjects ranging from those strictly related to medicine and surgery, general and special, to those which are published in the interests of public health, sanitary science, etc. These, briefly summarized, are some of the activities at his disposal; he may make his audience large or small. His is an active, responsible, stimulating, highly interesting job which any one, with all due humility, may be proud to hold.

These being some of the unbarred fields of opportunity, it may seem that no further comment is necessary. But I cannot refrain from stating an impression gained during the last two years that it would be advantageous should the duties of the President-Elect and President be more strictly defined in three respects:

1. That he shall attend the meetings of the Board of Trustees and those of its Executive Committees.

2. That he shall submit at stated intervals a report of his impressions and recommendations, which shall be published in the Bulletin in order to attract approval, comment or criticism from our membership, as the case may be.

3. That he shall during the year of his service visit various portions of the country, properly and geographically selected, and shall be, subject to their approval, in attendance at the state or county meetings, prepared to receive suggestions and to discuss the activities of the Central Offices and the medical problems of the area visited, thus gathering the material for the report referred to. It is, of course evident that in the main this is exactly what is being done and doubtless will continue to be done. The only object of the suggestion is that opportunities may become duties, that responsibilities are enhanced—in short, that activities bear an official stamp. It may further be objected that such visits to various portions of the country, if acceptable to the societies there organized, are a function of the Field Secretary. But it has so happened during the past year that the Field Secretary and the President have met at one and the same meeting, and each has found a share of work which in no wise conflicted or introduced repetitions.

THE LEGAL BUREAU

The Legal Bureau, established within the last year, has demonstrated its value and importance. The record of its accomplished Executive Secretary is one of which we may well be proud. But much of that which he has accomplished is not written into that record. His quiet and unpublished assistance in time of legal need has been of real value. In my own state his keen analysis and criticism of pending medical legislation, which filtered through my office and was utilized as an argument before a committee of the house, was potent in helping to defeat at least one vicious bill. This department deserves the fullest measure of confidence and support.

If I may judge from the evidence available in my own vicinity, our hopes of the success of Hygeia are realized, and I permit myself the pleasure of conveying my sincere congratulations, in which I feel sure all of you join, to the editors of this publication.

THE SECRETARY

Last August the Association sustained a grievous loss in the death of Dr. Alexander Craig. Representing the Association, I attended the funeral ceremonies, and it was a solemn privilege to tell individually his sorrowing relatives and neighbors of the high estimation in which he was held by his associates in the Central Offices, and by our membership. He worked faithfully, intelligently, admirably, with a brave and willing heart; he never forgot in all the manifold duties of his office the conduct of the higher life.

His place was not easy to fill; we are fortunate in the choice which was made. The Secretary's report attests the quality of his work and the excellence of his administrative ability. Often burdened with double and difficult duties, he has successfully met his obligations. Let us hope that in the near future we may find one who shall fill the greatly needed office of Field Secretary, and carry on the work which Dr. West so well inaugurated.

Of the various Councils, to which we are so largely indebted, I have spoken in addresses delivered in St. Louis last year, and I only pause to ask them, their chairman and their personnel, to accept my congratulations on their achievements.

THE JOURNAL

Of The Journal it is not necessary to speak in any detail. Not only we, and by this I mean American physicians, but physicians all over the world, are the beneficiaries of its distinguished editorial management and the excellence of its contents.

MEDICAL AID IN RUSSIA

As all here present know, the appeal for medical aid for Russia has attracted a large measure of sympathetic, as well as practical, attention. From a number of the prominent members of our Association, who belong to the Physicians' and Surgeons' Committee which has been formed to further this worthy object, letters have been received, requesting that some action with respect to this work shall be taken by the House of Delegates. It would be of material assistance to them if a committee should be appointed to cooperate with them in different parts of the country in the collection of books, medical journals, instruments, clothing, etc., for the use of our suffering colleagues in Russia. I therefore suggest that this matter shall receive prompt consideration, and hope the House of Delegates will comply with the earnest request of our confrères as it is now presented.

Mr. Speaker and Members of the House of Delegates, two years ago you bestowed on me the greatest honor of my life. Untrained in the larger problems of administrative work, conscious of professional limitations, and always fully realizing the responsibilities imposed by this important office, I have endeavored to render the best service in my capacity. You have been gentle in your judgments; you and all the members of our Association have granted me a cordial reception; you have given help when it was needed; you have been uniformly courteous. I thank you from the bottom of my heart. At this hour of parting I say "good-bye" because I want you to accept these words in the full meaning of old Elizabethan valediction, and wish you and yours an abundant success in all your endeavors.

Remarks of President-Elect Dr. Ray Lyman Wilbur

The President-Elect, Dr. Ray Lyman Wilbur, California, addressed the House of Delegates extemporaneously. His remarks were referred to the Reference Committee on Reports of Officers.

Mr. Speaker and Members of the House of Delegates:

Since I am to have the opportunity of addressing the Association tomorrow night, I decided not to present a formal address this morning. I want, however, to bring before you a few points that occur to me in connection with this great Association.

I am the baby of the family, and the baby, you know, the beginner, has a right to talk, and if necessary, to be suppressed.

THE HOUSE OF DELEGATES

This Association is a very interesting and remarkable organizations. In some ways, it reminds me of Topsy; it has just grown up in a certain direction. It is an attempt in a great republic to get a form of representative government for the physicians of the country. It has various methods of doing its work. I will admit that it needs certain changes and certain revisions. This House of Delegates should be, as it is, a great policy-making body. I think sometimes it acts as an administrative body. No legislative body can do efficient work without an effective organization.

THE BOARD OF TRUSTEES

I have gone to the meetings of the Board of Trustees. They are a splendid group of men. It has been my fortune and misfortune sometimes to deal with a number of boards of trustees of all sorts, and I can say quite frankly that the Board of Trustees of the American Medical Association is just as good as any board of trustees in the country, but it is largely a custodial body. It does the custodial side of its work admirably.

A BOARD OF STRATEGY

What this organization needs is the thing Dr. Simmons has given it as an individual because of his peculiar position, and that is a board of strategy. It needs an administration that looks five or ten years ahead. We are plunging right along as a great medical body into all sorts of problems and difficulties. The Board of Trustees is meeting many of these problems.

There has been a discussion of having a member in the President's cabinet of Public Welfare. You cannot run a university unless there is some one who is thinking five or ten years ahead. That is my position as president of a university. I am supposed to be looking ahead all the time. You must get a board or some one of that type for this organization.

Scientific medicine is moving ahead so rapidly that in many ways we have left the people far behind and also some members of our own profession. We are mixed up in every one of the forty-one different states with legislatures and boards of health. The Speaker has referred to the need of getting our policies in such condition as to stand together, and in doing that we should realize, as a national organization, that we have to expect each state organization to work out its own policy.

DECENTRALIZATION

In the war, Washington became too prominent in this country's affairs. Every governor and every legislature looked to Washington during that time. That is a weakness. We must get decentralization of organization to force responsibility on the state organization, so that it will take the initiative in meeting its local conditions. It is a great problem in organization to get men at headquarters so that there is good management and wise provision for the future, so that each state may get the benefit of all information that comes in at headquarters, and that each state, as far as possible, be left to work out its own problems, and in its own way. This can be done. If you should make the present Board of Trustees such a board of strategy as I have outlined, they can carry this movement forward.

Some group of men must be thinking of what is going to happen to medicine in this country five, fifteen or twenty years from now.

What are the conditions under which medical students will be practicing fifteen or twenty years from now, and what is the Association to lay down as a groundwork so that the profession can go on with increasing opportunities, increasing responsibility and increasing service? It is a great task. It requires a great deal of thought, but it can be done.

One of the greatest functions of this Association has been the education of the medical profession through meetings like this, through publications such as The Journal. I wonder how many of you realize the enormous influence The Journal has exerted on medical education. Every physician has to learn something daily or he is going backward.

THE JOURNAL

The Journal of the American Medical Association, under the leadership of its Editor and General Manager, has been a source of inspiration and direction for the members of the profession. Every man in the profession has had not only to get scientific training through The Journal but also a certain amount of technical training, and has had the opportunity to become informed as to what is going on in medical education and legislation, and the job has been so well done that we have accepted it. It is going to be a great task to work out the different problems in the years to come, and it will require great thought on your part if we are going to do as much for the profession in the future as we have done in the past. Think for a moment of the problem of the man who is on what we might call the borderline of medical practice, serving the public somewhat more than he is any individual patient. Think of the attitude of the public toward him, and realize that this is the element that is growing in medical practice. There is less service to the individual by the profession and more service to the public, and the public is being served through the individual more than ever before, and it requires many points of view to bring about a satisfactory division of public relationships under these conditions. It can be done, but it cannot be done unless we are willing to think it out thoroughly and unless we are looking ahead.

THE SCIENTIFIC SECTIONS

The most striking thing about this organization to me is the scientific sections. If you will study the organizations of these sections and look over the types of papers that are read, you can see great prospects in the development of American medicine. The real strength of the organization lies in its sections, and they are vital forces to the organization.

If there is anything in this whole scheme, it should be one of harmony of all the policies that go to make up medical progress viewed in its broadest sense. Such an organization as this, while it must devote major thought to the major part, must never forget the others. We must look out for the general practitioners; but if we should look out for them alone, we would lose one of the great functions of this organization, which is to get the best thoughts of those in medicine, and bring them within our door. That has been done up to date.

PERIODIC PHYSICAL EXAMINATION

There are a number of other points I have been requested to bring to your attention, two in particular. One, is the increasing interest throughout the country for some form of periodic physical examination. This, if carried out, will afford the greatest possible opportunity of scientific medicine. It is a sad thing when a man wants to know where he stands in the world, and comes for an examination and is not given a thorough examination, but is laughed at, and the doctor tells him, "You are all right"; "don't come for an examination unless you are mighty sick or have a temperature of 105." Physicians ought not to take such an attitude, although it is the attitude that modern medicine takes in regard to the normal man and serves to isolate him against the diseases of his body. The physician should study biologic reactions of the man and help him to meet the problems that come to him in the way of disease. The physician should have a record of how the man stands when he first sees him, and compare that record with his condition six months hence; then he has something to stand by. If we could get that carried out through intellectual groups we would do more good than all the cults and faddists. There is no doubt in my mind that this is one great weakness. We are trained to think in terms of disease, and we must now turn our attention to thinking in terms of being well; when we do, the people will rally to us in a new way.

RUSSIAN RELIEF

President de Schweinitz referred to the Russian relief. This is an interesting and tangled problem. Out of all that terrible mess in Russia one thing stands out very prominently. The physician, although he has submitted to great hardships, for the most part, has been allowed to survive in the various communities, while the other men with brains were eliminated in one way or another. The physicians over there are the one germ of a new civilization in many communities. If there is anything we can do to help these men we ought to do it, but we must be sure to help them and not simply help some government organization. If this great Association can work out a device that will bring real assistance, books, instruments and drugs into the hands of Russian physicians, it will accomplish a great amount of good.

As you probably know, the American Relief Administration has done in Russia probably the largest piece of work done in this century. It has inoculated six million people against three or four diseases. We have already taken an active part in protecting the population. If we can find some means to protect the profession and let medicine serve as the germinating focus for a new Russia, and it can be done, it will be a great service on the part of this Association.

I have spoken to you somewhat briefly on some of the points that have occurred to me in regard to this great organization. I believe in plain speaking. I am going to try to serve you in every way I can. I want your personal individual help. I want you all to feel that if you see any way by which you can make me more effective as President of the Association, do not hesitate to do so. If I do not agree with you, you will find it out. I am perfectly willing to do anything I can to further the objects of this Association. There is not anything more worth while in this country. You men have a great opportunity. Medicine stands right at the top of the intellectual levels of this country. Medicine requires more in the way of training of our young men than any other profession. We are getting a better personnel. If you take the intelligence tests of the successful medical students, you will realize that we are getting a high grade group of men, who are going to come along as our followers. Anything we can do as individuals or as an Association, or anything I can do as President to make the conditions favorable for them in the future so that they serve their maximum duty, I will be happy to do.

Again, I want to thank you for the great honor of being elected President of this Association. It is a particular privilege to follow such a splendid man as President de Schweinitz.

Reference Committees

The speaker announced the following Reference Committees:

LEGISLATION AND PUBLIC RELATIONS

Holman Taylor, Chairman	Texas
J. D. Brook	Michigan
C. E. Humiston	Illinois
H. M. Brown	Wisconsin
W. R. Steiner	Connecticut

HYGIENE AND PUBLIC HEALTH

J. A. Pettit, Chairman	Oregon
B. L. Bryant	Maine
William R. Bathurst	Arkansas
Walter F. Donaldson	Pensylvania
C. J. Whalen	Illinois

CONSTITUTION AND BY-LAWS

William Gerry Morgan, Chairman	District of Columbia
E. H. Cary	Texas
E. A. Hines	South Carolina
W. H. Mayer	Pennsylvania
E. L. Hunt	New York

CREDENTIALS

B. R. McLellan, Chairman	Ohio
Horace J. Brown	Nevada
E. A. Pray	North Dakota
C. T. Pigot	Montana
G. P. Johnston	Wyoming

MISCELLANEOUS BUSINESS

Southgate Leigh, Chairman	Virginia
W. H. Seeman	Louisiana
Henry Boswell	Mississippi
A. D. Dunn	Nebraska
J. W. Flinn	Arizona

REPORTS OF OFFICERS

E. Eliot Harris, Chairman	New York
A. W. Hornbogen	Michigan
H. A. Royster	North Carolina
D. E. McGillivray	Washington
W. D. Haines	Ohio

SECTIONS AND SECTION WORK

A. E. Bulson, Jr., Chairman	Indiana
C. E. Mongan	Massachusetts
L. H. McKinnie	Colorado
A. W. Booth	New York
Philip Marvel	New Jersey

RULES AND ORDER OF BUSINESS

H. P. Linsz, Chairman	West Virginia
J. W. Bell	Minnesota
W. H. Block	Louisiana
L. L. Sheddan	Tennessee
S. W. Welch	Alabama

MEDICAL EDUCATION

F. B. Lund, Chairman	Massachusetts
Frederick Epplen	Washington
Randolph Winslow	Maryland
Cornelius Van Zwalenburg	California
W. Albert Cook	Oklahoma

Report of Secretary

The Secretary presented his report, which was referred to the Reference Committee on Reports of Officers, with the exception of that part of the report which refers to a change in the name of the Council on Medical Education and Hospitals, which was referred to the Reference Committee on Amendments to the Constitution and By-Laws. (See page 1911, last week.)

The communication from Dr. J. R. McDill, United States Veterans' Bureau (p. 1914) was referred to the Board of Trustees.

Dr. Joseph A. Pettit, Oregon, moved that all further reports of standing and special committees be presented in abstract form.

Seconded and carried.

Report of Board of Trustees

Dr. Oscar Dowling, Louisiana, Chairman, presented the Report of the Board of Trustees, which was referred to the Reference Committee on Reports of Officers. (See page 1915, last week.)

In addition, Dr. Dowling presented the following communication from Dr. Charles E. Sawyer, Brig. Gen., M. R. C.:

WAR DEPARTMENT
Washington
May 4, 1923

oard of Trustees,
merican Medical Association,
5 N. Dearborn Street,
icago, Illinoids.

entlemen:

Unless the committee appointed at the Boston meeting of e American Medical Association is active and prepared to operate in matters pertaining to the institution of a Departent of Welfare in the Government, it seems to me proper at a new committee be appointed at your San Francisco eeting to take up this matter as now contemplated at such me as it may be deemed proper to do so.

If agreeable, I would be pleased to have you name such en as understand the objects and purposes, who can find consistent and convenient to meet early in the autumn, efore Congress convenes again, to discuss ways and means hereby the subject can be handled in the best possible way.

Very truly yours,
C. E. Sawyer,
Brig. Gen., M. R. C.

This communication was referred to the Reference Comittee on Reports of Officers.

Report of the Judicial Council

Dr. M. L. Harris, Illinois, Chairman, requested that the eport of the Judicial Council be referred to the Reference ommittee on Amendments to the Constitution and By-Laws, ithout being read, and it was so ordered. (See page 1925, st week.)

Report of the Council on Health and Public Instruction

In the absence of Dr. Victor C. Vaughan, Chairman of the ouncil on Health and Public Instruction, the report was resented by Dr. Haven Emerson, a member of the Council. he Report was referred to the Reference Commitee on ygiene and Public Health. (See page 1926, last week.)

Report of the Council on Medical Education and Hospitals

In the absence of Dr. Arthur D. Bevan, Illinois, Chairman f the Council on Medical Education and Hospitals, the eport was presented by the Secretary of the Council, Dr. N. . Colwell, and was referred to the Reference Committee on edical Education. (See page 1928, last week.)

Report of the Council on Scientific Assembly

Dr. J. Shelton Horsley, Virginia, Chairman, read the eport of the Council on Scientific Assembly, which was eferred to the Reference Committee on Sections and Section ork. (See page 1937, last week.)

Report of Committee on District Division

Dr. L. H. McKinnie, Colorado, Chairman, presented the eport of the Special Committee on District Division, which as referred to the Reference Committee on Miscellaneous usiness. (See Association News, The Journal, April 21, 923, p. 1149.)

Next Meeting Place

The Secretary presented invitations to hold the next annual ession of the Association in Chicago, Atlantic City and klahoma City.

Report of Bureau of Legal Medicine and Legislation

At the request of the Board of Trustees, Dr. William C. oodward, Executive Secretary, presented the report of the ureau of Legal Medicine and Legislation, which was eferred to the Reference Committee on Reports of Officers. See page 1921, last week.)

Resolution on Labeling of Lye and Corrosive Acids

Dr. Burt R. Shurly, Michigan, delegate from the Section n Laryngology, Otology and Rhinology, presented the folowing resolutions, which were referred to the Reference ommittee on Hygiene and Public Health:

Whereas, The domestic use of concentrated lye and other caustic lkalis and of corrosive acids, in ignorance of their dangerous properties nd of treatment in case of accident, is a not infrequent cause of death and of prolonged, distressing and incurable disability, particularly among children; and

Whereas, In the judgment of this House, the adoption of suitable methods of packing, labeling and distributing such substances would materially diminish the danger; and

Whereas, Efforts to bring about the adoption of such methods by the voluntary action of manufacturers and distributors has given no prospect of success, be it

Resolved, That it is the sense of the House of Delegates of the American Medical Association, in convention assembled, that in the interest of public health and safety the packing, labeling and distribution of concentrated lye and of other caustic alkalis and of corrosive acids should be regulated by law; and be it further

Resolved, That the Board of Trustees be instructed to take such action as may be necessary to procure the enactment of such federal and state laws as may be necessary to effect such regulation.

Resolution on Death of Dr. Craig

Dr. Arthur T. McCormack, Kentucky, moved that when the House of Delegates adjourn, it do so in honor of the memory of the late Dr. Alexander R. Craig.

Seconded and carried.

Resolution on Chemical Laboratories

Dr. John W. Kerr, from the United States Public Health Service, presented the following resolution at the request of the Secretary of the American Chemical Society, which was referred to the Reference Committee on Miscellaneous Business:

Whereas, Measures for the control of clinical laboratories have been introduced in the legislatures of certain states, and

Whereas, This form of legislation affects the interests of physicians, chemists, bacteriologists and pathologists; therefore, be it

Resolved, That the House of Delegates authorize the President to appoint a committee to confer with representatives of the American Chemical Society, and the Society of Bacteriologists and Pathologists regarding this matter and report back one year hence with such recommendations as may be pertinent; provided in the interim the Board of Trustees, cooperating with the committee, takes such action as may be necessary to protect the interests of the profession and the public.

Amendment to By-Laws Covering Council on Health and Public Instruction

Dr. Joseph W. Pettit, Oregon, presented a proposed amendment to the By-Laws, to relieve the Council on Health and Public Instruction of responsibility for legislation, the responsibility therefor having been transferred to the Bureau of Legal Medicine and Legislation, acting under direction of the Board of Trustees, by resolution adopted by the House of Delegates, May 23, 1922. It was referred to the Reference Committee on Amendments to the Constitution and By-Laws. The proposed amendment was as follows:

Whereas, The Board of Trustees was authorized by resolution adopted by the House of Delegates, May 23, 1922, to establish a central bureau for the consideration of all legislative matters pertaining to medicine or the practice of medicine and to the public health; one purpose of which was to relieve the Council on Health and Public Instruction of such duties;

Resolved, That the By-Laws, Chapter IX, entitled "Duties of Standing Committees or Councils," Section 2, be amended by striking out the words and number, "Legislation. (2)," and renumbering the following two phrases, so that said section will read: "Section 2. Council on Health and Public Instruction—The functions of the Council on Health and Public Instruction shall embrace the following subjects: (1) Public Instruction. (2) Defense of Medical Research. (3) Public Health."

Resolutions on Regulation of Alcohol

Dr. Charles O'Donovan, Maryland, presented the following resolutions, which were referred to the Reference Committee on Legislation and Public Relations:

President
Dr. Herbert Harlan
Secretary,
J. Albert Chatard, M.D.
Treasurer,
Charles Emil Brack, M.D.
Medical and Chirurgical Faculty of the State of Maryland,
1211 Cathedral Street,
Baltimore.

June 6th, 1923.

Dr. Olin West, Secretary,
American Medical Association,
Chicago, Illinois.

My dear Dr. West:

The following resolution was adopted at the Annual Meeting of this Association, held April 25th, and our delegates instructed to present the same.

Resolved, By the House of Delegates of the Medical and Chirurgical Faculty of the State of Maryland at its Annual Meeting, in Baltimore, April 25th, 1923, That the present method of obtaining alcoholic stimulants as a medicine by physician's prescriptions is an intolerable nuisance to doctor and patient alike; and be it also

Resolved, That the Faculty again urges the American Medical Association to make every effort to have removed this detestable restriction upon the practice of medicine; and be it also

Resolved, That these resolutions be presented to the American Medical Association by our delegates to the approaching meeting in San Francisco.

J. Albert Chatard, Secretary.

Communication from Philadelphia Pediatric Society on Advertising of Infant Foods

The Secretary read the following communication from the Philadelphia Pediatric Society, which was referred to the Reference Committee on Legislation and Public Relations:

Whereas, The American Medical Association is publishing a journal for the laity, called *Hygeia*, and

Whereas, Said journal contains advertisements of several infant foods, and

Whereas, The appearance of said advertisements, in the eyes of the public, definitely implies recommendation by the members of the American Medical Association of these infant foods, and

Whereas, The recommendation of said foods will tend to undo all the work which thousands of the members of the medical profession have been trying to accomplish in the education of the public to the fact that infants cannot be fed in this indiscriminate manner, and

Whereas, The Philadelphia Pediatric Society, since its foundation in 1896, has been endeavoring to foster scientific infant feeding, therefore be it

Resolved, That the Philadelphia Pediatric Society voices its most earnest protest to the appearance of infant food advertisements in the journal called *Hygeia*, and, further be it

Resolved, That the secretary of said Society be instructed to transmit these resolutions to the President and to the House of Delegates of the American Medical Association, to the President and Secretary of the Pennsylvania State Medical Society, and to the Board of Directors of the Philadelphia County Medical Society, and to such other societies as the President and Secretary shall urge to cooperate.

Communication on Russian Relief

The Secretary presented the following communication from Dr. John Ruhräh, Maryland, which was referred to the Board of Trustees:

June 11, 1923.

Dr. Olin West,
535 North Dearborn St., Chicago, Illinois.

Dear Dr. West:

It will certainly not be necessary to say anything about the importance of the work of the medical section of the American Friends Service Committee, furnishing American medical aid for Russia. As a member of the local committee in Baltimore may I urge you to see that the appeal for relief of Russian physicians is adequately presented at the meeting of the American Medical Association and also that the House of Delegates is asked to have appointed a committee to cooperate with the existing organization.

John Ruhräh.

Adjournment

Dr. Thomas Clark Chalmers, New York, moved that the House of Delegates adjourn until 3 p. m., and that the first order of business of the afternoon be New Business.

Motion seconded, and on being put to a vote was declared lost.

On motion of Dr. Arthur J. Bedell, New York, which was duty seconded, the House of Delegates then adjourned to meet at 9:30 a. m., Tuesday.

Second Meeting—Tuesday Morning, June 26

The House of Delegates met at 9:30 a. m., and was called to order by the Speaker.

Roll call being the first order of business, the Secretary stated that he had registered slips of considerably more than a quorum, and moved that the roll call be made up from these slips.

Seconded and carried.

The minutes of the previous meeting were read and approved.

Dr. B. R. McClellan, Ohio, Chairman, made a supplementary report for the Committee on Credentials, stating that ten additional delegates had registered, making a total of 129 delegates.

As there were no objections, the supplementary report of the committee was accepted and filed.

The Speaker announced Dr. W. Albert Cook, Oklahoma, as a member of the Reference Committee on Medical Education.

Recommendation on National Educational Association

Dr. Haven Emerson, New York, presented the following recommendation of the Council on Health and Public Instruction to the House of Delegates of the American Medical Association, which was referred to the Reference Committee on Hygiene and Public Health:

In 1911, the American Medical Association, meeting at Los Angeles, California, appointed a committee to visit the meeting of the National Education Association which met the following week in San Francisco. The committee was instructed to convey greetings from the A. M. A. to this great national association of teachers, and also to call to their attention the importance of health in education.

The response to this suggestion on the part of the National Education Association was very prompt and gratifying. A strong committee of twelve of the leading educators of the United States was appointed to serve as a committee on the health problems in education and to cooperate with a committee of the A. M. A.

Throughout the succeeding twelve years, this joint committee has been engaged in a study of these problems and has accomplished noteworthy results in their solution. The cordial cooperative spirit of the National Education Association has been most gratifying.

It seems fitting that the American Medical Association should express its appreciation of the hearty, effective response to the suggestion made in 1911. Be it therefore

Resolved, That a committee be appointed by the President of the American Medical Association to attend the annual meeting of the National Education Association to be held in Oakland, California, July 1-5, to again convey greetings and good wishes to that organization and to express the appreciation of the American Medical Association for the splendid work which has been accomplished in the matter of emphasizing the importance of health and all that makes for health in the conduct of our schools.

Reference Committee on Medical Education

Dr. F. B. Lund, Massachusetts, Chairman, presented the report of the Reference Committee on Medical Education and Hospitals, as follows:

SHORTAGE OF PHYSICIANS

Your committee notes with approval the general improvement in undergraduate medical schools. The steady increase in the number of students in the medical colleges is an indication that there will be no such shortage of physicians in the community as has been so freely predicted. The present so-called shortage is perhaps largely a question of distribution. It is also gratifying to note that the age of graduates has not been materially increased with the increase of the requirements for admission.

THE MEDICAL CURRICULUM

The vexed question of the medical curriculum is not yet settled and probably never will be, but a definite improvement is noted in the increasing correlation between laboratory and clinical teaching. The close association of laboratory and clinical plants is a matter of the first importance. The committee is pleased to note that the general practitioner is not going to be entirely relegated to obscurity, since it is the opinion of the Council that so large a proportion as from 80 to 90 per cent. of the cases can be properly cared for by a well-qualified general practitioner, and 90 per cent. can be cared for in their homes. The comfort and convenience of hospitals and their inestimable advantages in certain classes of cases should not, however, be forgotten.

GROUP CLINICS

In regard to group clinics, it is evident from the report that the term is very loosely applied. In the judgment of the committee the necessities of the situation—at least in large communities—will largely prevent close and iron-clad group association. Patients will, to a certain extent, choose their own surgeons and physicians who may be outside the group to which they first apply. On the other hand, group practice tends to prevent the undertaking by certain men of tasks which they are unfitted to perform, and is an excellent thing if carried out on a broad ethical basis.

RURAL COMMUNITIES

In regard to the important subject of adequate medical service for rural communities, the committee feels that the suggestion of a guaranteed salary is an excellent one, and perhaps the only one that promises a solution of the problem. Improved transportation and the telephone have already done much to solve the problem from the point of view of the patient.

We note with interest the important work of the Council ı collecting and publishing information regarding hospitals. 'he committee feels that the development of community hos-itals will help to solve the problem, in rural districts not dequately served by hospitals in near-by cities.

DISPENSARY ABUSE

The evidence that the abuse of hospitals and dispensaries y patients that can afford to pay is kept at a minimum is oted with approval, but the committee feels that there is still deplorable amount of medical pauperization, which can be ontrolled only by centralization of effort and by eternal igilance. The cooperation of social service workers toward conomy, rather than toward the increase in size of the linic, is desirable.

THE TRAINED NURSE

The vexed question of the trained nurse has been care-ully and adequately dealt with by your Council: The ducation and training of the nurse should not be so expen-ive in time and money as to place her services beyond the each of the average family. Primarily she is and should emain a trained lieutenant of the physician. The recom-nendations of the council that the nursing question be referred o a joint committee of physicians and nurses is heartily ipproved. We also approve the personnel of the committee is named in the report of the council, and recommend that he gentlemen named be designated for this duty. As suggested by the council, the secretary of the council ought to erve as secretary of the committee.

GRADUATE TRAINING

Improvement in graduate medical training is greatly to be desired. The principles enunciated by the Council in its report are endorsed by your committee, which recommends that the list of approved institutions be published. Diplomas or certificates granted by schools for graduates, after one to six weeks of attendance, ought to be eliminated. The value of legitimate certificates will be established in case the recommendations of the council are carried out.

The work of the Council as a whole is approved, and the committee feels that its recommendations in regard to graduate medical education will mark an epoch of perhaps no less importance than that in undergraduate education begun in 1904.

RANDOLPH WINSLOW
CORNELIUS VAN ZWALENBURG
FREDERICK EPPLEN
FRED B. LUND

Dr. Arthur T. McCormack, Kentucky, moved that the report be adopted as read.

Seconded and carried.

The list of approved graduate medical schools referred to in the report of the Reference Committee on Medical Education is as follows:

APPROVED GRADUATE MEDICAL SCHOOLS

On the basis of three complete inspections of the graduate medical schools and the schedule of principles just outlined, the following list of approved graduate (or postgraduate) medical schools has been prepared:

THOSE GIVING SATISFACTORY GENERAL PRACTICE COURSES, OR COMPLETE COURSES IN ONE OR MORE SPECIALTIES

Harvard Medical School, Boston.—Basic Review and General Practice Courses.
Johns Hopkins Medical School, Baltimore.—Special Residencies in the Johns Hopkins Hospital and General Practice Courses.
Massachusetts Charitable Eye and Ear Infirmary, Boston.—Special Internships in Eye, and in Ear, Nose and Throat.
Manhattan Eye, Ear and Throat Hospital School of Graduate Medical Instruction, New York.—Special Internships in Eye, and in Ear, Nose and Throat.
New York Eye and Ear Infirmary, Graduate School of Ophthalmology and Otology, New York.—Special Internships in Eye and in Ear.
New York Post-Graduate Medical School, New York.—Special Internships and General Practice Courses.
Tulane University, New Orleans.—Higher Degree and General Practice Courses.
University and Bellevue Hospital Medical College, New York.—Special Course in Surgery.
University of California, Berkeley-San Francisco.—Higher Degree Courses.
University of Minnesota Graduate School of Medicine, Minneapolis-Rochester.—Higher Degree Fellowships and General Practice Courses.
University of Pennsylvania Graduate School of Medicine, Philadelphia.—Higher Degree and General Practice Courses.

Also, acceptable rules or other satisfactory arrangements for higher degree or general practice courses have been inaugurated or adopted by the following university medical schools:

THOSE HAVING GRADUATE SCHOOLS, OR COURSES IN PROCESS OF DEVELOPMENT

Columbia University College of Physicians and Surgeons, New York.—Higher Degree and General Practice Courses.
Cornell University Medical College, New York.—Higher Degree and General Practice Courses.
University of Chicago, Rush Medical College, Chicago.—Special Courses in Eye, in Ear and General Practice and Higher Degree Courses.
University of Illinois College of Medicine, Chicago.—Higher Degree Courses in Preclinical Branches.

FUTURE ADDITIONS TO LIST

This report does not rule out any graduate medical school. Other institutions which are offering higher degree opportunities in medical subjects, other hospitals with special residencies, and other graduate medical schools will be added to the list on application and after, on investigation, their educational standards and provisions for postgraduate education are found to be satisfactory.

Reference Committee on Hygiene and Public Health

Dr. Joseph A. Pettit, Oregon, Chairman, presented the report of the Reference Committee on Hygiene and Public Health as follows:

The Reference Committee on Hygiene and Public Health recommends the passage of the following resolution regarding the packing, labeling and distribution of concentrated lye and other caustic alkalis, and of corrosive acids, offered by Dr. Burt Shurly.

WHEREAS, The domestic use of concentrated lye and other caustic alkalis and of corrosive acids, in ignorance of their dangerous properties and of treatment in case of accident, is a not infrequent cause of death and of prolonged, distressing and incurable disability, particularly among children; and

WHEREAS, In the judgment of this House, the adoption of suitable methods of packing, labeling and distributing such substances would materially diminish the danger; and

WHEREAS, Effects to bring about the adoption of such methods by the voluntary action of manufacturers and distributors have given no prospect of success, be it

Resolved, That it is the sense of the House of Delegates of the American Medical Association, in convention assembled, that in the interest of public health and safety the packing, labeling and distribution of concentrated lye and of other caustic alkalis and of corrosive acids should be regulated by law; and be it

Resolved, Further, that the Board of Trustees be instructed to take such action as may be necessary to procure the enactment of such federal and state laws as may be necessary to effect such regulation.

The Reference Committee on Hygiene and Public Health recommends the passage of the resolution by the House of Delegates, that the Council on Health and Public Instruction be requested to prepare a plan for participation by the American Medical Association in exhibits, organized for instruction of the public in health and medical services, when such exhibits are inaugurated or inaugurated or approved by a state or county medical society.

The Reference Committee on Hygiene and Public Health recommends the passage of the resolution that the Council on Health and Public Instruction be directed to initiate and carry out an intensive campaign of education of physicians in the necessity and method of conducting thorough and accurate medical examinations of apparently healthy persons, through the agency of State and County Medical Societies, Hospitals, and Medical Schools.

The Reference Committee on Hygiene and Public Health recommends the adoption of the report of the Council on Health and Public Instruction, excepting the first paragraph, page 88.

JOSEPH A. PETTIT, Chairman.

The report was considered, section by section, and on several motions, which were duly seconded, the report was adopted.

Report of Reference Committee on Amendments to Constitution and By-Laws

Dr. William Gerry Morgan, District of Columbia, Chairman, presented the report of the Reference Committee on Amendments to the Constitution and By-Laws, as follows:

Your Reference Committee on Amendments to the Constitution and By-Laws begs to make the following report:

1. Your committee recommends that, at the request of Dr. Mongan, his resolution to amend Article 5, Sections 2 and 3, of the Constitution, be laid on the table.

2. Your committee recommends that at the request of Dr. Mongan his resolution to amend Article 7 of the Constitution be laid on the table.

3. The action of Dr. Mongan in requesting that these resolutions to amend the Constitution be laid on the table automatically removes consideration of his resolution to amend the By-Laws.

4. Your committee recommends that at the request of Dr. Upham his resolution to amend Article 5, Sections 2 and 3, of the Constitution be laid on the table.

This action on the part of Drs. Mongan and Upham meets with the approval of your committee because your committee would look with disfavor on any amendments to the Constitution which would abridge the present representation in the House of Delegates. Therefore, your committee recommends that the resolutions be laid on the table.

5. Your committee recommends that the report of the Reference Committee on Medical Education, which report recommends changing the name of the Council on Medical Education and Hospitals to that of the Council on Education and Hospitals of the American Medical Association be not adopted.

William Gerry Morgan, Chairman,
Edward H. Cary,
Edgar A. Hines,
William H. Mayer,
Edward Livingston Hunt, Secretary.

The report was considered section by section. Regarding the first section of the report, Dr. J. W. Van Derslice, Illinois, moved that the consent of the House of Delegates be given to Drs. Mongan and Upham to withdraw their proposed amendments.

Seconded and carried.

Accordingly, the proposed amendments were withdrawn.

AMENDMENT TO THE BY-LAWS, TO RELIEVE THE COUNCIL ON HEALTH AND PUBLIC INSTRUCTION OF RESPONSIBILITY FOR LEGISLATION, THE RESPONSIBILITY THEREFOR HAVING BEEN TRANSFERRED TO THE BUREAU OF LEGAL MEDICINE AND LEGISLATION, ACTING UNDER DIRECTION OF THE BOARD OF TRUSTEES, BY RESOLUTION ADOPTED BY THE HOUSE OF DELEGATES, MAY 23, 1922.

Whereas, The Board of Trustees was authorized by resolution adopted by the House of Delegates, May 23, 1922, to establish a central bureau for the consideration of all legislative matters pertaining to medicine or the practice of medicine and to the public health, one purpose of which was to relieve the Council on Health and Public Instruction of such duties:

Resolved, That the By-Laws, Chapter IX, entitled "Duties of Standing Committees or Councils," Section 2, be amended by striking out the words and number, "Legislation. (2)," and renumbering the following two phrases, so that said section will read: "Section 2. Council on Health and Public Instruction.—The functions of the Council on Health and Public Instruction shall embrace the following subjects: (1) Public Instruction. (2) Defense of Medical Research. (3) Public Health."

Your committee recommends that this resolution be adopted.

PROPOSED AMENDMENT TO THE CONSTITUTION, TO EXTEND THE TERM OF THE TRUSTEES TO FIVE YEARS, WITH THE PROVISO THAT NO TRUSTEE SHALL SERVE MORE THAN TWO CONSECUTIVE TERMS.

Whereas, A trustee, because of the multiplicity and complexity of the affairs which he must consider and act upon, can hardly attain a full measure of efficiency in so short a time as the period of service for which he is now elected, three years, at the expiration of which period, he may or may be reelected; and

Whereas, It is nevertheless desirable that there be no indefinite continuance of a trustee in office; be it

Resolved, That the Constitution, Article 6, entitled "General Officers." Section 2, be amended by striking out the words therein defining the terms of trustees, to wit, "three of whom shall be elected annually, each to serve three years," and by adding to the section thus amended, the following:

Two trustees shall be elected annually, except every fifth year, when but one shall be elected, each to serve five years and until his successor is elected and installed. No trustee shall serve for more than two consecutive terms, but a trustee elected to serve the balance of an unexpired term shall not be regarded as having served a term unless he has served three or more years: Provided, that at the session of the House of Delegates at which this amendment is adopted, two trustees shall be elected to serve three years and one to serve four years; at the next annual session thereafter, one to serve three years and two to serve four years; and at the next subsequent session, two to serve four years and one to serve five years; and thereafter every trustee shall be elected as heretofore directed.

Your committee recommends that this resolution be approved and laid on the table for one year in accordance with the Constitution.

William Gerry Morgan, Chairman,
William H. Mayer,
Edward H. Cary,
Edgar A. Hines,
Edward Livingston Hunt, Secretary.

Regarding that section of the report extending the term of the trustees to five years, the committee recommended that the resolution be approved and laid on the table for one year in accordance with the Constitution.

Dr. Holman Taylor, Texas, moved that the recommendation of the committee be adopted. Seconded.

Dr. W. H. Seeman, Louisiana, moved as a substitute that the recommendation of a change in the Constitution be laid over until next year.

Seconded and carried.

The report was further considered section by section, and each section adopted, after which Dr. Morgan moved the adoption of the report as a whole, which motion was duly seconded and carried.

Report of Reference Committee on Reports of Officers

The report of the Reference Committee on Reports of Officers was called for.

Dr. E. Elliott Harris, New York, Chairman, stated that the committee was able to make only a partial report of the matters referred to it at this time, and that Dr. Hubert A. Royster, North Carolina, a member of the committee, would present the report.

Dr. Royster stated that the committee had had referred to it for consideration the address of the Speaker, the President's address, the President-Elect's address, report of the Secretary, report of the Board of Trustees, the communication by Brigadier General Sawyer, etc.

1. Taking up these items seriatim, in regard to the address of the Speaker, after deliberation the committee believes that a midyear meeting of the House of Delegates is unpractical and offers as a suggestion that the House of Delegates meet annually four days before the scientific session.

2. Concerning the second recommendation, in regard to the enunciation as to the position taken by the scientific section, the committee called attention to Chapter XVI of the By-Laws, which reads: "No memorial, resolution or opinion of any character whatever shall be issued in the name of the American Medical Association unless it has been approved by the House of Delegates."

3. The committee joins the Speaker in his recommendation that a compilation of the policies of the Association be undertaken by the Secretary, and that a copy of this compilation be furnished to the secretaries of the constituent associations and to the delegates of the House of Delegates.

4. The committee concurs in the recommendation to appoint a special committee as named for the purpose of representing the Association at further conferences on the question of a National Welfare Department, and desires to emphasize that the particular object of this committee is to protect the interests of the medical profession and the public in such deliberations.

5. The committee agrees that in the urgency of war there was a demand for Red Cross aid for the relief of disease and accident, but that at the present time, when there is no such urgency, there is no need for the entrance of this organization into the field of medicine or community clinic activities.

Your committee voted unanimously that the Board of Trustees convey this recommendation of the Reference Committee to the officials of the Red Cross.

6. With reference to the training of full-time secretaries at the National Headquarters of the Association, your committee deems the recommendation inexpedient at the present time.

7. Your committee considers favorably the recommendations received from the delegates in response to the Speaker's inquiries and offers the following amendment to the By-Laws, Chapter 10, Section 1, as a substitute for the first sentence of this section:

The Speaker of the House of Delegates shall appoint from the members of the House, in advance of the annual meeting, such committees as he may deem expedient for the transaction of the business of the House of Delegates, thus giving an opportunity to appoint these committees before the rush.

8. Your committee wishes to state that the work imposed this ear on the Reference Committee on Reports of Officers was ufficient to occupy more than a reasonable time of three eference committees.

At this juncture the Vice Speaker, Dr. Rock Sleyster, Wisonsin, took the Chair.

9. In regard to that part of the report of the Secretary conerning the BULLETIN, your committee believes that its publicaion should be continued, and that a copy of the same should e sent to every Fellow of the Association.

10. With reference to that part of the Secretary's report oncerning the advisability of conferring authority on the ouncils of the constituent state associations for electing delegates and alternate delegates when those duly elected at the nnual meeting cannot serve, your committee recommends that the matter be referred to the Reference Committee on Constitution and By-Laws.

Regarding the position of a field secretary, as recommended by the Speaker and Secretary, your committee recommends that it be referred to the Board of Trustees for action.

Dr. Harris moved the adoption of this part of the report.

Seconded and carried.

11. In regard to postgraduate courses of instruction in county medical societies, your committee suggests that feasible plans may be worked out, provided they are handled tactfully and in close cooperation with the state and county organizations. The committee recommends that the Council on Medical Education and Hospitals be authorized to act on this question.

12. Regarding the plan of organization, your committee believes that while the state societies in most instances should assume the initiative, particularly concerning the good of the profession in their respective states, it also realizes that in matters of large moment the parent organization must map out certain programs in cooperation with the constituent societies. Specifically, it should be understood that the nucleus of legislation starting in the state organizations should be supported by the American Medical Association. Where there is disagreement between the central organization and the constituent societies, the general officers of the parent organization should confer with the authorities of the state associations.

13. As to the importance of the office of councilor in state societies, as proposed by the Secretary, your commmittee approves and desires to stress their duties in the sphere of organization and under the direction of county and district societies.

14. Your committee recommends that the secretaries' conference be approved and continued and that the presidents and presidents-elect of state societies be invited to participate in these conferences.

15. Your committee recommends that the plan of having the Secretary reserve hotel accommodations for the official delegates be continued, and that the Secretary be instructed to hold these reservations until fifteen days before the time of the meeting.

16. In regard to that part of the President's address which refers to pregraduate and postgraduate medical education, your committee recommends that it be referred to the Council on Medical Education and Hospitals.

17. Regarding the second part of the report which relates to the business of the Association, your committee recommends that it be referred to the Board of Trustees.

18. In conclusion, your committee wshes to state that it greatly enjoys the vision of the future of medicine as presented by the President-Elect, as well as the terse diction which he employed in its expression.

Dr. S. W. Welch, Alabama, moved that the various items in the report be taken up section by section.

Seconded and carried.

Regarding Section 1, Dr. E. Eliot Harris, New York, moved that the suggestion of the Speaker be not acted on.

Seconded and carried.

In regard to Section 2, Dr. Harris stated that the Speaker had called attention to the inconsistency of various sections passing resolutions that were inconsistent with the policies declared by the House of Delegates, and said that no action need be taken on this because there is a by-law which states that no memorial, resolution or opinion of any character whatever shall be issued in the name of the American Medical Association unless it has been approved by the House of Delegates, and that therefore this part of the Speaker's address is covered in the By-Laws.

Relative to Section 3, concerning a compilation of the policies of the Association by the Secretary, Dr. Harris said that the Reference Committee found itself somewhat embarrassed in forming opinions and recommendations on reports of the various officers of the Association, because it did not have in its possession any of the previous resolutions pasesd by the House of Delegates relating to policies already discussed and adopted by the House. Accordingly, he moved that the recommendation giving the Secretary of the Association authority to make a compilation of the policies for the use of the Association be adopted.

Seconded and carried.

Regarding Section 4 of the report, concerning the appointment of a special committee for the purpose of representing the Association at future conferences on the question of a national welfare department for the protection of the interests of the medical profession and the public, Dr. Harris moved that the recommendation of the Speaker be concurred in.

Seconded.

After an explanation by Dr. Frank Billings, Illinois, to the effect that such a committee was appointed at Boston and had not been discharged, Dr. Arthur T. McCormack, Kentucky, moved to amend that the Speaker be empowered to appoint such additional members of the committee as he deemed fit who lived preferably near Washington.

The amendment was seconded, accepted, and the original motion as amended was put to a vote and carried.

With reference to Section 5, regarding Red Cross aid, the committee moved the adoption of the recommendation, and that the Board of Trustees be instructed to convey the recommendation of the committee to the officials of the Red Cross.

Seconded and carried.

Concerning Section 6, Dr. Harris moved the adoption of the recommendation of the committee.

Seconded and carried.

Concerning Section 7, Dr. Harris moved that the amendment offered by the committee be referred to the Reference Committee on Constitution and By-Laws.

Seconded and carried.

Relative to Section 8, no action was taken.

Regarding Section 9, Dr. H. P. Linsz, Virginia, moved its adoption.

Seconded and carried.

Concerning Section 10, Dr. Harris moved its adoption.

Seconded and carried.

With regard to Section 11, Dr. Harris moved its adoption.

Seconded and carried.

Regarding Section 12, Dr. Harris moved its adoption.

Seconded and carried.

Relative to Section 13, Dr. Harris moved its adoption.

Seconded and carried.

Concerning Section 14, Dr. Harris moved its adoption.

Seconded and carried.

With regard to Section 15, Dr. Harris moved its adoption.

Seconded and carried.

With regard to Section 16, Dr. Harris moved the adoption of the recommendation.

Seconded and carried.

Concerning Section 17, Dr. Harris moved the adoption of the recommendation.

Seconded and carried.

Regarding Section 18, Dr. Harris moved its adoption.

Seconded and carried.

Dr. Harris then moved that this partial report of the Reference Committee on Reports of Officers as presented and amended be adopted as a whole.

Seconded and carried.

Dr. Harris stated that the committee would finish its work and report to the House of Delegates later.

Report of Board of Trustees

Dr. Oscar Dowling, Louisiana, Chairman, presented the following report for the Board of Trustees:

To the House of Delegates:

The communication from the Veterans' Bureau to the House of Delegates requesting that the Medical Division of the Veterans' Bureau for delegate representation in the

House, which was referred to the Board of Trustees, has received consideration by the Board, as follows:

1. The Board has directed the Secretary of the Association to inform the director of the Veterans' Bureau that the Constitution and By-Laws of the Association will not permit this request to be granted.

2. The Board is of the opinion that the House of Delegates should express to the director of the Veterans' Bureau that the American Medical Association is willing and ready to cooperate with the bureau in the promotion of the efficient care of the disabled veterans of the World War. The Board recommends that the House take this action.

Dr. Arthur T. McCormack, Kentucky, moved the approval of the recommendation of the Board of Trustees.

Seconded and carried.

Dr. Dowling also presented the following for the Board of Trustees:

Whereas, The Medical Section, American Friends Service, through its Physicians and Surgeons Committee, appeals for American Medical Aid for the physicians of Russia, and

Whereas, This appeal has been presented to the House of Delegates and by the House has been referred to the Board of Trustees for additional action, be it

Resolved, That the matter of medical aid for Russian physicians receive the endorsement of the House of Delegates and that the President of the American Medical Association and the Board of Trustees be empowered to cooperate actively with the existing committees of the Medical Section, American Friends Service, to further this enterprise.

Dr. E. Eliot Harris, New York, moved the adoption of the recommendation.

Seconded and carried.

Dr. Dowling presented the following Resolutions from the Board of Trustees, which were referred to the Reference Committee on Amendments to the Constitution and By-Laws:

Whereas, Since the creation of the Council on Health and Public Instruction it has been relieved of two of the functions for which it was primarily established, namely, of its function pertaining to the organizing of the Association and to the Association's legislative activities;

Whereas, The activities of the Association in the fields of health and public instruction, for which in a large part said Council was created, are now centered to a considerable extent in the lay health journal, Hygeia, published under the management of the Board of Trustees; and

Whereas, These changes in the functions of said Council seem to call for a revision of the methods by which they are performed:

Resolved, That the Council on Health and Public Instruction be and is hereby abolished, and the Board of Trustees authorized to establish and maintain in lieu thereof a Bureau of Health and Public Instruction to perform under direction of said board the functions now performed by said Council and such other functions as said board may assign to it;

Resolved, That the Board of Trustees be and is hereby authorized to appoint a committee to be known as the editorial advisory committee for Hygeia, to cooperate with said board in determining the editorial policies of said journal; and

Resolved, That to carry into effect the purposes of the foregoing resolutions, the By-Laws be amended as follows:

Chapter VII, Section 3. Strike out "(*b*) Council on Health and Public Instruction," and reletter "b" and "c" respectively, the following two clauses:

Chapter VIII, Section 2. Strike out "of the Council on Health and Public Instruction and"; also "the salary of each"; and insert in lieu of the latter phrase, "his salary."

Chapter IX. Strike out Section 2 and renumber "2" and "3," respectively, by the following two sections.

Chapter X, Section 4, Par. (4). Strike out "(The members of the Council on Health and Public Instruction shall be members, *ex officio,* of this committee)."

Chapter VI, Insert after Section 1 the following section to be known as Section 2:

Section 2. The Board of Trustees shall establish a bureau, to be known as the Bureau of Health and Public Instruction, to carry on such activities in the field of health and the dissemination of information in relation thereto as the House of Delegates may direct or the Board of Trustees, in the absence of such directions may determine.

Section 3. The Board of Trustees shall publish a journal for the dissemination among the laity of information concerning health and matters of popular interest concerning medical matters, the editorial policies of which shall be determined by said board, with the cooperation of an editorial advisory committee, consisting of five members, appointed by said board from among the fellows of the Association.

Renumber "4" the section now numbered "2."

Make such merely verbal changes, if any, as may be necessary to carry into effect the purpose of the foregoing resolutions.

Resolution on Intern Training

Dr. George F. Keiper, Indiana, presented the following preambles and resolution, which were referred to the reference committee on Medical Education.

Whereas, The Boards of Medical Registration, Examination and Licensure of forty states require one year of intern training subsequent to graduation, as a prerequisite to the practice of medicine and surgery, and

Whereas, The detail of such intern training is in a very chaotic state because no curriculums of work and study exist. Be it

Resolved, By the House of Delegates of the American Medical Association that the Committee on Medical Education and Hospitals be instructed to prepare a plan for such intern training, and report the same to the next annual meeting of Delegates of this Association for consideration.

Proposed Amendment to By-Laws

Dr. George F. Keiper, Indiana, presented the following amendment to the By-Laws, Chapter I, Section 2, which was referred to the Reference Committee on Amendments to the Constitution and By-Laws:

Term.—The last sentence to read:

Delegates and alternates elected by the sections, or delegates appointed from the United States Army, United States Navy and the United States Public Heealth Service shall hold office for three years, so that one third shall be elected by the section each year and one third appointed from the government service each year.

On adoption of this By-Laws the following sections each shall elect a delegate and an alternate to serve for three years: (1) Practice of Medicine; (2) Surgery, General and Abdominal; (3) Obstetrics, Gynecology and Abdominal Surgery; (4) Ophthalmology, and (5) Laryngology, Otology and Rhinology.

The following sections each shall elect a delegate and an alternate for two years: (1) Diseases of Children; (2) Pharmacology and Therapeutics; (3) Pathology and Physiology; (4) Stomatology; (5) Nervous and Mental Diseases.

The following sections each shall elect a delegate and an alternate for one year: (1) Dermatology and Syphilology; (2) Preventive and Industrial Medicine and Public Health; (3) Urology; (4) Orthopedic Surgery; (5) Gastro-Enterology and Proctology.

Thereafter each section shall elect a delegate and alternate to serve for three years.

If a vacancy occurs from any cause, in any section representation, the section at the next annual meeting shall elect a delegate or alternate to fill out the unexpired term.

Gorgas Memorial

Dr. Charles W. Richardson, District of Columbia, and member of the Board of Trustees, spoke on the Gorgas Memorial, stating that this committee had continued its activities up to the time there was a reorganization made in the General Gorgas Memorial Committee. This committee has been in touch with the reorganization plans, and in order that the House of Delegates may receive a full and complete report of the reorganization made by the joint committee, he asked that Dr. Franklin H. Martin be extended the privileges of the floor to explain to the House of Delegates the methods to be adopted in order to obtain subscriptions for this purpose.

It was moved and seconded that Dr. Martin be extended the courtesies and privileges of the Board to speak on the General Gorgas Memorial Institute of Tropical and Preventive Medicine. Carried.

Dr. Martin then submitted the following report:

GORGAS MEMORIAL INSTITUTE OF TROPICAL AND PREVENTIVE MEDICINE

Our plans, as they affect the past and the future, and as they are worked out up to the present time, are as follows:

1. The Gorgas Memorial was organized under the laws of the state of Delaware with Admiral Braisted, Hon. John Bassett Moore, Surgeon General Ireland, Surgeon General Stitt, Surgeon General Cumming, Dr. Leo S. Rowe, Hon. Jose E. Lefevre of the Panaman Legation, President Belisario Porras of Panama, and Dr. Franklin Martin as the sponsors.

2. The object of the organization is to raise money, the interest of which will sustain a working memorial to General Gorgas, whose genius stamped out yellow fever and malaria in Cuba and Panama, and who taught us how to control those diseases.

3. The memorial is to be known as the Gorgas Memorial Institute of Tropical and Preventive Medicine, and will take the form of a research laboratory and a teaching institute in Panama for those branches of medicine.

4. The headquarters of this institute will be presided over by a board of scientific directors, of which Prof. Richard P. Strong, of Harvard University, has been selected as the first director. The institute will be located in Panama on a beautiful site on the shore of the Pacific, which was formerly in the exposition grounds of the city of Panama. The site was donated by the Republic of Panama, and President Porras, backed by the citizens of Panama, has guaranteed the initial buildings.

5. It is the plan of the directors of the institute to raise the sum of five million dollars, which will be invested in

trust securities, and only the interest of which is to be used to carry on the purposes of the organization.

6. The board of directors is composed of the following named men:

Honorary President, Warren G. Harding, President of the United States.
Dr. Belisario Porras, President, Republic of Panama.
Surgeon General Merritte W. Ireland, United States Army, Washington.
Surgeon General Hugh S. Cumming, United States Public Health Association.
Dr. Seale Harris, President, Southern Medical Association.
Mr. Bernard Baruch, New York.
Mr. W. P. C. Harding, President, Federal Reserve Bank, Boston.
Mr. Fred W. Upham, President, Consumers Company, Chicago.
Dr. W. H. G. Logan, Professor of Oral Surgery, Chicago College of Dental Surgery.
Dr. Gilbert Fitz-Patrick, Chairman Board of Control, American Institute of Homeopathy, Chicago.
Dr. Leo S. Rowe, Director-General, Pan American Union, Washington.
Surgeon General Edgar R. Stitt, United States Navy, Washington.
Brig. Gen. Robert E. Noble, Surgeon General, Library, Washington.
Hon. R. J. Alfard, Panaman Minister, Washington, D. C.
Judge John Bassett Moore, Court of International Justice, The Hague.
Mr. Samuel Gompers, President, American Federation of Labor.
Brig. Gen. Charles G. Dawes, President, Central Trust Company of Illinois.
Mr. Adolph Ochs, Editor, New York *Times*, New York.
Dr. Frank Billings, Chicago.
Vice President and Chairman of Board of Directors, Dr. Franklin Martin, Director-General, American College of Surgeons.
Attorney, Mr. Silas Strawn, Chicago.

The chairman of the board of directors has been asked to assume the responsibility of conducting the campaign for raising the money, which carries with it the establishment of headquarters in Chicago, where the Chicago members of directors will act as an executive committee.

7. (*a*) The campaign will be carried on under the direction of a committee of one hundred physicians and civilians in each state of the United States, each province of Canada, and each of the Latin American republics, with the governor of each state or province, and the president of each Latin American Republic to be asked to become honorary chairman of the respective committee.

(*b*) Each state and province will establish a committee of ten in each county, and in each city of over a hundred thousand inhabitants; and subcommittees of five in each ward of the larger cities.

(*c*) These committees will be called "contributing committees," and they will be composed of civilians who knew and appreciated the work of General Gorgas, and the more than 120,000 medical men who volunteered to serve as officers under General Gorgas during the World War, and who knew him more or less personally. Each committeeman will be expected to make a minimum subscription of one hundred dollars.

8. In our intensive campaign, our committee will interest:

(*a*) The labor organizations, which are deeply interested in Gorgas because of his campaign for sanitary housing of the men.

(*b*) Commercial organizations interested in trade in the tropical countries, which Gorgas' work made habitable.

(*c*) The school children, among whom a propaganda will be conducted making known in a simple way the sanitary principles that involve the destruction of the mosquito and the fly.

(*d*) The medical profession, many members of which served as reserve officers under the command of General Gorgas, and who knew him as a soldier and as a sanitarian as well.

(*e*) The governments of the Western continents, the amount asked to be distributed on a pro rata basis, according to the population of each country.

(*f*) The public, through three definite popular campaigns for smaller sums near the end of the drive:

i. A definite tag day in all cities and towns.

ii. A popular subscription conducted through the school children.

iii. A Gorgas' Sunday, on which subscriptions will be taken in all churches.

9. The campaign will extend from Oct. 3, 1923 (the anniversary of General Gorgas' birth) to July 4, 1924 (the anniversary of his death).

10. Propaganda regarding the memorial will be disseminated through newspapers of the United States, and the several other countries interested. A series of paragraphs will be released in advance with the understanding that they are to be printed on definite days, so that simultaneously all over the territory covered there will be a similar daily and weekly release of information that will keep the people interested in Gorgas and his work. At the head of this campaign we hope to have the editor of the New York *Times*, Mr. Adolph Ochs, who was a friend of General Gorgas, and who is deeply interested in the memorial.

The carrying out of this campaign, which will have its formal beginning, Oct. 3, 1923, will be preceded in the interval of three months by the perfecting of a gilt-edged list of men from whom we may expect to obtain subscriptions; and just before the opening of the formal campaign in October, a carefully worded, appealing letter will go to at least one hundred thousand selected individuals—men who were more or less in touch with Gorgas and who knew his work—each of whom will be asked to become a founder member of the organization, backed by a subscription for one thousand dollars. The rank and file of our committeemen, as has been stated, will be asked to subscribe one hundred dollars; and no one, except as he may influence individuals through the organization, will be asked to make any personal solicitation for subscriptions. We are hoping to secure from five hundred to one thousand of these preliminary founders' subscriptions. We are quite sure that a considerable number of the physicians and surgeons of the United States—prominent men in the profession—who served under General Gorgas, will make this preliminary subscription.

Dr. Arthur T. McCormack, Kentucky, moved that the House of Delegates, by rising vote, pledge the American Medical Association to do everything in its power to assist the Committee on Gorgas Memorial to erect this memorial to this great leader.

Seconded and unanimously carried.

Resolutions on Unlawful Prescribing of Liquor

Dr. Thomas C. Chalmers, New York, offered a resolution commending the work of the Association for the Protection of Constitutional Rights, which was referred to the Committee on Legislation and Public Relations. The text of this resolution will be appended to the report of the Reference Committee.

Dr. Thomas C. Chalmers, New York, presented the following resolution, which was referred to the Reference Committee on Rules and Order of Business:

Whereas, The honor and integrity of the medical profession are being impugned by the unnecessary, unprofessional and unlawful prescribing of liquor by unprincipaled physicians:

Resolved, That in the judgment of the House of Delegates, of the American Medical Association, in session assembled, every state and county medical association should use its best endeavor to discipline physicians who either negligently or wilfully prescribe liquor otherwise than in accordance with law, and to purge the medical profession of physicians who wilfully, under the cloak of their profession, prescribe liquor for other than medicinal purposes; and

Resolved, Further, that the Secretary of the Association send a copy of this resolution to every state and county medical association affiliated with the American Medical Association.

Resolutions on Whisky Bottled in Bond

Dr. Chalmers also presented the following resolutions which were referred to the Reference Committee on Legislation and Public Relations:

Whereas, The interests of the patient and the success of the physician require that such alcoholic liquor as is prescribed in the treatment of disease be of known purity and standard strength; and

Whereas, This can be accomplished only by the marketing of bottled in bond whisky in containers suitable for the dispensing, unopened, by the pharmacist to the patient in such sizes as will meet the patient's need:

Resolved, That the Commissioner of Internal Revenue and the Prohibition Commissioner be again urged to limit as speedily as possible the distribution of whisky to bottled in bond packages, and to provide for the bottling in bond of whisky for medicinal use in packages of sizes suitable for dispensing unopened on prescription, say in packages of 4, 6, 8 and 16 ounces; and

Resolved, Further, that the Board of Trustees be requested to use its best endeavors to accomplish the ends named in the preceding resolution.

Dr. Cornelius Van Zwalenburg, California, presented the following resolution, which was referred to the Reference Committee on Sections and Section Work:

Whereas, New discoveries in the practice of medicine are usually made by the combined efforts of small groups of workers and are usually presented before small groups of specialists in special sections, or special societies where their distribution and practical application are restricted; therefore, *Resolved,* By the House of Delegates, that the Council on Scientific Assembly be instructed to arrange that wherever possible upon every section program there shall be at least one paper on some subject from some other specialty which is of particular interest to the section before which it is read.

For example, the effect of the roentgen ray on cancer should be presented before the Section on Practice of Medicine and also before the Section on Surgery, General and Abdominal.

Resolution on Volstead Act

Dr. Victor D. Veck, California, offered the following resolutions, which were referred to the Reference Committee on Legislation and Public Relations:

Whereas, It has always been the policy of the medical profession to maintain the confidence of their patients as an inviolate secret, and

Whereas, The Volstead Act compels the physician to betray the confidence placed in him by his patient by publishing the nature of his illness, and

Whereas, The said Volstead Act dispenses with the judgment of the physician when treating his patients by limiting the amount of alcoholic remedies he may prescribe; therefore, be it

Resolved, That the House of Delegates of the American Medical Association expresses its disapproval of those portions of the said Volstead Act which interfere with the proper relation of the physician and his patient, and be it further

Resolved, That a copy of this resolution be sent to each of our Representatives in the House and the Senate of the United States.

Resolution on Prescribing of Organic Extracts

Dr. S. W. Welch, Alabama, offered the following resolution, which was referred to the Reference Committee on Medical Education:

Whereas, The indiscriminate and unscientific use of preparations containing organic extracts or endocrines is liable to produce seriously injurious effects, and whereas products containing such substances are now being widely exploited as cure-alls and prescribed by physicians who are misled by the unwarranted claims of certain manufacturers. Therefore, be it

Resolved, That this Association unqualifiedly condemns the methods and claims of the said manufacturers as being unworthy of the consideration of the medical profession.

Proposed Amendment

Dr. Holman Taylor, Texas, offered the following amendment, which was referred to the Reference Committee on Amendments to the Constitution and By-Laws:

Amend Sub-Section 4 of Section 4 (Committees) of Chapter 10 of the By-Laws by striking out the words in parenthesis, as follows: "(The members of the Council on Health and Public Instruction shall be members, *ex officio,* of this committee.)," and substitute therefor the following: "The Executive Secretary of the the Bureau of Legal Medicine and Legislation shall be *ex officio* a member of this Committee."

Resolutions on Radiology

Dr. Albert Soiland, California, presented the following resolutions, which were referred to the Reference Committee on Sections and Section Work:

Whereas, There are over one thousand members of the American Medical Association engaged in the practice of Radiology, and

Whereas, The science of Radiology enters into and cannot be dissociated from the practice of medicine and surgery, and

Whereas, Serious attempts are being made by civic and commercial bodies in different states to legalize and license the practice of radiology by laymen, therefore be it

Resolved, That the House of Delegates of the American Medical Association hereby recognize the science of radiology as an integral part of the science of medicine and surgery and, be it further

Resolved, That the House of Delegates of the American Medical Association authorize the formation of a section of Radiology.

Resolution on Physicians' Home Association

Dr. J. Richard Kevin, New York, presented the following resolution which was referred to the Reference Committee on Miscellaneous Business:

Whereas, The Physicians' Home Association is a national organization which provides a desirable and comfortable home for the aged and incapacitated physician; and

Whereas, The Physicians' Home Association has already established a branch home in New York State and four aged and incapacitated physicians are now enjoying the privileges without any expense whatever; therefore, be it

Resolved, That the House of Delegates assembled records itself as being in free sympathy with the magnanimous object of the Physicians' Home Association, and that the Editor of The Journal be requested, when consistent, to assist in the propaganda of this worthy organization.

Resolutions on Public Health

Dr Southgate Leigh, Virginia, offered the following resolution from the Medical Society of Virginia, which was referred to the Reference Committee on Miscellaneous Business:

Resolved, That the Council on Pharmacy and Chemistry of the American Medical Association be instructed to employ a trained publicity man, preferably a writer with an established reputation, whose duty it shall be to get into the lay press, daily papers, rural publications, magazines, etc., articles covering fully and accurately all of the activities of organized medicine.

Dr. Leigh offered the following resolution from the Medical Society of Virginia, which was referred to the Reference Committee on Medical Education:

Resolved, That the President and Secretary of the American Medical Association be instructed to confer with the medical directors of the larger life insurance companies which do preventive and educational health work wtih the object of securing their cooperation in educating the public about quacks and nostrums.

Dr. Leigh presented the following resolution from the Medical and Surgical Section of the American Railway Association, which was referred to the Reference Committee on Miscellaneous Business:

Whereas, The U. S. Public Health Service, in cooperation with the State and Territorial Health Officers Association has compiled a standard sanitary code suitable for the entire country; and

Whereas, This Code has already been adopted by twenty-five states of the Union as their state code; therefore be it

Resolved, By the House of Delegates of the American Medical Association that said code be approved by this body and be recommended to the remaining states of the Union for adoption.

Dr. Leigh offered the following resolution from the Medical Society of Virginia, which was referred to the Reference Committee on Hygiene and Public Health:

Resolved, That the Council on Health and Public Instruction be instructed to supply each and every county medical society making the request with properly prepared articles for publication in the lay press covering the prevention of disease, the cause of disease, and such general information covering the work of the physicians as will tend toward a better understanding between the profession and the public.

Report of Special Committee on Survey of Systems of Drugless Therapy

Dr. Charles E. Humiston, Illinois, Chairman, presented the following report of the Special Committee on Survey Systems of Drugless Therapy:

In accordance with a resolution passed by the House of Delegates in 1922, President de Schweinitz appointed a committee of five members of the American Medical Association to cooperate with other organizations in a survey of the various forms of drugless therapy.

In view of the fact that your committee was not given the initiative in this proposed survey and in view of the further fact that none of the organizations proposing such investigation has invited cooperation by the American Medical Association, your committee is unable to do more than report progress.

However, your committee having ascertained that a large number of influential agencies approve the making of a thorough and impartial study of the value of the widely practiced forms of treatment of human ailments, recommends that the American Medical Association continue to offer its cooperation in this highly important matter.

A. D. Dunn,
F. B. Lund,
Charles E. Humiston.

At the conclusion of the report, Dr. Humiston moved its adoption, which was seconded and carried.

As there was no further business to come before the meeting, the House of Delegates took a recess until Thursday, June 28, at 2 p. m.

(To be continued)

Number of Lepers in World Estimated.—At a meeting of the Society of Arts, Sir Leonard Rogers, lecturer at the London School of Tropical Medicine, estimated that there were 500,000 lepers in India, 7,000 in Europe, 1,256,000 in Asia and 525,000 in Africa.

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SATURDAY, JULY 7, 1923

SAN FRANCISCO SESSION

The annual session of the American Medical Association in 1923 at San Francisco was a notable demonstration of the advance which medical science has made in the western part of the United States in the brief period since the Association met in the same place eight years ago. The registration (3,765) exceeded by almost 1,500 the registration at the 1915 meeting. In view of the distances traveled by those attending the convention, including even those from western states, this large registration is a remarkable testimony to the work of the Association on the Pacific Coast.

A conspicuous feature of the San Francisco session is the fact that not only the exhibits and the meeting of the House of Delegates were held in the Civic Auditorium, but also the meetings of all the sections. This enabled the Fellows to go rapidly from one meeting to another and permitted selection of the various papers in the various sections which were of particular interest to the individual physician. The scientific program was noteworthy for the advanced character of the subjects discussed. None of the newer procedures in diagnosis and treatment seems to have been overlooked. Of particular interest were symposiums on diet, on the mental health of the child and on preventive medicine, which attracted large numbers. An unusual feature of this meeting was the extensive publicity given to the work of the Association, not only by the press of San Francisco, but also by newspapers throughout the country. All the local papers assigned special staffs to cover the meeting and devoted from two to three pages each day to reports of the session. Physicians of California expressed the belief that the information thus given to the public through the lay press would be of great service in combating the advertising of the nonmedical cults, which has been particularly obnoxious in that state.

The main hall of the Civic Auditorium was occupied by the scientific and commercial exhibits. In the scientific exhibit special arrangements had been made to demonstrate particularly problems associated with the diagnosis and prevention of disease, and large numbers of persons constantly availed themselves of the opportunity to receive first-hand demonstrations of newer procedures in these fields. The motion picture theater, a part of the scientific exhibit, was likewise devoted primarily to diagnosis and was constantly attended by from 300 to 500 persons. In view of the distance to be traveled, the extent and scope of the commercial exhibits was a demonstration of the interest taken in the annual session by the manufacturers of drugs and foods, by the makers of apparatus and by medical publishers. Every foot of available space was occupied, and exhibitors expressed themselves as more than satisfied with the attention given to the displays.

In a special resolution, the House of Delegates of the Association tendered its thanks to the local Committee of Arrangements for the excellence of preparation and the thorough efficiency in its conduct of the meeting. As has been said, the main meeting hall is especially adapted to sessions of the Association. The opening meeting was held in an auditorium seating more than 6,000 persons, and every available space was occupied. The President's reception was held in the three ballrooms of the Fairmont Hotel and was an exceptionally well-arranged, beautiful and entertaining feature. Women visitors were provided with drives about the beautiful environs of the city, and a concluding event was the reception at Stanford University by President and Mrs. Ray Lyman Wilbur.

The climate of California justified its well-known reputation for evenness and salubrity. The weather during the entire meeting was clear and the range of temperature varied but a few degrees.

The sessions of the House of Delegates were fully and closely attended. As is shown by the minutes printed last week and continuing through the issues of this and next week, many problems of importance to the Association and to the public welfare received careful consideration. Attention is directed particularly to the actions taken relative to amendments to the Constitution and By-Laws of the Association.

The description would not be complete without mention of two unusual features. Through the local Committee of Arrangements, plans were made for clinics before and after the session. These clinics, held throughout the entire Pacific Coast and western states, carry the scientific work of the Association to many who were unable to register at the meeting. In order to convey an adequate view of medical California an extensive volume was prepared describing the work of the annual session and the medical features of every county in the state.[1]

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[1] Some extra copies of this book are available, and those interested may secure them by addressing Dr. William Musgrave, Balboa Building, San Francisco, chairman of the local Committee of Arrangements, to whom special thanks are due for executive efficiency shown in planning and carrying out the work of the meeting.

TREATMENT OF HYPERTENSION BY SALT RESTRICTION

The treatment of hypertension by salt restriction was advocated in 1904. There was some foundation for the doctrine in Widal's work on edema, but it was generally opposed except in France, where it found enthusiastic supporters. Allen's report,[1] in 1920, revived the subject, but seemed insufficient to convince many observers. Recently, Allen and Sherrill [2] reported 180 cases of hypertension treated by salt restriction which they believe provide a suitable test of the method.

The cases were limited to patients with a systolic blood pressure above 175 mm. of mercury. They were cases (1) of "essential" hypertension with plasma chlorid concentrations above 580 mg. per hundred cubic centimeters; (2) with plasma chlorid concentrations below 580 mg. per hundred cubic centimeters; (3) of hypertension and nephritis, and (4) of hypertension and diabetes. They were observed for periods varying from one month to four years. A normal blood pressure was restored in 18.9 per cent.; there was a "distinct therapeutic success" in 41.9 per cent., transitory benefit in 8.9 per cent., and complete failure in 30.5 per cent.

If, as Allen and Sherrill believe, hypertension is the result of injury to the small blood vessels of the kidneys, it seems probable that sodium chlorid, an important factor in osmosis, would affect this condition. The primary injury may be due to an infection or intoxication, but the progressive damage is said to result from a vicious circle formed by the kidney lesions and the retained chlorids. It appears that the plasma chlorid concentration of a normal person on a minimal salt intake is not above 580 mg. per hundred cubic centimeters, and that blood pressure and plasma chlorid concentration do not necessarily vary in parallel. Successes and failures were obtained in this series of cases almost indiscriminately, whether the plasma chlorids rose or fell, and it must be admitted that these variations are frequently due to laws unknown.

It is necessary to maintain strict salt privation. Diet is not considered "salt free" until 0.5 gm. or less of sodium chlorid is excreted daily. To accomplish such reduction, foods of very low salt content were selected and no salt was added to the food. The ability of patients to endure this diet is, it appears, evidence of abnormal chlorid metabolism. One hundred and nine patients were kept continuously on salt-free food. It was necessary in some cases to give from 1 to 3 gm. of sodium chlorid daily to prevent privation symptoms; this amount was allowed in other cases because it did no apparent harm.

A salt-free diet is exacting. It must be prepared in an appetizing manner, the tolerance in each case must be precisely determined, and the results of the diet must be checked by daily analyses of the chlorid output. It is therefore as much a hospital problem as is the dietary factor in the treatment of diabetes. Most of these patients had been treated by other methods before they were subjected to salt restriction. That the improvement which it was hoped would follow might not be ascribed to rest, the patients were not put to bed except for emergencies threatening life at the time of admission, and they were encouraged to perform a reasonable amount of physical exercise. In deliberate defiance of the protein restriction theory for the treatment of hypertension, patients without significant nitrogen retention were allowed from 80 to 100 gm. of protein a day. This did not impede the reduction of blood pressure in the average case, and extreme protein restriction did not improve the results obtained solely by salt restriction in the refractory case. The question of the susceptibility of hypertensive patients to injury from ordinary quantities of protein seems to have been answered. There was no immediate influence on blood pressure; there was in some cases a reduction of blood pressure by salt restriction even when an increase in the protein was allowed; there was no injury observed in a period of three years.

A supply of salt to the body may readily be conceived to be necessary, and its reduction beyond a safe level to be a risk. Symptoms of salt privation sometimes arise in severe cases. They are not, however, an essential part of the treatment, and they can usually be checked in their incipience. Thus salt restriction, accurately controlled for a sufficient length of time, has been found of value in hypertension. It is recognized that the majority of writers still oppose salt restriction, but it is believed that, under similar circumstances, others will achieve similar results.

DEMENTIA PRAECOX AND ENDOCRINE DISORDER

It is only natural that a cause for diseases that seem unintelligible should be sought in the disturbance of functions about which we know little. Probably the most baffling common disease, if it is a disease and not, as many believe, a catch-all for psychiatric flotsam and jetsam, is that described under the name of dementia praecox. As the name is now used, the cases included in this group comprise approximately 50 per cent. of all admissions to hospitals for mental diseases and an even larger proportion of the total population of such institutions at any given time. The most fascinating and at the same time the least understood of all realms in physiology is that of the endocrine glands. Much effort has been directed to establishing a valid connection between these two sets of phenomena, which range from the now discredited Abderhalden reactions and studies of metabolism to the results obtained by excision, transplantation and administration of gland substances. There is probably no gland that has not at some time been incriminated in the causation of dementia praecox. The pancreas, thyroid, thymus, hypophysis, suprarenals have all been accused, but probably none more frequently than the gonads.

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[1] Allen, F. M.: Arterial Hypertension, J. A. M. A. **74**: 652 (March 6) 1920.

[2] Allen, F. M., and Sherrill, J. W.: Treatment of Arterial Hypertension, J. Metabol. Res. **2**: 429 (Oct.) 1922.

One important result of these speculative considerations is the stimulus given to research on the anatomy of the ductless glands both in health and in disease. They have also brought into strong relief the need for care in interpreting and drawing conclusions from abnormalities observed. Such caution is especially important in connection with a chronic disorder like dementia praecox, which only exceptionally leads directly to a fatal termination. In all prolonged and severely incapacitating diseases, due consideration must be given to the secondary effects that are produced by the altered mode of life incident to the disease and to the coexistence of degenerative conditions and pathologic changes that arise from age, chronic infection and the intercurrent disease that actually causes death.

During the last few years, extensive investigation of the histology of the gonads from persons who have died while suffering from dementia praecox has been carried out in the laboratories of Mott[1] and has led him to the conclusion that in dementia praecox there is an atrophy of the gonadal parenchyma which is proportional to the duration of the mental disorder and the degree of psychic deterioration during life. From the clinical standpoint also attention has been called, notably by Gibbs,[2] to failure in the complete development of secondary sex characteristics, and by others, especially psychanalysts, to evidence of infantilism in dementia praecox which it is inferred should be ascribed to dysfunction of the gonads or hypophysis. The report by Morse[3] and his co-workers at the Boston Psychopathic Hospital on the results of studies of the endocrine glands is therefore especially valuable. Histologic examinations of various endocrine glands have been made in a series of twenty-seven cases of dementia praecox especially favorable for the purpose, including several cases in which death had been caused by suicide or accidental conditions. This material has been controlled as far as possible by identical studies of the glands in persons, dying from similar causes, who did not have dementia praecox. Morse finds that the conditions in the sex glands as well as the other endocrine glands "of the controls were essentially the same as in the dementia praecox cases for the same terminal diseases, with the exceptions of the feebleminded, the infantile and the emaciated cases." He also asserts that careful study of his data fails to establish a correlation between the condition of the glands and the duration or degree of the mental disorder; and he concludes that it depends more on the nature of the terminal disease, the state of nutrition and possibly some underlying defects in development.

Morse also points out that aspermatogenesis, degenerations and profound atrophy of the gonads have been produced in animals by fasting, inanition, diets deficient in water soluble vitamins, experimental beriberi and by exposure to the roentgen ray. They have been described also in severe toxic disorders, especially in pneumonia, influenza and tuberculosis, in man. It is therefore not surprising that they are observed in dementia praecox cases, many of which end fatally from severe inanition, tuberculosis and other infectious diseases. It is true that negative evidence of this kind does not prove that there is no connection between dementia praecox and endocrine dysfunction, but it certainly does establish the need for positive findings under careful conditions of control such as have not yet been adduced, before the existence of such a correlation can be assumed even as a working hypothesis.

Current Comment

THE PRESIDENT-ELECT

The election of Dr. William Allen Pusey as President-Elect of the American Medical Association is a recognition not only of leadership in a specialty of medicine, but also of personal service to the American Medical Association and to medical science. Dr. Pusey was born in Elizabethtown, Hardin County, Ky., Dec. 1, 1865, son of Dr. Robert B. and Belle Brown Pusey. It is interesting to know that in 1922 Dr. Pusey presented a tablet to his native county as a memorial to Lincoln's foster mother, for Abraham Lincoln was born on a farm in Hardin County. The great grandfather of Dr. Pusey, William Brown, mapped the road from the Cumberland Gap into Kentucky. Dr. Pusey received the A.B. degree from Vanderbilt University in 1885, the A.M. in 1886 and the M.D. from the Medical College of New York University in 1888. The following year he began practice in Chicago. From 1894 to 1915 he was professor of dermatology in the University of Illinois School of Medicine and since that time has been emeritus professor. He has been dermatologist at St. Luke's and Augustana hospitals, and was president of the American Dermatological Association in 1910 and of the Chicago Medical Society, 1918-1919. During the war he rendered conspicuous service to the government as chairman of the Committee on Venereal Diseases in the Surgeon General's Office, outlining the plan of attack on these diseases and aiding in the preparation of the "Manual of Treatment of Venereal Disease," which was issued to every physician in the United

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[1] Mott, F. W.: Brit. M. J. **1**: 463 (March 25) 1922; Proc. Roy. Soc. Med. (Sect. Psychiat.) **15**: 1 (March) 1922; New York M. J. **116**: 245 (Sept. 6) 1922.

[2] Gibbs, C. E.: Sex Development and Behavior in Male Patients with Dementia Praecox, Arch. Neurol. & Psychiat. **9**: 73 (Jan.) 1923.

[3] Morse, M. E.: The Pathological Anatomy of the Ductless Glands in a Series of Dementia Praecox Cases, J. Neurol. & Psychopath. **4**: 1 (May) 1923.

States. He is author of "The Roentgen Rays in Therapeutics and Diagnosis," of a textbook, "The Principles and Practice of Dermatology," which has passed through several editions, of "Syphilis as a Modern Problem" and of numerous periodical articles concerning diseases within his specialty. During 1922 he published "The Wilderness Road to Kentucky," in which he described the mapping of the road and its present condition as found on a personal trip which he made throughout its length. In 1910 he first described the use of solidified carbon dioxid, so-called "carbon dioxid snow," in the treatment of diseases of the skin. To the American Medical Association Dr. Pusey has rendered long, continued service. He was chairman of the section on diseases of the skin in 1909. From 1911 to 1922 he was treasurer of the Association. Since its foundation in 1920 he has been an editor of the *Archives of Dermatology and Syphilology*, published by the Association. In electing him to leadership the American Medical Association has recognized a man known for scientific ability in his chosen field, for executive ability as demonstrated by his work on important committees and councils, and for scholarship as exemplified by contributions to both medical and lay literature. It may confidently look to him to continue the promotion of the high ideals for which the Association stands.

SUBCUTANEOUS FIBROID NODULES IN RHEUMATISM

The development of nodules about the knees, elbows, wrists, knuckles, spine and occiput in acute rheumatism has been recognized for more than fifty years, and has long been considered an important diagnostic sign in England, where such nodules are sought as a matter of routine in all suspected cases. The nodules are subcutaneous and attached to the aponeuroses and tendon sheaths, the skin moving freely over them. "They vary from the size of a grain of sago to one or more centimeters in diameter." They produce no change in the skin, are painless, not tender, and disappear completely on recovery, leaving no discoloration or scar. Microscopically, they consist of a granulation tissue and have a close resemblance to the Aschoff bodies found in the heart muscle in rheumatic infections. In America, these nodules have been described by various authors in occasional cases, but have been considered decidedly unusual. It is interesting, therefore, to learn that Bronson and Carr of San Francisco, from whose report [1] the foregoing quotation is taken, have observed them in seventeen of thirty-eight cases of acute rheumatism in children. The diagnosis of this disease in children is often a matter of considerable difficulty, and yet, because of the serious consequences that are liable to ensue from inadequate treatment, of great importance. Bronson and Carr regard this sign not only as of great diagnostic assistance but also as of "more prognostic value than any other one sign." In arriving at the latter conclusion they divided their cases according to the severity of the disease, as indicated by the damage to the heart that resulted from the attack, into three groups. The incidence of the nodules in these groups was: in twelve cases in which the patients recovered practically without sequelae, one, or 8 per cent.; in nine cases with definite carditis but good functional recovery, three, or 33 per cent.; and in seventeen with crippling carditis, thirteen, or 77 per cent. Of the patients having nodules, 35.9 per cent. died during the two years of observation, whereas, in the same time, only one case without nodules ended fatally. The number of cases is small, but the figures are striking. Though it is possible that there are regional differences in the character of the infection, routine search and record in all cases of acute rheumatism in children are certainly indicated, especially in view of the intensive campaign against heart disease now in progress throughout the country.

A TEST FOR TYPHOID INFECTION

A sensitive and apparently accurate method for detecting typhoid infection was recently reported by Laird, Conover and Butts.[1] It is a precipitation test which depends on the presence of autolyzed typhoid bacilli in the excretions and a rabbit's serum immune to a known specific typhoid bacillus. A small quantity of the stool of a patient is emulsified in physiologic sodium chlorid solution and allowed to stand until the insoluble part settles. The supernatant liquid is decanted, centrifugated, and decanted again. After the addition of diatomaceous earth and, finally, filtration, it is ready for the test. Urine, free from albumin, is similarly prepared. A precipitin rack is then set up having three test tubes for each patient; to the first and second row of tubes, 1 c.c. of typhoid serum is added; also, 1 c.c. of the filtrate of suspected feces or urine is added to the front tube, and a like amount of normal feces or urine to the middle tube. In the third tube, or back row, there is placed 2 c.c. of the specimen undergoing examination. The rack, thus arranged, is allowed to stand one hour at room temperature, in the icebox overnight, and at room temperature again in the morning for about four hours. Positive specimens then show a precipitation or turbidity in the front row of tubes. The controls, the second and third rows, are clear. The authors have used this test on 152 specimens of stool and urine from typhoid patients. They have tried it with autolysates of such other pathogenic intestinal organisms as *B. shigae*, *B. morgani*, *B. paracoli* and five strains of *B. dysenteriae* Flexner, and on normal excretions experimentally infected with *B. typhosus*. It has been specific in these instances, and accurate. It was clearly positive in all cases of typhoid fever up to the fifty-sixth day, and in all carriers examined, among whom there was one of eighteen years' standing. While this investigation has not been completed, the persistence of the positive autolysate-precipitin reaction after the bacteriologic tests now employed were negative, indicates an advantage in controlling typhoid patients and carriers. Results obtained n the early stages of typhoid, it is said, give promise of sefulness in the field of diagnosis. Let us hope that he new test will eliminate the confusion in the diag- osis of typhoid in patients who have received typhoid rophylaxis.

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[1] Bronson, Edith, and Carr, E. M.: Am. J. M. Sc. **165**: 781 (June) 1923.

[1] Laird, J. L.; Conover, J. R., and Butts, D. C. A.: The Autolysate-Precipitin Reaction in Typhoid Fever, Am. J. M. Sc. **165**: 241 (Feb.) 1923.

TOXICITY OF CARBON TETRACHLORID

Severe attacks of pain and hematuria following the dministration of carbon tetrachlorid in uncinariasis ed Meyer and Pessôa[1] to conduct a series of experi- nents on dogs to determine what toxic effects this lrug might have. They gave doses which varied from).1 to 3 c.c. per kilogram of body weight to twenty-five nimals, and total amounts which varied from 0.2 to 28.5 c.c. It was noted in all cases when the dose was ncreased beyond a certain limit, which varied with the nimal's weight, that "some effects of the carbon tetra- hlorid became evident." It was found at necropsy (two animals died, the remainder being killed) that he liver was bright yellow and lusterless, and traced y yellow lines inclosing darker, depressed areas. A ection of the liver showed a similar pattern. In some nimals, these changes were much less marked, but n abnormal appearance was evident. The kidneys before section did not appear markedly abnormal. The cut surface, however, disclosed a brownish yellow zone in the cortex external to which there was a gray band "of linear threads radially arranged." Microscopic examination disclosed, in the severe cases, necrosis in the central portion of the lobule of the liver and a zone of fatty infiltration at the periphery of the acini. In animals in which central necrosis was less marked, the trabeculae showed "a sort of collapse," and evidence of central congestion was constant. Droplets of fat of various sizes in the vicinity of the portal spaces were apparent in the least affected animals. Microscopic changes in the kidneys consisted of droplets of fat in the epithelial cells of the loops of Henle and the convoluted tubules. These experiments were controlled by similar studies on dogs which were given no carbon tetrachlorid and whose liver and kidneys macroscopically were apparently normal. Microscopically, the amount of fat found in the control animals "in no way compared with the amounts noted in the cases in which the vermifuge had been administered," and none of them showed necrosis or degeneration in the liver or kidney. In view of these findings and the experience of Lambert in Fiji,[2] it would appear advisable that the dose of carbon tetrachlorid be reduced in routine treatments.

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[1] Meyer, J. R., and Pessôa, S. B.: Toxicity of Carbon Tetrachloride, Am. J. Trop. Med. **3**: 177 (May) 1923.

[2] Lambert, S. M.: Carbon Tetrachlorid in the Treatment of Hookworm Disease, J. A. M. A. **80**: 526 (Feb. 24) 1923.

First Medical Schools in the New World.—The first school to teach medicine in the New World was the St. Thomas University at Santo Domingo, founded, Nov. 27, 1538. Next came the universities of Mexico and Lima, organized in 1551. At Mexico, however, medicine had been taught long before at the two schools for Indians established by Bishop Zumárraga and Pedro de Gante. Next came the universities of Bogotá (1572); Cordoba (1613); Sucre (1623); Guatemala (1675); Cuzco (1692); Caracas (1721); Havana (1728), and Quito (1787).

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Sanitary School Established.—At the graduation exercises of the University of Alabama Medical School, University, it was announced that the Gorgas School of Sanitation will be established at the college as soon as funds are available.

Chiropractors Admitted.—According to rules adopted, June 14, chiropractors, and other "drugless healers" who are graduates of mechanic-therapy schools, will be granted certificates to practice in Alabama, provided they pass an examination to be given by the state medical board. New rules for the admission of physicians to practice in Alabama were formulated by the board in session, June 14, providing that the applicants shall be examined in chemistry, anatomy, psychology, physiologic chemistry, bacteriology, pathology and other branches of medical science.

ARKANSAS

Hospital Supplies Wanted.—Dr. Robert R. M. Wilson, Columbus, has sent requests to various hospitals and physicians for surgical instruments, drugs and hospital supplies for the Ellen Lavine Graham Hospital and Kwangju Leper Home at Kwangju, Korea, where there are 800 lepers. Any article weighing 11 pounds or less can be sent direct to Kwangju, Korea; for larger articles, the sender is requested to consult with Dr. Wilson at Columbus. Surgical instruments, tooth forceps, dental chairs, gauze, microscope, gowns, hospital clothing and Red Cross supplies are some of the articles most urgently needed.

CALIFORNIA

Chiropractic Board Ousted.—The five members of the chiropractic board of examiners appointed recently by Governor Richardson, under the Chiropractic Initiative Act of December, 1922, cannot continue to hold their positions on the board, by the terms of a decision handed down, June 19, by Superior Judge Perry in San Francisco. The opinion by which these men are ousted came about through the filing of a test case (THE JOURNAL, May 26, p. 1526). This suit was brought in order to determine whether the appointees were entitled to retain their positions since none of them have practiced chiropractic in accordance with the legal requirements in California for a period of three years.

FLORIDA

Dr. Harris Resigns.—Jesse R. Harris, lieutenant-colonel, M. C., U. S. Army, retired, has resigned as health officer of Tampa, to take effect, July 1.

County Health Departments.—With the assistance of the state board of health, twenty-four counties in the state during the past year maintained health departments, the total expenditures of which amounted to $214,831. These organizations quarantined 5,209 cases of contagious diseases by mail and 8,213 other cases in person; 46,922 complete typhoid vaccinations were given, 23,628 smallpox vaccinations and 909 whooping cough vaccinations; 13,925 children received the Schick test for diphtheria, and 2,118 homes where tuberculosis existed were visited.

GEORGIA

Monthly Clinics to Be Held in Five Cities.—Dr. J. W. Daniel, newly elected president of the state medical association, announced, May 4, graduate clinics would be held in five principal cities of Georgia every month or every other month, to offer the opportunity to physicians to study new scientific methods.

County Medical Meeting.—The LaGrange County Medical Society met at the Dunson Hospital, LaGrange, June 21, and elected Dr. Emory R. Park, president; Dr. Ruben S. O'Neal, vice president, and Dr. Emery C. Herman, secretary-treasurer. Dr. Henry R. Slack, the retiring president, stated that the society now has a large medical library and is out of debt.

Health Course in Atlanta.—In conjunction with the alumni reunion of Emory University School of Medicine, Atlanta, June 6-8, a conference of federal and state boards of health was held on clinical and social disease. The Fulton County Medical Association kept open house all week, and a symposium on acute medical and surgical abdomen was conducted, June 7. Dr. Thomas F. Abercrombie, state health commissioner, had charge of the program.

ILLINOIS

Research Laboratory Assured.—Governor Small has signed the bill appropriating the sum of $403,000 to establish a medical research laboratory at the University of Illinois.

Legislative News.—Among bills signed by the governor at the closing session of the legislature was a bill which excludes Chicago firemen from the provisions of the workmen's compensation act, a bill that defines "occupational diseases" as "accidental injuries" under the terms of the workmen's compensation act, and a bill to prohibit the use of milk substitutes in milk products.

Vacation Preventorium. — Through the generosity of the Champaign County Tuberculosis League, a preventorium for underweight and malnourished children will be conducted at the Outlook Sanatorium, Urbana, during the school vacation period this summer. The children will be given a three weeks' rest under medical supervision. About fifteen children will be accommodated every three weeks.

Epidemic of Smallpox.—At a special session of the city council of St. Charles, called, June 16, a ban was ordered on all public meetings as a result of the epidemic of smallpox then prevalent in the city. Dr. Alban L. Mann, Elgin, city physician, sent out a warning to unvaccinated Elgin residents, to avoid the possibility of the epidemic spreading to that city. A total of fifty-five cases of the disease are said to have been discovered in St. Charles.

Chicago

Personal.—Dr. Emil Mueller, Tripp, S. D., and D. Edward C. Rosenow, Rochester, Minn., addressed the Northwestern University Dental School, June 14.——Dr. J. Pou Orfila, professor of gynecology and obstetrics, University of Montevideo, Uruguay, recently visited Chicago.

Portable Baths for Children.—Portable shower baths for children in congested districts were ordered manufactured in the city shops and installed at once, by Mayor Dever, June 20. The baths, to be made of perforated iron pipe, will be attached to fire hydrants in suitable locations. Commissioner Sprague stated that should there be no appropriation available he would install the baths at his own expense. Firemen will be assigned to operate the sprinklers in each district.

INDIANA

New Society Organized.—The Indianapolis branch of the Association for the Prevention and Relief of Heart Disease, Inc., was organized, June 17. Dr. Charles J. McIntyre was elected president. The association will cooperate with the physicians and hospitals of the city in disseminating information concerning heart disease and in helping patients to find suitable employment. It will gather information on heart disease, develop and apply preventive methods, and promote the establishment of dispensary classes.

IOWA

Prison Sentence for Physician.—According to reports, Dr. Hugh S. Detchon, Victor, convicted in December, 1922, on a charge of criminal practice, has been sentenced to five years in the penitentiary. Detchon was fined $1,000 and costs at Marengo in 1915 on a charge of violating the prohibition law.

Health Center to Charge Small Fee.—Dr. Alexander D. McKinley, physician-in-charge of the Des Moines Health Center, announced that a change in the policy becomes effective, July 1. Except in the infant feeding school or tuberculosis clinics, patients will be charged 25 cents for the first visit and 10 cents for each succeeding visit. To June 1, 43,270 patients had been treated in the four years the clinics have operated.

KANSAS

Old Board of Health Sustained.—The state department of health resumed operation, June 16, with Dr. Milton O. Nyberg, Wichita, in charge, after virtually being closed for eight days (The Journal, June 16, p. 1781). The decision of the state supreme court, June 15, sustained the claims of the old board of health members to their positions.

LOUISIANA

Spinal Masseur in Jail.—The supreme court, New Orleans, June 21, denied the plea of Joseph B. Fife for writs of prohibition restraining Judge Byrnes of the civil district court from sending him to prison for ten days for contempt. Fife, who says he is a "scientific spinal nerve masseur," was sentenced for disobeying an injunction which restrained him from practicing. He was found guilty of practicing medicine without a license at Lake Charles in October, 1922.

MARYLAND

Colonial Hospital Opened to Patients.—Building C, the first unit of the recently organized Colonial Hospital, Baltimore, was opened, June 2. A formal opening of the hospital took place, June 15, at which time all three buildings were ready for occupancy.

MASSACHUSETTS

Federation of Examining and Licensing Boards.—The annual meeting of the New England Medical Federation of Examining and Licensing Boards was held in Boston, May 25. The following officers were elected for the ensuing year: president, Dr. Byron U. Richards of Rhode Island; vice president, Dr. George H. Janes of Massachusetts, and secretary, Dr. Samuel H. Calderwood of Massachusetts. A committee was appointed to consider laws relating to registration, to report at the next annual meeting.

Personal.—Dr. James J. Regan, Boston, has been appointed ophthalmologist of Cambridge City Hospital to succeed Dr. Henry Hawkins, resigned.——Dr. John B. Hawes, Boston, presented a paper on "Chronic Bronchitis" before the fortieth annual session of the American Climatological and Clinical Association, at Niagara Falls, Canada, May 23-25.——At the eighty-eighth annual graduation exercises of Lafayette College, held in Easton, Pa., June 11, the degree of doctor of science was conferred on Dr. Donald Budd Armstrong, Framingham.——Drs. Henry Colt, Pittsfield, and Ayers P. Merrill, Pittsfield, were elected president and secretary, respectively, of the Berkshire County Medical Society at the recent annual meeting.

MICHIGAN

University News.—The student body, alumni and friends have decided to establish a research endowment foundation at the Detroit College of Medicine and Surgery. This announcement was made by Dr. Louis J. C. Bailey at the annual meeting of the alumni, June 14. It is hoped to raise at least $100,000 to make the foundation permanent. It was announced that a scholarship in pathology, valued at about $18,000, has been raised during the past year, and that the alumni association is now engaged in raising a European scholarship of $20,000, which will enable the college to send at least one student to Vienna, Glasgow or Edinburgh each year. The library of the Wayne County Medical Society has been transferred to the college and the city has appropriated $9,000 for its maintenance for the first year. Dr. Howard W. Pierce was elected president of the alumni association.

MINNESOTA

University News.—A tract of 44 acres of land in Minneapolis on the banks of the Mississippi River, valued at $100,000, and an endowment fund of $900,000 have been given to the University of Minnesota for the construction and endowment of a hospital and convalescent home for crippled children. This gift is from William Henry Eustis, a former mayor of Minneapolis, who a month ago presented 21 acres of land to the city as a site for the Dowling School for Crippled Children, which the board of education of Minneapolis will erect. The children's hospital will be erected on the campus of the medical school, the board of regents announces, and the riverside tract will be retained as a site for the convalescent home. The hospital will have a capacity of fifty and the home of 250 patients.——Dr. Clemens Pirquet, professor of pediatrics at the University of Vienna, Austria, has been appointed professor of pediatrics at the University of Minnesota, Minneapolis.——Richard E. Scammon, Ph.D., has been appointed acting director of the department of anatomy during the year's absence of Dr. Clarence M. Jackson, who will serve as chairman of the medical division of the National Research Council during the coming year.

MISSOURI

Chiropractors Fined.—According to reports, B. O. Huntley, chiropractor of St. Louis, was convicted on a charge of acticing medicine without a license, and fined $50.——Mrs. ola Oswald, a chiropractor of Cape Girardeau, was arrested a charge of practicing medicine without a license, and was ed $500 in the circuit court at Jackson, June 15.——H. H. lbert and A. J. Meyer, chiropractors of St. Louis, were ently prosecuted by the health department for practicing dicine without a license, it is reported. Both men were ed $50 and costs. It is alleged that Hilbert gave treatment an investigator of the health department, for which he arged $2.

NEW JERSEY

State Medical Meeting.—At the one hundred and fifty-venth annual meeting of the Medical Society of New Jersey, lantic City, June 21-23, Dr. Willis P. Eagleton, Newark, is elected president; Dr. Alexander MacAlister, Camden, st vice president; Dr. Archibald Mercer, Newark, second e president, and Dr. Lucius F. Donahue, Bayonne, third ce president; recording secretary, Dr. John Bennett Morrin, Newark; corresponding secretary, Dr. William J. rrington, Atlantic City, and treasurer, Dr. Elias J. arsh, Paterson. The one hundred and fifty-eighth annual ssion will be held in Atlantic City in 1924. The society animously opposed the annual registration of physicians d voted hereafter to elect a president and three vice presints on their merit, instead of the present practice of electg only the third vice president and elevating the other icials.

NEW MEXICO

State Medical Meeting.—At the forty-first annual session the New Mexico Society at Albuquerque, June 19-21, the llowing officers were elected for the year 1923-1924; president, Dr. George S. McLandress, Albuqerque; vice presidents, rs. Dudley B. Williams, Santa Fe, Thomas E. Presley, oswell, and Percy G. Cornish, Jr., Albuquerque, and cretary-treasurer, Dr. Charles M. Yater, Roswell. Dr. ark W. Hawley, Chicago, Dr. Leonard Freeman, Denver, d Dr. Max Einhorn, New York, were some of the out-ofwn physicians who addressed the meeting.

NEW YORK

Personal.—Dr. Meredith F. Campbell, Trudeau, was cently awarded the Bellevue Alumni Science Prize for 1922, r original work on "Penile and Scrotal Gangrene." This the second successive year that the prize has been awarded Dr. Campbell.

Health Show to Be Annual Feature.—The health exhibins of the past two years at Brooklyn will become an nual institution, it was announced, June 18, at the headarters of the Safety Health and Sanitation Exhibition. The xt exposition will be held October 20-27. Profits from the hibition will be used in the form of a permanent fund as a cleus to insure an annual health week for Brooklyn.

New York City

Smallpox Scare on Ship.—Seventy of the 120 passengers the Clyde liner *Huron* from West Indian ports, which rived, June 15, were sent to Hoffman Island for observation, cause one of the ship's crew had smallpox.

Insurance Company Offers Health Scholarships.—The etropolitan Life Insurance Company has donated, through e American Child Hygiene Association, a fund of $25,000 be used as scholarships to teachers best fitted to promote alth work in the schools. There will be fifty scholarships $500 each. Applications will be received by the American hild Hygiene Association up to Dec. 1, 1923.

Health Department Serves Summons on Railroad Heads.—fficials of the Long Island Railroad were served with summons, June 22, to answer for violations of the Sanitary Code allowing coal smoke to pour out of their yards at Morris ark and Long Island City. This action was taken by ealth Commissioner Frank J. Monaghan, because of numers complaints from residents living in the neighborhood of ese yards.

New York Academy Delays Building Project.—The buildg committee of the New York Academy of Medicine has cided not to break ground for the proposed new building October, as was at one time announced. The postponement construction work is due to the fact that all the details of e plans have not yet been completely worked out and, in addition, the excessive cost of building operations has made it seem wise to hold up the project.

Neurological Institute Reports.—The report of the Neurological Institute for 1922, just made public, shows that during the year 29,956 patients were treated. Financially, the institution shows a small surplus. One of the chief features of the report deals with the work of the special clinic for maladjusted children, and more especially with the treatment employed to bring such children to a relatively normal state. During the last year, the clinical laboratory of the institute made 9,687 examinations, representing an increase of 505 over the previous year.

NORTH CAROLINA

Southern Pediatric Seminar.—A two weeks' graduate course in the diagnosis, prevention and treatment of diseases of infants and children will be given at Saluda, August 7-20. The following will deliver lectures: William A. Mulherin, associate professor of pediatrics, University of Georgia Medical Department, Augusta; Richard M. Pollitzer, professor of diseases of children, Medical College of South Carolina, Charleston; William P. Cornell, former professor of pediatrics, Medical College of South Carolina, Columbia; William L. Funkhouser, associate professor of medicine, Emory University School of Medicine, Atlanta, Ga.; Robert A. Strong, clinical professor of pediatrics, Tulane University of Louisiana School of Medicine, New Orleans; Charles V. Akin, Jr., of the U. S. Public Health Service; Owen H. Wilson, professor of pediatrics, Vanderbilt University Medical Department, Nashville, Tenn., and Robert Wilson, Jr., dean and professor of medicine, Medical College of the State of South Carolina, Charleston, and others.

NORTH DAKOTA

North Dakota Academy of Ophthalmology and Otolaryngology.—At the annual meeting in Grand Forks, May 31, Dr. Andrew Carr, Minot, was elected president; Dr. John P. Miller, Grand Forks, vice president, and Dr. Gustave Golseth, Jamestown, secretary-treasurer.

PENNSYLVANIA

Society News.—The forty-sixth annual meeting of the Pennsylvania Pharmaceutical Association was held at Bedford Springs, June 12-14, under the presidency of Harlan J. Mentzer, Blue Ridge Summit. Dr. Rufus A. Lyman, dean of the department of pharmacy of the University of Nebraska, addressed the members. The following officers were elected for the ensuing year: president, P. Henry Utech, Meadville; vice presidents, William E. Cline, Philadelphia, and Clarence Croft, Waynesboro; secretary, Louis Saalbach, Pittsburgh, and treasurer, F. H. E. Gleim, Lebanon. The next annual meeting will be held at Bethlehem, June 18-20, 1924.

Philadelphia

Personal.—Dr. William W. Keen completed fifty years on the board of trustees of Brown University, Providence, R. I., June 21. Dr. Keen, who is 86 years old, left for Europe, following the reading of a resolution, extending felicitations. ——Dr. Florence L. Meredith, who recently resigned from the faculty of the Woman's Medical College of Pennsylvania, has been appointed physician of Smith College, Northampton, Mass., to succeed Dr. Florence Gilman.——The staff of the laboratory of the Henry Phipps Institute of the University of Pennsylvania gave a farewell dinner, June 18, in honor of Dr. Paul A. Lewis, for thirteen years director of the laboratory. Dr. Lewis has accepted a position at the Rockefeller Institute, Princeton, N. J.——A testimonial dinner was given, June 18, to Dr. Alice Weld Tallant, former professor of obstetrics at the Woman's Medical College of Pennsylvania at the home of Dr. Susan Rogers Corson.——The degree of doctor of science was conferred on Dr. George de Schweinitz, past president of the American Medical Association, by the University of Michigan, Ann Arbor, June 18.

RHODE ISLAND

New England Hospital Association.—At the second annual convention of the association in Providence, May 16-17, the following officers were elected for the ensuing year: president, Dr. Bennett L. Richardson, superintendent, City Hospital, Providence; vice president, Dr. Charles A. Drew, superintendent, City Hospital, Worcester, Mass., and secretary-treasurer, Dr. George A. MacIver, assistant superintendent, Massachusetts General Hospital, Boston.

SOUTH CAROLINA

University News.—At the ninety-fourth annual commencement of the Medical College of South Carolina, June 7, at Charleston, Dr. Robert Wilson, Jr., dean of the college, delivered the address. The following changes and promotions in the faculty were announced: Dr. Henry W. DeSaussure, lecturer in gynecology and obstetrics; Dr. Hawkins K. Jenkins, Jr., instructor in obstetrics, promoted to the position of lecturer in obstetrics; Dr. William L. A. Wellbrock, instructor in clinical pathology; Irving S. Barksdale, instructor in physiology and pharmacology; Dr. Theodore E. Bowers, assistant in surgery, promoted to the position of instructor in surgery; Dr. Charles A. Speissegger, assistant in gynecology; Dr. Archie E. Baker, Jr., assistant in pediatrics; Harry H. Wyman, Jr., assistant in chemistry to succeed Thomas L. McMeekin, who has recently resigned; R. E. Lee, assistant in bacteriology; E. C. Hood, assistant in physiology and pharmacology, and William Schirmer, promoted to lecturer in chemistry. James Marshall Neil, M.D., and Harold Eugene Rodgers, M.D., received honors in medicine.

UTAH

State Medical Meeting.—The twenty-ninth annual meeting of the Utah State Medical Association was held in Salt Lake City, June 20-22. Clinics were held in the hospitals of the city, and many members of the American Medical Association attended the sessions on their way through to San Francisco. Drs. Herman L. Kretschmer, Carl Beck and Albert J. Ochsner of Chicago; Harry H. Kerr, Washington, D. C.,; Emanuel Libman, New York, and Vilray P. Blair, St. Louis, were some of the visiting speakers. The following officers were elected for the ensuing year: president, Dr. Joseph R. Morrell, Ogden; president-elect, Dr. Sol. G. Kahn, Salt Lake City; vice presidents, Drs. Lashbrook B. Laker, Eureka, Thomas C. Gibson, Salt Lake City, and Homer E. Rich, Vernal; secretary, Dr. William L. Rich, Salt Lake City, and treasurer, Dr. Frederick L. Peterson, Salt Lake City.

WEST VIRGINIA

Society News.—The Cabell County Medical Association has organized a weekly luncheon club to meet every Wednesday at the Hotel Frederick, Huntington. Dr. Robert J. Wilkinson is president of the society and Dr. Andrew J. Swezey, secretary.

WISCONSIN

Personal.—Dr. John L. Yates, Milwaukee, gave a lecture on "Cancer, Its Treatment Based on Biological Aspects" before the Milwaukee Academy of Medicine, May 22.——Dr. William W. Johnston has resigned as health officer of Racine.——Dr. Royal W. Dunham, Milwaukee, has been appointed head physician at the Cook County Tuberculosis Hospital, Oak Forest, Ill.

Society News.—Dr. Clavendon J. Combs, Oshkosh, was elected president of the Fox River Valley Medical Society at Green Bay, June 1.——The Kenosha County Medical and Dental societies were hosts to members of the Racine County Dental Society at a two-day meeting in Kenosha the last week in May. Clinics were held at St. Catherine's Hospital and the sessions closed with a banquet at the Elk's Club.——At a meeting of the Milwaukee County Medical Society in Milwaukee, May 10, Dr. Arthur Cramp, Chicago, presented an illustrated lecture on the "Cult of Abrams." The society adopted the following resolution:

> *Be it Resolved*, That the entire Abrams' method is such a palpable fraud that this society considers it beneath its dignity to appoint a committee to investigate it, and that the pursuit of the Abrams' method on the part of any member of this society shall be considered inconsistent with membership in the society.

A joint meeting of the Rock County Medical and Dental societies was held in Janesville, May 7. Boyd S. Gardner, D.D.S., Mayo Clinic, Rochester, Minn., gave an address on "The Relationship Between Focal Infections and Systemic Diseases."

WYOMING

State Medical Meeting.—At the twenty-first annual meeting of the Wyoming State Medical Society at Laramie, June 19-21, the following officers were elected for the ensuing year: president, Dr. Jesse D. Lewellen, Powell; vice presidents, Drs. Alexander B. Hamilton, Laramie, Edward S. Lauzer, Rock Springs, and John H. Conway, Cheyenne; treasurer, Dr. Chester Ellis Harris, Basin, and secretary, Dr. Edwin Earl Whedon, Sheridan. The next meeting will be held at Cody, about June 20, 1924. This session was held conjointly with the Wyoming State Dental Society. Among the visiting speakers were Drs. August F. Jonas, Omaha Ora S. Fowler and Nathan B. Newcomer, Denver, and Vilray P. Blair, St. Louis.

CANADA

Personal.—Dr. Frederick M. McPhedran, Toronto, has been appointed assistant in clinical research in charge of the roentgen-ray department of the Henry Phipps Institute Philadelphia.——Sir Robert Jones, M.D., of England, has been visiting Canada as a guest of the Canadian Medica Association.——Dr. Charles J. C. O. Hastings, health officer of Toronto, had the degree of LL.D., conferred by the University of Toronto, June 7.——Dr. Frederick G. Banting Toronto, co-discoverer of the insulin treatment for diabetes was listed for an annuity of $7,500 in the budget estimate in the Ottawa House of Commons, June 26, according to reports.

Medical Alumni Association.—At the first annual meeting and banquet of the Medical Alumni Association, University of Toronto, held in Windsor, May 31, 100 graduates o Toronto, Trinity and Victoria universities were present and the following officers were elected: honorary president, Dr Alexander Taylor, Goderich; president, Harry B. Anderson Toronto; secretary-treasurer, William Harley Smith Toronto; vice presidents, Beverly D. Harison, Detroit Archibald Moir, Peterborough; William A. C. Macdonald Windsor; John N. Gunn, Calgary; Henry R. Parent, Ottawa Arthur D. Smith, Mitchell; Allen A. Shepard, Sault Ste Marie; Robert T. Noble, Toronto; James E. Davey, Hamilton, and Samuel Stewart, Thamesville.

GENERAL

American Psychiatric Association.—The seventy-ninth annual meeting of the association was held at Detroit, June 19-22, following the forty-seventh annual session of the American Medical Association for the study of the feebleminded. Dr. William M. Donald, president of the Wayne County Medical Society, delivered the address of welcome Dr. Thomas W. Salmon, Larchmont, N. Y., professor o psychiatry at Columbia University, New York, was elected president; Dr. William A. White, Washington, D. C., vice president, and Dr. Clarence Floyd Haviland, Albany, N. Y. secretary-treasurer.

Industrial Bootlegging.—The commissioner of interna revenue and the American Chemical Society are cooperating to drive bootlegging from industry. The Alcohol Trade Advisory Committee will direct the nation-wide movemen in this the first attempt to enforce the National Prohibition Act for the development of lawful industries that use alcohol as a raw material. William A. Sailor, Baltimore, presiden of the American Drug Manufacturers' Association, is chairman of the committee, and Harrison E. Howe, Washington D. C., editor of *Industrial and Engineering Chemistry*, i secretary. An elaborate system of public information wil be built up by the committee to guide the prohibition commissioner in controlling permits. The aim is to drive from commerce the bootlegger who, disguised as a wholesale druggist or a manufacturer of flavoring extracts, is able to sell alcohol to the drug trade and to physicians.

Institutions Given Funds for Insulin Treatment.—The institutions which will receive $10,000 from the Rockefeller Fund (The Journal, June 23, p. 1859) for the treatment of diabetes with insulin and which were selected by a committee of which Dr. Simon Flexner was head have been announced as follows: University of Michigan Hospital, Ann Arbor Mich.; New England Deaconess Hospital, Boston; Presbytérian Hospital, Chicago; Lakeside Hospital, Cleveland; University of Iowa Hospital, Iowa City; Royal Victoria Hospital Montreal, Canada; Touro Infirmary, New Orleans; Johns Hopkins Hospital, Baltimore; Barnes Hospital, St. Louis Lane Hospital, San Francisco; Physiatric Institute, Morristown, N. J.; Toronto Hospital for Sick Children, and the Toronto General Hospital, Toronto, Canada. The Presbyterian Hospital, New York, will receive $15,000, and the University of Toronto, Banting-Best Fund, $5,000.

Bequests and Donations.—The following bequests and donations have recently been announced:

New York Association for Improving the Condition of the Poor $300,000 for the establishment of a country home for nurses, and the New York Association for the Blind, $20,000, to maintain the Bourne Workshop, by the will of Miss Emily Howland Bourne.

Society for the Aid of Crippled Children, New York, $102,000 as the sult of a street fair.

Yale University School of Medicine, New Haven, Conn., anonymous ditional gift in payment of pledge for endowment of Anna M. R. uder Foundation of Public Health, $100,000, and an additional gift om Hon. Charles F. Brooker, in payment of pledge for principal of e Julia E. Brooker Fund.

Montefiore Home, New York, $50,000; United Hebrew Charities, Home r Aged and Infirm Hebrews, New York Guild for the Jewish Blind, d the Hebrew Orphan Asylum, $25,000 each; Mount Sinai Hospital, th Abraham Home for Incurables, Hebrew Infant Asylum, Hospital r Joint Diseases, Seton Hospital, Servants for Relief of Incurable ncer, the Sydenham Hospital and the Lebanon Hospital, New York, ch $5,000, under the will of Mrs. Hannah Heyman.

St. Elizabeth's Hospital, Utica, N. Y., $50,000, by the will of James urphy.

Cornell University, Ithaca, N. Y., $50,000, for the erection of a wer, as a memorial to her father, by Mrs. Alfred G. Miles of New ork.

Carney Hospital, Boston, $40,000, under the will of the Rev. John . Fleming of Dedham, Mass.

Eudowood Sanatorium, Towson, Ind., $30,000 for the establishment a children's pavilion, by Mrs. Henry Barton Jacobs, Baltimore.

Mount Zion Hospital, San Francisco, for a new nurses' home, 0,000, by Mrs. W. Hellman.

Mount Sinai Hospital, New York, and the Methodist Episcopal Hostal, Brooklyn, $25,000 each, by the will of Mrs. Eleanor von oppenfels.

Jewish Maternity Hospital, Philadelphia, for building and equipping erating rooms in the new maternity building, $25,000, by the will Mrs. Rosetta M. Ulman.

Lenox Hill and the New York Skin and Cancer hospitals, New ork, each $20,000; New York Ear and Eye Infirmary and the Assoation for the Aid of Crippled Children, each $10,000, and the New ork Ophthalmic Hospital, $5,000, by the will of Rudolph Keppler.

Arnold Gregory Memorial Hospital Association, Albion, N. Y., 12,000 for a nurses' home as a memorial to their father, George L. urrows, by his children, the building to be known as the George L. urrows Nurses' Home.

New York Homeopathic Medical College and Flower Hospital, the abies' Hospital, the New York Orthopedic Dispensary, the Inwood ouse of Rest for Consumptives, and the Institute for Crippled and isabled Men, New York, each $10,000, by the will of Miss Ethel L. McLean.

Meharry Medical College, Nashville, Tenn., $10,000 from Heman E. erry of Atlanta, Ga.

Riverside (Calif.) Community Hospital, $10,000, by Frank A. Miller.

New York Skin and Cancer Hospital, $9,580, and the Manhattan Eye, Ear and Throat Hospital, $2,546, by the will of Mary Oakley.

Eastern Hospital for the Insane, Bearden, Tenn., $6,000, by the will f Mrs. Prudence M. Chambers of Warrensburg, Md.

Mount Sinai Hospital, $5,000; Montefiore Home for Aged and Infirm Hebrews and the Beth Israel Hospital, New York, each $1,000; the New York Association for the Blind and the Monmouth Memorial Hospital, Long Branch, N. J., each $500, by the will of Mrs. Clara lazier.

Hillsboro (Ill.) Hospital, $5,000, by the will of Charles Ramsay.

The Samaritan Hospital, Philadelphia, $3,000; St. Mary's Hospital, nd the Episcopal Hospital, Philadelphia, and the Home for Crippled Children, Atlantic City, N. J., and the Mercy Memorial Hospital, each 200, by the will of Anna D. Alburger.

Grace Hospital, Detroit, $2,000, by the will of Mrs. I. K. Moore.

Nashua (N. H.) Hospital Association, $1,000, by the will of Mayor Albert Shedd.

Home for Aged and Infirm Hebrews, Montefiore Home, the Lebanon nd Beth Israel hospitals, New York, each $1,000, by the will of Marx Ottinger.

Kings Daughters Hospital, Columbia, Tenn., $1,000, by Edward Carpenter of New York.

Flushing (L. I.) Hospital, $1,000, by the will of Miss Subilla N. Seif.

Onawa Board of Health Laboratory, Onawa, Iowa, apparatus valued t more than $1,000, by Dr. Oliver Fisher.

Misericordia, Mount Sinai and the Milwaukee Maternity hospitals, Milwaukee, each $500, by the will of John Kopmeier of that city.

Twin City Hospital, Winston-Salem, N. C., $500, by Miss Edith Symington of Baltimore.

Grace Methodist Hospital, Hutchinson, Kan., a site for the new nstitution, by George Gano, late mayor of the city.

Children's Hospital, Boston, a Marmon touring car valued at more han $4,000, by the Jordan Marsh Company.

LATIN AMERICA

Organization of Chemists in Brazil.—The Sociedade Brasieira de Chimica was organized, May 2, on the initiative of he board of directors which arranged the first Brazilian Congress of Chemistry.

Portuguese-Brazilian Medical Congress. — The *Brazil-Medico* states that the Sociedade de Sciencias Medicas of Lisbon has appointed a committee to organize the Congresso Medico Luso-Brasileiro, but the selection of the place and late for the meeting is to be left to the organized physicians of Brazil. The Portuguese committee consists of the presidents of the three principal medical societies of Portugal, the Medica Lusitana, the Medicos do Centro and the Medicos do Norte, and seven other physicians.

Personal.—The *Brazil-Medico* states that the Brazilian Academy of Sciences recently reelected H. Morize, president; Juliano Moreira and D. Henninger, vice presidents; M. Ozorio de Almeida, secretary-general; Roquette Pinto and Mario Souza, first and second secretary, and Betim Paes Leme, treasurer.——During the absence from Brazil of the five official delegates to the Paris and Strasbourg congresses in honor of the Pasteur centennial, Dr. Leitão da Cunha will have charge of the public health service, in place of Dr. Carlos Chagas; Dr. Silva Araujo will have charge of the leprosy service in place of Professor Rabello, and Dr. Servulo, of the tuberculosis service, in place of Dr. Placido Barbosa, who takes Dr. Leitão Cunha's place temporarily. ——At the invitation of the Rockefeller Institute, Dr. Diego Hernández Fajardo of Yucatan is to visit New York and the institute.

FOREIGN

Cerebrospinal Meningitis in Formosa.—From March 21 to 31, seventy-four cases of cerebrospinal meningitis, with sixty-three deaths, were reported in the island of Taiwan (Formosa) Japan. The total number of cases reported from January 1 to March 31, was 538, with 269 deaths, in a population of 3,835,811.

Radium in Madagascar.—A scientific mission, composed of Professor Mourea, chemist at the Collège de France, his son and an assistant, has left Marseilles for Madagascar to examine the radio-active deposits which have been discovered on the island and to ascertain the properties of the thermal waters at Antsirabe.

Tuberculosis Conference Postponed. — The international conference, which had been arranged for discussion of the so-called Spanish theory of tuberculosis, has been postponed to the spring of 1924. The friends of Ferrán's alpha theory of the tubercle bacillus want an impartial discussion of his views, but found that more time was needed to compile data. Ferrán's theory was described in The Journal, June 10, 1922, p. 1833.

Retirement of Saltet.—The *Nederlandsch Tijdschrift voor Geneeskunde* reviews the career of Prof. R. H. Saltet in the public health service at home and in the Dutch East Indies, and gives a list of his numerous works on epidemiology, microbiology and physiology. He has reached the age limit, 70 years, and thus retires from the chair of hygiene and bacteriology at the University of Amsterdam and the laboratory of the public health service. He will settle in Berlin.

Quinin Wanted for Asia Minor.—A great shortage of quinin in the Russian Caucasus and Armenia and a consequent increase of malaria is reported by the Near East Relief. The director of relief operations urges that a large shipment of quinin be sent at once from the United States, stating that 10,000 kilos are needed in the Republic of Georgia alone, and that the government has been able to provide only a small fraction of the amount necessary. It is not obtainable at any price.

Rotary International Association. — Rotarians connected with pharmacy, medicine and allied professions met in Scarborough, England, May 9, for the purpose of organizing a vocational section. It was decided to include registered pharmacists, together with the allied professions of medicine, dentistry, veterinary surgery, and analytical chemistry. Dr. T. Stephenson, Edinburgh, was elected chairman for the ensuing year, and Mr. Kenneth McLennan, Edinburgh, secretary. The first regular meeting of the section will be held in London in July during the annual session of the British Pharmaceutical Association.

Medals Awarded.—Medals have been awarded by the minister of war for scientific work in France on war medicine and surgery from 1914 to 1921, to the following: Professor Moure, Bordeaux, for his "Guide for the Otolaryngologist in Wartime" and "The Organ of Hearing During the War," and to Professor Picqué, Bordeaux, for his "Remote Effects of Skull Wounds," also to the army surgeons: Bosredon for his "Military Identification" and "Interments in the Army"; Ginestous for his "Visual Index for Fitness for Military Service;" Rocher for his "War Osteomyelitis"; and Roquette, for his work, "The Installation and Functioning of the Hospital of Convalescents at Faucher."

Greek Physicians Refuse Reimbursement.—That the medical profession in parts of Greece is determined that the American Red Cross shall not use its funds to pay salaries of Greek physicians is revealed in reports to the American Red Cross Commissioner. This entails financial sacrifice in many cases as, in communities with a high ratio of refugees, the physician's remuneration from his practice is small, and the amount of time demanded by the treatment of refugees reduces even that sum. A letter from Volo, where there are 52,000 refugees, announced that Dr. N. Tsoukas and his assistant refused to accept remuneration for work at a child welfare station. A refugee physician on the island of Chios assumed responsibility for a small clinic on that island. Other letters state that physicians in villages maintain clinics in their own homes so that refugees will not suffer when in need of medical attention. Work of this type often brings to light epidemic diseases in time to isolate the victims before the community is endangered.

The French League of Mental Hygiene.—The Ligue d' Hygiène mentale organized a public meeting in the great hall of the Sorbonne, in honor of Mr. Beers, secretary of the National Committee on Mental Hygiene of the United States, and the foreign delegates, Professors Ley, Brussels; Hascovec, Prague; Ferrari, Bologne; Christiansen, Copenhagen, and Belarmino Rodrigues, Barcelona, under the presidency of Mr. Justin Godart, former member of the cabinet. The meeting was attended by the ministers of the various departments interested in the league, and representatives of foreign legations. The throng was so great that more than 2,000 had to be turned away. After the opening address by M. Genil-Perrin, secretary of the league, and lectures by M. Toulouse, president of the organization, and others, among them Mr. Clifford W. Beers, on the international movement for mental hygiene, in connection with which he has started active propaganda for an international congress in Washington, 1925, a concert was given in which artists from the Comédie française, the opera, and others assisted. Among the speakers were Professor Ley, Mme. Jane Catulle-Mendes and Prof. H. Claude, who spoke on social poisons—morphin and cocain.

Personal.—Dr. Francos Rodríguez, a retired physician of Madrid, has been appointed senator for life.——The friends of Prof. R. Luzzatto are collecting subscriptions for the Luzzatto endowment for research on biochemistry and experimental therapy. Professor and Senator Albertoni is chairman of the committee in charge. Subscriptions are to be sent to the Economato, Universita di Modena.——The death is reported of E. Urban, the aged founder of the medical publishing house of Urban and Schwarzenberg of Vienna and Berlin.——Professor and Senator Sanarelli was appointed the official representative of Italy at the Strasbourg Pasteur Exposition, but the government has made no provisions for an exhibit beyond that of the state railways. Sanarelli consequently declined to serve, as the scientific progress of Italy was not presented as planned, and a leader in industry was appointed in his place.——Prof. P. Bastianelli of Florence, on his twenty-fifth anniversary as director of Alberti Hospital, was honored by a banquet and presentation of an engraved tribute.——A committee has been appointed at Catania to plan for honoring Prof. G. Clementi, chief of the surgical clinic. The plans include establishing a scholarship in his name.——Dr. A. Filè-Bonazzola, president of the Italian Federazione dei Medici liberi professionisti, recently suffered a grave automobile accident.——The municipality of Manduria, Italy, has conferred honorary citizenship on Dr. Carlo De Liso, and the surgical ward of the hospital has been given his name. He has presented the hospital with 100,000 lire.——Dr. Denker chief of the ear, nose and throat clinic at Halle, on the occasion of his sixtieth birthday, was given a purse of 4,000,000 marks to be used for furthering scientific achievements in his field, and was given a congratulatory address.——Professor Czerny has received 36,000,000 marks, collected by the Japanese pediatrists, for promoting scientific research at his clinic.——Dr. Gustav Bucky, Berlin, arrived in New York, June 12, on the S. S. *Pittsburgh*. He is commissioned by his government to make a study of roentgen-ray advances in the United States.——Dr. Alexis Carrel, Rockefeller Institute, New York, sailed, June 5, for his annual visit to his estate in France.

Deaths in Other Countries

Dr. **Julio Piñera**, Matanzas, Cuba, a medical officer in the army, was killed in a railroad accident.——Dr. **Gabriel Casuso y Roque**, professor of gynecology and dean of the medical faculty at Havana, at one time in charge of the department of agriculture. *Médica* says of him that he introduced modern aseptic methods into Cuba.——Dr. **J. M. Escuder**, Madrid, noted for his writings on psychiatry.——Dr. **Enrique Pérez Arce**, professor of pediatrics at the medical school of Guadalajara.——Dr. **J. Rückert**, professor of anatomy at Munich, aged 68.——Dr. **J. Nevinny**, professor of pharmacology at Innsbruck, aged 70.——Dr. **J. B. Rossi**, Marseilles, aged 90. He began the study of medicine at the age of 44, serving as health officer, and finally received his degree at the age of 66.——Dr. **C. N. van de Poll**, Amsterdam, one of the pioneers in obstetrics and gynecology in the Netherlands, died suddenly in the street, aged 65.——Dr. **H. Paschkis**, professor of dermatology and pharmacology, Vienna, aged 74.——Dr. **A. Solaro**, professor of pediatrics at Naples, injured in an automobile accident, aged 67.

CORRECTION

Impostor Assumed Dr. Ballin's Name.—A news item in The Journal, last week, p. 1943, stated that, according to reports, Dr. David B. Ballin, New York, was arrested in New Orleans, May 31, for having passed worthless checks in Memphis, Tenn. Dr. Ballin wires that the report is wholly untrue, and that he has informed the Memphis authorities that the prisoner is an impostor.

Foreign Letters

LONDON

(From Our Regular Correspondent)

June 11, 1923.

The Crisis in the Panel Service

As stated in a previous letter, the approaching revision of the terms of service of physicians under the National Insurance Act has given rise to a crisis. On the one side, some representatives of the friendly societies and a section of the press have denounced the service as perfunctory and inadequate, and demanded its reform and even its abolition. The position is complicated by the fact that the government has refused to continue an annual subsidy of about 50 cents to the capitation fee, granted in consequence of the increased cost of living due to the war, and that the representatives of the insured are unwilling to pay it. Hence the panel physicians face a possible reduction in the capitation fee, and are organizing to resist it, mainly by the mechanism of the British Medical Association. The Insurance Acts Committee of the association finds two currents of opinion in the public departments, local committees and friendly societies. One is that, at all costs, the capitation fee must be cut down; the other is that the service should be improved and made as good as possible, and that if this were done the capitation fee should not be reduced and even a larger one might be granted. The commitee decided to support the latter view, and to secure the support and ward off the antagonism of those holding it, recommended concessions on three points—free choice of physician, limitation of lists, and restatement of the range of service. At a meeting of representatives of the panel physicians, Dr. Brackenbury, chairman of the Insurance Acts Committee of the British Medical Association, stated that an expert investigation of the insurance fund showed that it contained reserves more than sufficient to meet any reasonable demands of the profession without any additional grant from the government. A substantial balance had been built up in consequence of a great decline in the incidence of sickness. A discussion at the Institute of Actuaries showed that in most of the large societies the incidence had never been more than 70 per cent. of that calculated, and in some of the years had fallen as low as 52 or 50 per cent. He attributed this improvement, in the main, to the work of the panel physicians, though there might have been contributory causes. After discussion, the conference agreed with the policy outlined by Dr. Brackenbury. It also declared that, in spite of some exceptions, the present medical service is a good one, securing for that large section of the population to which it applies medical care of a character and extent such as was never previously obtainable, and under conditions not, as a whole, inferior to those of private practice. The conference did not go into details as to the amount of remuneration, but was of opinion that any amount lower than that given as the result of arbitration in 1920 would not be adequate. It agreed that there should be an extension of service beyond the general practitioner range, and that a beginning might be made with provision of increased diagnostic facilities (roentgen ray and laboratory).

The Octocentenary of St. Bartholomew's Hospital

The oldest of the London hospitals has celebrated its octocentenary in a manner worthy of an event unique in the history of English medicine. The celebrations began with a service in the contemporary church of St. Bartholomew-the-Great, founded, like the hospital, by Rahere, the Augustinian canon. Ceremonies in the hospital square followed, and began with a procession of Augustinian canons from the four houses now established in England, preceded by a thurifer, a cross bearer and two bearers of lighted candles, singing a hymn in honor of St. Augustine, the music of which is traditionally ascribed to Rahere. A series of pageants representing episodes in the history of the hospital were then enacted. At the Guildhall, the Prince of Wales, who is president of the hospital, received addresses of congratulation from delegates from all over the world, representing the church, the universities of the empire and the United States and the learned societies. Dr. Alexander Primrose represented the University of Toronto, and Prof. William Henry Welch the board of scientific directors of the Rockefeller Institute. In the great hall of the hospital, a series of tableaus was presented, showing episodes in the history of the hospital, such as its building by Rahere, and other medical events, such as Harvey demonstrating the circulation of the blood to King Charles I. In the museum and library of the medical college there was an exhibition of historical documents connected with the hospital, including the actual grant, dated 1137, by Rahere of a church to Hagno, who succeeded him as master of the hospital; the charter granted to the hospital by King Henry VIII in 1544, and the indenture of apprenticeship of William Lawrence to John Abernethy, both famous surgeons of the hospital, dated April 30, 1799. The ancient "Bartholomew Fair" was revived as part of the ceremony. Here the students of the hospital took part in the celebration by carrying on the various side shows and booths by which money was obtained for the benefit of the hospital. The annual "old students" dinner was advanced from its usual place at the beginning of the winter session, so as to coincide with the celebrations. The company numbered 315, and included as guests many eminent representatives of other medical schools. Professor Welch, in an eloquent speech, said that Bart's was proud of its glorious past, but its face was toward the future. He declared that the backbone of American medicine was British, and that America was now beginning to pay something of her debt to British medicine.

Workmen's Compensation Bill

The government has introduced a workmen's compensation bill which widens the already wide basis on which compensation can be claimed. It proposes that accidents resulting in the death or disablement of a workman shall be deemed to arise "out of in the course of" his employment, notwithstanding that he acted in contravention of any statutory or other regulation or of any orders given by his employer, or without instructions given by his employer, if such act was done by the workman for the purpose of and in connection with his employer's trade or business. Another proposal is that in every factory (unless there is already a proper ambulance room with arrangements for the immediate treatment of injuries) there shall be a first-aid box or cupboard under the charge of a responsible person, who shall always be readily available during working hours. Where more than 150 persons are employed there is to be an extra box or cupboard for every additional 150 employees. Under the existing law, when employer and workman cannot agree as to the workman's condition or fitness for employment, the matter may be referred to a medical referee on payment of a fee by the applicant. It is proposed to do away with the fee and to allow reference on the application of either side, subject to appeal to the judge.

PARIS

(From Our Regular Correspondent)

June 8, 1923.

A Proposed Order of Physicians

What has been termed the "medical note-book scandal" has been creating considerable stir, of late, in the public press. For some time it has been the practice for physicians who attend ex-service men to record their visits in certain *carnets médicaux*, or medical note-books. At Marseilles and Versailles it has been discovered that certain physicians have recorded visits that they had not made, and have collected from the state enormous sums to which they were not entitled. In view of this scandal, a bill has been proposed in the chamber of deputies looking toward the creation of an Order of Physicians, analogous to the already established Order of Advocates. The proponents of the bill contend that public interest demands that physicians be, by legal enactment, grouped together in an organized "medical corps," which shall be accorded the right to impose penalties on "undesirables" in the profession without waiting for scandals to become public. The imposable penalties range from a simple reprimand to permanent cancelation of the license to practice medicine. For each district over which the sphere of influence of a school of medicine extends, the bill will establish a regional medical council, to which offenders would have the right to appeal.

This idea of an Order of Physicians is not new. The first movement in France in favor of such a professional organization goes back to 1845. The reason the idea has not been carried out is that it has always encountered serious objections. In opposition, it is urged that a practitioner deprived, through a sentence of the Order of Physicians, of the right to practice medicine can still respond to the appeals of patients who, in spite of everything, have not lost confidence in him and wish to be treated by him. If a lawyer, though disbarred, may become a consultant or an *homme d'affaires,* a physician, prohibited from practicing his profession, may become a bone-setter or healer, and will join the ranks of illegal practitioners against whom it is so difficult to contend.

The Sensibilities of Liquor Merchants

In a previous letter I referred to the leaflets on antivenereal prophylaxis that are given to young men who present themselves before the councils of review, or exemption boards. Among other suggestions contained in the leaflet is this advice: "Avoid alcoholic beverages and appetizers, for they are poisons." This sentence has naturally displeased the liquor merchants, and the president of the national syndicate of the wholesale wine, cider, spirituous liquor and liqueur dealers has sent a letter to the minister of commerce and industry, in which he maintains that "this brutal expression not only bears heavily on the interests but also reflects on the honor of a trade and industry which hold an important place in France. Affirmations of this nature in an official document furnish the prohibitionists of the old and new world most excellent material with which to support their contentions." The president of the syndicate requested the minister to secure "a modification of the objectionable sentence so that, in condemning alcoholism—that is to say, the abuse of alcohol, which no one defends—it may not include a general censure of perfectly harmless products, of which not only viniculture but also French industry and commerce in general are so justly proud."

In spite of this appeal to "patriotism," which was transmitted to the Société française de prophylaxie sanitaire et morale by the minister of war, that society decided unanimously to request the minister to retain the incriminated sentence and to continue the antialcohol propaganda.

Professor Hayem as a Medallionist

At a recent meeting of the Academy of Medicine, Dr. Hanriot presented to the academy a medallion portrait of himself, which was the work of Professor Hayem. Hayem retired several years ago from the practice of medicine. Two years ago, he began to study the art of medallion portraiture, and rapidly acquired remarkable skill. In this connection, Hanriot remarked that very few physicians have become medallionists. Among these he referred to Robinet, a physician of the seventeenth century and founder of the Collège des médecins de Rouen; Cusco (1849-1894), member of the Academy of Medicine, and Paul Ricker, whose many medals commemorating events in medical history are well known, notably the insignia of the Congrès des sciences médicales des Lisbonne, the medal of the centenary of the Academy of Medicine, the medallions of Blanchard, Marey, Chauveau, Magnan, Lucas-Championnière, and others.

The Huchard Prize

The lamented Dr. Huchard bequeathed to the Academy of Medicine a certain sum the earnings of which are to be employed for the establishment of a biennial prize of 8,000 francs, which may be divided into two or three parts. It may be awarded to persons of French nationality belonging preferably to the medical profession (students, physicians, surgeons), and, exceptionally, to persons who are not members of the profession but who have been distinguished by devotion to the sick or to medical science. This year the committee of award bestowed the prize on three candidates, representing three aspects of devotion to medicine—a hospital intern, a nurse and a practitioner. Two of the persons thus honored have unfortunately passed on; namely, G. P. Perrochaud, intern of the hospitals of Paris, and Dr. J. J. G. Blanc. When the war broke, Perrochaud, whose recent death came as a shock to his co-workers and teachers, was rejected on account of chronic albuminuria following diphtheria. He therefore volunteered as an ordinary nurse, became an assistant physician and later *aide-major;* during the whole war he did not leave the trenches. He was awarded the croix de guerre with three citations, all of which emphasized his devotion and courage in bringing aid to the wounded under fire. Last year he was attached to the contagious disease ward in the Bretonneau Hospital, where he contracted scarlet fever of fulminating type, which in four days terminated fatally. He must have been aware that his renal defect lessened his chances for recovery from scarlet fever. Nevertheless, he did not hesitate to expose himself in the performance of his professional duties. Dr. Blanc, formerly member of the army medical corps, contracted typhus, to which he succumbed. The third portion of the Huchard prize was awarded to Mlle. Dauch, assistant director of the hospital school of the French Red Cross Society, who had served for twenty-one years in the Société de secours aux blessés militaires as a nurse, and who, in 1906, contracted severe typhoid fever, complicated successively by partial paralysis, necrosis of the ribs and lesions of the ear, which ended in complete deafness.

The Mortality in France from Diseases Caused by Micro-Organisms, Before and Since Pasteur

Dr. A. Calmette, assistant director of the Pasteur Institute in Paris, has just presented to the Academy of Medicine an interesting communication on this subject. On studying the general mortality figures for France, we find that, in 1890, for a population of approximately 38,300,000, there were 876,000 deaths exclusive of stillbirths, or 228 per thousand inhabitants. In 1910, in spite of the low birth rate, the population had increased slightly. The statistical reports showed 39,500,000 inhabitants, and the number of deaths was only 703,000, or 178 per 10,000 persons. During the post-Pasteurian period from 1890 to 1910, France was thus able to save each year an average of 90,000 human lives, representing, on a prewar basis, a benefit to society amounting to 2,250,000,000 francs.

The mortality from the principal infectious diseases in cities of more than 5,000 inhabitants was:

	Deaths in 1890	Deaths in 1890 per 100,000 Inhabitants	Deaths in 1910	Deaths in 1910 per 100,000 Inhabitants
Typhoid fever........	5,362	42.2	1,792	12.4
Diphtheria...........	6,850	56.2	1,325	8.74
Measles..............	7,196	59.0	2,339	15.4
Scarlet fever.........	731	6.0	417	2.74
Pertussis.............	2,317	19.1	1,559	10.5
	22,456		7,432	

In twenty years the mortality from these diseases has thus been diminished two thirds.

Infant mortality, exclusive of the still-born, has decreased, but unfortunately the improvement is not marked as yet. A comparison of two quinquennial periods will show what progress has been made. In 935,000 living births from 1881 to 1885, 156,000 deaths occurred in children under 1 year of age, or 167 deaths per thousand births. From 1906 to 1910, 783,000 living births were recorded; of these children, 99,000 died under 1 year, which was 126 deaths per thousand births. The result thus shown is far behind what has been accomplished in this respect by Switzerland, the Netherlands, Denmark, Sweden and Norway; for in the two last mentioned countries the number of children per thousand living births dying under 1 year of age is only from 60 to 68. Before the Pasteurian era the record ranged from 100 to 140. Calmette stated that if France could succeed in securing the same results as Norway, where the general mortality is only 132 per 10,000 inhabitants, as compared with 178 in France (1910 report), we would see our population increase every year by 179,400, even though our birth rate did not rise above the present low mark.

The Visit of the Russian Physiologist Pawlow

The Russian physiologist I. P. Pawlow, who remained at Petrograd throughout the revolutionary upheaval and concerning whose safety much anxiety was felt, is at present on his way to Paris. He is coming to participate in the celebration at Strasbourg of Pasteur's centenary, and from there it is said he expects to proceed to the United States, where it is his intention to study the progress that has been made in physiology and experimental medicine. Thence he plans to return to Petrograd, stopping on his way in England, where he will attend the International Congress of Physiology.

The Seventeenth French Congress of Medicine

The Seventeenth French Congress of Medicine will be held in Bordeaux, Sept. 27-30, 1923. The subjects up for discussion are:

1. The remote sequels of paludism, by Professor Le Dantec of Bordeaux, with the collaboration of Dr. Hesnard, naval physician and professor at the Ecole de santé navale of Bordeaux, who will deal particularly with postmalarial psychoses, and of Dr. Marcel Léger, physician to the colonial troops, and director of the Physiologic Institute at Dakar, who will consider more especially the visceral lesions associated with malaria. Dr. Broden, director of the State School of Tropical Medicine at Brussels, will also discuss the topic.

2. The relations in pathology between the sympathetic nervous system and the endocrine glands, with a paper by Professor Pachon of Bordeaux; Agrégé Professor Perrin of Nancy will also discuss the subject.

3. The treatment of meningococcus infections, with papers by Dr. Dopter, professor at the Ecole d'application de médecine et de pharmacie militaires of Val-de-Grâce, and Dr. Boidin, physician to the hospitals of Paris. Dopter will deal more particularly with serotherapy, and Boidin with vaccinotherapy.

ROME

(From Our Regular Correspondent)

June 2, 1923.

Second International Congress of Military Medicine

This is the closing day of the Second International Congress of Military Medicine, the convening of which at Rome was previously announced. The sessions of the congress were held in the Celio military hospital at Rome, and in my next letter I hope to take up the different subjects that were discussed. Today I wish to emphasize the great success of this congress not only as regards the organization of the *services de santé* (army medical corps) but also with reference to the importance that must be attributed to this convention, at which more than thirty nations were represented, including France, England, Spain, Belgium, Holland, Switzerland and a number of South American countries. The United States sent as a delegate Commander William Seaman Bainbridge, who is also a member of the permanent committee on organization. The opening meeting, held in the large hall of the capitol and attended by the king of Italy and Prime Minister Mussolini, was imposing. A vigorous opening speech was delivered by Senator Cremonesi, who, in behalf of the Eternal City, welcomed the foreign delegates. General Diaz referred to the work of the Italian army medical corps which, during the war, 1915-1918, suffered great losses (257 physicians killed, 1,959 mutilated, 1,000 wounded). The formal inaugural address was delivered by General Della Valle, director general of the Italian army medical corps, who emphasized the world-wide importance of such meetings of officers of the various army medical corps. He pointed out that these opportunities for exchange of views between the organizations of the various armies may bring great results from the humanitarian standpoint—through an organization composed of members of the various sanitary services all of which are working toward the same end—care of the wounded of whatever nationality they may be. An understanding between the army medical corps of the various countries might constitute a first step—*inter arma caritas*—toward the establishment of a world peace. While looking forward to the realization of the world peace idea, General Della Valle discussed the present organization of the Italian army medical corps.

SPECIALIZED SERVICES

Della Valle took special pains to point out that the activities of the Italian army medical corps had been concentrated on the development of highly specialized services, on which the functioning of the sanitary service as a whole depends, especially the days when mobilization may require the highest effort of which all are capable. Without technical specialization, not only as regards personnel but also with respect to equipment, it will be impossible to cope with the innumerable exigencies that naturally arise in the various branches of the sanitary service. It is only through careful working out in advance of details with respect to organization and management and with reference to surgical equipment, epidemiologic control and rendering of first aid that the army medical corps will be able to cope with the situation when military operations on a large scale are launched.

ARMY SURGICAL AMBULANCES

One of the most conspicuous manifestations of this specialization was the creation of army surgical ambulances. The speaker called attention to the marvelous feats accomplished by these ambulances in that they could be driven close up to the firing line, where life-saving operations could be performed on the wounded whose serious condition made transportation impossible.

OTHER FORMS OF SPECIALIZATION

It is to the same principle of specialization that various other excellent institutions established by the Italian army medical corps owed their creation, including centers for physiotherapy and antituberculosis sanatoriums. General Della Valle ended his discourse with these words:

> After the great destruction wrought by the war, with the dawn of the reconstruction of nations, the Second Congress of Military Medicine has met to bring important contributions of a scientific and practical character toward the solution of the problems studied, and will thus tend to cement the bonds of union that unite all civilized peoples, since its sole purpose is the progress of humanity.

BERLIN

(From Our Regular Correspondent)

June 2, 1923.

Experimental Modification of the Ratio of the Sexes in Animals

In many animals there is a persistent preponderance of one sex over the other. For instance, in the case of the pig there are 117 males to 100 females; in the hawk family there are only 87 males to 100 females. This ratio, which, in the various species of plants and animals, presents an approximately constant value, may be modified by experimental intervention. Dr. Agnes Blum has for some time been conducting, experiments of this kind, with white mice, which possess great theoretical value. In white mice there are normally only 80 males to 100 females. These proportions may be considerably modified by the effect of chemical substances on the organism. The injection of certain definite quantities of alcohol caused the males to increase from 80 to 122. Also yohimbin raised the number of males from 80 to 120, but only when the drug was given to the males. When females were treated with yohimbin and mated with normal males, no increase in the number of males was noted, from which it is evident that the drug exerts an influence only on the male gonads. The results secured by the use of caffein were somewhat more complicated. The males had first to become adjusted to this poison. Until they did, the mortality was high, and among their offspring there were fewer males than before the administration of the drug. However, after the males became habituated to caffein, the number of males rose suddenly to 126, but later fell somewhat, doubtless when the stimulating effect of the caffein began to wear off. The reasons for the changed proportions are explained by Dr. Blum thus: There are two kinds of sperm cells, namely, female determinants and male determinants, which, according to Lenz's assumption, possess a different degree of motility. In mice, under normal conditions, the female determinants are more motile, so that more ova are impregnated by them than by the male determinants; hence, the preponderance of females produced. Through the effects of caffein, however, the motility of the male determinants is increased, with the result that the proportion of males is also increased. Although it cannot be said that this interpretation is established, yet experiments point, with a high degree of certainty, to the existence of two different kinds of sperm cells, which react in different ways to external influences.

Height and Body Weight in Relation to Social Classes

In the schools of Weissenfels (on the Saale), Dr. Wörner, director of the department of internal medicine at the municipal hospital, has been making a comparative study of the height and weight of pupils, and has noted some remarkable findings, which he now reports in the *Deutsche medizinische Wochenschrift.* The difference between the pupils of the *Volksschule* (no foreign languages) and those of the more classical schools were very marked. Whereas the 7 year old boys in the three *Volksschulen* had a height of from 109 to 115 cm., the boys of the same age in the *Oberrealschule* (modern languages and higher mathematics) presented an average of 122 cm. In like manner, the weight of the former ranged between 19.5 and 20.5 kg., whereas the pupils of the *Oberrealschule* averaged 23.7 kg. Much the same difference was found in the boys, and also the girls, of various ages. For instance, the weight of girls aged 13, in the various *Volksschulen,* ranged from 32.4 to 34.6 kg.; the height, from 141 to 143 cm.; in the more classical lyceum, however, the figures were 40 kg. and 149 cm. The great difference in the social status of the parents of the two groups may doubtless be considered at least an indirect decisive factor influencing these findings. The *Volksschule* is attended mainly by children of the laboring class, the *Mittelschule* is patronized chiefly by the burgher class in modest circumstances, while the more classical schools draw their clientage more from the formerly comfortably situated middle class and from the wealthy class. The fact that, since the war, the middle classes have not been so well off as they were before the war does not seem to have had any very marked effect on the present generation of pupils. The question has been raised whether the greater height of the children of wealthy parents must necessarily be regarded as an expression of the true and normal type, and the shorter build found among the children of poorer parents as evidence of an inferior type. It has been suggested that possibly the tall children of the wealthier class may be compared to the less sturdy shoots of hothouse plants. Nutrition factors and mode of living play an important part in growth. Children of wealthy parents generally lead a more sedentary life, varied, at most, by light forms of exercise, whereas children of the laboring class are trained at an early age to do physical labor, being much in the open air. It is significant, too, that the pupils of the *Volksschule* have broader shoulders than the pupils of the *Oberrealschule.* Against the assumption that the greater height is due to stimulation by a highly varied and highly seasoned diet, containing an unusually large percentage of protein, may be urged the fact that only a very small proportion of the pupils in the Weissenfels schools taking the more classical courses are the offspring of wealthy parents, being for the most part the children of petty government officials, small merchants, artisans and mechanics. It is, however, doubtless true that the sedentary mode of living, together with moderate exercise, exerts considerable influence, especially in the case of children of the middle class, who, if they are selected to attend a classical school, are usually kept pretty close to their books by the urging of their parents. For the lower strata of the attendants at the *Volksschule,* the character of the diet, which is commonly low in vitamins, together with the housing factor, will doubtless furnish an explanation.

Nutrition of the People as Judged by the Results of Examinations of Life Insurance Policy Holders

Dr. Fischer reports in the *Klinische Wochenschrift* the results of his researches on the significance for the nutrition of the people of the statistics on height and weight secured through an examination of the policy holders of a large life insurance company. His researches cover two distinct groups: In Group 1 he classes all persons who, up to the beginning of the year 1922, had made several requests for examination (before, during and after the war), and thus had been measured several times. For Group 2 he selected a certain number of newly insured persons from two prewar years and an equal number insured since 1915, and, having separated them into the various age groups, compared them with each other. The average weights and the chest and abdominal measurements vary in a definite, consistent manner with age, and allow certain conclusions to be drawn with respect to the nutrition of the subjects. It was found that the body measurements and weights sagged slowly from 1915 on, and then began gradually to drop more rapidly until the low level of 1918 was reached. From then on, up to the beginning of 1922, the close of the period covered by the research, a gradual rise was noted. However, even at the beginning of the fourth peace year, 1922, the status of 1915 had not been reached. This downward trend till 1918 and upward shoot till 1921 are followed by a new depression for the year 1922. The chest and abdominal measurements run parallel with the weight values. It is interesting to note that, from 1917 on, the falling off in the abdominal measurements is more marked than the decrease of the chest measurements. The year 1918, which, after a long period almost without fats, again brought fats from foreign countries, shows immediately a moderate improvement. From 1919 until 1921 the chest circumference remains the same. The chest, which at first lost its adipose tissue, has now become fixed in its shape through the bones and muscles, and retains its measurements quite firmly. The reactions from changes in diet take place more gradually in the chest than in the abdomen. That was shown plainly in the year 1921, when conditions had improved, for the abdomen approaches its former rotundity, whereas the chest remains still at its low level. The depression of 1922 affected both chest and abdomen, and reduced them to the level of 1918. In considering the high minus values with respect to nutrition that are reached by these researches, it must be borne in mind that the examinees, since they had been accepted by the life insurance company, constituted exceptionally good subjects, for children and aged persons, who are not accepted for insurance, are not included. Then, again, persons carrying life insurance usually live well ordered lives and are in comparatively comfortable circumstances. The decline in the quality of the nutrition, which has been thus statistically established, will of necessity, in the near future, exert a marked influence on the health. Especially the incidence of tuberculosis will likely be increased, since chest development is endangered.

Death of Professor Boruttau

Professor Boruttau, the director of the physiologic laboratory in the municipal hospital at Friedrichshain (Berlin), died recently at the age of 54. It is regrettable to state that this indefatigable investigator took his own life while suffering from an attack of melancholy. Those who knew him well had long been aware of his neuropathic nature. He had inherited psychopathic tendencies from his mother, who died in a psychopathic hospital.

Boruttau was admitted to the University of Göttingen as an instructor, in 1894; received the title of professor in 1899, but on account of a conflict with Professor Verworn in 1907, left Göttingen and assumed charge of the physiologic laboratory as mentioned above. At different times throughout his career, evidences of a supernormal and then again of a subnormal mentality (genius and dementia) manifested themselves. He possessed versatile talents, and his works include physiology, experimental pharmacology, electrotherapy and electrocardiography. He was well versed also in the history of medicine and philosophy, and possessed unusual linguistic ability. Of his larger works, I may mention his "Lehrbuch der Physiologie" and the "Handbuch der gesamten medizinischen Anwendungen der Elektrizität," which he edited in colaboration with Professors L. Mann, P. Krause and others. He contributed also a number of articles for Nagel's "Handbuch der Physiologie" and Puschmann's "Handbuch der Geschichte der Medizin."

MADRID

(From Our Regular Correspondent)

April 25, 1923.

Spanish Physician Pleads for German Confrères

Dr. Pulido Martín, on his return from a trip to central Europe, published a plea for aid to the German-speaking physicians, whose sorrows and sufferings touched him deeply. Dr. Pulido shows the difficulties of research work in Germany, where even the feeding of guinea-pigs exceeds the financial resources of scientific institutions. No physician in Berlin can afford to visit his patients in a carriage or automobile; even the most fortunate ride on street cars. Hard work yields barely enough to cover the most pressing needs. Medical students, in order to earn money for expenses, have turned to manual labor, and as they lack the proper training, the number of industrial accidents among these future physicians is enormous. Pulido mentions that even Professor Voelcker of Halle cannot get fuel to heat his home. Israel of Berlin, the kidney surgeon, though now 75 years old, has to work all day after a life devoted to the welfare of mankind. Israel before the war had accumulated a fortune of ten million gold marks and considered himself above the fluctuations of fortune. Dr. Pulido asks the secretary of education to offer inducements to German scientists to turn toward Spanish universities.

The Subconscious

On his admission to the National Academy of Medicine, Dr. R. del Valle y Aldabalde, physician in the Madrid General Hospital and author of many works on nervous diseases, read a paper on the subconscious. Del Valle considers that Avicenna and Schopenhauer were forerunners of Freud in psychanalysis. Avicenna ("Canon," chapter De Ilixi), in describing symptoms, especially the irregular pulse caused by love—which he classifies among mental diseases—says: "In this way it is possible, even though the patient may deny his feelings, to identify the person loved, and to base on this knowledge a mode of treatment. The method consists in repeating certain names while the patient's pulse is being read. As soon as the pulse shows any irregularity, the trial is stopped and one begins again. I have tried this method more than once, and discovered through its use the name of the person loved by the patient." Here is psychanalysis in the eleventh century, even with its sex interpretation. Del Valle also recalled Schopenhauer's words: "If a quarrel, unpleasant news or remembrance is so painful as to become unbearable, then nature itself causes insanity, as a last source of salvation."

Dr. Palacio Valdés, another physician in the general hospital, welcomed the new member and spoke entertainingly on the same subject. Fifty years ago, people considered as subconscious facts, ideas or images which, through continual conscious repetition, have lost their cerebral character and have become automatic, requiring neither intelligence nor attention. Palacio Valdés knows a woman, aged 84, who often does not recognize her own children and is much deteriorated; yet she can play well on the piano.

Ribot has stated that personality is made up by two factors, psychic and somatic, the former originating in the latter, which is the bodily sense or cenesthesia. Pathologic conditions may split these two elements apart and create a dual personality. Palacio Valdés described a woman, aged 28, who was admitted to the psychiatric department of the general hospital a few years ago, suffering from alternating or manic-depressive insanity. This was her third admission to the hospital and she was in a state of depression. This was so pronounced as to pervert her personality and cause a rare and curious syndrome, which is of great interest because of the light it throws on this much debated psychologic problem. The patient spent all night and part of the day lying in bed or on the floor crying. "Are you hurt?" attendants asked her. "No." "Then, why do you cry?" "Because I'm dead and they are going to bury me alive." She persisted with these thoughts for about fifteen days. Some time after her discharge, Palacio Valdés met her on the street. She greeted him and told about her agony in the hospital. "But what made you think you were dead?" he asked her. "Nothing, nothing at all. I felt nothing; and that's what made me think I was dead." "But you knew you were alive," "I did. It is all very strange and inexplicable. I must have been crazy." Palacio Valdés considers this a disintegration of the ego. The patient had lost the vital or bodily sense, her cenesthesia. It was not amnesia, for she must have been able to recall her former life, or she could not have suspected that she was dead. On the other hand, she was afraid of being buried alive. Even in the midst of her derangement she reasoned logically. Her primitive ego, the bodily sense, had disappeared, but her secondary or psychic ego survived. Turning to metaphysics and telepathy, Palacio Valdés told of an old woman who came out on the street one night screaming pathetically and begged help for her son, who was being murdered. The neighbors attributed her excitement to the nervousness of old age. The next day, the boy was found murdered at a spot 3 miles from town. In concluding, Palacio Valdés asserted that the study of subconscious phenomena is now where alchemy and astrology were four centuries ago. Man's intelligence and effort cleared up the mysteries of those early speculations, which have since become chemistry and astronomy. This is a guaranty that the subconscious will be unraveled.

Marriages

William Minster Kunkel, Harrisburg, Pa., to Miss Katherine Smoot of Baltimore, June 27.

Benjamin A. Thomas, Philadelphia, to Miss Mabel Eleanor Gray of Merion, Pa., June 19.

Nicholas C. Stam, Mason City, Iowa, to Miss Marguerite Reichwine of Chicago, recently.

Ernest B. Adelman, Lynn, Mass., to Miss Matilda M. Lang of Detroit, June 7.

Luther W. Loving, Des Moines, to Miss Ethel Hellenbeck, Laurens, Iowa, recently.

Chester J. Sturges, Buffalo, Minn., to Miss Lillian Thompson of Omaha, in June.

Raymond Spurzem, Anoka, Minn., to Miss Mary Hensler of Minneapolis, May 6.

Dean McAllister Lierle to Miss Pauline Thompson, both of Iowa City, recently.

Lawrence Randall, Denison, Iowa, to Miss Faith Meek of Knoxville, recently.

Adolph H. Ahrens, St. Paul, to Miss Jane Hayner of Minneapolis, in May.

Macy Ginsburg, Canton, Ohio, to Miss Olive Feldman of Pittsburgh, June 27.

Robert M. Alexander to Miss Jessie Smith, both of Reading, Pa., April 19.

Oscar Reiss, Los Angeles, to Miss Edna Jane Bonheim of Chicago, June 16.

Nathan S. Davis III to Miss Cordelia Carpenter, both of Chicago, July 6.

Bruce McDowell to Miss Ella Powers, both of Hampton, Iowa, recently.

Ernest Mariette to Miss Anna Jones, both of Glen Lake, Minn., June 9.

Deaths

Charles Lincoln Furbush ⊕ Philadelphia; Medico-Chirurgical College of Philadelphia, 1893; died, June 26, of arteriosclerosis. Born in New York in 1863, Dr. Furbush in 1898 was appointed acting assistant surgeon of the U. S. hospital ship *Missouri*, in 1899 director of charities and hospitals, Havana, Cuba, and in 1901, acting chief sanitary officer. From 1900-1901 he served in the Philippine Islands. He was delegate to the International Hygiene Exposition, Dresden, Germany, in 1911; director of the Pennsylvania Society for the Prevention of Tuberculosis; a fellow of the College of Physicians of Philadelphia, member of the National Association for the Study and Prevention of Tuberculosis, the American Society of Tropical Medicine, the American Public Health Association and of other organizations. He served as special assistant to Ambassador Gerard in Germany and as military observer with the American Expeditionary Forces in France during the World War. In 1912, Dr. Furbush was appointed a member of the yellow fever commission of the Rockefeller Foundation to Central America. He was awarded the Order of St. George (England) and the Companion Order of St. Michael. Since 1919 he has been director of the department of public health of Philadelphia.

William Malloch Hart, Lieutenant-Colonel, Canadian Army Medical Corps, Ottawa, Ont., Canada; University of Manitoba Faculty of Medicine, Winnipeg, 1907; member of the American Climatological and Clinical Association; formerly connected with the Nopeming Sanatorium, Nopeming, Minn., and the Saskatchewan Sanatorium; served during the World War in France as a private and received the military cross; after his transfer as a prisoner of war he was placed in charge of the Canadian Tuberculosis Hospital, Lenham, England; aged 42; died recently of intestinal obstruction and appendicitis.

Edward Suter Hasell, Victoria, B. C., Canada; L.S.A., London, England, 1884; M.R.C.S., London, England, 1885; member of the British Columbia Medical Association; president of the Vancouver Arts and Crafts Society; one of the founders of the Natural History Society of Victoria; for twenty-six years superintendent of the Provincial Royal Jubilee Hospital; aged 63; died recently.

J. A. Stewart, Montreal, Que., Canada; Queen's University Faculty of Medicine, Kingston, Ont., 1909; formerly on the staff of the Ste. Anne Hospital, Ste. Anne de Bellevue; served in France with the Canadian Army Medical Corps during the World War; surgeon on the Canadian Pacific liner *Melita;* aged 45; died, April 18, at a hospital in Kingston, Ont., following a long illness.

Mahlon Ashbrook Kelso ⊕ Enid, Okla.; University of Nebraska College of Medicine, Regular Department, Lincoln, 1887; founder of the Garfield County and the Central Oklahoma medical societies; at one time vice president of the Oklahoma State Medical Association; for many years city physician; aged 66; died, June 13, of myocarditis and chronic nephritis.

William Robert Broughton ⊕ New York; Medical Department of Columbia College, New York, 1890; member of the Medical Society of New Jersey; on the staffs of the Mountainside Hospital and the Children's Home, Montclair, N. J.; specialized in ophthalmology; aged 56; died, June 18, at his home in Bloomfield, N. J.

James Reid Sterrett, Durham, N. C.; University College of Medicine, Richmond, Va., 1908; member of the Medical Society of the State of North Carolina; formerly county physician; aged 42; died, June 10, at the Watts' Hospital, West Durham, following an operation for abscess of the lung.

Wilbur Maynard French ⊕ Chicago; College of Physicians and Surgeons, Chicago, 1902; formerly instructor of clinical pediatrics at his alma mater and the Illinois Post-Graduate Medical School; on the staff of the University Hospital; aged 47; died, June 22, of strangulated hernia.

Herbert William Turney, Grand Mere, Que., Canada; McGill University Faculty of Medicine, Montreal, 1918; formerly on the staff of the Royal Victoria Hospital, Montreal; physician for the Laurentide Health Service; aged 33; died recently, of heart disease and pneumonia.

Walter Steele McCown, New Market, Ala.; University of Tennessee College of Medicine, Memphis, 1893; member of the Medical Association of the State of Alabama; aged 53; died, June 18, at the City Hospital, Huntsville, of septicemia, following the extraction of a tooth.

William Beauregard Ashburn, South Norfolk, Va.; Medical College of Virginia, Richmond, 1889; member of the Medical Society of Virginia; formerly health officer of Berkley and South Norfolk; physician to the county almshouse; aged 62; died, May 17.

James Pickett, Plainview, Texas; Vanderbilt University Medical Department, Nashville, Tenn., 1882; University of Nashville (Tenn.) Medical Department, 1883; member of the State Medical Association of Texas; aged 70; died suddenly in his office, May 19.

Howard Switzer, Miami, Fla.; Hospital College of Medicine, Medical Department Central University of Kentucky, Louisville, 1884; member of the Florida Medical Association; past president of the Dade County Medical Society; aged 73; died, May 22.

Edgar Mead Reading ⊕ Chicago; Bennett Medical College, Chicago, 1877; formerly emeritus professor of neurology, Loyola University School of Medicine; aged 70; died, June 27, at Berrien Springs, Mich., of uremia and dilatation of the heart.

Henry Elmer Center, Plattsburg, N. Y.; University of Vermont College of Medicine, Burlington, 1886; member of the Medical Society of the State of New York; aged 61; died, June 12, at the Physicians' Hospital, of diabetes and heart disease.

Benjamin Gannaway Allison, Middlesboro, Ky.; Lincoln Memorial University Medical Department, Knoxville, Tenn., 1917; member of the Kentucky State Medical Association; aged 46; died, June 16, of a bullet wound, self-inflicted.

Henry DeWolfe Carvelle ⊕ Manchester, N. H.; Medical School of Harvard University, Boston, 1878; specialized in ophthalmology and otology; on the staff of the Elliott Hospital; aged 71; died, June 2, of embolism.

Horace Byron Williams, Detroit; Michigan College of Medicine and Surgery, Detroit, 1900; member of the Michigan State Medical Society; aged 48; died, June 2, at St. Mary's Hospital, following a long illness.

John Kemp Warfield Piper, Russellville, Ky.; University of Maryland School of Medicine, 1893; member of the Kentucky State Medical Association; aged 52; died, June 12, at Phoenix, Ariz., of pneumonia.

Edward McLaughlin, Morrisburg, Ont., Canada; Queen's University Faculty of Medicine, Kingston, 1886; medical officer of the Canadian National Railway; aged 69; died, April 17, of pneumonia.

Meldrum Burley Floyd, Dayton, Ohio; University of Michigan Medical School, Ann Arbor, 1903; formerly city bacteriologist; member of the Ohio State Medical Association; aged 46; died, June 9.

Walter S. Bray, Camden, N. J.; Jefferson Medical College of Philadelphia, 1887; member of the Medical Society of New Jersey; on the staff of the Cooper Hospital, where he died, June 9, aged 60.

Arthur D. H. Thrane, Eau Claire, Wis.; Rush Medical College, Chicago, 1868; member of the State Medical Society of Wisconsin; aged 79; died, June 15, at the Sacred Heart Hospital, of senility.

Eugene R. Waterhouse, St. Louis; Eclectic Medical Institute, Cincinnati, 1884; American Medical College, St. Louis, 1889; aged 73; died, June 2, of chronic nephritis and arteriosclerosis.

Willmar Horace Thorwaldson, Chicago; Northwestern University Medical School, Chicago, 1922; intern at the Wesley Memorial Hospital; was drowned, June 24, near Elgin, Ill.

Eugene Holt Eastman, Chicago; Hahnemann Medical College and Hospital, Chicago, 1903; aged 52; died, June 4, at the Washington Boulevard Hospital, of carcinoma of the liver.

Isabelle F. Orr Williams, Bethany, Okla.; College of Physicians and Surgeons, Medical Department Kansas City University, Kansas City, Kan., 1903; aged 64; died, June 3.

Jepson F. London, St. John, N. B., Canada; McGill University Faculty of Medicine, Montreal, Que., 1908; aged 45; died recently, at the General Public Hospital.

William Burrette Kitchen ⊕ Indianapolis; Medical College of Indiana, Indianapolis, 1903; aged 49; was found dead in his office, June 20, of cerebral hemorrhage.

⊕ Indicates "Fellow" of the American Medical Association.

Calvin Rupert Atkins, Indianapolis; Howard University School of Medicine, Washington, D. C., 1898; aged 53; was shot and killed by an insane man, June 13.

Albert R. Lusty, Britton, Mich.; Detroit College of Medicine and Surgery, 1897; aged 57; died, May 25, at the Harper Hospital, Detroit, following a long illness.

Charles Montague Noble, Peoria, Ill.; College of Physicians and Surgeons, Chicago, 1901; aged 49; died, June 23, at the Proctor Hospital, of heart disease.

Lewis Warner Beck, Los Angeles; Bennett College of Eclectic Medicine and Surgery, Chicago, 1886; aged 91; died, May 31, at Garnett, Kan., of paralysis.

George Willard Libby ⊕ Spokane, Wash.; Medical School of Maine, Portland, 1876; aged 73; died, June 6, at the Deaconess Hospital, of heart disease.

Peter Douglas Hilty ⊕ Birmingham, Mich.; Detroit College of Medicine and Surgery, 1908; aged 44; died suddenly in church, June 10, of heart disease.

Charles Edgar Diven, Anderson, Ind.; Miami Medical College, Cincinnati, 1874; aged 72; died, June 11, at St. John's Hospital, of cerebral hemorrhage.

John F. Chapin, Schoolcraft, Mich.; University of Vermont College of Medicine, Burlington, 1861; aged 85; died suddenly, June 13, of senility.

Joseph W. Renfro, Sharpsburg, Ky.; University of Louisville (Ky.) Medical Department, 1878; aged 60; died, April 27, of cerebral hemorrhage.

Robert C. Hamilton, Chicago; Physio-Medical Institute, Cincinnati, 1882; aged 76; died, June 16, at Kansas City, Mo., following a prostatectomy.

Edmond B. Curd, New Providence, Ky.; University of Louisville (Ky.) Medical Department, 1870; aged 82; died, April 22, of heart disease.

William L. Wharton, Matthews, Ind.; Medical College of Indiana, Indianapolis, 1882; aged 71; died, June 2, at the Home Hospital, Muncie.

Edwin Sterrett Dodds, Seattle; Miami Medical College, Cincinnati, 1879; member of the board of health; aged 74; died suddenly, June 3.

David Henry McKenzie, Leadwood, Mo.; Kentucky School of Medicine, Louisville, 1896; aged 60; died, April 28, of cerebral hemorrhage.

John Robinson Stone, Parry Sound, Ont., Canada; University of Toronto Faculty of Medicine, Toronto, 1889; aged 55; died, April 26.

Charles Albert Higinbotom, Vandalia, Ill.; Eclectic Medical Institute, Cincinnati, 1883; aged 60; died, June 6, of pyelonephritis.

Stephen Witt, North Dana, Mass.; Eclectic Medical Institute, Cincinnati, 1878; aged 83; died, June 3, of cerebral hemorrhage.

E. S. Baker, Madisonville, Ky.; University of Tennessee College of Medicine, Memphis, 1885; aged 81; died, April 17, of senility.

Aaron Puderbaugh, Ozawkie, Kan.; Kansas City (Mo.) Medical College, 1882; aged 85; died, June 1, in Kansas City, of senility.

Benjamin Franklin Berry, Nevada, Mo.; University of Louisville (Ky.) Medical Department, 1880; aged 74; died, April 11.

Jacques Augustin Leblanc, Montreal, Que., Canada; Montreal School of Medicine and Surgery, 1879; aged 69; died recently.

Frederic Henry Grant ⊕ New York; Medical Department of Columbia College, New York, 1890; aged 63; died, June 2.

Andrew Browne Evans, Jr., Church View, Va.; Southern Medical College, Atlanta, Ga., 1892; aged 50; died recently.

Edward York Bass, Tulsa, Okla.; University of Nashville (Tenn.) Medical Department, 1892; aged 56; died, June 5.

James W. Barrett, Osage, Iowa; Hahnemann Medical College and Hospital, Chicago, 1879; aged 69; died, June 18.

Walter Roberts, Wooldridge, Mo.; Bellevue Hospital Medical College, New York, 1893; aged 54; died recently.

Julius Wiltschek, Dallas, Texas (licensed, years of practice); also a druggist; aged 75; died, May 29.

Daniel B. Campbell, Old Monroe, Mo.; St. Louis (Mo.) Medical College, 1873; aged 78; died recently.

Vito Beneventi, Chicago; University of Naples, Italy, 1896; aged 58; died, June 25.

Correspondence

"THE VALUE OF THE TOXIN OF RHUS TOXICODENDRON AND RHUS VENENATA"

To the Editor:—In The Journal, June 2, p. 1588, is an article by Dr. Albert Strickler on "The Value of the Toxin (Antigen) of Rhus Toxicodendron and Rhus Venenata." This material is considered in its relation to treatment during the attack and to immunization. A table of cases treated by thirty-five physicians sets forth the records of 356 patients, though nineteen of the physicians reported less than five cases each. "In the vast majority of cases, improvement was noted twenty-four hours after the institution of this mode of treatment." In the second paragraph of the "comment," bearing on desensitization, occurs the statement, "It is incapable of doing harm." With this remark I beg to differ. In the early summer of 1921, a medical student came to the Jefferson Hospital Skin Dispensary with this history: He had had an attack of dermatitis venenata and had been treated by Dr. Strickler. After the complete subsidence of the outbreak, his medical attendant suggested that he allow himself to be immunized against the disease. The injection method was used, three doses being given. A typical, almost universal, eruption of dermatitis venenata broke out promptly, and it was nearly four weeks before it had again disappeared. There had been no further exposure to the plant. A short series of cases in our dispensary and private practice, using this preparation with Strickler's dosage and intervals, was very disappointing, as the progress of the cases was not checked and most of the patients were rendered appreciably worse. Several patients refused treatment after the second injection. Five-tenths cubic centimeter intramuscularly gave them considerable pain, and an anaphylactic eruption of an urticarial nature developed, being especially marked about the site of the injection. The dermatitis was not favorably affected by the injections.

Edward F. Corson, M.D., Philadelphia.

[This letter was referred to Dr. Strickler, who replies:]

The experiences which Dr. Corson relates are based on five or six cases which he states he has either treated or seen treated, and the majority of these patients were lost from observation after the second injection had been given them.

In the article I stated that while the large percentage of patients suffering from dermatitis venenata due to poison ivy or poison oak are relieved in twenty-four hours, a certain number of them are not relieved until forty-eight hours after treatment is instituted. It is therefore very clear that Dr. Corson has practically no criteria by which to judge the merits or demerits of the method of treatment which I advocate.

I am fully cognizant of the facts in the case of the Jefferson medical student, treated by me for dermatitis venenata, presumably due to poison ivy. This case was seen in the summer of 1921, and the true facts of the matter are as follows: This patient gave a history of marked susceptibility to poison ivy, and when I saw him, at the suggestion of Dr. Thomas McCrae, he presented a vesicular eruption between the fingers of both hands which, while not absolutely typical of dermatitis venenata, yet, taken together with his history, was suggestive enough to warrant treatment. He was given three injections which did not produce a cure but did cause a modification of the eruption, and I recorded his case as one of the failures in the series which I reported.

I wish to state emphatically that this treatment is not fool-proof, and is offered to the profession either for its praise or condemnation, whichever a prolonged experience may show. In the experiences of the numerous physicians who have used the toxin (antigen) method and who, very kindly, have assisted in gathering the statistics published, not one instance was noted in which harm has resulted from the employment of the toxin (antigen) method, nor do I know of a single instance in which an attack of dermatitis venenata has resulted from the employment of the remedy.

When this toxin (antigen) is injected subcutaneously and not intramuscularly, it is capable of producing a localized reaction consisting of erythema and swelling, which is probably the anaphylactic phenomenon to which Dr. Corson refers. I have stated very clearly and emphatically that the toxin (antigen) is to be injected intramuscularly. It is also to be stated that, owing to the alcoholic content of this preparation, the injection is somewhat painful, but only for three or four minutes after the injection, and produces a redness and swelling of the areas where the injection is given. The extent of these inflammatory phenomena depends on the amount of the preparation administered.

I am extending to Dr. Corson the use of a reasonable quantity of this toxin (antigen), gratis, for use in the treatment of cases of dermatitis venenata, provided accurate records of the cases treated will be kept and a true value of the remedy established.

Unjust and hasty criticisms and criticisms based on illusionary grounds are greatly to be regretted, as they are capable of producing false impressions, and deter the profession from using a remedy which shows every evidence of being a successful therapeutic method.

Albert Strickler, M.D., Philadelphia.

"TREATMENT OF BILHARZIASIS"

To the Editor:—In Queries and Minor Notes (The Journal, June 23, p. 1868), emetin was mentioned as a recent treatment for bilharziasis. I worked for five years with intravenous experiments against *Bilharzia haematobia* in the Greek Hospital at Cairo, Egypt, and in 1915-1916 I was first to inject emetin in the veins of infected patients. Since then my colleagues there have been using the injection freely with moderate success.

My experience shows that emetin or the new treatment with antimony and potassium tartrate is useful, but neither drug kills the parasite (*Distoma haematobium*) because we cannot use large enough doses. The fact remains that the parasite dies in about five years, if no reinfection takes place and if the patient lives under good hygienic conditions.

John Reguzis, M.D., New York.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

INTRACUTANEOUS TEST FOR VIRULENCE OF DIPHTHERIA BACILLI—SCHULTE-TIGGES METHOD OF STAINING TUBERCLE BACILLI

To the Editor:—1. What is the technic for performing the skin virulence test for diphtheria? Can it be done with mixed throat cultures? 2. What is the technic employed in performing the Schulte-Tigges stain for tubercle bacilli as discussed in a recent issue of the *Journal of Bacteriology?* Please omit my name.

W. W.

Answer.—1. Intracutaneous injections in guinea-pigs of suspected bacilli can be used in order to determine whether or not they are virulent. Zingher and Zoletsky (*J. Infect. Dis.* **27**:54, 1916) recommend the following modification of Neisser's original method: The skin of the abdomen of two guinea-pigs, each weighing about 250 gm., is shaved: a twenty-four hour culture of diphtheria bacilli on Loeffler's medium is suspended in 20 c.c. of salt solution, of which 0.15 c.c. is injected intracutaneously at the corresponding place of the two guinea-pigs; one of the animals, the control, receives 250 units of antitoxin by injection into the heart, or, if possible, it is still better to have it prepared beforehand by intraperitoneal injection of antitoxin twenty-four hours earlier. In this way as many as six cultures may be tested on two animals. Virulent bacilli produce a circumscribed infiltration followed by superficial necrosis in two or three days, whereas the skin in the control animal is unchanged. Whether this test can be used with satisfactory results with mixed throat cultures we are unable to say, but it seems likely that bacteria other than the diphtheria bacillus might cause local and general complications that would interfere with the reliability of the results.

The intracutaneous guinea-pig test for human susceptibility to diphtheria was discussed in The Journal by Kellogg (May 12, 1923, p. 1399) and by Zingher (June 23, 1923, p. 1867).

2. According to the Schulte-Tigges method of staining tubercle bacilli, the slide is flooded with carbolfuchsin (10 c.c. of saturated solution of basic fuchsin in 95 per cent. alcohol, and 90 c.c. of 5 per cent. phenol [carbolic acid]).

The slide is heated to steaming, and the heating is continued for one minute. Excessive heating should be avoided. the excess stain is washed off with tap water, and the slide decolorized in sodium sulphite (10 per cent. aqueous solution of sodium sulphite). This solution should be renewed at least once a week and, if convenient, twice a week. The slide is washed thoroughly with tap water, and counterstained with picric acid (saturated aqueous solution of picric acid). It is then washed with tap water, dried and examined. The tubercle bacilli are red; the background is pinkish yellow.

Shoub (*J. Bacteriol.* **8**:121 [March] 1923) concludes that the Schulte-Tigges method of staining is not more difficult that the Ziehl-Neelson method, but is easier. It gives about 33 per cent. more positives, and it does away with the use of alcohol.

FRIEDLÄNDER'S BACILLUS INFECTION

To the Editor:—For the last three years I have had an infection of the larynx with the bacillus of Friedländer. It started, no doubt, from an ethmoiditis of mixed infection, as the discharge from this contains the germ. However, the laryngitis is now the most troublesome, and anything short of surgical treatment to the ethmoiditis does not help the larynx much. During the winter, I tried the seaside for a month and with a cold the condition became more a tracheitis than before. I have had advice from good specialists, but am still wondering whether there is any way to attack this germ more effectively. Please omit my name.

E. P.

Answer.—As far as we are aware, there is no specific treatment for Friedländer's bacillus infection. Laryngitis or tracheitis may be due to a paranasal infection, often an ethmoiditis. The only successful method of combating the secondary trouble is to relieve the primary one, namely: the ethmoiditis. Sometimes conservative measures, such as infraction of the middle turbinate away from the lateral wall, will give better drainage to the ethmoids, or the removal of the anterior tip of the middle turbinate will suffice. If this, together with suction, does not give the desired relief, it may be necessary to do either a simple or a more radical ethmoid operation. The local application of an astringent, such as 5 per cent. zinc phenolsulphonate solution, in the larynx may have some sedative effect. However, the chronic laryngitis will not be definitely relieved until the nasal or nasopharyngeal infection is overcome.

PIGMENT IN AREOLA

To the Editor:—Is it possible for a woman to have pigmentation around the nipples without ever having been pregnant, or is that an absolute sign of a former pregnancy? If such a thing is possible, what conditions cause it? Please omit my name.

M. S.

Answer.—The amount of pigment in the areola varies greatly in different women. In brunettes there may be a great deal of pigment normally. It is true that pigmentation here and elsewhere also usually increases in pregnancy, but it is not absolutely characteristic of pregnancy because sometimes it develops in association with tumors of the reproductive organs.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Alabama: Montgomery, July 10-13. Chrm., Dr. Samuel W. Welch, Montgomery.

California: San Francisco, July 9-12. Sec., Dr. Charles B. Pinkham, 908 Forum Bldg., Sacramento.

Connecticut: New Haven, July 10. Sec. Electic Board, Dr. James . Hair, 730 State St., Bridgeport. Sec. Homeo. Board, Dr. E. C. M. Hall, 82 Grand Ave., New Haven.

Connecticut: Hartford, July 10-11. Sec., Dr. Robert L. Rowley, 79 Elm St., Hartford.

District of Columbia: Washington, July 10-12. Cee., Dr. Edgar P. Copeland, 104 Stoneleigh Court, Washington.

Hawaii: Honolulu, July 9-12. Sec., Dr. G. C. Milner, 401 Beretania St., Honolulu.

Indiana: Indianapolis, July 10. Sec., Dr. Wm. T. Gott, Crawfords-ille.

Maine: Augusta, July 10-11. Sec., Dr. Adam P. Leighton, Jr., 192 State St., Portland.

Oklahoma: Oklahoma City, July 10-11. Sec., Dr. J. M. Byrum, Shawnee.

Pennsylvania: Philadelphia and Pittsburgh, July 10-14 Preliminary Examiner, Mr. C. D. Koch, 422 Perry Bldg., Philadelphia.

Philippine Islands: Manila, August 14. Sec., Mr. José V. Gloria, 00 Asuncion, Manila.

South Dakota: Deadwood, July 17. Dir., Dr. H. R. Kenaston, Bonsteel.

West Virginia: Martinsburg, July 10. Sec., Dr. W. T. Henshaw, Charleston.

REPORT OF THE FIFTEENTH EXAMINATION OF THE NATIONAL BOARD OF MEDICAL EXAMINERS

The fifteenth examination of the National Board of Medical Examiners was held in twenty-four Class A medical schools, Feb. 12, 13 and 14, 1923, in Part I, which comprises written examinations in each of the six fundamental medical sciences. The subjects of the examination and the relative value of each were: anatomy, 100; physiology, 75; materia medica and pharmacology, 75; pathology, 75; physiologic chemistry, 50, and bacteriology, 50, making a total of 425 counts for this part.

A candidate taking Part I must earn at least 75 per cent. of this total. The number of counts earned in any subject depends directly on the ratings of the answered papers. Falling below 65 per cent. in two subjects or below 50 in one subject constitutes a failure.

A candidate is allowed to take an incomplete examination, omitting one of the subjects, if the instruction in this subject is not completed in the medical school of attendance by the end of the second year.

One hundred and thirty-five candidates appeared for examination in Part I; of these, 112 passed, five took an incomplete examination, and eighteen failed to pass the examination.

EXAMINATION, PART I

ANATOMY

Answer eight questions out of the ten. 1. Make a series of diagrams showing the size and form of human embryos of the following ages: twenty days; thirty days; ninety days. 2. Discuss the amnion, chorion and allantois in the human: structure; relation; function. 3. Name the various kinds of epithelium found in the urinary tract. 4. Describe the blood corpuscles, giving relative numbers, sizes, functions, etc. 5. Describe briefly the gastro-intestinal tract, and illustrate the variations of the mucous membrane in the various parts. 6. Name the muscles concerned with inversion and eversion of the foot, and tell how these muscles are affected by flatfoot or fallen arch. 7. Indicate in a diagram the topography of the lungs, and state the main differences in size and shape between the right and left lungs. 8. Draw diagrams showing a midsagittal section of the pelvis in the male and in the female. Label fully. 9. Enumerate and locate the various types of sensory end-organs found in man. 10. Make a diagram of the cerebral cortex, showing the principal motor areas.

PHYSIOLOGY

Answer any five of the following questions: 1. Discuss the present knowledge of the function of the adrenal glands. 2. Compare the various responses of smooth and striated muscle to various types of stimuli. 3. Discuss the gaseous exchanges (*a*) through the lungs, and (*b*) between the blood and tissues. 4. Outline the main factors upon which arterial blood-pressure depends. 5. Define (*a*) basal metabolism; (*b*) direct and indirect calorimetry; (*c*) specific dynamic action of protein; (*d*) hypoglycemia. 6. Give one method of detecting (*a*) astigmatism; (*b*) myopia; (*c*) heterophoria.

PHYSIOLOGIC CHEMISTRY

Answer any five questions. 1. Define (*a*) molar solution; (*b*) normal solution; (*c*) a catalyst; (*d*) a buffer solution; (*e*) the *p*H. 2. State briefly the requirements for an adequate diet. 3. A healthy adult at rest is given an adequate diet containing 118 grams of protein, and the urine for a twenty-four hour period is analyzed. Give the approximate figures which will be obtained for the total urinary nitrogen and its distribution among the various nitrogenous constituents of the urine. 4. Discuss the buffer systems acting to maintain constancy of reaction in mammalian blood. 5. Discuss the disturbance of fat metabolism which occurs when there is an inadequate combustion of carbohydrate. 6. What are the sources of uric acid in the urine? What is the concentration of uric acid in normal human blood? 7. What is glycogen, and what part does it play in carbohydrate metabolism? 8. How would you determine that the reduction of Fehling's solution by a urine was not due to glucose? What other substances may occur in the urine which will reduce Fehling's solution? 9. What is the concentration of blood-sugar (*a*) in the normal fasting adult? (*b*) in the normal adult after an average meal? At what level of blood-sugar concentration does glucose usually appear in the urine?

PATHOLOGY

Answer five questions from the following: 1. Discuss the pathology of myxedema. 2. Discuss focal necroses of the liver. 3. Discuss the pathology of tuberculosis of the peritoneum. 4. Give the differential pathologic diagnosis of new growths of the uterus. 5. Discuss the pathology of tumors of the long bones. 6. Give the theories of the formation of renal calculi. 7. Outline the necessary necropsy technic in a case of suspected poisoning by mouth.

BACTERIOLOGY

Answer any five of the following questions. 1. (*a*) Given a patient with a sore on the genitalia that had existed for *not more than one week*, describe briefly the laboratory diagnostic methods employed to determine whether or not it is a primary syphilitic lesion. What precautions must be observed in securing the material for examination? (*b*) Are complement-fixation tests of any diagnostic value during the stage mentioned in subparagraph (*a*), and, if so, from what part of the patient's body would you procure the material for making the test? (*c*) Given a patient with a chronic but slight discharge from the urethra and without visible signs of acute inflammatory reaction, how would you obtain proper material for microscopical examination, and what findings would lead you to conclude that the case was one of chronic gonorrhea? 2. (*a*) How does the meningococcus gain entrance into the body, and from what body fluids may it be recovered by cultural methods? (*b*) Given a patient suspected of having epidemic cerebrospinal meningitis with symptoms which have existed for only twenty-four hours, name the laboratory methods which you would employ to confirm the diagnosis. (*c*) Given a patient suspected of having epidemic cerebrospinal meningitis in the third or fourth day of illness, describe the diagnostic laboratory tests which you would employ (exclusive of cultural methods) in making the diagnosis, and the findings upon which you would base a positive diagnosis. 3. Discuss the diagnosis by laboratory methods of an individual suspected of having tuberculosis of the kidney. 4. (*a*) Name four of the more common round worms (nematodes) that infest man in the United States, and indicate the geographical distribution of each species in the United States. (*b*) Name four of the more common tapeworms (cestodes) that infest man in the United States, and indicate the geographical distribution of each species in the United States. (*c*) Draw an outline diagram of the following ova as they appear when seen under the microscope: hookworm (*N. americanus*); round worm (*A. lumbricoides*); whip worm (*T. trichuria*); dwarf tapeworm (*H. nana*). 5. (*a*) Discuss serum-sickness and the precautions which should be taken to prevent serum-sickness. (*b*) In what diseases are agglutinin reactions of practical value? Discuss briefly the diagnostic value of agglutination reactions in the diagnosis of typhoid and paratyphoid fevers in the light of specific preventive measures now in general use throughout the United States. 6. (*a*) How would you perform the "presumptive test" for colon bacilli in the examination of water supplies for potability? (*b*) On what finding would you condemn the water supply for drinking purposes from the bacteriological point of view? 7. (*a*) Discuss the chief points of differentiation, under the microscope, between a stained tertian malarial parasite three-fourths grown and a stained quartan parasite three-fourths grown. (*b*) How would you stain a freshly prepared blood-smear for the demonstration of malarial parasites? 8. Given sputum from a patient with lobar pneumonia, how would you isolate pneumococci in pure culture, and how would you determine the type of pneumococcus found?

MATERIA MEDICA AND PHARMACOLOGY

Answer all questions. 1. (*a*) Give the source of nux vomica, three medicinal preparations, and dosage of each. (*b*) Give the incompatibilities of the salts of strychnin. (*c*) Discuss the action of strychnin on the brain and spinal cord. 2. (*a*) Discuss the action of morphin on the respiratory center. (*b*) Explain the constipating effect of opium. 3. (*a*) What is understood by the digitalis series or digitalis bodies? (*b*) What is meant by the active principles of digitalis? (*c*) Describe the action of digitalis on the frog's heart. 4. (*a*) Discuss the general pharmacologic actions of the nitrites. (*b*) Name three medicinal preparations of this group, and give the dosage of each. 5. Discuss the pharmacologic actions of quinin. 6. Discuss the pharmacologic actions of the extract of the posterior lobe of the pituitary body.

PART II

Part II of the examination was held in fifteen medical schools, February 15 and 16. This was also a written examination in the following subjects and with the relative values assigned: medicine, 75; surgery, 75; obstetrics and gynecology, 50; and public health, 25, making a total of 225 counts for this part. A candidate taking Part II must earn at least 75 per cent. of this total. The number of counts earned in any subject depends directly on the ratings of the answered papers. Falling below 65 per cent. in two subjects or below 50 in one subject constitutes a failure.

Twenty-eight candidates appeared for examination in Part II. Of these, twenty-six passed and two failed.

PASSED, PART II

Names and Colleges	Year of Graduation
Ethel Fanson, College of Medical Evangelists	1921
Sung-Tao Kwan, Rush Medical College	1923
Temple S. Fay, Univ. of Pennsylvania Medical School	1921
Frederick A. Bothe, Univ. of Pennsylvania Medical School	1921

Alvin R. Hufford, Univ. of Loyola Medical College	1922
Elizabeth A. Kittredge, Johns Hopkins Medical School	1922
Alexander Margolies, Univ. of Pennsylvania Medical School	1921
Loren R. Chandler, Stanford University Medical School	1921
Richard Dresser, Johns Hopkins Medical School	1921
Malcolm Thompson, Univ. of Pennsylvania Medical School	1922
Ralph W. Elston, Rush Medical School	1923
John F. Bacon, Univ. of Pennsylvania Medical School	1922
Charles E. Constantine, Harvard Medical School	1922
Emily Van Loon, Woman's Medical College	1922
Harold J. Thompson, Rush Medical College	1922
Norman W. Loud, Harvard Medical School	1919
Charles Ferguson, Univ. of Oregon Medical School	1922
Everett E. Angle, Harvard Medical School	1921
Bernard J. McCloskey, Univ. of Pennsylvania Medical School	1922
Karl Schlaepfer, University of Zurich	1914
Carl Benson, University of Buffalo Medical School	1922
Dohrmann K. Pischel, Stanford Univ. Medical School	1922
Joseph Blalock, Johns Hopkins Medical School	1922
Howard M. Freas, University of Pennsylvania Medical School	1921
A. T. Morrison, Univ. of Oregon Medical School	1922
Doris Tuttle, Woman's Medical College	1922

FAILED

Boston University Medical School	1922
Woman's Medical School	1922

EXAMINATION, PART II

MEDICINE

Answer six questions, including the first four and two selected from questions 5 to 8. Read the questions carefully and answer concisely what is asked. Plan your time so that the answers to all six questions may be completed within three hours. Quality will count more than quantity in marking the answers, and an intelligent understanding of the disease more than a mere array of memorized facts. File a printed copy of the questions with your examination paper; this makes it unnecessary to copy the questions when writing your answers. 1. (*a*) Describe a typical attack of rheumatic fever of moderate severity. (*b*) Treatment of this case. (*c*) Name the one other condition with which, in your opinion, rheumatic fever is most likely to be confused, and state the diagnostic points which would aid in differentiation. 2. (*a*) Discuss the relation of alcohol to cirrhosis of the liver. (*b*) Give the diagnostic signs whose presence would warrant the diagnosis of cirrhosis of the liver. (*c*) Treatment. 3. (*a*) Define pulmonary emphysema. (*b*) Give the physical signs of a typical case in a laboring man of sixty years. (*c*) Discuss the probable etiology. (*d*) How would you treat the case? 4. (*a*) Define dementia praecox. (*b*) Describe briefly its usual course. 5. Discuss the etiology and characteristic clinical picture of subacute bacterial endocarditis. 6. Mention (*a*) the diseases associated with marked enlargement of the spleen, and in each instance (*b*) the usual degree of enlargement, and (*c*) the chief associated diagnostic signs. 7. How does inflammation of the lung caused by the pneumococcus differ (*a*) in infants, and (*b*) in young children, from the same infection in adults? 8. Describe the symptoms, physical signs and course of Parkinson's disease.

SURGERY

Answer any five questions. 1. Give the symptoms (briefly) of tumor of the brain. What complications may arise demanding immediate surgical relief. 2. Give the indications for and describe your method of choice of performing a tracheotomy. 3. (*a*) Describe the direct and indirect methods of performing cardiac massage. (*b*) Discuss in addition to cardiac massage other measures used in resuscitation. 4. Give symptoms, diagnosis, differential diagnosis, prognosis and treatment of acute perforated ulcer of the duodenum. 5. (*a*) Give the indications for amputation of the thigh at the middle third. (*b*) Discuss fat embolism. 6. Discuss (briefly) the surgical management of infection (*a*) locally (*b*) general.

OBSTETRICS

Answer all questions. 1. What are the causes and outline the management of a prolonged first stage of labor? 2. Describe briefly the clinical history and pathologic lesions of the fetus and placenta in syphilis. 3. Give a classification of contracted pelvis, and describe in detail the mechanism of labor in a simple flat pelvis in a vertex presentation. 4. Give clinical history, diagnosis and management of a typical case of toxemia of pregnancy during the last few weeks of pregnancy. 5. Discuss the pathogenesis, symptoms and differential diagnosis of acute pyelitis complicating pregnancy.

GYNECOLOGY

Answer all questions. 1. Technic of supravaginal hysterectomy for fibroids, including the preparation and after-care of the patient. 2. Clinical history and diagnosis of tubal pregnancy (*a*) before and (*b*) after rupture. 3. What are the ordinary causes, and describe the treatment of hemorrhage from the nonpregnant uterus? 4. Describe three varieties of ovarian tumors, and give the differential diagnosis of each variety. 5. Discuss the physiology of the corpus luteum and its therapeutic uses.

PUBLIC HEALTH

HYGIENE

Answer all questions. 1. What are the important sources and agencies of infection in typhoid fever, in cholera and in yellow fever? 2. Name three common important infectious diseases of unknown origin found in the United States and discuss the prevention of each. 3. What measures should health officers employ for the prevention of a threatened epidemic of influenza? 4. What do you understand by "vitamins"? Name two, giving the source of each. Discuss their significance from the point of view of nutrition. 5. What can be done to reduce the morbidity from heart disease and from nephritis?

MEDICAL JURISPRUDENCE

Answer all questions. 1. What symptoms would lead you to suspect acute arsenic poisoning; chronic arsenic poisoning; acute belladonna poisoning? 2. Discuss the civil and legal relations of insanity. 3. Discuss the relative value of microscopical, chemical and serological tests for the determination of the source of suspected blood stains. 4. What are the risks associated with smallpox vaccinations, and what are the limitations of vaccination in the control of the disease?

District of Columbia January Examination

Dr. Edgar P. Copeland, Secretary, District of Columbia Board of Medical Supervisors, reports the oral and written examination held at Washington, Jan. 9-11, 1923. The examination covered 16 subjects and included 80 questions. An average of 75 per cent. was required to pass. Five candidates were examined, all of whom passed. Four candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Georgetown University		(1916)	86
George Washington University		(1922)	85.6
Johns Hopkins University		(1919), (1920)	81
University of Michigan		(1918)	79.8

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
College of Physicians and Surgeons, Baltimore		(1882)	Georgia
University of Maryland		(1912)	Maryland
Pulte Medical College		(1887)	Ohio
University College of Medicine, Richmond		(1913)	Virginia

Minnesota April Examination

Dr. Thomas S. McDavitt, secretary, Minnesota State Board of Medical Examiners, reports the oral, written and practical examination held at Minneapolis, April 3-5, 1923. The examination covered 15 subjects and included 80 questions. An average of 75 per cent. was required to pass. Nine candidates were examined, all of whom passed. Seventeen candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Rush Medical College		(1923)*	89, 92, 92
University of Minnesota Medical School		(1923)†	91, 91.8
University of Oregon		(1922)	91
University of Toronto		(1915)	91.5
Queen's University of Belfast, Ireland		(1921)	92.7
University of Rostock, Germany		(1911)	89.1

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Georgetown University		(1920)	Michigan
Loyola University		(1921)	Illinois
Rush Medical College		(1917) (1923)	Illinois
State University of Iowa College of Medicine		(1907)	N. Dakota
		(1920), 1921)	Iowa
Tulane University		(1919)	Louisiana
Baltimore Medical College		(1903)	California
Harvard University		(1918)	Penna.
University of Michigan Medical School		(1921)	Michigan
John A. Creighton Medical College		(1921)	Kansas
Medical College of Ohio		(1907)	Ohio
University of Pennsylvania		(1918) Pennsylvania, (1920)	N. Carolina
University of Virginia		(1919)	Virginia
McGill University		(1905)	N. Dakota

* These candidates have finished their medical courses and will receive their M.D. degrees on completion of their internships.

† These candidates have finished their medical courses and received their M.B. degrees; they will receive their M.D. degrees on completion of their internships.

West Virginia January Examination

Dr. W. T. Henshaw, state health commissioner, West Virginia Public Health Council, reports the oral, written and practical examination held at Charleston, Jan. 9-10, 1923. The examination covered 11 subjects and included 110 questions. An average of 80 per cent. was required to pass. Of the 3 candidates examined, 2 passed and 1 failed. Ten candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Maryland		(1915)	93.4
Medical College of Virginia		(1922)	90.5
	FAILED		
University of Lille, France		(1902)*	57.3

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Loyola University		(1916)	Illinois
Northwestern University		(1918)	Illinois
University of Louisville		(1913)	Kentucky
Kentucky University		(1905)	Indiana
Tulane University		(1915)	Mississippi
Johns Hopkins University		(1916)	Maryland
University of Maryland		(1920)	Maryland
Central Medical College of St. Joseph		(1897)	Illinois
Medical College of Ohio		(1890)	Indiana
Medical College of Virginia		(1915)	Virginia

* Graduation not verified.

Book Notices

Ultraviolet Radiation: Its Properties, Production, Measurement and Applications. By M. Luckiesh, Director of Applied Science, Nela Research Laboratories, National Lamp Works of General Electric Co. Cloth. Price, $3.50 net. Pp. 258, with 12 illustrations. New York: D. Van Nostrand Company, 1922.

More than three and a half centuries ago, Newton discovered the spectrum; but he saw only the visible radiations: he had no means of learning that, beyond the violet edge, ultraviolet radiation was impinging, and that, beyond the red edge, infra-red radiation was present. Yet these and other radiations differ physically only in wave-lengths and frequency of vibration from the relatively small radiations visible to the naked eye. And this science of the invisible rays is relatively recent, but so important that it is becoming commonplace in medicine. In view of this, the book by Luckiesh is a valuable source for those who desire to have explained in clear, understandable terms the physics of light. Particularly well written is the introduction, which takes up the spectrum, the units (Angström, millimicron, micron) of measurement, the table of wave length of various spectral regions, and the discussion of the chronological research leading up to Millikan's remarkable success in spanning the gap to the roentgen rays. The chapter on solar radiation, combined with the later ones on transparency of solids and glasses, will be of particular interest to those engaged in rickets research. The author presents a chapter on the effects on living matter, which is mostly an abstract of the literature, replete with references; while this chapter is not a critical essay, the author, on the whole, shows conservatism.

Anaesthetics and Their Administration. A Text-Book by the Late Sir Frederic W. Hewitt, M.V.O., M.A., M.D. Fifth edition, edited by Henry Robinson, M.A., M.D., B.Ch., Senior Anaesthetist to the Cancer Hospital, London. Cloth. Price, $9. Pp. 575, with 83 illustrations. New York: Oxford University Press, 1922.

This edition is a vast improvement over the fourth. Dr. Robinson, who has made radical revisions, was the editor for the previous edition under the direct auspices of Hewitt. The book virtually constitutes a thesis on anesthesia; it is up to date and abounds with references. Even the use of ethylene years ago is mentioned in the book, which is interesting in view of the recent work of Luckhardt and Carter in rediscovering the anesthetic properties. Dr. Robinson is not impressed by the propaganda that the value of ether is enhanced when made pure, and then charged with certain ketones, a small amount of ethylene and carbon dioxid. Concerning the proprietary form of this mixture, "ethanesal," the author says: "I have been unable to discover any advantage possessed by this anesthetic over ether; and in particular I believe that so far from being less liable (as is claimed) to cause vomiting, ethanesal is actually more often followed by vomiting than ether itself. Ethanesal is considerably the more expensive of the two." The evolution of surgical anesthesia is discussed, also the selection of anesthetics, and the extraneous circumstances of anesthetization, and there are chapters on the various drugs for general or local anesthesia. Prof. A. J. Clark collaborates on the physiology and mode of action of anesthetics, while the recorder of Smethwick presents a chapter on the medicolegal aspects. The book is excellently gotten up.

Oral Roentgenology. A Roentgen Study of the Anatomy and Pathology of the Oral Cavity. By Kurt H. Thoma, D.M.D., Assistant Professor of Oral Histology and Pathology and Member of the Research Committee, Harvard University Dental School. Second edition. Cloth. Price, $6. Pp. 341, with 470 illustrations. Philadelphia: Lea & Febiger, 1922.

As compared with the first edition, this has been considerably revised and enlarged, as to both text and illustrations. The first part is devoted to roentgen-ray technic, particularly for oral work, and contains many valuable suggestions not only for the operator, but also for others who interpret the films. The remainder of the book is an atlas rather than a textbook, the illustrations and their descriptions occupying about three fourths of the space. The second part is devoted to interpretation, attention being called to conditions that frequently lead to misinterpretations. The third part is a study of the normal tissues, and includes several excellent illustrations showing the development of the bicuspid and molar teeth and their relation to the temporary teeth. Similar illustrations of the incisor region would add to the value of this chapter. The fourth part is devoted to pathologic conditions, and includes excellent illustrations of abnormal dentition, odontomas, chronic mouth infections, cysts, fractures, and diseases of the facial sinuses. The fifth part is entitled "The Use of Roentgenograms as an Aid in Treatment," and the sixth part is devoted to oral examinations. In many instances, photographic reproductions of dissected specimens are shown alongside the roentgenographic illustrations, aiding materially in the better understanding of conditions. The book serves to impress the important place occupied by roentgenology in the practice of the dentist and the oral surgeon, and the value of roentgenographic studies of the mouth as a part of a thorough physical examination.

Kurzgefasste chirurgische Operationslehre (Operationskurs). Für Studierende und Aerzte. Von Dr. Ad. Oberst, A. O. Professor a. d. Universität Freiburg I. Br., und Dr. H. F. O. Haberland, Privatdozent u. Assistent D. Chirurg. Klinik (Augusta-Hospital) der Universität Köln a. Rh. Second edition. Paper. Pp. 228, with 254 illustrations. Berlin: S. Karger, 1922.

This is a thorough revision of the work originally published by Oberst. As he no longer conducts a course in operative surgery, he has had Dr. Haberland join him as a co-author. Many antiquated operations have been omitted and newer operations added. Some of the illustrations have been improved and new ones added. Professor Frangenheim has reviewed the text and is credited with valuable suggestions. The work is divided into nine chapters. The first discusses incisions, methods of suturing and control of hemorrhage. The second considers the ligation of blood vessels. The third deals with amputations and disarticulations. The fourth deals with resection of joints, including operations on bones and tendons. The other chapters deal with operations on the head and face, on the neck, and on the chest, spine and hernias, and with abdominal and genito-urinary operations. Each chapter is preceded by a page of illustrations showing the various instruments used. The work is fairly well illustrated, but the illustrations are hardly up to the standard. The descriptions of the operations are very brief; and there is nothing about the book that is unusual. It hardly equals the book by Schmieden, which has about the same scope, and cannot be compared with the excellent work by Axhausen, in which the operations are described in much greater detail, and made very clear by unusually excellent colored plates. For this reason it is not obvious why such a volume should be produced in Germany at this time.

Applied Pharmacology. By A. J. Clark, M.C., B.A., M.D., Professor of Pharmacology in the University of London. Cloth. Price, $4. Pp. 390, with 47 illustrations. Philadelphia: P. Blakiston's Son & Co., 1923.

The principal aim of Professor Clark is to bridge the gap between pharmacology and therapeutics, and to demonstrate as clearly as possible the connection between the two subjects. The book is addressed to the medical men of England; consequently, the terminology is not such as would appear in a textbook in this country, where the influence of the Council on Pharmacy and Chemistry exists. Proprietary names, of necessity, are frequent, and references to critical investigations such as made by the A. M. A. Council are often lacking. On the other hand, it is easily discerned that none realize the condition of British therapeutics more than Professor Clark, who is doing admirable work in the field of therapeutics, as expressed by his recent contributions on the unscientific "colloidal" preparations (such as the "collosols"), vitamin preparations and the like. In this book is reflected his discriminating attitude toward enthusiastic claims. The discussions are rather brief, but are to the point. At the end of each chapter is a list of the preparations containing the drugs under discussion, and a bibliography. The book is not replete, like Sollmann's or Cushing's pharmacologies, but to one desiring a compact book which is written from the therapeutic point of view, it is recommended.

Medicolegal

Physician Notifying Parents of Daughter's Infection

(Kenney et al. v. Gurley (Ala.), 95 So. R. 34)

The Supreme Court of Alabama reverses a judgment for $5,000 damages for alleged libel obtained by plaintiff Gurley against the physician who was the medical director, and the woman who was the dean of women of an educational institution. The plaintiff, having a swelling in the groin, had voluntarily gone to the hospital maintained on the school premises. She was examined by the medical director, and specimens from her were subjected to approved laboratory tests. From the examinations made, her trouble was diagnosed as gonorrhea. After treatment in the hospital for eighteen days, the dean sent her to her mother. Two or three days later the dean received a letter from the plaintiff inquiring whether, if she got well, it would be all right for her to return to school. A week later the medical director wrote a letter, addressed to the parents of the plaintiff, which he stated was done at the request of the dean, advising them that the plaintiff had been kept in the hospital ward as a result of venereal infection and because of the fact had been sent home; that, if it had not already been done, it was advisable that she be put under a good physician. This letter the medical director sent to the dean, who enclosed it in a letter which she wrote to the girl's mother, stating that it would be impossible for her daughter to return to the school; that the enclosed letter from the school's physician explained itself—it seemed to indicate that the girl had not been living right. Expressions from these letters were made the bases of this action.

The court says that the subject of this action belonged to the category of matter qualifiedly or conditionally privileged; and that pleas of conditional privilege are required to negative the presence of malice in the exercise of conditional privilege asserted in bar of a recovery, particularly if the complaint avers that the matter declared on was maliciously published. But, while it is essential that such a plea should negative malice in the exercise of conditional privilege characterizing the utterance declared on, yet the burden of proof to show actual or express malice in a privileged utterance is on the plaintiff, actual or express malice being requisite to render actionable matter that is or is found to be conditionally privileged.

On the dean of women and the medical director, within the sphere of their proper functions, there rested the duty to promote, to protect and to preserve the moral, sanitary and health conditions related to the institution; duties that comprehended affirmative obligations to the student body, to teachers and to the reputation of the institution. The authority to exclude from association with the school any who may be or become undesirable from either physical malady or moral obloquy is not debatable. The process and act of communication between the medical director and the dean of women with respect to the condition of the plaintiff while under their care and supervision, and subsequently when the return of the girl to the institution was under consideration, as well as the act of communicating to the parent alone the institution's reason for refusing to permit the girl's return, were privileged occasions.

A careful consideration of the whole evidence required the conclusion that the motion for a new trial should have been granted on the ground that neither the evidence nor any inference from evidence justified a finding by the jury that the requisite actual or express malice characterized the conditionally privileged utterances recited in the complaint. The expression that the circumstances seemed to indicate that the plaintiff had not been living right did not transcend the multiform obligations resting on the dean and the medical director in discharging their duties in the premises.

The application of requisite professional skill and care to the diagnosis of the plaintiff's condition at the time she was under the immediate medical supervision of the director and his assistants was fully established in the evidence. Even if the diagnosis then made, after the professional care and skill shown to have been then availed of was erroneous, or subsequently proved to be a mistake, that error of judgment, unimpeached in respect of its bona fides, would not serve to afford evidence of actual or express malice.

Employer's Liability for Fees Dependent on Notice

(Vesta Gas Range Mfg. Co. v. Payne (Tenn.), 246 S. W. R. 115)

The Supreme Court of Tennessee says that in this suit under the workmen's compensation act of that state the plaintiff employee, who had been injured and recovered a judgment against his employer, was awarded a physician's fee and statutory compensation from the date of the accident. He gave written notice of his injury about twenty days after the accident, which the defendant contended was not as soon as was reasonable or practicable. The law governing that feature of the case provides that, immediately on the occurrence of any injury, or as soon thereafter as is reasonable or practicable, every injured employee or his representative shall give or cause to be given to the employer written notice of the injury, and the employee shall not be entitled to physician's fees or to any compensation that may have accrued under the provisions of this act from the date of the accident to the giving of such notice, unless it can be shown that the employer had actual knowledge of the accident; and no compensation shall be payable under the provisions of the act unless such written notice is given the employer within thirty days after the occurrence of the accident, unless reasonable excuse for failure to give such notice is made. In this case, the trial judge should not have allowed a physician's fee, nor should he have allowed compensation to begin to run except from the date on which the notice was given, and the judgment recovered is modified accordingly.

Society Proceedings

COMING MEETINGS

Montana, Medical Association of, Butte, July 11-12. Dr. E. G. Balsam, 222 Hart-Albin Bldg., Billings, Secretary.

Oregon State Medical Association, Portland, July 10-11. Dr. C. L. Booth, Selling Bldg., Portland, Acting Secretary.

AMERICAN GYNECOLOGICAL SOCIETY

Forty-Eighth Annual Meeting, Held at Hot Springs, Va., May 21-23, 1923

The President, Dr. John A. Sampson, Albany, N. Y., in the Chair

Placenta Accreta: Its Incidence, Pathology and Management

Drs. John Osborn Polak and George W. Phelan, Brooklyn: The incidence of placenta accreta is about 1 in 6,000 cases. There is considerable confusion in the mind of the profession between simple adhesion of the placenta and true accreta. Accreta is a definite pathologic entity. Manual removal is impossible and can only result in hemorrhage, sepsis or perforation. Every delayed placenta with no hemorrhage should be viewed with suspicion; and no attempts at Credé's method should be made if the clinical signs of separation are not present. In the presence of an attached placenta without bleeding, aseptic exploration under anesthesia should be made to determine the subsequent procedure. If no line of cleavage can be demonstrated, hysterectomy should be done.

Pyelitis of Pregnancy

Dr. Norris W. Vaux, Philadelphia: Pyelitis is a common complication of pregnancy. There is as yet no one specific cause on which to place the blame. The onset is mild and insidious, usually beginning after the bladder is drawn up out of its normal nonpregnant position from the third month onward. Bacilluria and frequent urination usually precede the systemic manifestation of pathologic change in the kidney substance. The renal infection is primarily hematogenous. Obstruction along the lower urinary tract in most cases is an essential factor in promoting infection of the kidney and its pelvis. The infecting organism is most com-only the colon bacillus. This may be the primary offender r a secondary invader on an infection by other pyogenic rganisms. Because of the high germicidal qualities in the aternal blood, the blood stream culture is invariably nega-ve. The prognosis is excellent for the continuation of regnancy with conservative measures. In only the excep-onal cases is it necessary to terminate pregnancy.

Chronic Leukorrhea

Dr. Arthur H. Curtis, Chicago: There is now general cceptance of my view that chronic infection of the body of e uterus is unusual; employment of the curet in attempts relieve suspected endometritis is considered misdirected nd harmful. In contrast, the cervix is believed to be an nportant focus of infection and a chief source of chronic ukorrheal discharges. Available measures in the control f chronic leukorrhea consist in eradication of gland infec-on in the vicinity of the urethra, dilation of cervical stric-res, and destruction of hyperplastic or infected glandular ssues of the cervix. Cure of the diseased cervix may be chieved through radium application, which produces atrophy f the infected glands, or through surgical removal of the ndocervix. Destruction of infected Skene's ducts and rethral glands, together with thorough dilation and radium eatment of the cervix, has been followed by recovery from hronic leukorrhea in 87 per cent. of 104 patients.

The Trend of Modern Obstetrics: What Is the Danger? How Can It Be Changed?

Dr. Brooke M. Anspach, Philadelphia: Routine induc-on, routine version and the routine prophylactic use of rceps increase the danger of childbirth to both mother and hild. There is an unavoidable fetal mortality in labor of etween 1.5 and 2 per cent. In other words, that proportion f infants at term will be born dead, irrespective of the ethods employed. In reporting a series, the details of very fetal death should be given. The fetal mortality in onservative obstetrics may be estimated at about 1 per cent. t present. The woman in labor should have constant and ontinuous attendance of a competent obstetrician, through-ut labor, no matter when it starts or how long it lasts. abor should not be started or ended in a routine manner. nduction forceps and version should not be employed unless ey are definitely indicated in the individual case for the ke of either the mother or the child. The practice of bstretrics should be carried on by obstetric partnerships; hen this practice comes into vogue, objectionable routine ethods will be abandoned, and maternal and fetal mortality atistics will improve.

Cystocele and High Rectocele

Dr. Thomas J. Watkins, Chicago: Cystocele and high ectocele are hernias. Both are transverse lesions of the scia at the upper part of the vagina. Both result from ngitudinal tension on the fascia during labor, which pro-uces a transverse rent. The transverse tear in cystocele ermits the urethra to sag, and thus causes ureterocele and continence of urine. The transverse tear in high rectocele sults in sagging of the perineum. The treatment of both hould consist in a thorough dissection of the hernial sac d in firm repair along the line of the rent, namely, trans-ersely. In cystocele this will result in restoration of the adder and urethra to their normal positions. When these sions are thoroughly dissected along the lines of the stand-dized method of repair of hernias, the operation is rela-vely simple and the result is almost certain of cure.

A Simple Method of Testing the Patency of the Fallopian Tubes

Dr. N. Sproat Heaney, Chicago: As soon as Rubin escribed his method, and he and others had shown the armlessness of the transufflation, I adapted the use of the r syringe to testing the patency of the tubes from below. ot only has this been tried on every case of sterility exam-ed since that time, but experience has been gained by ying transsufflation in every case in which the peritoneal vity was to be opened either vaginally or abdominally. All patients are tested in the lithotomy position. With the usual preliminary precautions, the cervix is exposed by narrow vaginal retractors and is grasped with bullet forceps. In the usual case, the cervix can be drawn down far enough so that the plain, one-ounce, all rubber ear syringe can be adapted to the cervical canal. Frequently the cervix will not come down this far without discomfort, in which event a syringe is used which has had a straight or curved medicine dropper glass inserted into the rubber nozzle. In rare cases the cervical canal is so patulous that a glass connecting tube is used instead of the medicine dropper. In most cases air readily passes into the peritoneal cavity with a peculiar audible whistling or gurgling sound. Occasionally, light pressure must be used before the air passes. If the tubes are closed, air refuses to pass after the syringe is about half empty. If the syringe empties, there is assurance that the tubes are open. When doubt occurs as to regurgitation at the external os, the vagina may be filled with water until the cervix is immersed, or a lubricant may be used in the cervical canal, so that if leakage occurs, bubbles will be seen. At Barton Cooke Hirst's suggestion, a stethoscope is placed on the abdomen just above the pubes, and auscultation shows whether the air passes through only one or both tubes.

In the first few tests, I was not prepared for the ease with which the air passed through the tubes, so that several syringefuls were used, with the resultant shoulder pains which are typical of a quantity of gas in the peritoneal cavity. With added experience, one syringeful of air makes a conclusive test, so that patients are spared the shoulder pains and experience no discomfort except the transitory bite of the bullet forceps. The method is simple of performance and conclusive in its findings. No training is necessary to perfect the technic. Any one capable of performing a curettage is able safely and definitely to make conclusive record regarding the patency of the fallopian tubes.

Follow-Up Results in 908 Cases of Uterine Cancer Treated by Radium

Drs. Harold C. Bailey and William P. Healy, New York: The advanced primary cancer forms the largest group of our patients. If we take the first three years, 1915, 1916 and 1917, in which the irradiation was without any decided amount of cross-firing, there were in all eighty cases, and but two women are alive. In 1918 with the use of the bomb and block, there were forty-one cases, and six women, or 14.5 per cent., are alive and free from the disease today. In 1919 there were sixty-nine cases with but five, or 7 per cent., well, and two alive with the disease progressing. In 1920 there were ninety-two cases, with eight, or 8.7 per cent., alive and no evidence of cancer, and seven alive with symptoms. In 1921, there were eighty-five cases, and twelve, or 14 per cent., have no evidence, and nineteen are in various stages of the disease. In 1922 there were eighty cases, and twelve patients, or 15 per cent., are apparently well, and forty-five others are alive. While not enough time has elapsed since the treatment of the cases of the last two years to give any idea of the final results, still of the 165 cases that were beyond the aid of surgery, twenty-four cases now show no clinical signs of cancer.

In the early operable group there were eleven cases treated previous to Jan. 1, 1919. Of these, three patients, or 27 per cent., are alive and free from evidence of cancer for five years or more. If the rate is corrected by deducting three deaths from intercurrent disease and one following operation in another clinic, the result is 43 per cent. clinically cured for the period. In the last four years there were forty-eight cases, and of these, thirty-two, or 66 per cent., are free from evidence of the disease. If we are permitted to deduct three cases, in one of which the patient died after an operation in another hospital a week after our treatment, and two others giving false addresses so that they could not be followed, there are thirty-two alive of forty-five patients, or 71 per cent. In these early cases we naturally look for and hope to get excellent results from irradiation, and very few of our cases receive any other treatment.

Previous to 1918, there were fifty-two cases. Two of these patients are alive and well, and one other is alive, but with some evidence of tumor. In the last five years, during which time the technic has been considerably elaborated by the use of cross-firing and the embedding of radium emanation in the lesion, a remarkable number of these cases has been apparently cured. There were 168 cases in this group, and thirty-eight, or 22 per cent., show no clinical evidence of cancer. We have had forty-one cases of cancer of the body of the uterus, of which twenty-one patients, or 49 per cent., are alive and well. Three of these have passed the five year period. Nine of the twenty-one patients had hysterectomy following the irradiation. In the other cases, hysterectomy was not considered advisable because of the other complications or constitutional diseases, and these cases have been treated by irradiation alone.

Relation Between Placenta and the Secretion of Milk

Dr. Oskar Frankl, Vienna, Austria: That the fetus is not the deciding factor in the secretion of milk is proved by active lactation subsequent to the expulsion of a hydatidiform mole or a dead fetus. Ovarian function in relation to lactation is distinguished by the fact, on the one hand, that castration performed during pregnancy does not preclude lactation, while, on the other hand, in the experience of animal breeders, castration is successfully resorted to for the purpose of prolonging lactation in the mother animal. Halban first asserted that it is directly the loss of the placenta that changes the secretion of colostrum into one of milk. To prove or disprove this theory I carried out certain experiments which consisted in the transplantation of the placenta of a mouse under the skin on the back of another mouse. Such grafts in general led to three possible end-results. In case of an intervening infection, a large abscess formed, destroying the implanted placenta. In other cases, under aseptic conditions, the graft did not take and the placenta became rapidly necrotic. In the third successful group, the implanted placenta established satisfactory connection with the adjoining tissues, and the organ could be observed to persist for three or four weeks. After this time, histologic study showed a complete absorption of the grafted placenta.

In these experiments the placentas of pregnant mice were employed within ten or twelve days of full term, and transplanted under the skin of the back of mice approximately in the same stage of pregnancy. In this group of successful transplants, mice from a strain known to be able to nurse satisfactorily their young, would have litters of five or six. The new-born offsprings would seem normal in their appearance and would immediately begin to nurse the mother animal; but they invariably died within the next five to seven days, evidently from starvation. Investigations showed that the mamma of the mother animal was secreting colostrum and not milk. In the unsuccessful transplants of the first and second groups, lactation proceeded normally. The successful transplantation of a placenta on a pregnant animal causes persistence of colostrum secretion. Clinical experience points to the fact that the placenta must be regarded as an organ endowed with endocrine activity, whose function it is during pregnancy to prepare the breast glands for the secretion of milk, and simultaneously to prevent secretory activity.

The Teaching of Obstetrics and Gynecology

Dr. W. B. Hendry, Toronto: Existing conditions at the University of Toronto made it possible, eleven years ago, to combine the departments of obstetrics and gynecology under one head, and since that time an organization has been evolved through which the training has been carried on much more efficiently than in former years. The responsibility of the dual department rests with the head, and with him are associated two senior and several junior assistants and demonstrators. The service is a rotating one, by which a one-sided development of the staff is avoided. The junior assistants alternate every three months in obstetrics and gynecology, while continuity of the service is maintained by having one member of the staff permanently responsible to the head for the proper administration of each of the subdivisions: outpatient and inpatient services in obstetrics; outpatient and inpatient services in gynecology, and the pathologic laboratory, which is maintained distinct from the department of general pathology. The staff, as a whole, is on a part-time basis, but two demonstrators and one resident are on a full-time basis and are engaged in research work as well as assisting with the teaching. The resident fellow obtains his appointment as such after having served satisfactorily for one year as intern on a rotating service in a general hospital, one year as senior intern in obstetrics and gynecology, and one year in general pathology and bacteriology. He may later be taken on the staff as a full-time demonstrator, and in due course be appointed to the visiting staff of the hospital and of the medical faculty.

Hydro-Ureter and Hydronephrosis: A Frequent Secondary Finding as a Result of Prolapse of the Uterus and Bladder

Drs. Joseph Brettauer and I. C. Rubin, New York: Although the number of cases herein reported (eight) is small, the large percentage of hydronephrosis and hydroureters encountered in them must have an important bearing on the etiologic relationship between the two. When taken together with the large incidence (fifteen out of twenty-three necropsies) so carefully studied by Tandler and Halban, there can be no question as to the secondary effects produced on the kidneys by long-standing prolapses. It becomes at once clear that the need for early operations to correct descensus and genital prolapse must be recognized. That at least pessaries should be worn in inoperable cases if not for the relief of the prolapse itself, but also to save the kidneys from secondary damage, must also be recognized. In advanced, neglected cases it becomes all the more important to take measures to study and conserve kidney function before undertaking operative correction of the prolapse. Greater attention to phenolsulphonephthalein and indigocarmin output, to analysis of the blood for nitrogen retention, etc., may indicate the extent of kidney damage entailed by these women with genital prolapse. The simple testing of the capacity of the renal pelvis and ureter by the use of sterile water alone will be sufficient to determine the degree of ureteral dilatation. The injection of sodium iodid or of sodium bromid in solution will be reserved for doubtful cases, and one ureter will be adequate for the demonstration.

The Relation of the Endometrium to Ovarian Function

Drs. Charles C. Norris and M. E. Vogt, Philadelphia: The theory that the endometrium possesses an endocrine function is, at present, based only on physiologic and clinical proof. The fact that the endometrium differs histologically from other endocrine glands is no argument against the theory, since all other endocrine glands differ one from the other in this respect. The endometrium probably possesses a definite endocrine function, which, like other endocrine glands, acts in conjunction with certain so-called ductless glands, particularly the ovary, to which it is most likely subservient. The endocrine function of the endometrium probably fluctuates with the menstrual cycle, being most active during the premenstrual period. The chief clinical evidence on which this theory is based lies in the established fact that the proportion of women who suffer from nervous phenomena subsequent to hysterectomy with conservation of one or both ovaries is much greater than that of those who exhibit painful or palpable changes in the conserved ovary. The most conclusive evidence is found in those patients who have been treated with radium for the arrest of benign hemorrhages. It is difficult to conceive that in almost every case so treated both ovaries are rendered functionless. Furthermore, there is much experimental evidence that tends to show that in these cases the action of radium is limited to the uterus. In operations on the uterus, ovarian conservation is of distinct value, even if panhysterectomy is performed; the ovaries function better, however, and have a longer functional life, if a portion of the endometrium can be preserved. The thickened and permanent premenstrual stage of the endometrium, so frequently present in cases of erine myoma, is the result of stimulation of the endoetrium by the presence of the tumor, and accounts for the olonged bleeding that is often present.

A Case of Periumbilical Ecchymosis Associated with Acute Salpingitis

Dr. Edward A. Schumann, Philadelphia: A review of e case reported leads to the emphasis of three points: riumbilical ecchymosis can occur without the existence of topic gestation, and in the absence of any free blood within e peritoneal cavity. The association of an extremely acute d fulminating salpingitis, so acute that, on operation, eight urs after the onset there were no adhesions whatever, served about the tubes, in the presence of a normal intraerine pregnancy, is most unusual and points to an infecn by way of the blood and lymph channels. The smooth stoperative course after salpingectomy for acute salpingitis ggests the possibility that the universally practiced conrvatism regarding operative procedure in the acute stages this lesion may be exaggerated.

Some Observations on Placental Infarcts

Dr. Fred L. Adair, Minneapolis: White infarcts do not l fit into the same category, and probably result from a mber of different processes. The most of these localized generative processes which are grouped under the name of acental infarct might all lead to the formation of white farcts if a sufficient length of time elapsed between the ne of their occurrence and the delivery of the placenta. number of causes operate to produce these localized areas degeneration in the placenta, among which may be menoned vascular changes, such as endarteritis, periarteritis d thrombosis, localized hemorrhages which may result from asis, traumatic or toxic conditions. Disturbance of the ferent blood supply may be responsible for trophic disturnces resulting in degeneration of the areas supplied by ese vessels. Infection and inflammatory processes may play rôle in the causation of some of these degenerations.

Abdominal Hysterotomy Under Morphin, Scopolamin and Local Anesthesia

Dr. Frederick C. Irving, Boston: Abdominal hysterotomy fers a method of emptying the uterus easily and rapidly in ose cases in which such a procedure is demanded. Local esthesia under morphin and scopolamin narcosis is superior general anesthesia because any possible danger from an halation anesthetic is eliminated, and operative shock is duced to a minimum. This method is therefore applicable patients classed as bad surgical risks. Among such tients are those having heart disease with previous decomnsation; nephritis; diabetes, and pulmonary tuberculosis, those who have acute respiratory infections on whom it is cessary for other reasons to perform cesarean section.

Blood Pressure Changes Following Delivery

Dr. Otto H. Schwarz, St. Louis: Marked drops in blood essure following delivery in cases of toxemia have not been fficiently emphasized. The drops that occur in these cases equently amount to 100 mm. of mercury, and if the patient not promptly stimulated, the condition may lead to shock. nportance should be placed on the immediate application a tight abdominal binder, with sand bags to the abdomen, imulation of the patient as in the treatment of shock, the e of pituitary extract, and the avoidance of too long a lay in the use of intravenous therapy in the form of glucose lutions or blood transfusion. These marked drops were ted in ten cases, but this is by no means an index to their equency. It is a noteworthy fact that forced operative livery and anesthesia are prominent features in several of e cases reported, but cannot be held totally responsible for e occurrence of the condition. In normal cases, operative ocedure, the anesthetic, sudden emptying of the uterus and e physiologic bleeding do not produce marked drops in essure, or cause the patient to go into shock; but in the xemia cases, perhaps chiefly owing to the presence of toxic bstances, the factors mentioned act in an accumulative way produce the condition.

MEDICAL SOCIETY OF THE STATE OF NEW YORK

One Hundred and Seventeenth Annual Meeting, held in New York, May 22-24, 1923

(Concluded from page 1954)

Surgical Treatment of Gastric and Duodenal Ulcer

Dr. Grant C. Madill, Ogdensburg, N. Y.: I do not advocate excision because my experience does not lead to the current teaching that chronic ulcer of the stomach becomes malignant. So many conditions simulate chronic ulcer that its diagnosis, even by most expert roentgenologists and diagnosticians, is very difficult. The fictitious finding of ulcer and the performance of gastrojejunostomy in neurotic subjects whose gastric symptoms are but part of a general neurosis has probably led to more failures in surgery of the stomach than any other cause.

DISCUSSION

Dr. Walter A. Bastedo, New York: In acute perforations there can be no doubt as to the need of immediate surgery. The continuous or repeated hemorrhagic ulcers certainly are potential dangers, and need operation. The hour-glass stomach needs operation. The really obstructed pylorus is also a case for operation; but the showing of a six-hour retention by roentgen ray does not exclude the possibility that it can be treated by medical means. I think that all statistics tend to show that it is not probable that many ulcers change to cancer, but rather that there are a great many ulcers which are cancer to begin with. I know of scarcely a surgeon in New York who has had a case in which resected tissue from the stomach was found to be cancer by the pathologic laboratory who could report that patient living five years after the operation. Nevertheless, when a resection can be done, surely we should advocate it; for even if the lesion should prove to be cancerous, we still have hope, if not of cure, at least of postponement of the serious outcome.

Dr. Arthur L. Holland, New York: Dr. Bastedo just stated that ulcers are sometimes cancers without our knowing it. I think Dr. Pool has had a number of such instances in which he operated for ulcer and later found cancer cells in the floor of the ulcer.

Dr. John F. Connors, New York: For years and years we have spent a great deal of time devising new operations for the cure of gastric and duodenal ulcer. If some of this energy were used in attempting to find the etiology of gastric and duodenal ulcer, we would be much better off. It is my belief that gastro-enterostomy is of little or no value in the treatment of gastric ulcer, particularly when the pylorus is patent.

Dr. Eugene H. Pool, New York: Initial gastro-enterostomy in perforated gastric and duodenal ulcers can be done in early cases, within six hours, without adding materially to the risk of the operation. The objection is that one adds an unnecessary and often a disadvantageous element in treatment. There is a 2 to 3 per cent. risk of a marginal ulcer developing after any gastro-enterostomy; moreover, in about 20 or 25 per cent. of gastro-enterostomies functional disturbances occur. A secondary gastro-enterostomy can be done relatively safely and needs only be done where it is necessary.

String Test for the Diagnosis of Ulcer of the Stomach

Dr. Marshall Clinton, Buffalo: Roentgen-ray diagnoses have enough margin of error so that the routine examination of patients by the string test is of unquestionable value. Like other laboratory tests, its chief value lies in a proper translation.

DISCUSSION

Dr. Arthur L. Holland, New York: As the fluoroscopic method of examination, which is cheaper than the plate method, came in, I gradually abandoned the string test. The objection to it was that very frequently the string did not get past the duodenum. If we were deprived of the roentgen ray, I would use the string test. I think it would be a very good thing to check up and differentiate between an active and an old healed ulcer. That cannot always be done by roentgen ray.

Dr. Max Einhorn, New York: It is very important that the string test be done in the right way. If it is not, we have all kinds of trouble. I have made comparative tests with the roentgen ray and with the string test. Most of these patients are not operated on; they do well without any operative procedure. I resort to surgery when it is necessary, and I usually find that the results of the string test tally more often with the operative results than do the roentgen-ray findings. The diagnosis of duodenal ulcer is often very difficult, and the intricate signs of ulcer can be caused by some other lesions. The string test is most accurate in these conditions.

Chronic Partial Obstruction of the Duodenum

Dr. Alfred S. Taylor, New York: In the present series of cases, disturbances occurred at or near the junction of the first and second portions of the duodenum in eighty-one cases, and at or near the duodenojejunal angle in twenty cases. In two instances, the duodenum was constricted behind the transverse mesocolon. In the first group, disturbance has always been caused by atypical peritoneal membranes, termed "hepatoduodenal membranes," otherwise known as "Harris bands." They cause high fixation, angulation or compression of the duodenum, or all three combined. In the second group, disturbances occur from two causes: (1) atypical peritoneal folds or ligaments causing angulation or compression, or both combined, at the duodenojejunal angle, and (2) compression of terminal duodenum by the superior mesenteric vessels. Clinical symptomatology is strongly suggestive of disease of the biliary tract, ulcer of the stomach or duodenum, etc. In these somewhat indefinite cases, the conditions causing chronic partial obstruction should always be kept in mind, and the proper evidence for either making or excluding the diagnosis should be sought. Such evidence lies in a history of digestive disturbances over a long period, symptoms intermittently increasing in severity and duration with corresponding increase in disability. Most of the patients have been labeled as neurasthenics. Physical examination shows a variable state of nutrition; the blood is negative, except for slight anemia; results of gastric analysis and stools are not characteristic. Abdominal exploration may show distension of the cecum and ascending colon with tenderness over the cecum, the middle of the ascending colon and hepatic flexure; the stomach may be dilated, and reach well to the right of the median line. Usually, there is a tender spot in the midepigastrium just to the right of the midline. Roentgen-ray findings, properly interpreted, and fluoroscopy furnish the most definite evidence for or against the diagnosis. The treatment should primarily be medical for a considerable length of time, and only those cases who do not improve in spite of prolonged medical treatment should be referred to the surgeon. The results in these cases, from eight and a half years down to four months after operation, are: forty-three cures; thirty-eight greatly improved; nine improved; seven failures; two deaths and four lost track of.

DISCUSSION

Dr. Charles J. Hunt, New York: The first thing that is necessary is roentgen-ray confirmation, and the second is surgical intervention. The importance of the phenomena symptomatically increases in proportion from above down. That is, the Harris bands have caused less violent disturbances than when the transverse colon is involved.

Dr. Walter L. Niles, New York: I regard this condition as very important. A very large group of patients who are regarded as being neurasthenic have a disturbance of function of the duodenum as the basis for their nervous instability. The gastric symptoms are very often overshadowed by neurasthenia. Headaches are common, and some have attacks of migraine; insomnia and palpitation are usual. The gastric symptoms consist chiefly of distention and fulness after meals, and belching of gas. When you see a neurasthenic individual whose chief gastric complaint is belching, be very suspicious of duodenal deformity. Severe attacks of pain are occasionally seen, but most of the patients complain only of painfu distress in the epigastrium. Vomiting is not frequent, bu most patients vomit occasionally, especially when under nervous or mental strain. There are no characteristic finding in the gastric contents or stools. The diagnosis is base almost wholly on the roentgen ray. Combined use of th fluoroscope and plates is most satisfactory. Only a smal proportion of these cases demand surgical intervention, medical treatment being quite satisfactory in the majority of cases The indications for operation cannot be clearly defined, a every patient must be considered individually. They shoul certainly be given the chance of probable benefit from medical treatment. Generally speaking, the older the patient, th longer he has had his symptoms, and the less successful wil be the result of operation, yet some of the long-standing case recover surprisingly well, but it naturally takes many month for satisfactory restoration of a function which has bee disturbed for many years.

Dr. Harry M. Imboden, New York: The accurary o roentgen-ray examination depends more or less on the typ of stomach. If it is the common fish-hook type of stomach the relative position of the duodenum may be easily determined. If, on the contrary, one is confronted with th so-called "steer-horn" type of stomach, it is not quite suc a simple procedure.

Dr. Jacob Sarnoff, Brooklyn: I want to bring out a point in regard to the superior mesenteric vessels as a factor i causing obstruction. In demonstrating to the students o the cadaver the viscera, we filled all the organs with air The most difficult organ to demonstrate was the duodenum until we used that method which I termed pneumoviscera By inserting air we found the duodenum stands out ver clearly retroperitoneally, and it showed how the superio mesenteric vessels obstruct the flow of the air. Clinically, these particular vessels might also do the same thing in causing obstruction.

Dr. Alfred S. Taylor, New York: As a surgeon, I am definitely in favor of these patients having long medical care, and allowing the medical man to treat them until he is ready to quit.

Ankylosis: Its Importance and Treatment by Arthroplastic Measures

Dr. W. R. MacAusland, Boston: In general, only the following joints are to be considered for arthroplasty in the order of frequency: the elbow, hip, knee, temporomaxillary (jaw), wrist and fingers. Other joints should be excluded from the list because the ankylosed joint in good position will give good function. The contraindications to arthroplasty are: The tuberculous joint, which rarely, if ever, lends itself properly to operative interference. No stiff joint should be mobilized which causes slight disability. No joint should be mobilized when contraindicated by the patients' age or general condition. The ultimate success in these cases depends very largely on the after-treatment.

DISCUSSION

Dr. Percy W. Roberts, New York: One thing which I think is important is the time of operation after an infectious arthritis. There should be a long delay, but his experience on the point should be of some value to us.

Dr. Joseph A. Blake, New York: I noticed, in some of the operations at the Reconstruction Hospital, that they have been suspending the arms of patients after operation on the elbow. The elbow is kept fixed for six or seven days, and then simply suspended to an overhead by adhesive straps and allowed to swing a little. Then the patient is instructed to move the joint himself while suspended, and the results have been excellent. In the war Leriche did remarkable operations on the joints, the elbow particularly.

Dr. W. R. MacAusland, Boston: Operations should never be done until at least two years after all signs of active infection have subsided. A sensitive joint should be left alone. The method we use, whether suspension or the various overhead traction methods, does not matter very much. I am using them all.

Present Status of Irradiation in the Treatment of Carcinoma of the Breast

Dr. Burton J. Lee, New York: For the purposes of ssification, I divide mammary carcinoma into seven oups: papillary cystadenocarcinoma; adenocarcinoma; -called Paget's disease, fibrocarcinoma, carcinoma simplex, llular carcinoma and inflammatory carcinoma. The results surgery may not depend so much on the technic as on type of carcinoma and the degree of operability at the ne of surgical intervention. It is obvious that·these dif- rent types of carcinoma will not require the same treat- nt. In case of papillary cystadenocarcinoma, where the mor is not large, a properly done excision should be suffi- nt. This is the only type of mammary carcinoma in which eoperative and postoperative irradiation should be unnec- sary. In adenocarcinoma, if the axillary nodes are not volved, a conservative operation is advised. If they are volved, a radical amputation should be performed. Pre- erative roentgen-ray treatment should be given. If Paget's sease is seen early, a reasonably local operation may be ne; if later, operation will have to be radical, with the me roentgen-ray treatment. With fibrocarcinoma and car- noma simplex, a Willy Meyer-Halsted operation and the me line of treatment are used. Inflammatory carcinoma ould not be operated on. These cases have done well with operly planned roentgen-ray dosage. The vast majority recurrences are of the inoperable type, and should be ated by irradiation. The deep treatment with the new gh voltage machine is rarely used for such cases. The ly instance in which it is employed are for recurrences in e spine and pelvis or some deep, inaccessible area. In pri- ary inoperable cases, the high voltage machine has been ed on large breasts. As a rule, superficial roentgen-ray atment is given, and radium is applied to the primary mor by means of the so-called platinum needles, which give tter results that the bare tubes.

The Limitations of Radiotherapy of Cancer

Dr. Francis Carter Wood, New York: The limitations radiotherapy in the treatment of cancer are (1) physical;) peculiarities in the roentgen-ray susceptibilities of the tients; (3) difficulties based on the relation of the tumor the important organs of the body; (4) those based on the culiarities of the tumors themselves. Regarding the physi- l limitations, for example, it is impossible to treat a tumor ree or four inches from the surface of the body with a entgen-ray machine giving no higher voltages than those ed for photographic purposes. For such deep therapy, high ltage machines must be used in order to give sufficient netration. As an illustration of the second limitation, there e patients who are so sensitive to both radium and roentgen y that even light treatments produce serious symptoms, d satisfactory therapeusis is impossible. The third limita- n is best illustrated by the difficulties in the treatment of ncer of the stomach. Any attempt to give large doses of entgen ray to this organ compromises the suprarenals, pan- eas and the liver, and renders all satisfactory radiotherapy this region difficult if not impossible. Concerning the urth limitation, human tumors vary very greatly in their sceptibility to irradiation, and as yet not enough is known ncerning the relations between the type of tumor and its sceptibility to enable a definite conclusion to be drawn as whether a tumor will yield to irradiation or not.

DISCUSSION ON RADIOTHERAPY

Dr. Milton G. Wasch, Brooklyn, N. Y.: When it comes the question of radiotherapy, there is a lack of uniformity technic and in the interpretation of dosage which has been common that we often do not understand each other. Up the present, the best results from radiotherapy have been oduced by the burying of the radium needle in the tumor ss. That is the most rapid way of controlling tumor owth. It is limited to local lesions. We get the best results malignant disease of the cervix and uterus because the ion is local, and with a carcinoma of the cervix uteri we n bury the needles and surround the carcinoma mass with dium. With the roentgen ray we shall get better results as develop a perfect and uniform technic.

Dr. Isaak Levin, New York: The insertion of radium into the tumor is undoubtedly today the most efficient as well as the most economical method in the whole field of radiotherapy. In my opinion, the use of bare capillary tubes of rȧdium emanation is by far superior to the insertion of metal needles containing the radium salts or radium emanations. As for roentgen-ray therapy, the higher the voltages used, the better the results, but, as Dr. Wood stated, the greater the voltage, the greater is the danger to the patient. The general effect of the high voltage roentgen-ray therapy on the organism apparently differs in different individuals.

Dr. James E. Sadlier, Poughkeepsie, N. Y.: Some time ago I made a study of cases of carcinoma of the breast which had received irradiation treatment; 49.6 per cent. were free from recurrence.

Dr. Francis Carter Wood, New York: I do not advise preoperative irradiation, because I feel that time is lost. A carcinoma is a dangerous thing, and as soon as a diagnosis is made, the operation should be done within twenty-four hours, if possible. A patient should not be allowed to carry a mass of cells which at any moment may metastasize into the mediastinum, when the whole question becomes purely academic, as nothing can then save the patient. Knowing that such an occurrence may take place at any moment, I do not feel like keeping a patient for two or three weeks for preoperative irradiation, because we know the amount of roentgen ray which penetrates into the tumor is not sufficient to kill all the cells. If we could kill all the cells of a tumor by such irradiation, we would not have to resort to surgery. I believe postoperative radiation will be done more and more, and ultimately will be used not only in the breast, but in other regions.

Dr. A. Josephine Sherman, New York: How early do pathologists find the cancer cells in the blood and lymphatics?

Dr. Francis Carter Wood: Unfortunately we find them in the lymphatics rather early. In the fatal cases, they are found in the lungs very frequently, where they have been transported by the blood and deposited in the pulmonary vessels.

Certain Criteria of Management in Prostatic Carcinoma

Dr. Ernest M. Watson, Buffalo: In dealing with prostatic carcinoma, the relief of symptoms, frequency of urination, pain, dysuria and possibly retention, and the control of the cancer with its debilitating effect are important factors. In very early and moderately well developed carcinoma, which gives few symptoms, and shows only limited obstructive signs, bare seeds of radium emanation are implanted into the substance of the prostate gland through the perineum. In this type of case the outlook is most hopeful. In early and moderately well developed carcinoma, giving marked subjective symptoms, with little or no evidence of any generalized debility and no demonstrable metastases, large doses of radium pack in several areas are given to diminish the viability of the cancer cells previous to operation. Prostatectomy is carried out through the perineum. At the conclusion of the removal of the obstructing tissue the posterior capsule or commissure, the region of the lateral lobes, anterior commissure, and periprostatic tissue are planted with the bare seeds of radium emanation, each containing about 0.6 to 1 millicurie each. The wound is closed in layers. In three months, further external radiation by the high power roentgen ray or the radium pack is given. In cases previously subjected to operation presenting obstructive symptoms due to a cicatricial or a thin carcinomatous ringlike contracture at the vesical orifice, associated with the obstruction, the procedure is first a punch operation as devised by Young. Radium seeds are planted in the substance of the posterior lobe through the perineum. Radium packs or high power roentgen rays are given over the groins, suprapubic region, sacrum and perineum. In cases with marked obstructive symptoms, due to a recurrence of the prostatic growth, treatment is palliative. The procedure of choice is suprapubic cystotomy with a permanent drainage tube. Seeding through the perineum, external packs, and high power roentgen rays supplement operation. In markedly advanced cases, nothing can be done but a varying degree of palliation.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Ophthalmology, Chicago

6: 353-448 (May) 1923

Iridotasis Operation for Glaucoma. M. Goldenburg, Chicago.—p. 353.
Acute Glaucoma Following Heine's Cyclodialysis. Y. Yoshida, Kyoto, Japan.—p. 356.
Mechanism and Use of Variable Five Minute Test Letter. J. M. Thorington, Philadelphia.—p. 361.
Review of Keratoplastic Surgery and Some Experiments in Keratoplasty. A. E. Forster, Kalamazoo, Mich.—p. 366.
Experimental Study of Pathogenesis of Quinin Amblyopia with Special Reference to Ethylhydrocuprein Hydrochlorid. A. E. Forster, Kalamazoo, Mich.—p. 376.
Ophthalmia Neonatorum. L. Lehrfeld, Philadelphia.—p. 380.
Eye in Beri-Beri. A. S. Fernando, Manila, P. I.—p. 385.
Clinical Aspects of Eye Symptoms in Lethargic Encephalitis. W. G. Cameron, Tacoma, Wash.—p. 389.
Functional Chromo Periodic Hemianopsia. J. N. Rhoads, Philadelphia.—p. 392.
Fugacious Homonymous Hemianopsia. J. M. Banister, Omaha.—p. 396.
Thrombosis of Central Retinal Vein. H. Wood, Nashville.—p. 400.
Associated Movements of Upper Lid and Jaw. C. J. Adams, Kokomo, Ind.—p. 401.
Rebounding Intraocular Foreign Body. W. S. Reese, Philadelphia.—p. 401.
Hiccup Followed by Loss of Vision. J. H. Gross, St. Louis.—p. 402.
Butyn as Local Anesthetic in Minor Surgical Ocular Operations. E. L. Vernon, Chicago.—p. 402.

California State Journal of Medicine, San Francisco

21: 193-236 (May) 1923

Pyelography: Common Diagnostic Errors. M. B. Wesson, San Francisco.—p. 193.
Congenital Elevation of Scapulae. A. L. Fisher, San Francisco.—p. 203.
*Insulin Treatment of Diabetes Mellitus. A. H. Rowe, Oakland.—p. 204.
Medical Social Service in Hospital. M. A. Wales, San Francisco.—p. 209.
Cerebral Syphilis. N. H. Brush, Santa Barbara, Calif.—p. 212.
Psychoneurosis as Problem for General Practitioner. C. P. Kjaerbye.—p. 214.
Applicability of Alkalinization in Treatment of Tuberculosis. F. P. Miller.—p. 216.
Experiments on Bactericidal Action of Violet Ray. E. B. Fisher, Pacific Grove, Calif.—p. 218.

Insulin Treatment of Diabetes Mellitus.—Rowe has treated twenty-five diabetic patients with insulin, with very gratifying results. He says that for those patients who will be steadfast to their diets and who will take insulin in proper doses, the outlook for health and freedom from diabetic complications is practically assured. Patients in coma, providing the circulation does not fail, can usually be restored to consciousness and gradually be brought back to strength and well-being by the use of insulin. However, delay in the recognition of severe acidosis and semicoma is serious. The importance of careful laboratory control by urinary and blood plasma analyses when insulin is to be used is insisted on. To assure accuracy, these tests must be done by experienced chemists who have a large amount of such work continually at hand. The various alveolar air, blood, and urine tests for acidosis must be available in the treatment of severe diabetes. The carbon dioxid tension in blood plasma is especially important. Moreover, glycosuria due to renal diabetes must be recognized, and such patients with normal blood sugars ought not receive insulin. Four cases of diabetes in children, from the ages of 2 to 8 years, are being well controlled by insulin and dietary therapy.

Journal of Biological Chemistry, Baltimore

55: 567-864 (April) 1923

Nucleotids Formed by Action of Boiled Pancreas on Yeast Nucleic Acid. W. Jones and M. E. Perkins, Baltimore.—p. 557.
Formation of Nucleotids from Yeast Nucleic Acid by Action of Sodium Hydroxid at Room Temperature. W. Jones and M. E. Perkins, Baltimore.—p. 567.
New Optical Instrument for Determination of Hemoglobin. H. S. Newcomer, Philadelphia.—p. 569.
Influence of Radiant Energy on Development of Xerophthalmia in Rats: Demonstration of Beneficial Influence of Sunlight and Out of Door Air on Organism. G. F. Powers and E. A. Park, New Haven, Conn.—p. 575.
*Investigations on Immediate Effect of Heavy Exercise (Stair Running) on Some Phases of Circulation and Respiration in Normal Persons. III. Effect of Varying Amount and Kind of Exercise. C. Lundsgaard and E. Möller, Copenhagen, Denmark.—p. 599.
*Effect of Some Organic Acids on Uric Acid Excretion of Man. H. Gibson and E. A. Doisy, St. Louis.—p. 605.
Composition of Corn Pollen. II. Concerning Certain Lipoids, a Hydr carbon, and Phytosterol Occurring in Pollen of White Flint Cor R. J. Anderson, Geneva, N. Y.—p. 611.
*Rate of Urea Excretion: VII. Effect of Various Other Factors Tha Blood Urea Concentration on Rate of Urea Excretion. T. Add and D. R. Drury, San Francisco.—p. 629.
Rate of Urea Excretion: VIII. Effect of Changes in Urine Volume o Rate of Urea Excretion. T. Addis and D. R. Drury, San Francisc—p. 639.
Studies on Enzyme Action: XXII. Lipolytic Actions of Variou Tissue and Tumor Extracts at Different Hydrogen Ion Concentra tions. H. M. Noyes, K. Sugiura and K. G. Falk, New York.—p. 65
Some Derivatives of Cystin and Cystein. G. J. Shiple and C. Sherwin, New York.—p. 671.
*Studies of Carbon Dioxid Absorption Curve of Human Blood: Apparent Variations of pK_1 in Henderson-Hasselbalch Equation J. P. Peters, H. A. Bulger and A. J. Eisenman, New Haven, Conn—p. 687.
Studies of Carbon Dioxid Absorption Curve of Human Blood: II Nature of Curve Representing Relation of $p\text{H}$ to $BHCO_3$. J. P Peters, A. J. Eisenman and H. A. Bulger, New Haven, Conn.—p. 709.
*Utilization of Carbohydrate by Rats Deprived of Vitamin B. H. A Mattill, Rochester, N. Y.—p. 717.
Inorganic Salt Metabolism: II. Inorganic Ion Ration After Administration of Oxalates and Citrates. E. G. Gross, New Haven, Conn.—p. 729.
Possible Factor Influencing Assimilation of Calcium. C. H. Hunt, A. R. Winter and R. C. Miller, Wooster, Ohio.—p. 739.
Lysolecithins and Lysocephalins. P. A. Levene and I. P. Rolf, New York.—p. 743.
Method for Determination of Dissolved Carbon Dioxid. F. G. Hall, Madison, Wis.—p. 751.
*Mechanism of Phlorhizin Diabetes. T. P. Nash, Jr., and S. R. Benedict, New York.—p. 757.
Sugar Elimination After Subcutaneous Injection of Glucose in Dog. S. R. Benedict and E. Osterberg, New York.—p. 769.
Possible Asymmetry of Aliphatic Diazo Compounds. IV. P. A. Levene and L. A. Mikeska, New York.—p. 795.
Calculation of Iso-electric Points. P. A. Levene and H. S. Simms, New York.—p. 801.
Bios Requirement of Bakers' Yeast. J. J. Willaman and A. G. Olsen, St. Paul, Minn.—p. 815.

New Instrument for Determination of Hemoglobin.—The principle on which Newcomer's instrument is constructed is the making of a photometric match between a standard filter of 1 mm. section of yellow glass on one side, and a sample of blood diluted with 1 per cent. hydrochloric acid on the other. The readings are said to be very accurate.

Effects of Stair-Running.—The effect (a marked decrease in the oxygen content of venous blood drawn from the arm) of fast stair-running noted by Lundsgaard and Möller was just as marked if the subject ran up and down one flight of stairs once as it was after stair-running five times. No change in the oxygen content of the venous blood drawn from the arm was observed (*a*) after the subject had walked slowly up and down one flight of stairs, (*b*) after riding a bicycle (with brakes on) for from 2 to 2½ minutes, and (*c*) after exercise with the arm (lifting a heavy load).

Effect of Lactic and Pyruvic Acids on Uric Acid Excretion.—Gibson and Doisy found that the ingestion of sodium salts of lactic acid causes a decrease, and ingestion of pyruvic acid an increase in the excretion of uric acid.

Variability of Urea Excretion.—Addis and Drury state that the rate of urea excretion is increased by the administration by mouth of milk, caffein, and glutamic acid, and is decreased by exercise, pituitary extract and large amounts of epinephrin. These alterations in the rate occur independently of changes in blood urea concentration.

Studies of Carbon Dioxid Absorption Curve of Human Blood.—The data presented by Peters et al., support the contention of Warburg that pK1 of the Henderson-Hasselbalch equation shows an apparent variation with hemoglobin concentration and with $p\text{H}$. Warburg's correction factors have, however, proved unsatisfactory when applied to the data of these experiments. A quantitative estimation of the variations of pK1 has been made and a series of curves has been presented by means of which corrections can be made. By means of these curves the $p\text{H}$ of plasma can be predicted from carbon dioxid content and carbon dioxid tension of whole blood with a mean error of less than ± 0.01 $p\text{H}$.

Vitamin B and Carbohydrate Metabolism.—From data presented by Mattill on the respiratory quotients of rats on rations with and without vitamin B it appears that this ubstance is not related specifically to the metabolism of arbohydrate since after feeding cane sugar or glucose the uotients rose in both cases, slightly less rapidly in the itamin deprived group due probably to delayed absorption. asal quotients were alike in both groups; nonfasting uotients were slightly lower in the vitamin deprived animals, thus reflecting their semifasting condition. A simple pparatus is described by which, in conjunction with a laldane apparatus for gas analysis, respiratory quotients an be determined on small animals in from twenty to forty minutes.

Mechanism of Phlorizin Diabetes.—Dextrose ingested in ufficient amount to induce protracted hyperglycemia in hlorizinized dogs is recovered quantitatively in the urine. he view is suggested by Nash and Benedict, that phlorizin ot only affects the permeability of the kidney tissue to blood ugar, but produces an intrinsic impairment of the sugar urning mechanism. When a mixture of dextrose and urea s ingested by a phlorizinized dog, the sugar is excreted in he urine more rapidly than the urea. The phenomenon s similar to that observed when meat or proteins are fed o phlorizinized dogs, and discredits the interpretation of more rapid production of sugar than urea in amino-acid metabolism.

Military Surgeon, Washington, D. C.

52: 455-566 (May) 1923

Dysentery: Laboratory Diagnosis, Epidemiology and Treatment. J. E. Ash.—p. 455.
Intestinal Parasites of Small Group of Siamese Soldiers. W. H. Beach and H. R. O'Brien, Bangkok, Siam.—p. 510.
Spinal or Mental? Use and Abuse of Manipulation. T. A. Williams, Washington, D. C.—p. 514.
Post Swimming Pool. J. C. Magee.—p. 524.
Medical Examination of Recruits. H. V. Wurdemann.—p. 536.
Clogging of Sewer Pipes by Gordiacea. A. L. Parsons.—p. 541.
Case of Acute Suppurative Meningitis. A. T. Cooper, Ft. Benning, Ga.—p. 543.
Annual Death Rates. M. W. Hall.—p. 545.

Nebraska State Medical Journal, Norfolk

8: 153-184 (May) 1923

Medical Practitioner and American Society for Control of Cancer. J. E. Rush.—p. 153.
Clinical Interpretation of Systolic Murmur. William N. Anderson, Omaha.—p. 156.
Common Clinical Arrhythmias. W. Thompson, Omaha.—p. 160.
Degenerative Heart or Myocardium as Prime Factor in Cardiac Disease. G. W. Covey, Lincoln.—p. 163.
Common Problems in Eye Diseases of Infancy and Childhood. S. R. Gifford, Omaha.—p. 165.
Treatment of Acute Sinusitis. G. B. Potter, Omaha.—p. 168.
Acute Gastritis. M. L. Wilson, Falls City.—p. 170.
Postgraduate Work in Diseases of Children in England and on Continent. F. S. Clarke, Omaha.—p. 172.
Ten Cases of Pulmonary Tuberculosis. M. J. Breuer, Lincoln.—p. 174.
Case of Exceptionally Rapid Recovery Following Removal of Spinal Cord Tumor. J. J. Keegan, Omaha.—p. 176.

Rapid Recovery After Removal of Spinal Cord Tumor.—Keegan relates the case of a patient who was completely aralyzed below the level of the second dorsal cord segment nd two weeks after the operation walked from the hospital with practically no evidence of motor impairment. The case lso is noteworthy from the fact that it was complicated by regnancy of four months' duration which was not interupted by the operation. The spines and laminae of the sixth nd seventh cervical and the first thoracic vertebrae were emoved, exposing the dura. A firm nodule could be felt eneath the dura. The dura was incised, exposing a small val firm white tumor on the left dorsolateral surface of the ord. The tumor was not adherent to the dura, but deeply ndented the nervous tissue, appearing embedded in its subance. It was easily removed by gentle traction on the verlying membranes and dissection without disturbing the ord. The tumor was an endothelioma.

New Jersey Medical Society Journal, Orange

20: 145-180 (May) 1923

Vicissitudes of Doctor's Life. J. M. T. Finney, Baltimore.—p. 145.
Effect of Pregnancy on Tuberculosis. B. S. Pollak, Hoboken, N. J. —p. 154.
Renal Infections in Pregnancy. S. R. Woodruff, New York.—p. 158.
Evaluation of Symptoms and Signs in Diagnosis of Pulmonary Tuberculosis. A. E. Jaffin, Jersey City, N. J.—p. 162.
Climate in Treatment of Tuberculosis. M. I. Marshak, Bayonne, N. J.—p. 164.

New Orleans Medical and Surgical Journal

75: 695-748 (May) 1923

*Resection of Rectum with Restoration of Anal Outlet. C. W. Allen. —p. 695.
*Fractures of Scapula. E. Bloch, New Orleans.—p. 704.
*New Method of Treating Fractures of Neck of Femur. E. D. Martin and A. C. King, New Orleans.—p. 710.
Chronic Urinary Disturbance in Women. A. Nelken, New Orleans. —p. 716.
Pylorospasm. F. J. Kinberger, New Orleans.—p. 722.
Charity Hospital of Louisiana. A. E. Fossier.—p. 728.

Resection of Rectum with Restoration of Anus.—After establishing a temporary colostomy, Allen frees the involved bowel from above and below—by laparotomy and by perineal dissection—so that the rectum can be pulled down, bringing with it the tumor and healthy bowel above. The tumor is resected and an end to end anastomosis is made. From ten days to two weeks later the colostomy opening is closed. This operation permits of complete restoration of anal function and perfect bowel control.

Fracture of Scapula.—Among 8,097 fractures reviewed by Bloch there were twenty-eight fractures of the scapula. All were caused by direct violence.

Fractures of Neck of Femur.—What Martin and King propose to do is to fix the head of the femur so securely to the trochanter that it will move freely with the shaft, leaving the joint free. When union has taken place and the patient is allowed to walk, in each case the joint was movable and locomotion was begun with ease and comfort. This is done by driving two No. 8, three inch, wood screws through the trochanter and into the neck and head of the femur and screwing them tight enough to pull the fractured surfaces into close and firm apposition and to hold them together until union is firm, that means for at least three months. The operation can be done with local anesthesia.

New York Medical Journal and Medical Record

117: 585-648 (May 16) 1923

Beginnings of Diagnosis. J. Wright, Pleasantville, N. Y.—p. 585.
Pluralism in Medicine and Therapeutics. H. A. Bosma, Groningen, Holland.—p. 589.
*Treatment of Severe Diabetes with Insulin. N. B. Foster, New York. —p. 591.
Antipituitary Serum. C. Legiardi-Laura, New York.—p. 594.
Mental Concomitants of Diabetes Mellitus. C. B. Masson, Washington, D. C.—p. 598.
Surgery in Diabetic Patients. H. Cohen, New York.—p. 606.
Nutritive Value of Pasteurized and Condensed Milk. P. B. Hawk, C. A. Smith and R. A. Lichtenthaeler, Philadelphia.—p. 609.
Some Points in Examination of Heart for Life Insurance. F. W. Price, London.—p. 613.
Mitral Stenosis. J. Barr, London.—p. 619.
Case of Actinomycosis of Lungs Simulating Tuberculosis. H. Besser, New York.—p. 623.
Message to Laity. J. W. Kennedy, Philadelphia.—p. 624.

Insulin in Treatment of Diabetes.—Foster reports two cases in which insulin was used with good result. One patient represents the type who, under ordinary circumstances, would not be able to carry on any occupation, but who, with the aid of insulin, pursues light occupations and makes his living. The second case was one of diabetic coma in which the patient recovered. Another field in which insulin has proved of great help is in the treatment of diabetes with surgical complications. Several cases of this kind that Foster has had the opportunity to treat with insulin resulted so satisfactorily that he thinks it is safe to say that could one start with insulin before operation one could be reasonably sure that the patient would not die of diabetes.

New York State Journal of Medicine

23: 137-182 (April) 1923

Common Vaginal Discharges Encountered in Practice. J. E. King, Buffalo.—p. 137.
Fundus Oculi in Toxemias of Pregnancy. J. L. Behan, Brooklyn. —p. 140.
*Postmortem Findings in the New-Born. H. C. McDowell, Buffalo. —p. 143.
*Bleeding and Coagulation in First Week of Life. D. H. Sherman and H. R. Lohnes, Buffalo.—p. 146.

Types of Pneumococci Found in Pneumonia of Infants and Young Children. M. Wollstein, New York.—p. 148.
Hereditary Glaucoma Simplex (Juvenile Glaucoma). A. C. Snell, Rochester, N. Y.—p. 151.
Acute Anaphylactic Reaction Following Intravenous Injection of Arsphenamin. B. P. Thom, New York.—p. 155.
Treatment of Deafness and Tinnitus. H. Hays, New York.—p. 157.
Problem of Hospital Costs and Training School Problem from Viewpoint of Surgeon. E. MacD. Stanton, Schenectady, N. Y.—p. 160.
Recent Progress in Communicable Diseases of Childhood. C. Herrman, New York.—p. 165.

Postmortem Findings in the New-Born.—Among 3,000 deliveries reported by McDowell, the fetal mortality was 4.6 per cent. There was a total of 183 fetal deaths of which 49.2 per cent. were stillborn. The probable causes of deaths were: Birth trauma, 38; prolapsed cord, 4; placenta praevia, 7; toxemia, 18; fetal abnormalities, 2; craniotomies, 3. Hemorrhagic conditions in most instances were the result of cord complication accompanied with asphyxia neonatorum and placental complications. Syphilis rarely caused death of the fetus. By the elimination of forceps delivery, McDowell asserts, the number of birth injuries is reduced. All were cases of delivery by version.

Bleeding and Coagulation Time in First Week of Life.—In twelve of 100 cases reported by Sherman and Lohnes, the clotting time was prolonged to from ten to sixteen minutes, and in twenty-eight cases the bleeding time was prolonged to from six to 25 minutes. There was only one case of cerebral hemorrhage. This infant had a bleeding time, on the second day, of ten minutes, and a clotting time of fifteen minutes. It was given 10 c.c. of whole blood subcutaneously, and the next day the bleeding time was three minutes, and the clotting time six minutes. It made a complete recovery. From this work certain facts present themselves. It has been demonstrated that there is a definite blood dyscrasia in the new-born, characterized by interference with the normal clotting of the blood. This condition is not due to immature development, since it is not usually present at birth, but develops on the second or third day. It is not more frequent in the prematurely born infant than in the full term infant. This condition of hemophilia is temporary. It subsides before the tenth day. It is fairly frequent, being present in 28 per cent. of these 100 cases. It is characterized by prolonged bleeding time rather than by prolonged clotting time. The great clinical importance of this subject lies in its connection with cerebral hemorrhage. In an infant with a tendency to bleed, a slight trauma may be serious, even fatal.

Northwest Medicine, Seattle

22: 153-188 (May) 1923

Our Surgical Heritage Through Life Work of Dr. John McLoughlin. J. B. McNerthney, Tacoma.—p. 153.
Trifacial Neuralgia. Treatment. A. W. Adson, Rochester, Minn.—p. 156.
Acute Epidemic Encephalitis. K. Winslow, Seattle.—p. 160.
Pathology of Lethargic Encephalitis. O. J. West, Seattle.—p. 163.
Cerebral Symptoms of Lethargic Encephalitis. G. W. Swift, Seattle.—p. 166.
Lowering Morbidity and Mortality Rate of Toxic Goiter. J. E. Else, Portland.—p. 167.
Chronic Running Ear. O. M. Rott, Spokane.—p. 170.
Case of Cerebral Abscess Following Acute Mastoiditis. Operation. Recovery. C. W. Pond, Pocatello, Idaho.—p. 172.
Practical Points in Diagnosis of Cardiac Disorders. G. H. Anderson, Spokane.—p. 174.

Oklahoma State Medical Association Journal, Muskogee

16: 83-108 (April) 1923

Primary Acidosis as Seen in Infants. N. J. Dieffenbach, Tulsa.—p. 83.
Neurosyphilis, Its Diagnosis and Treatment. M. Q. Howard, Oklahoma City.—p. 84.
Four Years a Medical Missionary in China. J. W. Brown, Tulsa.—p. 88.
Surgery of Seminal Vesicles. E. G. Mark, Kansas City, Mo.—p. 92.

Philippine Journal of Science, Manila

22: 345-465 (April) 1923

New Hymenoptera from Malayan Region. S. A. Rohwer.—p. 345.
Philippine Species of Genus Prothyma and Other Cicindelinae. W. Horn.—p. 357.
*Feeding Experiment on Two Hundred Lepers at Culion Leper Colony, Philippine Islands. H. Embrey.—p. 365.
Interesting New Water Strider from Formosa. Teiso Esaki.—p. 387.
Chinese White Wax Scale, Ericerus Pela Chavannes. I. Kuwana.—p. 393.
Method of Illustrating Insect Wings. C. S. Banks.—p. 407.
Histopathology of Intestine in Cholera. E. W. Goodpasture.—p. 41
*Complement Fixation in Treated and Untreated Leprosy. E. W Goodpasture.—p. 425.
*Poisonous Constituent in Cholera Stools. E. W. Goodpasture.—p. 43
Alexander Schadenberg. His Life and Work in Philippines. Scheerer.—p. 447.
Certain Developmental Stages of Ascaris Lumbricoides Ova in Liv Tissue. C. Monserrat and C. Africa.—p. 459.

Dietotherapy of Leprosy.—Embrey employed a high calor diet, an adequate supply of fresh vegetables and fruits, an to supplement the insufficient fish ration with a cheap available protein, he used mungo, *Phaseolus aureus* Roxburgh a bean which is abundant in the islands. Previous analysi and experimental feeding with this bean showed that it contains about 22 per cent. of protein, which is of fairly goo quality. The daily basal ration for an adult leper consiste of unpolished rice, 400 gm.; mungo, 300 gm.; salted pork o fat, 20 gm.; fresh native vegetables, from 300 to 400 gm. Th total food value of this diet was: protein, 98 gm.; fat, 23. gm., and carbohydrate, 517.4 gm. The caloric value wa approximately, 2,807. Children from 8 to 12 years of ag were given seven-tenths of the amounts prescribed, and i addition one glass of milk a day. Three hundred grams o fish or meat could be substituted for the mungo, but wit such substitution the rice ration or the vegetable ration was increased from 400 to 500 gm. This increase was recommended because neither fish nor lean meat has the caloric value of the mungo bean. Of the 200 persons included, 164 or 82 per cent., gained from 100 gm. to 5.1 kg. in weight. Only 14.5 per cent. of the patients decreased in weight, with an average decrease of 1.3 kg. per person; 3.5 per cent. remained stationary. The increase was more frequent in patients under 50 years and was almost negligible in patients over 50 years of age. Lepers in the incipient stage of the disease are more prone to variations. Of the fifty-four patients composing the incipient group, 90.7 per cent. increased in weight, and none remained stationary. Of the 101 patients forming the middle group, 83.1 per cent. gained in weight, and 11.8 per cent. lost weight. Of the forty-five advanced cases, 68.8 per cent. gained weight, and 26.6 per cent. lost weight. Embrey believes that the conclusion seems justified, that a high calory diet, with an adequate supply of mineral matter, of vitamins and of that substance found in green vegetables which aids in the deposition of calcium is beneficial to lepers and that their weight and general health are improved thereby.

Complement Fixation in Leprosy.—The Wassermann reaction was found to be positive by Goodpasture in 60 per cent. of untreated nodular and mixed cases of leprosy and in 84 per cent. of similar cases treated with chaulmoogra oil or its products for a few months but still bacteriologically positive. In sixteen cases of nodular and mixed leprosy that had become clinically and bacteriologically negative under treatment with chaulmoogra oil, the Wassermann reaction was uniformly negative. One hundred per cent. positive complement fixation tests were obtained in twenty-four cases of nodular, mixed and anesthetic lepers, using an antigen composed of a suspension of *Bacillus tuberculosis* (human). In twenty cases of nodular and mixed leprosy, clinically and bacteriologically negative after treatment with chaulmoogra oil or its products, two were negative, three gave complete fixation, one was strongly positive, and fourteen weakly positive, with a suspension of *B. tuberculosis* as antigen.

Poisonous Constituent in Cholera Stools.—The sudden and often violent onset of cholera with early collapse, fall in blood pressure, low body temperature, and loss of fluid through the intestine, Goodpasture says, are sufficiently unique to suggest the possibility of a fundamental element in the pathogenesis of cholera which is lacking in other infectious diseases. Indeed, these symptoms have a greater similarity to those of high intestinal obstruction than to any other enteric infection. It has been possible, by precipitating filtered watery stools and intestinal fluid from cases of cholera with alcohol, to demonstrate the presence of a poisonous substance producing, when injected intravenously or intraeritoneally into dogs, a train of symptoms and pathologic hanges identical with those caused experimentally by poison rom closed duodenal loops.

Porto Rico Medical Association Bulletin, San Juan

17: 1-75 (March) 1923

Sprue in Tropical Regions. B. K. Ashford.—p. 1.
Leprosy and Its Treatment. P. N. Ortiz.—p. 27.
Bubonic Plague in 1921. R. Lavandero.—p. 40.
Id. P. Morales Otero.—p. 49.
Diagnosis of Bubonic Plague. P. N. Ortiz.—p. 56.
Examinations of Plague Sputum in Porto Rico. S. Giuliani.—p. 61.
Pasteur. S. Giuliani.—p. 63.
History of Use of Chaulmoogra Acid as Specific Remedy for Leprosy. R. del Valle Sárraga.—p. 65.

Sprue in the Tropics.—This is a Spanish translation of shford's monograph published in the *American Journal of he Medical Sciences*. It was reviewed in THE JOURNAL, April , 1923, page 1027. It is based on 1,470 cases of this moniasis, and clinical studies since 1908.

Leprosy.—Ortiz relates that the new chaulmoogra oil esters upplied by the U. S. Public Health Service, have been available in Porto Rico for a year and a half, and forty lepers ave been given this treatment to date. In seven cases it ad to be abandoned on account of intolerance; nine patients ave been notably improved, and eleven have shown slight nprovement. In thirteen no effect was apparent. The benet is most pronounced in the younger patients, and they bear ntramuscular injections better than the elderly ones. He as been trying to perfect an intravenous method of giving e drug, as the patients shrink from intramuscular adminisration. Ten cases are illustrated, "before and after."

The 1921 Epidemic of Plague in Porto Rico.—Lavandero omments on the stormy onset and rapid violent course of e twenty-four cases of plague in his charge. There was uppuration in the buboes in six of the thirteen cases, with ecovery. The serial urine findings aided in the prognosis: n some cases numerous tube casts and 0.8 per cent. albumin radually disappeared as recovery progressed, while other atients, with almost normal urine findings, succumbed. The limination of chlorids proved a reliable index of the gravity f the disease. The adults with less than 0.05 per cent. hlorids nearly all died. The insufficiency of the myocardium, anifested by retention of chlorids, is the most reliable eleent for the prognosis. In seven of the eleven fatal cases, e patients were not seen till after the third day of the isease, and two died in half an hour. The amount of antierum required for a moderately severe case is more than is pecified in the textbooks; from 250 to 500 gm. should be njected at six, eight or twelve hour intervals at first.

Plague in Rats at Porto Rico.—Morales Otero states that e 1921 epidemic of plague in Porto Rico had been preceded y the finding of numerous dead rats in the streets. More an 78,300 rats were examined. The plague bacillus was ound in ninety-three. The rats came from ten different calities, but San Juan was the main focus.

Diagnosis of Plague.—Ortiz relates that thirty-three cases f plague were found among 600 persons examined in quarntine, and seven were held as suspects. The symptoms of cute parenchymatous nephritis were sometimes the earliest attract attention. The diagnosis was confirmed by the ntense prostration, high fever, extremely painful bubo (in r near the triangle of Scarpa in 85 per cent. of the cases; ultiple in 12 per cent.) retention of chlorids and high olymorphonucleosis. No case of plague developed in a t-proof house.

Examination of Plague Sputum.—Giuliani describes the five slide" method in use at the Porto Rico biologic laboraory. A different staining method is applied to each of the ve slides.

Southern Medical Journal, Birmingham

16: 327-406 (May) 1923

Anatomic Study Contrasting Dementia Praecox Constitution with That of Paranoid Developments. N. D. C. Lewis, Washington, D. C.—p. 327.
Lipodystrophia Progressiva. Report of Two Cases. T. P. Sprunt, Baltimore.—p. 333.
Cardiospasm, Associated with Aneurysm, Aortitis and Angina: Report of Twenty-Three Cases. J. R. Verbrycke, Jr., Washington, D. C.—p. 338.
Spasm at Cardia and Cardiospasm. J. Friedenwald and T. H. Morrison, Baltimore.—p. 341.
*Septic Meningitis in Five Year Old Child. W. A. Mulherin and V. P. Sydenstricker, Augusta, Ga.—p. 348.
Tonsils in Childhood. L. T. Royster, Norfolk, Va.—p. 351.
Limitations of Laboratory Examinations. J. R. Bean, Birmingham.—p. 358.
Thyroidectomy Under Local Anesthesia. C. W. Allen, New Orleans.—p. 364.
Enterostomy. E. Drennen, Birmingham.—p. 366.
*Pyelitis in Pregnancy. E. H. Kloman, Baltimore.—p. 369.
Use of Lane Bone Plate. A. W. Ralls, Gadsden, Ala.—p. 375.
Intestinal Rupture from External Trauma without Extra-Abdominal Evidence: Report of Two Cases. C. A. Vance, Lexington, Ky.—p. 380.
Prostatectomy. M. L. Boyd, Atlanta, Ga.—p. 385.
Some Disputed Points in Suprapubic Prostatectomy. G. R. Livermore, Memphis, Tenn.—p. 389.
Acute Otitis Media in Children. J. B. Greene, Ashville, N. C.—p. 395.

Anatomic Construction in Dementia Praecox.—One group of 601 cases of dementia praecox coming to necropsy was examined by Lewis as to the anatomic construction, and another smaller group composed of twenty-two unselected cases, representing all cases of this disorder examined postmortem during eight months, was also examined from this standpoint, and in addition the major endocrine glands were studied in detail. It was apparent that one of the chief differences from the anatomic viewpoint between this group and other mental disorders was in the circulatory and lymphatic systems, and evidence was obtained strongly indicating that this difference was a fundamental one: that is, that it was a part of the organization at birth, not acquired unless very early in life and not the product of, or influenced profoundly by, prolonged visceral disease. The average weight of the dementia praecox heart is one-third less than the normal or average, the small size being independent of race, age, sex, size of body, duration of psychosis, or lethal lesion. It stands out in considerable contrast with the other mental disease groups. Pronounced alterations in the suprarenal cortex were as constant a feature as regressive atrophy of the testes. In 50 per cent. of the cases there was a definite arrest in the cortical development. Accessory suprarenals were frequently found in the dementia praecox group. The thyroid gland has been found altered in its connective tissue and colloid structures in such a manner as to suggest a functional association with the genital glands.

Effective Treatment of Lipodystrophia Progressiva.—The chief point made by Sprunt is that the factors producing the atrophy do not necessarily remain completely effective, that fat can be deposited again in the parts from which it has disappeared. In his two cases the treatment consisted of: rest in bed, a full and varied diet, with extra nourishment after meals, general massage, three times a week, and small doses of sodium cacodylate administered hypodermically every day.

Septic Meningitis in Young Child.—The causative microorganism in the case reported by Mulherin and Sydenstricker resembled *Streptococcus viridans*. The primary focus of infection probably was the tonsils. The route of infection probably was through the lymphatics, and not hematogenous. There was excessively high fever (113 F.) when bronchopneumonia became superimposed. Localized encephalitis in the area of the red nucleus probably contributed to the height of the fever. The patient's blood agglutinated the offending organism in dilution of 1:40, showing acquired immunity.

Pyelitis in Pregnancy.—Kloman reports twenty-eight cases of pyelitis in pregnancy, seven of which required treatment other than medical, and ten of which have subsequently proved to be stricture cases. Four of the twenty-eight patients were examined for stricture and found to have normal ureters. The seven patients requiring treatment other than medical were treated by dilating the stricture and by pelvic lavage. The remaining twenty-one cases were treated medically; that is, forced water, hexamethylenamin and some alkaline diuretic, which sufficed to take them through pregnancy.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Bristol Medico-Chirurgical Journal

40: 71-118 (March) 1923

Diagnosis of Peptic Ulcer and Its Bearings on Treatment. T. Carwardine.—p. 71.
Unsuccessful Tonsil and Adenoid Operations. A. J. M. Wright.—p. 84.
Light Ether Anesthesia. A. L. Flemming.—p. 88.
Intracranial Tumors and Occurrence of Papilledema. A. E. Iles.—p. 94.

Journal of Pathology and Bacteriology, Edinburgh

26: 137-304 (April) 1923

*Enquiry Into Genesis of Mammalian Blood Platelet. S. P. Bedson.—p. 145.
*Fungus Isolated from Guinea-Pigs Inoculated with Virus of Typhus Fever. J. Segal.—p. 156.
Passage of Staphylococcus Aureus Through Kidney of Rabbit. S. C. Dyke.—p. 164.
Immunity to Antiplatelet Serum. S. P. Bedson.—p. 176.
*Paramycetoma (?) of Forearm. W. E. De Korte.—p. 189.
*Wassermann Reaction in Scarlet Fever. E. M. Dunlop.—p. 193.
Relationship of Autolysin and Wassermann Antibody in Serum of Paroxysmal Hemoglobinuria. R. P. Smith.—p. 196.
*Size of Parathyroids of Rats, and Effect of Diet Deficiency of Calcium. E. M. Luce.—p. 200.
*Influence of Removal of Sexual Glands on Skeleton of Animals Kept on Normal or Rickets-Producing Diets. V. Korenchevsky.—p. 207.
Spontaneous Rickets in Rats. V. Korenchevsky.—p. 222.
Reaction to Bacilli Tuberculosis in Albino Rat. S. Gloyne and D. S. Page.—p. 224.
*Examination of Blood Gases and Respiration in Disease, with Reference to Cause of Breathlessness and Cyanosis. J. M. Campbell, G. H. Hunt and E. P. Poulton.—p. 234.
Mucoid Casts from Vermiform Appendix. L. Corbett and D. Keilin.—p. 297.
Rapid Histologic Sections, Gelatin Embedded and Fixed Throughout Preparing. Diathermy Excision of Diagnostic Pieces. Simple Modification of Twort Staining. Syrup Gelatin Mountant. Slide Index Box. R. Donald.—p. 299.
Relationship of Blood Platelet and Red Corpuscles: Attempt to Group Human Platelets with Red Cell Grouping Serums. T. Toda.—p. 303.
Rapid Method of Ripening Hematoxylin with Hypochlorite. J. Anderson.—p. 303.

Genesis of Blood Platelet.—Evidence is advanced by Bedson in support of the view that the platelet is the homologue of the thrombocyte of avian blood, the nucleus being lost, however, before the cell reaches maturity, and that it appears in the circulation in the nonnucleated form just as in the case of the red corpuscles.

Fungus Isolated from Guinea-Pigs Inoculated with Typhus.—A fungus belonging to the genus *Paecilomyces* has been isolated by Segal from guinea-pigs inoculated with the virus of typhus fever. This organism is pathogenic for guinea-pigs. The condition produced in the guinea-pig by the inoculation of this fungus resembles experimental typhus in this animal, in that it is a transmissible fever, accompanied by changes in the brain similar to certain stages of the typhus lesion.

Paramycetoma of Forearm.—The fungous element noted by de Korte in his case consisted of the nonseptate hyphae of a phycomycete of the family *Mucorineae.* The mycelium consisted of discrete "hyphae" which did not branch or anastomose. No minute grains were discovered, and the hyphal elements, from their arrangement, did not lend themselves to collection into microscopic grains. As the specimen was received in a preservative, no cultural experiments were undertaken.

Wassermann Reaction in Scarlet Fever.—The serum from seventy-seven cases of scarlet fever was tested by Dunlop and no evidence was obtained that scarlet fever, at any stage of the disease, is the cause of a positive Wassermann reaction.

Effect of Calcium Deficient Diet.—Luce noted that rats fed on a diet deficient in calcium show a consistent enlargement of the parathyroid gland. This enlargement is due to hyperplasia, not hypertrophy of cells. The hyperplasia has no definite relationship to weight or sex, but increases progressively with length of time of feeding on the calcium deficient diet. It is not accompanied by corresponding changes in the thyroid gland. On a vitamin A deficient diet a hyperplasia sometimes occurs in young rats.

Effect of Castration on Bone Growth.—Chemical and histologic examinations made by Korenchevsky failed to show any essential influence of castration on the skeleton of growing rats fed on a normal diet. Similarly, castration produces no perceptible change in the degree and character of rickets produced in growing rats by deficient diets.

Cause of Breathlessness and Cyanosis.—In the cases showing cyanosis and breathlessness and in control cases without breathlessness, Campbell, Hunt and Poulton have determined the value of carbon dioxid in the arterial blood, the carbon dioxid dissociation curve, the carbon dioxid fixing power (volume of combined carbon dioxid at 40 mm. carbon dioxid pressure), and the carbon dioxid in true plasma. Cases of mitral stenosis, anemia, polycythemia, congenital heart disease, primary functional deficiency of the lung in young subjects, mixed pulmonary and cardiorenal disease of elderly subjects were observed. Full reports of the findings are given. It is suggested that bronchial spasm is the most important cause of the sensation of breathlessness; rapidity of respiration is next in importance, while increase in the depth of respiration is of least moment.

Lancet, London

1: 939-988 (May 12) 1923

Ulcerative Colitis. H. Rolleston.—p. 939.
*Treatment of Liver Abscess by Aspiration. P. Manson-Bahr, G. C. Low, J. J. Pratt and A. L. Gregg.—p. 941.
*Treatment of Internal Derangements of Knee Joint: New Method of Operative Exposure. A. G. T. Fisher.—p. 945.
*Thrombosis of Mesenteric Artery. A. Cawadias and J. Catsaras.—p. 949.
Epidemic of "Fourth Disease." H. M. Raven.—p. 950.
*Operative Treatment of Malignant Disease: Special Reference to Tongue. H. J. Paterson.—p. 951.
*Case of Spontaneous Rupture of Heart. R. L. Ley.—p. 953.
*Case of Traumatic Rupture of Aorta. P. R. Kemp.—p. 953.

Treatment of Liver Abscess by Aspiration.—Fifteen cases are reported by Manson-Bahr et al. in which there have been no deaths nor even supervention of any untoward symptoms following aspiration, combined with medicinal treatment. An ordinary Potain's aspirator is used. The needle should not be inserted to a depth exceeding 3¾ inches. When pus is struck by exploratory puncture, complete evacuation of the abscess cavity should at once be carried out as part of the same operative procedure. Should the pus prove too thick for aspiration, Manson's trocar and cannula can be inserted along the tract of the aspiration needle, and a free evacuation of the abscess cavity thereby obtained. No definite instructions are laid down about the site of puncture; the site of election should be the point of greatest tenderness and swelling, should such exist. In the absence of any localizing signs, the routine procedure adopted by the authors has been: (1) eighth interspace in anterior or midaxillary line, (2) the epigastric route. Without a general anesthetic not more than three punctures at one time are advocated, but under general anesthesia success has attended the search for pus after as many as six punctures. As much pus as possible should be evacuated at one aspiration. No special advantage seems to accrue from the injection of emetin or other amebicidal substances into the abscess cavity. Healing appears to take place without them. The effusion of serum into the abscess cavity probably normally takes places and should be regarded as the natural method of repair. The risk of hemorrhage after multiple punctures, although theoretically great, in practice appears to be of small import. Whenever possible, puncture of lung tissue should be avoided as increasing the risk of hemorrhage.

Treatment of Internal Derangements of Knee Joint.—Adequate exposure of the joint is the object aimed at by Fisher. He makes a slightly curved incision which commences above in the midline, an inch above the uppermost limits of the suprapatellar pouch, skirts the inner border of the patella and the inner border of the ligamentum patellae, and ends below, slightly to the inner side of the tubercle of the tibia. The flap of skin and subcutaneous tissues is reflected outward to slightly beyond the outer border of the patella. The patella is dislocated to the outer side of the joint, and on further flexion of the joint an excellent exposure is obtained of the whole of the anterior compartment. The introduction the finger into the joint is unnecessary, since with suitable traction every part is brought into view.

Thrombosis of Mesenteric Artery.—The case reported by awadias and Catsaras presents two points of special clin- al interest: first, it is a remarkable example of a pluri- rterial syndrome; the aorta, coronary, iliac, femoral and esenteric arteries showed arteriosclerosis. The patient's rst symptoms were those of intermittent claudication, point- g to stenosis of the iliac or femoral arteries; later, he uffered from angina pectoris, due to an aortic or coronary sion, and lastly, he died from intestinal infarction, terminal yndrome of arteritis of the mesenteric artery. Symptoms of itestinal arteriosclerosis (paroxysmal abdominal pain, colic asis) were absent, and this lesion manifested itself only in s terminal syndrome, the intestinal infarction. The second iteresting clinical point was that diagnosis was made during fe. There was absence of hematemesis and sanguinolent iarrhea—symptoms considered characteristic of this affec- on. The diagnosis was based on the fact that the patient howed an acute peritoneal syndrome, and had a long history f atherosclerosis with clinical arterial manifestations. Iemorrhagic infarction of the intestine is produced even in e absence of alterations of the small blood vessels, by bstruction of a sufficiently large artery. The arterial chemia and the venous stasis resulting from this obstruc- on impair the defensive mechanism of the intestinal mucosa nd promote multiplication and augmentation of the virulence f the anaerobic bacilli which determine necrosis. The gan- renous necrosis in this case was a real gas gangrene.

Treatment of Tongue Carcinoma.—Paterson suggests that 1 cases of carcinoma of the tongue the growth be removed y the actual cautery; three weeks later the glands in the eck are removed in the usual way.

Spontaneous Rupture of Heart.—The predisposing cause f rupture in Ley's case was old age, the patient being 85 ears of age, with a fatty heart. There could hardly have een any great exertion.

Traumatic Rupture of Aorta.—Kemp's patient was struck n the head and chest by a portion of a stone flywheel which ad separated while revolving at full speed in a motor works. Ie had a large abrasion over the sternum, an abrasion over he right malar bone, and an incised wound of the chin. Postmortem findings in the thorax were: An extravasation of lood into the subcutaneous tissues, and underlying the pec- oralis major, an area of abrasion, and an extravasation of lood into the anterior mediastinum. The sternum was frac- ured obliquely from above downward and backward at the evel of the third and fourth costal cartilages. The lungs vere deeply congested. The pericardium was greatly dis- ended with blood which had escaped from a transverse tear of the aorta, just beyond the line of the aortic valve. The xuded serum was under considerable pressure. Beyond a irm adhesion of pia mater to the dura over the upper part of he right posterior segment of the cerebrum, nothing abnor- nal was detected in the cranium.

Medical Journal of Australia, Sydney

1: 337-364 (March 31) 1923

Bacillary Dysentery in Children. F. H. Beare.—p. 340.

1: 365-392 (April 7)1923

Pioneer Australian Surgeon and His Times. N. J. Dunlop.—p. 367.
Echinococcus Multilocularis: What is Meant by This Term? I. C. Ross.—p. 372.
*Case of Sarcoma of Mesentery. G. Bell.—p. 375.
Pathological Report. K. Inglis.—p. 378.

Sarcoma of Mesentery.—Bell's patient, a man, aged 25, noticed a lump in his abdomen which had grown very rapidly. Symptoms were few in number and not bothersome. A large, rounded abdominal tumor was visible, lying for the most part in the right "lower abdominal quadrant" and occupying portions of the right iliac, lumbar, umbilical and hypogastric regions and extending a short distance to the left of the middle line and above the level of the umbilicus. A lateral anastomosis was made between the transverse colon at a point somewhat to the right of its midpoint and the small intestine at the situation nearest the tumor where the circulation was normal. The cecum, ascending colon, hepatic flexure, a small portion of the transverse colon and 237.5 cm. (93½ inches) of ileum were excised, together with the tumor. The blind ends were buried. The patient complained of diarrhea at times during convalescence, four being the maximum number of motions passed in twenty-four hours. Four months after the operation the patient was working at his trade and had gained 3.5 kg. in weight.

Practitioner, London

110: 273-340 (April) 1923

*Diverticulitis of Sigmoid. M. A. Anderson and E. P. Scott.—p. 273.
Recognition of Hemianopsia in General Practice and Its Diagnostic Importance. R. T. Williamson.—p. 276.
Recent Work on Nervous Diseases. H. C. Thomson.—p. 283.
Aseptic Medicine. W. Watson.—p. 291.
Plea for More Frequent Resort to Hysterectomy in Treatment of Chronic Pelvic Disease. J. Phillips.—p. 307.
Uterine Cervical Polypi. A. E. Chisholm.—p. 320.
*Case of Full Term Intraperitoneal Pregnancy, Following Tubal Abortion. E. J. L. Jones-Evans.—p. 328.
*Endocarditis with Gangrene of Both Legs and Infarct of Lung. J. Hirschmann.—p. 331.

Diverticulitis of Sigmoid.—In the case cited by Anderson and Scott, there was a fairly clear history of abdominal trouble for twenty years. The main symptoms were constipation and pain in the left iliac fossa. There was no vomiting. The attacks occurred more or less regularly for ten years, and then there was no further trouble, except constipation, until two years ago, when the symptoms again recurred. The constipation in all these attacks was very obstinate, and the abdominal pain did not disappear as soon as the constipation was relieved, but did so some days later. On rectal examination, a mass could be felt bimanually, and seemed to be situated in the region of the sigmoid flexure. On sigmoidoscopy, the mass could not be seen. On opening the abdomen, the mass was found to be of chronic inflammatory origin, the result of diverticulitis of the sigmoid flexure, which was evidently of long standing, the intestine being firmly adherent to the bladder and threatening to perforate into this viscus at an early date, and there were adhesions also to the pelvic wall. The diverticula were numerous and filled with fecal concretions (stones) which were pressed back into the sigmoid, leaving the diverticula empty. As it was not possible to resect the affected portion of the colon, the adhesions were dissected from the bladder, and the whole of that part of the intestine in which diverticula were present was wrapped up in the great omentum, which was stitched so as to form a covering, thus shutting off the sigmoid from the general abdominal cavity and avoiding the risk of general peritonitis, should any of the diverticula rupture, or the formation of further adhesions to surrounding structures. The patient made an uninterrupted recovery.

Full Term Intraperitoneal Pregnancy.—There was no clinical history pointing to a condition of ectopic gestation in Evans' case. For three weeks before coming to the hospital, the patient had had several slight, intermittent, vaginal hemorrhages, accompanied by a foul mucopurulent discharge. She also complained of obstinate constipation and a sensation of weight and fulness in the rectum which was worse when she was in the prone position. For three or four days she had had attacks of intermittent abdominal pain, somewhat similar in severity to those of labor. A large swelling in the abdomen, corresponding to a uterus at term, was present, extending from the pubes to the ensiform cartilage. By the clinical signs present, it was considered that the patient was carrying a child which had been dead presumably for about two months, and that the gestation was extra-uterine. The patient died. The peritoneal cavity was filled with a foul yellowish fluid, and the peritoneum itself was gangrenous in parts. In the left half of the abdomen, extending well across the midline, was a large gestation sac which was partly decomposed. On opening this, a fully developed fetus was found in a state of commencing decomposition. The placenta was firmly adherent to loops of small intestine and to a portion of the transverse and descending colon, and to the anterior wall of the stomach. There was a large, ragged, necrosed perforation, surrounded by inflammatory lymph, in the transverse colon near the splenic flexure. The placenta itself was in a necrosed condition. The chorion and amnion were completely adherent and could not be separated. There were one or two perforations in the gestation sac. The fetal head occupied Douglas' pouch.

Endocarditis with Gangrene of Legs.—Hirschmann relates the case of a woman, aged 32, a victim of heart disease, who had pain in the left side of the abdomen, and had vomited that day. She was very constipated. She had a temperature of 101 F. Her chest was normal. An enema was given and the pain in the abdomen disappeared, giving place to one in the left side in the midaxillary line high up. At this place there was dulness on percussion, and signs of pneumonia, with a temperature of 100 F. A week went by normally; the dulness disappeared and she coughed up a small portion of congealed blood. That night she was seized with a violent pain in her right leg, first in the lower end of Hunter's canal and soon after by a similar pain in the popliteal fossa of the left leg. Next day, both legs showed signs of gangrene. The right leg had black marks from Hunter's canal to the knee and was altogether black from the knee down. The left leg was only black in the lower two-thirds below the knee. Amputation was suggested but refused. The patient died from exhaustion and autointoxication.

Quarterly Journal of Medicine, Oxford

No. 63: 173-282 (April) 1923

*Sequelae of Epidemic Encephalitis in Childhood; Prognosis as Regards Complete Recovery. G. H. Anderson.—p. 173.
Cholesterol Content of Blood in Anemia, and Its Relation to Splenic Function. W. MacAdam and C. Shiskin.—p. 193.
*Quinidin in Treatment of Auricular Fibrillation. A. E. Clark-Kennedy.—p. 204.
*Variations in Threshold in Renal Glycosuria. G. Graham.—p. 236.
Hematocrit Volume-Color Index. G. Rossdale.—p. 245.
*Endocarditis Lenta. H. J. Starling.—p. 263.

Sequelae of Epidemic Encephalitis in Childhood.—From a study of forty cases of lethargic encephalitis in childhood Anderson has come to regard disturbance of sleep sequence, psychic changes, and the development of troublesome habits as the most frequent sequelae. Chorea, when present, almost invariably developed during the acute or primary stage of the disease, but tended to recur in combination with the various sequelae for long periods after apparent recovery. Paralysis of cranial nerves was not uncommon during the acute illness, but never recurred, and in all the cases tended either to improve or remain stationary. Typical parkinsonian tremor developed in only one case, but a masklike expression, in some cases accompanied by slow scanning speech, without other symptoms of paralysis agitans, was of frequent occurrence. Disturbance of sleep occurred in twenty-six of the thirty-three nonfatal cases, and persisted for periods of from four months to four years. The large majority of the children suffered from the disturbance for at least two years, and in many instances were the subjects of psychic changes or mental impairment at the end of that time. Psychic disturbances developed in twenty-five of the patients, and consisted usually in a complete change of disposition, of which the main characteristics were disobedience, excessive irritability, and unprovoked fits of temper, cruelty to relatives and to animals, destructiveness, emotionalism, and, more rarely, kleptomania. The change in disposition was seldom accompanied by any marked degree of mental impairment. Definite mental impairment ensued in ten of the children, all of whom showed a striking freedom from the psychic disturbances characteristic of the badly behaved group. Of the troublesome habits which developed as a result of lethargic encephalitis, spitting and hysterical or hyperpneic breathing were the most frequently encountered. None of the children suffering from habit peculiarities has recovered, though some have been under observation for more than two years.

Quinidin in Auricular Fibrillation.—In forty-five unselected cases of auricular fibrillation, the patients being under 65, normal rhythm was restored by quinidin in thirty-seven cases. A standard system of dosage is described. A thorough course of digitalis prior to quinidin treatment is advised, but the simultaneous administration of the two drugs is not recommended. The ill effects of quinidin administration are discussed, and classified into (1) general, (2) embolic, (3) cardiac, (4) cerebral, (5) respiratory. One case of sudden death attributable to quinidin treatment, but not to embolism, is reported. The quinidin treatment of auricular fibrillation is not advised during the acute stage of exophthalmic goiter. It may, however, be applied with beneficial results during the chronic stage of the disease or after thyroidectomy. The best therapeutic results were obtained in rheumatic cases with mitral stenosis rather than in degenerative cases with aortic incompetence or without valvular lesions. After the restoration of normal rhythm the prophylactic administration of quinidin has been continued indefinitely. Relapse has hitherto occurred in the minority of patients only, who were discharged from hospital with normal rhythm persisting. The indications for quinidin treatment are discussed in detail.

New Type of Renal Glycosuria.—A new type of renal glycosuria is described by Graham in which no sugar can be detected in the urine when the patient abstains from food for a short while, but in which sugar is excreted in the urine when carbohydrates are eaten. The sugar tolerance, i. e., the height to which the level of the blood sugar rises after a dose of sugar, is normal. These patients form an important link between normal people and patients with a typical renal glycosuria.

Endocarditis Lenta.—Starling again calls attention to endocarditis lenta, a type of infective endocarditis which occurs in persons of fine health and physique who have had little or no previous illness. The majority of those suffering from it have undergone a considerable degree of physical stress, e. g., those who were serving in the fighting line in the years 1916-1917. It is marked by an insidious onset, very slow progress, long duration, and, as far as is known, a fatal termination. Rheumatic fever is not a determining cause of its occurrence, nor is there any infective agent known as its predisposing cause, except, perhaps, sepsis in the form of impetigo, boils, or wounds. It may be present in a well developed stage without the subject being in any way incapacitated for work. In such a case, the patient may die from the results of a massive embolus without having been aware that he had any disease of his heart. Its course may be afebrile throughout. Pyrexia, when it does occur, is usually the result of emboli. Recovery is suspected to have occurred, but there are no definite proofs. The infection is primary in the endocardium. The postmortem appearances show evidences of infection, reaction, and healing, but no evidence of previous rheumatic endocarditis. It represents the dividing line between rheumatic endocarditis and other forms of infective endocarditis. It resembles the former in its slow progress, formation of fibrous tissue, and evidences of healing, absence of necrotic change in the areas of infarction, and apyrexia. It differs greatly from rheumatic carditis in the frequent occurrence of emboli, in the absence of myocardial infection, in its fatal termination, and in the marked changes in the structure of the valves. The infection is due to a streptococcus of very low virulence which can only infrequently be cultured from the blood, and can be found only with difficulty in sections through the affected endocardium. Its presence, even in an advanced stage, is so insidious that it frequently escapes recognition.

South African Medical Record, Cape Town

21: 145-168 (April 14) 1923

Action of Vaccines. J. P. Johnson.—p. 146.
"Acute Abdomens." G. A. E. Murray and A. Frew.—p. 153.
Parting of Ways. S. M. De Kock.—p. 157.
Prostatectomy. E. B. Fuller.—p. 159.

Annales de l'Institut Pasteur, Paris

37: 329-442 (April) 1923

*Diagnosing a Pathogenic Micro-Organism. M. Nicolle and E. Césari.—p. 329.
*Leprosy in Man and Lepra in Rats. E. Marchoux.—p. 342.
*Cholera Vibrio in Animal Organism. G. Sanarelli.—p. 364.
*Importance of Metal Salts in Immunization. Walbum and Mörch.—p. 396.

Microbiology.—Nicolle and Césari remark in the course of this review of the technic of microbiologic research, that bacteria have to be classified not only by their general characteristics and their pathogenic properties (which include the ower of secreting a specific poison, and the power of proferating in the attacked organism, the virulence. This ast alone is the true meaning of virulence), but by their ower to induce production of antibodies. When one usual haracteristic is missing, it may be merely a transient loss, nd it may reappear spontaneously sooner or later, or the eappearance may be hastened by changing the medium or sing larger doses or more susceptible animals.

Rat Leprosy in Man.—The necropsy findings in a young man rom Haiti failed to confirm the diagnosis of leprosy which ad been assumed from the clinical picture. Marchoux found n acid-fast bacillus in the tissues which transmitted the disase to rats but not to guinea-pigs or rabbits. This excluded ny connection with the tubercle bacillus. The bacterium ccurs in the form of masses of fine dust, and Marchoux suggests the tentative name of *Mycobacterium pulviforme.* In ats it induced the typical clinical picture of rat leprosy, and e is inclined to regard the case as an instance of the transission of rat leprosy to man. In the rats, by the fifth month f passage, the pulviform aspect changed to the bacterial hape.

Portals of Entry and Exit of Cholera Vibriones.—This is anarelli's seventh publication on the pathogenesis of holera. Whatever the portal of entry of the vibriones in abbits and guinea-pigs, they find their way promptly to the ntestinal wall. The vibriones are destroyed in the stomach f the adult rabbit and guinea-pig, but when spread on the ucosa of the mouth or insufflated into the nasopharynx r inoculated into the peritoneum, they rapidly pass to the ntestinal wall.

Enhanced Production of Immune Serums Under Influence f Metal Salts.—Walbum and Mörch state that the producion of diphtheria antitoxin has been materially increased at he state Serum Institute at Copenhagen since the practice as been adopted of giving the animals intravenous injections f manganese chlorid. They review the research in Denark and elsewhere which has demonstrated the importance f the metal salts in immunization in general, and particularly n increasing the potency of diphtheria antitoxin and of gglutinins for the colon bacillus. The antitoxin production ncreases immediately and reaches its height in an hour; he difference is thus fundamental between the effect of he salt and of the injection of toxin. The latter is followed y a drop in antitoxin production (first negative phase). anganese chlorid by the mouth has no effect. Certain ther metal salts act in the same way but in a less degree.

Bulletin Médical, Paris

37: 477-504 (April 28) 1923

Indications for Operation with Intestinal Stasis. M. Robineau.—p. 483.
Rectopelvic Constipation or Dyschesia. A. C. Guillaume.—p. 485.
Etiology of Intestinal Stasis. J. Dalsace.—p. 495.

Intestinal Stasis.—This is the second issue of the *Bulletin* evoted to the study of constipation. Robineau insists that perative measures to relieve intestinal stasis are palliative. hey do not restore conditions to normal; but even the artial benefit justifies them.

Rectopelvic Constipation.—In the course of this study of yschesia and the hygiene of the bowels, Guillaume warns at the bladder motor function is intimately connected with e defecation function. Repression of desires to urinate may ave a depressing influence on the rectal reflexes similar to epression of desires for defecation. His charts illustrate e mechanical advantages for defecation when the abdomen nd thighs are in contact. The narrower the angle formed y the axes of the trunk, thighs and legs, the better for efecation. The modern toilet conflicts with this rule of ygiene, as the angles are nearly right angles.

Etiology of Intestinal Stasis.—Dalsace explains that intesinal stasis is often traceable to chronic appendicitis or disase of the cecum or colon. Radioscopy, horizontal and ertical, is indispensable in the examination; systematic edical treatment is indicated whether indications call for peration or not.

Bulletins de la Société Médicale des Hôpitaux, Paris

39: 183-237 (Feb. 9) 1923

*Cytology of Gonorrheal Arthritis. A. Lemierre et al.—p. 184.
*Pathologic Physiology of Cancer Patients. Renaud.—p. 192.
*Glycolysis in Diagnosis of Gastric Cancer. Ramond et al.—p. 195.
*Autolysis in Diagnosis of Gastric Cancer. Ramond and Zizine.—p. 196.
Treatment of Gonorrheal Arthritis. Ramond et al.—p. 200.
First Case of Sodoku Observed in Turkey. Mouchet and Guillermin.—p. 202.
Unilateral Argyll Robertson Sign with Symptoms of Rachitis. Frenkel and Stillmunkes.—p. 204.
Disturbances of Respiration, Sleep and Character in Girl Aged 9 with Encephalitis. Urechia and Mihalescu.—p. 210.
Uselessness and Cure of Morphinization in Chronic Affections. M. Renaud.—p. 215.
Histopathology of Paraleprous Ainhum. Delamare and Achitouv.—p. 218.
Paralysis of Convergence After Encephalitis. C. Vincent and E. Bernard.—p. 222.
Modification of Measles by Preventive Injection of Convalescent's Serum. R. Debré and J. Ravina.—p. 226.

Cytology of Exudates in Gonorrheal Arthritis.—Lemierre, Piédelièvre and Levesque publish two observations of therapeutic failures with intra-articular injections of antigonococcus serum. The local reactions were very severe, but the polynucleosis of the exudate did not change into a prognostically favorable monocytosis.

Evolution of Cancer and Pathologic Physiology of Carcinomatous Patients.—Renaud points out that all present reactions for cancer do not indicate anything except cachexia, which may be due to other causes.

Glycolysis in Blood of Patients with Carcinoma of the Stomach and Its Possible Diagnostic Value.—Ramond, Parturier and Zizine, in four patients with carcinoma of the stomach, found retardation of glycolysis of the incubated blood, similar to that Lépine found in diabetes. Cachexia may behave in a similar way, but these patients were still strong. In the discussion, Achard reported that the reaction is not always present in carcinoma, and that it has no connection with localization in the intestinal tract.

Determination of Autolytic Products in Early Diagnosis of Carcinoma of Stomach.—Ramond and Zizine found an increase in amino-acids and polypeptids in blood and urine of carcinomatous patients. The proportion of amino-acid nitrogen to total nitrogen of the urine was 3½ times greater than in normal subjects. They explain these findings by autolysis of the carcinoma, and emphasize the necessity to exclude in diagnosis other conditions (rapid loss in weight, acidosis, internal suppurations and fever) which may cause identical changes. In the debate, Loeper confirmed these findings but did not believe that they—any more than deficient glycolysis—could lead to discovery of small tumors.

47: 403-458 (March 16) 1923

*Unilateral Hippocratic Fingers. J. Hatzieganu.—p. 403.
*Origin of Encephalitic Sequelae. Chiray and Lafourcade.—p. 406.
*Venous Pulse in Goiter. Sainton and Mougeot.—p. 415.
Perisigmoiditis Located by Radiography. De Jong and Aubourg.—p. 423.
*A Case of Toxic Meningitis. P. Gautier.—p. 429.
Myoclonic Epidemic Encephalitis in Infant. Barbier and Célice.—p. 432.
Partial Congenital Gigantism. Gandy and Boulanger-Pilet.—p. 431.
"Sheathing Osteitis" of the Diaphyses. P. Sainton et al.—p. 439.
Erosive Pluriorificial Ectodermosis. N. Fiessinger et al.—p. 446.
Aneurysmatic Compression of Vena Cava Superior. Chiray and Lebon.—p. 449.

Hippocratic Fingers with Aneurysm of the Brachiocephalic Trunk.—Hatzieganu has observed two cases which confirm that combination of venous stasis and toxic influences from infection are the cause of this affection. Their coexistence may determine either unilateral or bilateral hippocratic fingers.

Epidemic Encephalitis with Respiratory, Bradytrophic and Psychic Sequelae.—Chiray and Lafourcade are of the opinion that the three types of sequelae in the case described constitute the manifestations of the encephalitic virus from a single focus, an inclusive polioencephalitis of the base. This seems more plausible than that the symptoms are attributable to a triple manifestation of the same virus in remote regions of the brain. The latest experiences have shown that the virus in a nerve center is not always destroyed but is frequently capable of resuming activity after months or years.

In the case here described, this resumption of activity recurred four times in twenty months, the intervals being two, one, five and twelve months.

Venous Pulse and Apex Tracings in Exophthalmic Goiter.—Sainton and Mougeot, on the basis of the jugular and apex tracings in nine patients with exophthalmic goiter, have come to the conclusion that: (1) The intracardiac conductility is exaggerated, the auriculoventricular interval is shortened (positive dromotropic action of the sympathetic); (2) the duration of ventricular diastole is shortened in relation to that of systole and the cardiac revolution (chronotropic action of the sympathetic); (3) the down Y curve in the jugular tracing disappears as a result of the brevity of the ventricular diastole; (4) certain morphologic modifications of the cardiogram appear to be an early sign of functional weakness of the ventricle.

A Case of Toxic Meningism.—Gautier reports a case of severe meningism, with increase in the number of cells, in a boy with a tenia solium.

Gynécologie et Obstétrique, Paris

7: 273-368 (April) 1923

*Accidents of Tubal Pregnancy. Lenormant and Hartmann-Keppel.—p. 273.
*Pyosalpinx Opening into Rectum. A. Chalier and Vergnory.—p. 294.
*Embryomas of Fallopian Tubes. E. Delannoy.—p. 301.
Primary Epithelioma of Tube. A. Guillemin and R. Morlot.—p. 326.
*Hemorrhage in Nerve Centers in Eclampsia. Levant and Portes.—p. 332.

Ruptured Tubal Pregnancy.—Lenormant and Keppel review a recent series of accidents with tubal pregnancy, which brings their record to 87. The mortality was only 10.7 per cent., although the majority reached the hospital with extreme anemia or advanced infection. In one case posterior colpotomy was made on a mistaken diagnosis. It was immediately followed by laparotomy.

Pyosalpinx Spontaneously Perforating into the Rectum.—Two cases are reported, and it is emphasized that there is no need to seek and suture the perforation; if necessary a fragment of the pus pocket can be left adherent to the rectum at the laparotomy. A perisalpingitis with fistula may heal, but a pyosalpinx opening into the rectum never does as the content of each cavity sets up inflammation in the other. Abdominal hysterectomy is the only treatment; both adnexa are generally involved, and a conservative operation is inadvisable.

Embryomas of the Tubes.—Delannoy found a dermoid cyst in one tube and a mixed tumor in the other tube of the woman aged 32. He has compiled nine cases of embryomas of the tubes which he summarizes. Cancer in these tumors has never been noted, and no complications have been reported.

Hemorrhage in the Nerve Centers in Puerperal Eclampsia.—Levant and Portes give the details of forty-six fatal cases of cerebral hemorrhage in the course of eclampsia. The list includes a few unpublished cases. In some of the cases the hemorrhage occured with mild eclampsia, but with high blood pressure; this teaches the necessity for prophylactic venesection. At the Baudelocque clinic there have been 183 cases of eclampsia, since 1893, in a total of 55,488 childbirths, 2.7 per cent., of the eclampsia cases terminated in cerebral hemorrhage.

Journal de Chirurgie, Paris

21: 401-528 (April) 1923

*Congenital Pseudarthrosis. Dujarrier and Perrin.—p. 401.
*Reconstruction of the Face. P. Moure.—p. 414.
*Muscular Angiomas. Mondor and Huet.—p. 423.
*Surgical Treatment of Elephantiasis. C. Lefebvre.—p. 434.

Congenital Pseudarthrosis.—Dujarier and Perrin present four cases to confirm the excellent results attainable with Delagénière's bone-periosteum grafts in the curable forms of congenital pseudoarthrosis. When the congenital bone defect is very extensive, and there is much atrophy of muscles, more complicated procedures are required. They report one case in this category, still under treatment to remedy the arrest in development.

In the others, the osteoperiosteal grafts answered the purpose admirably; the cure was complete in two months in three cases and in five or six months in the others.

Reconstruction of the Face.—Moure extols the advantages of taking the flap to reconstruct the mouth region from the scalp and rolling the long pedicle into a tube brought down over the face to the spot. He sutures the skin to form the loose tube and when the flap has healed in place, the tube is cut away from the flap, and the tube is opened and sutured back in its natural place. The tube pedicle insures unhindered nourishment of the flap. In one of the three cases illustrated, the tube pedicle extended from between the shoulders to the cancer on the cheek and chin; it had developed after radiotherapy of lupus. If growth of hair is not desirable, he slices off the hair follicles on the under side of the flap, before fitting it in place.

Muscular Angiomas.—Mondor and Huet remark that the importance of these growths lies in the fact that the correct diagnosis was scarcely ever made in the 164 cases he has found recorded. The severe hemorrhage as the supposed lipoma or cold abscess was being removed gave the first suspicion of its true nature.

Elephantiasis.—Lefebvre reviews the outcome of measures to divert the lymph in elephantiasis of the limbs. In 26 cases in which Handley's diversion of the lymph into the subjacent tissues was applied, none of the patients was completely cured at the time or later. In the 28 cases treated by drainage into the deep connective tissue, the results were excellent, especially with the Kondoleon method. The extensive excision of tissue does no harm. In one case he applied the Kondoleon on one side and the Walther mixed method on the other. The tissues were softer after the Walther procedure, which seemed in other ways to be superior to the Kondoleon.

Lyon Chirurgical

20: 1-126 (Jan. and Feb.) 1923

*Embolectomy. E. Key.—p. 1.
Fractures of Acetabulum. J. Cottalorda.—p. 32.
*Fracture of Neck of Femur. Charbonnier.—p. 43.
*Traumatic Injury of Children's Wrists. R. Massart and P. Cabouat.—p. 67.
*Adamantine Cyst. P. Santy and C. Dunet.—p. 89.
Megacolon in Children. F. Perrenot.—p. 95.

Embolectomy.—Key's experience was mentioned in these columns, March 18, 1922, p. 855. He has slit the artery to remove the embolus in 9 cases, with a bilateral operation in one case. His first case in 1912 was, he says, the second completely successful instance of embolectomy on record. Thrombosis of the heart or occasionally of the aorta was the usual source of the embolism, although there may have been no symptoms to attract attention to the heart. The youngest patient was 12, the oldest 72. The embolus generally lodges at a bifurcation, but the collaterals may maintain the circulation so that the circulation does not become arrested until some distance below. Consequently the embolus is sought too far down as a rule. Pulsation may persist in a thrombus just below the embolus. The latter is usually only 2 cm. long, but secondary thrombosis may enlarge it. Multiple embolism occurred in 7 of his 9 cases, and in 5 cases two emboli were found on the same side. The interval ranged from two hours to four days. Gangrene developed in 4 cases, fatal in one. He has compiled 51 other cases of embolectomy from the records. Of the 16 successful cases (of 36 in which the time is mentioned), the interval was from sixteen to twenty-four hours in 3.

Fracture of Neck of Femur.—Charbonnier places a knitting needle on the sound hip joint, extending from the anterior superior iliac spine to the spine of the pubis, through the fundus of the acetabulum. A second knitting needle corresponds to the neck of the femur, and a third needle, from pubis to this second needle, completes the triangle formed by them. The ends of the knitting needles fit into corks, and another cork, slipped on the neck needle, is fastened 2.5 cm. below the cross bar to show the center of the head. The needle triangle is then transferred to the fractured side, and guides the screw driven the length of the neck into the exact center of the head. It shows the length of the screw required, d the amount of shortening of the limb to be corrected. enty-four illustrations are given.

raumatism of the Wrist in Children.—Massart and bouart analyze the ultimate outcome in eighty-eight of cases of injury of the wrist. Even slight trauma may ail grave lesions of the epiphysis, while grave trauma is en followed by perfect repair. They abhor operative meas-s on children's fractures, but old crippling deformity may uire wedge resection.

Adamantine Cyst.—In Santy and Dunet's case the uniloc-r cyst in the lower jaw of the man aged 52 was accom-nied by intraparietal microcystic formations.

Presse Médicale, Paris

31: 373-384 (April 25) 1923

iagnosis of Syphilis in Infants. A. B. Marfan.—p. 373.
eriodicity in Vegetative Nervous System. D. Santenoise.—p. 375.
ongenital Hydronephrosis. H. L. Rocher and R. Darget.—p. 377.
rug Dissociation of Vital Centers. R. Soupault.—p. 379.

Diagnosis of Congenital Syphilis in Infants.—Marfan lists e manifestations of congenital syphilis any one of which nches the diagnosis. The first three, pemphigus of palms soles, a special coryza, and enlargement of the spleen are und at birth or soon after. The other two, syphilids and rrot's disease, may not develop at once but are usually anifest by the fourth month.

Periodicity in Vegetative Nervous System.—Santenoise has und the oculocardiac reflex, the hemoclastic crisis, the solar flex and certain drug tests instructive in examining the getative nervous system. He has thus demonstrated that periodic psychoses the balance in the vegetative nervous stem is seriously upset. Symptoms of vagotonia accom-nied paroxysms of acute mania or psychoses of dread.

Congenital Hydronephrosis.—The condition was not recog-zed till the age of 9 when the child was being examined r gastro-enteritis. Recovery followed nephrostomy with condary nephrectomy.

Dissociation of Bulbar Centers by Procain.—Soupault ports a case in which intraspinal anesthetization with ocain arrested completely the functioning of the respiratory nter. The blood pressure and circulation were only very ghtly modified. Under artificial respiration the drug was minated enough so that the paralysis of the respiratory nter was finally overcome, and natural respiration began ew the forty-fifth minute. This confirms on man the disso-ation of the bulbar centers realized in dogs by injection chloralose into the region. In the animals and in this inical case, consciousness was unimpaired. The man com-ained that the pressure on the ribs hurt him, and the dogs dged when threatened with a blow. As the patient resumed ontaneous but sluggish respiration, a brief convulsion curred, and recurred six or eight times in the following ur hours. Soupault interprets the convulsions as indicating at respiration was not adequate at first. The whole experi-ce teaches the importance of artificial respiration in mis-ps with anesthetics. Instead of wasting time on other easures, artificial respiration should be started at once, and pt up regularly as long as needed.

31: 385-396 (April 28) 1923

ibromas Complicated with Pregnancy. Brindeau.—p. 385.
cute Phase of Large Abscesses of Liver. Combier and Murard.—p. 386.
ibrous Mesenteritis at Sigmoid Flexure. A. Lesniowski.—p. 388.
nfectious Sarcoma in Fowls. G. Roussy and M. Wolf.—p. 391.

31: 397-404 (May 2) 1923

reatment of Dropsy. A. Lemierre and J. Lévesque.—p. 397.
age for Retraction of Blood Clot. A. Hustin.—p. 400.

Treatment of Grave Edema.—Lemierre and Lévesque report me new instances of the shifting of the fluid from the bcutaneous edema into the peritoneum or pleura after awing off fluid from these serous cavities. The effusions in em reform at the expense of the edema, and the fluid n then be easily drawn off. In two of six cases described, e edema and pleural effusion accompanied chronic nephri-s; in the third case the dropsy and ascites were due to liver sease, and in four other cases heart disease was responsible for the extreme edema. In all, the edema had been refractory to all previous measures, but when salt was restricted and the effusion in the serous cavity was withdrawn, the edema fluid was drawn into the circulation. Once in the general blood stream, the attraction exerted by the serous cavities was greater than that of the subcutaneous tissues, so the fluid settled in them and could be released by tapping. This should be done preliminary to digitalis or theobromin.

Gage for Retraction of Blood Clot.—Hustin uses a paraffined capillary tube, the upper end spreading funnel-wise, as he describes with an illustration.

31: 405-416 (May 5) 1923

*Signs of Syphilis in Infants. A. B. Marfan.—p. 405.
Parasynovial Tuberculoma of the Knee. X. Delore.—p. 408.
Early Diagnosis of Acute Appendicitis. R. Rove.—p. 409.
*Iodin in Treatment of Rebellious Malaria. L. Cheinisse.—p. 410.

Diagnosis of Syphilis in Young Infants.—Marfan reviews five data obtainable from the mother which suggest the probability of syphilis (including a history of twins or hydramnios), and fifteen data from the child itself (including certain forms of rachitis, malformations, anorexia, habitual vomiting and early adenoids). Even when there are no certain signs of syphilis, and the Wassermann reaction is negative, if syphilis is suspected, he advises managing the case as if the disease was certain.

Malaria Rebellious to Quinin.—Roubachkine calls attention anew to the efficacy of iodin internally in treatment of malaria that has proved refractory to quinin. The iodin does not kill the parasites but it seems to ward off the febrile attacks and to reactivate the quinin. He gives from 5 to 10 drops of a 10 per cent. tincture of iodin twice daily, or with iodid, or with quinin. Cheinisse quotes other experiences in this line, one dating from 1846.

31: 417-428 (May 9) 1923

*Blood Count During Roentgen Irradiation. Trémolières et al.—p. 417.
Hydrocele in Infants. P. Vallery-Radot and Salès.—p. 420.

Improvement in Blood Picture During Radiotherapy of Pulmonary Tuberculosis.—Trémolières confirms the finding that mild roentgen irradiation of the spleen and bone marrow stimulates blood production. The response seemed to be almost as pronounced in the tuberculous as in normal subjects.

Revue Française d'Endocrinologie, Paris

1: 3-96 (Feb.) 1923

Origin and Progress of Endocrinology in France. E. Gley.—p. 3.
*Acute Insufficiency of Suprarenal Capsules. Sergent and Oury.—p. 19.
*Senility and Hypertrophy of Suprarenal Capsules. J. Sabrazès and P. Husnot.—p. 31.
Hormones and Sex-Linked Heredity. L. Cuénot.—p. 41.
Transplantations of Endocrine Glands. Mauclaire.—p. 58.

Acute Insufficiency of Suprarenal Capsules.—Sergent and Oury publish a new observation, with necropsy findings, in which the correct diagnosis was made clinically. The patient had suffered for seven years from chronic insufficiency of suprarenal capsule (pigmentation, asthenia, low blood pressure) and was treated by extracts of suprarenal capsules. He never had the "white line" sign. He died in an acute attack of abdominal pain, painful muscular spasms, and even contractures, low blood pressure and temperature and vomiting. The suprarenal capsules were extremely atrophied, and contained tubercles.

Senility and Hypertrophy of Suprarenal Capsules.—Sabrazès and Husnot report a case, and believe that adenomatous hypertrophies of suprarenal capsules, which are frequent in old persons, may cause a "hyperepinephry" leading to high blood pressure and arteriosclerosis.

Schweizer Archiv f. Neurol. u. Psychiatrie, Zurich

12: 1-176, 1923

Psychology of Aphasia. C. F. van Valkenburg.—p. 1.
*Research on Cerebellum Function. Rossi and Simonelli.—p. 28.
*Heredity of Mental Disease. F. and E. Minkowski.—p. 47.
Anatomic Connections Between Circonvolutions. Minkowski.—p. 71. Cont'd.
*Aphasia. A. Pick.—p. 105. Cont'd.
*The Difficulty of Intellectual Processes. W. Eliasberg.—p. 136. Cont'd.
Mania in Dementia Praecox. R. Benon.—p. 165.
*Homosexuality and Sadism. T. Witry.—p. 169.

Research on Cerebellar Function.—Rossi and Simonelli conclude from their research on dogs and what others have published, that surgical lesions of the cerebellar cortex alone are enough to produce the characteristic functional disturbances. The results of galvanometric studies have been discredited by the discovery that the effect of the electricity is felt beyond the cerebellum. Rossi has studied the effects of simultaneous stimulation of the cerebral and cerebellar cortex, and has thus learned a number of fragmentary data which serve at least to show the gaps in our knowledge and guide further research. They say that the results of his research afford the first experimental proof of the functional relations between the cerebellum and the corticospinal system. The cerebellum seems to facilitate the action of the corticospinal mechanisms. This action of the cerebellum is in addition to the postural tone function.

Heredity of Mental Disease.—The research here reported was begun in 1912 and carried on under a special grant. Hereditary conditions in two families were studied from biologic and social standpoints, heredity research and the clinical psychiatric standpoint. Fifty-five members of one family and sixty-two of the other were investigated. The research covers six generations, a total of 391 and 361 members with 21 and 26 with mental disorders. The mental affections are a blend of three types: schizophrenia, alone or with manic-depressive insanity, or with epilepsy. A tendency to what they call schizoidia is also apparent in some branches. Four branches of one family have entirely escaped the taint. They emphasize that the proportion of persons affected has been growing less in the later generations, with none in the present generation.

Aphasia.—Pick discusses aphasia from the standpoint, among others, of the psychology of speech, analyzing a case in which a merchant long living in France, although born in Germany, was unable to think in French any more. He was familiar with Greek and Latin but also developed word blindness for Greek.

Intellectual Processes.—Eliasberg analyzes the psychology and psychopathology of intellectual processes, and their importance for research on mentality and in dementia. He discusses in this instalment the motives and methods of research on intelligence, and the genetic criteria: psychology of animals and children.

Homosexuality and Sadism.—Witry relates that during the war he encountered a number of purely homosexual persons, and found them, in war as in peace, inclined to be amiable and altruistic, as brave and devoted soldiers as any. No abuse of officer's authority was ever noted. He adds that he met three others who displayed a homosexual sadistic tendency.

Schweizerische medizinische Wochenschrift, Basel

53: 349-368 (April 5) 1923

*Etiology of Epidemic Encephalitis. R. Doerr and E. Zdansky.—p. 349.
*Hydrostatic Test of Lung Tissue. S. Schönberg.—p. 351.
Physiology of High Altitudes. S. Hediger.—p. 352.
Studies in Pathology of Heart. E. Attinger.—p. 357.

Etiology of Epidemic Encephalitis.—Doerr and Zdansky believe that Kling's granulomas in the brains of some rabbits inoculated with encephalitis virus are probably due to a parasitic affection of the animals entirely different from human encephalitis. They find that there must be very close relations between the virus of febrile herpes and of epidemic encephalitis.

Necessity of Supplementing the Hydrostatic Test with Microscopic Examination.—Schönberg points out that the floating test with lungs of new born children cannot always prove or disprove previous breathing. Microscopic examination may be valuable in cases in which the lungs sink.

Archivio Italiano di Chirurgia, Bologna

7: 1-112 (Feb.) 1923

Case of Infection with Actinomyces Carneus. G. Crescenzi.—p. 1.
*Autoplastic Reduction of Blood Vessels. F. Nassetti.—p. 18.
*Inguinal Hernia of the Uterus. F. S. Latteri.—p. 39.

Autoplastic Reduction of Lumen of Large Blood Vessels.—Nassetti's technic resembles somewhat Matas' operation on aneurysmal sacs. He applied it to the carotid, aorta, vena cava or jugular vein in eight dogs, and found the results perfect. A long ellipse is cut lengthwise out of the vessel, and the lips of the incision are sutured together. The vessel is thus rendered smaller in diameter by the width of the ellipse excised. The resection of the ellipse is facilitated by four guiding threads. The vessel can thus be reduced to two thirds of its former size without interfering with the flow of blood. The danger of thrombosis is less the larger the vessel and the greater the pressure and velocity of the blood stream.

Hernia of the Uterus.—Latteri gives summaries of 77 cases of hernia of the uterus he has found on record, and describes a case personally observed in a woman aged 36. The hernia was first noticed twenty years before, but it had been small until the last two years. He classifies the cases according to the type of hernia, umbilical, femoral, obturator or inguinal, his research showing that with inguinal hernia of the uterus some congenital deformity is always a factor.

In 11 cases the inguinal hernia was formed by the gravid uterus, and in one in this group it proved possible to reduce the hernia. In 26 cases the uterus was in a male hermaphrodite. There were 2 infants in this group, all but one were cured by reduction or removal of the uterus.

Archiv für Verdauungs-Krankheiten, Berlin

31: 1-126 (March) 1923

Action of Various Substances on the Liver. M. Einhorn.—p. 1.
Physiologic Alimentary Hyperglycemia. M. Elzas.—p. 13.
Viscosity of Gastric Juice in Healthy and Diseased Stomachs. G. Klawansky.—p. 23.
*Ulcers of Stomach and Duodenum. de B. P. van Amstel.—p. 33.
*Necropsy Findings in Vegetarian. E. v. Ammon.—p. 71.
*Drug Treatment of Gastric-Duodenal Ulcers. Glässner and Loew.—p. 95,
Gastric Ulcer and Kidney Function. W. Robitschek.—p. 107.
Sarcoma of Jejunum Causing Retrograde Invagination. Graef.—p. 111.

Covered and Penetrating Ulcers of Stomach and Duodenum.—Amstel pleads not only for immediate operation on perforated ulcers, but for operation on every ulcer. The operation should be followed by atropin treatment, because all these patients are vagotonic. The pain from perforation is so sudden, severe and typical that diagnosis is easy. Even if no gastric symptoms were present before, the surgeon should examine the stomach and duodenum, if he fails to find the perforation.

Necropsy Findings in a Vegetarian.—Ammon publishes the findings in an almost strict vegetarian, and reviews literature. He finds: A lactovegetable diet is sufficient for nutrition. A purely vegetable (without milk or eggs) diet is possible only if the subject exercises a great deal. The diet prevents gout and diminishes fat deposits, but lowers the immunity against purulent infections, and dilates the stomach and colon because of the large amounts of food required.

Pharmacologic Treatment of Gastric and Duodenal Ulcers.—Glässner and Loew give daily about 400 c.c. of a 0.4 per cent. (decinormal) solution of sodium hydroxid, divided into two hour fractions. No strict diet was necessary. There were nineteen clinical recoveries in twenty-five patients treated for three to nine months. Sodium hydroxid destroys the peptic action of the gastric juice, while milder alkalis (sodium carbonate) inhibit it only temporarily.

Deutsche medizinische Wochenschrift, Leipzig

49: 401-432 (March 30) 1923

Pathology and Treatment of Kidney Disease. II. F. Umber.—p. 401.
*Skin and Immunity. F. Klemperer and S. Peschic.—p. 403.
*Heart Action. L. Haberlandt.—p. 404.
Treatment of Sterility of Women. L. Nürnberger.—p. 406. Cont'd.
The Menopause from Clinical Standpoint. H. Wollstein.—p. 409.
Diagnosis and Treatment of Pericarditis. F. W. Strauch.—p. 410.
*Treatment of Gastric Ulcers by Irradiation. O. Strauss.—p. 411.
Late Traumatic Hemorrhage in Brain. C. Goroncy.—p. 413.
Pyramidon Test for Occult Bleeding. F. Hirschberg.—p. 414.
*Fate of Children with Pylorospasm. G. Redlin.—p. 415.
Two Cases of Barbital Poisoning. Herz.—p. 416.
Group Method for Measuring of Constitution. Ascher.—p. 416.
*Uniform Classification in Degrees. Pfleiderer.—p. 417.
Forceps Delivery. M. Henkel.—p. 418.
Births and Mortality in One Province and Mortality of Children in the Netherlands. Prinzing.—p. 420.
Smallpox Statistics of the United States. Sieveking.—p. 421.

Foundations and Aims of a Historic Presentation of the Development of
 Medicine Since Foundation of Cellular Theory. Diepgen.—p. 421.

Skin and Immunity.—Klemperer and Peschie do not find any indication of a special function of the skin in immunity. Fellner's "procutins" do not exist.

Heart Action.—Haberlandt confirms histologically the degeneration and eventual loss of nerve fibers in the apex of the frog's heart when clamped off by Bernstein's method. Conduction must have been myogenous in these animals.

Treatment of Gastric Ulcers by Irradiation.—Strauss long ago taught the retention of calcium following roentgen irradiation. This and the increase in hydrogen ion concentration may account for transitory subjective improvement in patients with ulcers. The usual doses do not produce changes in the epithelium of the stomach and do not cure ulcers.

Fate of Children with Pylorospasm.—Redlin reports on the later results of nineteen cases of pylorospasm. Three of the children died at the clinic. The prognosis in those who overcame the spasm, is favorable. Yet their inclination to nervous symptoms is so striking that he agrees with Heidolph in considering pylorospasm as part of a spastic-neuropathic diathesis.

Uniform Classification in Degrees.—Pfleiderer pleads for uniform use of five degrees in measuring the strength of reactions and symptoms.

Klinische Wochenschrift, Berlin

2: 573-620 (March 26) 1923

Cholangitis. F. Umber.—p. 573.
*Superinfection in Spirochetal Affections. Buschke and Kroó.—p. 580.
*Pathogenesis of Pernicious Anemia. Moses and Warschauer.—p. 581.
*Number of Blood Platelets and Function of Vessels. Spitz.—p. 584.
*Behavior of Heated Serum. Ehrentheil and Weis-Ostborn.—p. 585.
Bruck's Flocculation Reaction in Syphilis. O. Grütz.—p. 586.
Fatal Injury with Electric Current. Wildegans.—p. 588.
Psychic Troubles in Pituitary Disease. Büchler.—p. 591.
*Two Phases of Epinephrin Action. H. Vollmer.—p. 593.
Quantitative Analysis of Bone Ash in War Osteopathy. Loll.—p. 594.
Paradoxic Increase of Fever After Sodium Salicylate. Kahn.—p. 594.
*Diagnosis and Treatment of Wound Diphtheria. Landau.—p. 595.
Psychopathology of Political, Social and Cultural Conditions. K. Bonhoeffer.—p. 598.
Sedimentation of Erythrocytes. E. Wiechmann.—p. 601.

Superinfection in Spirochetal Affections.—Buschke and Kroó were able to cure experimental recurrens infection in mice with arsphenamin, clinically and hematologically, but some spirochetes persisted in the brain of 70 per cent. of the treated animals. In spite of this a superinfection with the same strain of spirochetes was possible.

Pathogenesis of Pernicious Anemia.—Moses and Warschauer injected extracts of feces prepared according to Seyderhelm, who claimed that they have a hemolytic action in vivo, though not in vitro. They found that these extracts cause only nonspecific variable changes in erythrocytes and leukocytes, the same as other injurious substances. Seyderhelm claims to have found a pernicious type of anemia only in rabbits injected with extracts of mesenteric glands from persons who had died from pernicious anemia, but not from controls. They found similar changes in a rabbit injected with an extract of rabbit's muscles.

Number of Blood Platelets and Function of Vessels.—Spitz considers the relation between the bleeding time and number of platelets a good criterion of the function of capillaries.

Different Behavior of Heated Serum in Carcinoma and Pernicious Anemia.—Ehrentheil and Weis-Ostborn give the technic of the test they devised with Luger. They found that diluted serum from carcinomatous patients heated to 80 C. gives a very weak opacity, while serum from pernicious anemia is more strongly coagulated, than normal serum. Heating serum from pernicious anemia to 100 C. causes marked flocculation and a large sediment when centrifugated, while serum from tertiary syphilis does not flocculate.

Two Phases of Epinephrin Action.—Vollmer, after injections of epinephrin finds a first phase characterized by acidosis, decrease in potassium and phosphates in the blood, hyperglycemia, increased elimination of acids, and a slower metabolism. This phase is followed by an alkaline second phase with exactly opposite changes. The first stage corresponds surprisingly well with symptoms of florid rachitis, the second with tetany. He believes that the changes in phosphates and the hydrogen ion concentration of the blood are leading in the action of epinephrin.

Diagnosis and Treatment of Wound Diphtheria.—Landau examined 170 wounds for diphtheria bacilli. He found bacilli resembling diphtheria in 18.2 per cent. Most were so characteristic that a mere examination of similar bacilli from the throat would have led to the diagnosis "diphtheria." A complete examination, however, showed that not one of these strains was typical. Diphtheroid bacilli are very common in wounds and Loeffler's medium alone is not sufficient for differentiation in these cases.

Medizinische Klinik, Berlin

19: 407-450 (March 31) 1923

*Diastolic Aortic Murmurs. N. Ortner.—p. 408.
Synergetic Actions in Infectious Diseases. E. Abderhalden.—p. 409.
Ulcer of Duodenum. R. Schmidt.—p. 409. Conc'n p. 455.
*Pain with Ulcers of Stomach and Duodenum. O. Porges.—p. 411.
*High Arterial Pressure and Its Treatment. G. Singer.—p. 415.
*Practically Important Types of Syphilis of Joints. H. Schlesinger.—p. 417.
*Low Blood Pressure. J. Pal.—p. 420.
*Myeloid Reaction. N. Jagic and G. Spengler.—p. 421.
Tuberculosis and Pregnancy. Neumann.—p. 422. Conc'n.—p. 461.
*Mercury Diuresis. M. Sternberg.—p. 424.
*After-Action of Galvanic Currents. S. Erben.—p. 426.
*Chromosomal and Incretory Hormones. J. Bauer.—p. 427.
Function of Crista Terminalis. L. Hess.—p. 429.
Case of Peculiar Disturbance of Carbohydrate Metabolism. L. Pollak and R. Wagner.—p. 430.
Extensive Tuberculosis of Organs in No Connection with Alleged Accident. H. Engel.—p. 432.
Stimulants and Heart Tonics. C. Bachem.—p. 433.
Treatment of Syphilis with Bismuth. F. Pinkus.—p. 437.
Periarterial Sympathectomy. K. Singer.—p. 438.

Accidental Diastolic Aortic Murmurs.—Ortner concludes from two cases of pernicious anemia with necropsy findings that accidental diastolic murmurs at the aortal orifice do exist. Since they were due to a degeneration of muscular prominences in the fundus of the valves, he believes that the expression "accidental" (functional) is not correct. Krehl emphasized the significance of these muscles for complete closing of the valve.

Pain Phenomena in Diagnosis and Treatment of Ulcers of Stomach and Duodenum.—Porges found that colic was caused by ulcers, but practically by no other affection of the stomach. Pressure with the palm diminishes the pain. During the pain from ulcers the patient sits with knees drawn up, or lies on his side, pressing his thighs against the abdomen, or lies on the abdomen with a pillow under it. Lessening of the pain after intake of alkalis speaks for ulcer and against spasm. He gives one teaspoonful of a mixture of magnesium oxid and calcium carbonate every two hours. If the patient is constipated, more magnesia than calcium carbonate should be used. The diet eliminates strong spices, too hot and too cold food and fluids, and strong alcoholic beverages. Since the supposedly anacid cases of ulcer have an acid secretion when examined three or four hours after a hearty meal, the same alkaline treatment should be used.

High Arterial Pressure and Its Treatment.—Singer periodically reduces the salt in the food and substitutes bromids.

Practically Important Types of Syphilis of Joints.—Schlesinger several times found a syphilitic etiology in acute polyarthritis that had not been influenced by salicylates. Other affections of joints with or without fever may be due to syphilis or its combination with gonorrhea.

Low Blood Pressure.—Pal deals with conditions of abnormally low blood pressure. Extracts of pituitary, especially when combined with epinephrin, have a more permanent action than epinephrin alone.

Myeloid Reaction with Loss of Granulocytes from Blood.—Jagic and Spengler publish a case of hemorrhagic sepsis with progressive diminution of white corpuscles (to 800) and blood platelets. Among the white corpuscles the granulocytes were most affected (at last, 20 per cent. neutrophils, and absence of eosinophils throughout the disease). In spite of this, the necropsy revealed a strong myeloid reaction in the hemopoietic organs.

Mercury Diuresis.—Sternberg gives interesting historical facts on the use of preparations of mercury for diuresis. Paracelsus was the first to recommend it—very probably in the form of calomel. Sternberg follows the use of it through the centuries. In central Europe it was forgotten in the nineteenth century, until rediscovered by Jendrassik. Its prolonged use against which even the alchemists warned, caused poisoning, sometimes fatal.

After-Action of Galvanic Currents.—Erben, in experiments on the vestibular apparatus, finds that application of a galvanic current is followed by a prolonged period of opposite action. This is due to polarization in the depth of the tissues. He recommends, therefore, treatment with the opposite electrode. To get a prolonged depressing influence from the anode, apply the cathode.

Chromosomal and Incretory Hormones.—Bauer believes that the endocrine glands act as a condensor and multiplier of certain anlages. The growth of the body is primarily due to hereditary conditions, yet it is influenced by pituitary, thyroid and other glands.

Münchener medizinische Wochenschrift, Munich

70: 385-414 (March 30) 1923

Contractility of Capillaries and Cells of Adventitia. F. Marchand.—p. 385.
*"Typical" Fractures of Radius. L. Böhler.—p. 387.
*Treatment of Rectal Prolapse in Children. P. Widowitz.—p. 390.
Monosymptomatic Melancholia. H. Schmitz.—p. 393.
*Ehrlich's Diazo Reaction. M. Weiss.—p. 393.
Carcinoma Developed in an Atheroma of the Ear. C. Häbler.—p. 395.
Thrombosis of Aorta and Both Iliac Arteries with Ischemic Atonic Lumbar Paraplegia. L. Huismans.—p. 396.
Irritation of a Quiet Tuberculosis of Joint by Arsphenamin in a Case of Indurated Erythema (Bazin). F. Wirz.—p. 397.
Chronic Infection of Small Pelvis. F. Reif.—p. 397.
Prevention and Treatment of Bronchial Asthma and Hay Fever with Highly Concentrated Solutions of Calcium Chlorid. Schliack.—p. 398.
Saving of Space in Roentgen Rooms. H. Koch.—p. 399.
"Birth Injuries of Brain." A. Dietrich.—p. 400.
Friedmann's Treatment of Tuberculosis. Final Committee Report.—p. 401.
Syringomyelia, Atrophy and Dystrophy of Muscles. Curschmann.—p. 401.
Results of Examinations of School Children in Hipoltstein. Weigl.—p. 403.

Functional Treatment of "Typical" Fractures of Radius by Movement.—Böhler immobilizes the fracture absolutely, but takes care to exercise as many joints as possible without pain.

Postural Treatment of Rectal Prolapse in Children.—Widowitz treats children with rectal prolapse by a permanent prone position after replacing the prolapse and applying dressings. The condition heals usually in two or three weeks. The younger the child, the more it likes the ventral position; it is more natural for infants than the usual supine position. The pelvis of infants is still of quadrupedal type.

Ehrlich's Diazo Reaction.—Weiss reviews the more recent literature, and his researches. The coloring substance of normal urine (urochrome) is identical with urochromogen, which is revealed by Ehrlich's diazo, and by the author's permanganate test. Increased quantity of the substance is alone pathologic, and gives a good index of the destruction of body proteins.

Wiener klinische Wochenschrift, Vienna

36: 231-248 (March 29) 1923

Present State of Experimental Research in Herpes and Encephalitis. E. Lauda.—p. 231.
*Alimentary Asthma. L. Hofbauer.—p. 235.
Arsphenamin Dermatitis. H. Kronberger.—p. 237.
*Test of Permeability of Tubes. J. Novak.—p. 238.
Basis of Ointments. A. Seidel.—p. 240.
Rokitansky's Nomination as Prosector. M. Zeissl.—p. 241.

Alimentary Asthma.—Hofbauer recommends humming exercises, which teach the patient abdominal breathing and act as a massage of the bowels thus preventing intestinal putrefaction, which may be the cause of the attacks. He does not give details of his *Summtherapie* but refers to former communications on the subject; he has advocated it for twelve years in treatment of asthma.

Test of Permeability of Tubes.—Novak reports three cases in which Rubin's test was followed by conception in women, who were sterile before. No operation for sterility should be performed without a previous test of the permeability of the tubes.

Zentralblatt für Chirurgie, Leipzig

50: 585-632 (April 14) 1923

*Leukocyte Content of Normal Urine. E. Pflaumer.—p. 585.
*Resection of Pyloric Antrum in Gastric Ulcer. G. Kelling.—p. 588.
Echinococcus Cyst of the Spleen. E. Hennig.—p. 592.
Spastic Ileus on Hysterical Basis. K. Wohlgemuth.—p. 594.
Bandaging After Hare-Lip Operations. G. Ranft.—p. 598.

Leukocyte Content of Normal Urine.—Pflaumer's researches lead him to conclude that normal urine contains no leukocytes; urine containing leukocytes is always pathologic.

Resection of Pyloric Antrum in Gastric Ulcer.—Kelling expresses as follows his attitude toward gastric ulcer on the basis of many years' experience: It is quite improbable that a peptic ulcer originates without the presence of hydrochloric acid. The secretion of free hydrochloric acid will, in some cases, persist after resection of the pyloric antrum; this is especially true in ulcers near the pylorus. In these cases, it is advisable to resect large portions of the stomach, if secretion of hydrochloric acid is to be reduced. It has not been proved that the exclusion of the pyloric part has an unfavorable effect, provided products of digestion are not allowed to enter it, which of course presupposes a suitable technical procedure.

Zentralblatt für Gynäkologie, Leipzig

47: 625-656 (April 21) 1923

Median Suspension of Displaced Uterus. O. Polano.—p. 625.
*Protection of Ovaries During Irradiation. Offermann.—p. 631.
*Irradiation for Uterine Carcinoma. Zacherl and Lundwall.—p. 633.
Ileus in Pregnancy. S. Goldschmidt.—p. 636.
Drainage of Uterus without Drain Tube or Tampon in Infected Cases of Cesarean Section. A. v. Reding.—p. 640.

Protection of Ovaries During Postoperative Irradiation.—Offermann recalls that during postoperative irradiation after removal of a cancer of the uterus, the operator is inclined to overlook the fact that, unless some provision is made, the functions of the ovaries will likely be destroyed. After vaginal or abdominal removal of the uterus with a malignant tumor, Offermann recommends, in the transplantation technic, the method of Unterberger, who cuts the ovary into disks from 1 to 2 mm. thick and inserts them singly at various points between the rectus muscle and its anterior sheath. In order to leave a wide area free for irradiation, it is well to choose a place just above the umbilicus. Thus the ovaries are safely removed from the effects of the roentgen rays and can be protected by lead plates. While the proposed procedure will not guarantee ovarian function for a long period, it will maintain ovarian function in a measure for from three to five years, or until the body can learn to adapt itself to loss of this function. However, for three or four months after the operation, mild deficiency symptoms will appear, until the transplanted ovary has become established in its new environment. Some operators may prefer to transplant one ovary and leave the other in situ.

Prophylactic Roentgen Irradiation in Carcinoma of the Cervix Uteri.—Zacherl and Lundwall cite Gauss, Heimann, Warnekros and others whose reports show that postoperative irradiation has reduced very materially the percentage of recurrences. On the other hand, Perthes observed an increase of recurrences of from 61.5 to 69.5 per cent. after prophylactic irradiation; Tichy from 11.2 to 45.5 per cent.; and Kaestner from 33 to 47.6 per cent. To be sure, these figures and statements of bad results from prophylactic irradiation refer to carcinoma of the breast; cancer of the female reproductive organs seems to be more easily influenced by roentgen irradiation. The suggestion has been made that possibly the failures were due to too heavy dosage, especially since the Kiel clinic—using only two thirds of the erythema dose—has reported 77 per cent. of patients free from recurrence for a period of three years. Zacherl and Lundwall relate that, with from six to two yearly irradiations, 49.28 per cent. of their sixty-nine patients have been without recurrence for five years or more. At first the patients return for the irradiation every two months but the intervals are gradually lengthened to six months.

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A CRITIQUE OF MODERN METHODS IN RACIAL HYGIENE *

WALTER TIMME, M.D.

NEW YORK

One of the great trends in modern times, indeed, ithin the last fifty years, is the attempt on the part of e community to help its weaker members. This era as probably ushered in by such epoch-making events s the Emancipation Proclamation, the freeing of the erfs, and the inauguration of the Red Cross. During is time, national societies have arisen in all civilized ountries to uplift the individuals whom nature has but cantily endowed with the wherewithal of survival and elf-support. Gradually these efforts, from being general in scope, have become more and more specialized that at present almost every form of inadequacy, ability and disability has its chosen sponsors to look for protection. Gradually it was found that there ere a more or less limited number of basic causes for uch incapacities—some of which were remediable—thers, again, seemingly beyond help. The line of emarcation between these two groups is being contantly changed with a steady encroachment on the atter class, and interest attaching to discussion of this orderland is widespread, not only in medical but also legal and sociological societies. The discussions nd recommendations followed by the enactment f laws, originally on broad, basic principles, have radually become more and more narrowed in their cope to apply now to the specialized wants and necessies of groups of individuals.

FOUR CLASSES OF THE INADEQUATE

The great classes of inadequate individuals which re of importance to neurologists and psychiatrists may e grouped on a basis of the causes of the inadequacies omewhat as follows:

1. Constitutional inferior states, both physical and ental, due to hereditary germ plasm defect, to metaolic and endocrine dysfunctions and to prenatal isturbances.
2. Constitutional disease states such as tuberculosis, ookworm infection, pellagra and similar disabling ffections, which have an intense effect on the resisting ower of the individual and which have especial eteriorating influences on the nervous system.
3. Environmental deteriorating influences, such as oor light and air and food, with employment hazards those occupations dealing with metallic poisons, lead, rsenic, phosphorus, zinc and dyestuffs.
4. Intoxication from alcohol and habit-forming narcotic drugs.

I presume that many other groups might be included, but for the purpose in hand these will well suffice.

Let us take up seriatim the method of attack of the community against these racial evils.

METHOD OF ATTACKING CONSTITUTIONAL INFERIOR STATES

In the first group—constitutional inferior and psychopathic states—the method of our National Committee for Mental Hygiene seems ideal. This method, in brief, consists in spreading the knowledge of these states broadcast in a general way through their publications, addresses before groups of educators, physicians, institutional staffs, and more specifically by a form of itinerant clinic consisting of a psychiatrist and social workers which demonstrates for a limited period, in any community desiring it, the method of examining children and adolescents for purposes of differentiating the backward, inferior or asocial types from the normal. Methods of proper treatment and care of these unfortunates are then outlined. After this practical demonstration, the community is left not only with a real knowledge of a method of protecting itself from the crimes and wastefulness of the criminal and feebleminded among its members, but, furthermore, with a comprehensive plan of studying and treating these cases on metabolic, endocrine and psychologic and psychiatric lines. This method cannot be praised too highly. It is education in the highest degree, for it stimulates each center of its activity to do its own work in the reclamation and prevention processes, and so is of the greatest service to the state. Note that its method is not in the main an appeal for legislation and new laws.

CONSTITUTIONAL DISEASE STATES

Our second group, that of the devastating scourges of tuberculosis, hookworm disease and pellagra, is quite similarly attacked as the first problem, by the tuberculosis committees throughout the land and by our rich foundations. Their method, again, is educational. The widest publicity is attained in calling the attention of all communities to preventive measures to be adopted in the fight against these diseases. But, not content with this alone, medical units are sent into the infected areas to study and to treat the diseases at close range, and to teach the local physicians to understand and to treat likewise their charges. By these means, thousands of our unfortunate brethren in the South more especially, are redeemed from a life of incapacity through disease to a condition of economic value and social happiness. Note again, that neither legislation nor laws are invoked against the hookworm or the tuberculosis germ. The method, again, is one of education and teaching.

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* Chairman's Address, read before the Section on Nervous and Mental iseases at the Seventy-Fourth Annual Session of the American Medical sociation, San Francisco, June, 1923.

THE HAZARDS OF OCCUPATION

When we come to our next class, including in a general way the hazards of occupation, we again see the results of teaching hygienic methods of living, although the educational problem involved is much helped by a realization on the part of employers of an increased output through heightened levels of living. The modern factory is quite another and different institution from its predecessor of a generation ago. This particular change for the better has been brought about in the greatest degree not so much by altruistic motives as by the knowledge forced on employers by preventive medicine that efficiency varies with the health and happiness of employees. The dangers of particular forms of employment, such as those having to do with metallic poisons, with those involving work under high temperatures, or high or low atmospheric pressures and similar types of environmental extremes, are all well recognized and are gradually being minimized by intelligent intervention. Here it may be pertinent to say that our neurologic societies have a duty to perform which they have largely neglected. Each state ought to have a committee of neurologists confer with its public health department on the industrial neurologic hazards entailed by occupations dealing with lead, zinc, phosphorus, manganese and allied destructive agents of the nervous system. A lay commission cannot possibly understand fully the nature of the dangers involved. We have been much remiss, to say the least, to fail to recognize, as a body, our duty to the community in such public economic activities as these; and, in the same degree as we are neglectful, we deserve censure.

Laws that regulate certain environmental conditions —such as light, air and sanitary arrangements in our factories, are of great value, for they serve to protect the individual in his employment against unwholesome surroundings over which he has no control, and may thus properly be called welfare laws. But of late years, under the guise and caption of "welfare," innumerable statutes have arisen prescribing certain hours of employment, certain rates of remuneration, and a host of minor qualifications to employment which are arousing intense discussion. Apparently, these laws protect the health and well-being of the employee, but they just as certainly rob him of some of his freedom of action and choice, and often prevent him from doing the utmost in his capacity. Certain human beings can work ten and twelve hours a day, enjoy it, and by it lay up a future competence. Others cannot work six. But the attitude of society today is to protect those that can or will work only six against the power and importance acquired by those that work ten. There is less and less of the spirit of competition among those of us who are called employees, for it is almost impossible to arise out of the ruck by one's desire to purchase future happiness at the expense of present hardship. Restrictive laws passed by an ease-loving majority hedge us about. And so there is fast being raised a vast fatuous mediocrity. The burden of this accusation must be borne largely by our so-called welfare laws. From the point of view of the neurologist, or rather the psychologist, it seems to me that the situation is one that is robbing our people of the will to do.

ALCOHOL AND THE NARCOTIC DRUG PROBLEM

When it comes to a community attack through laws, and not through education, on a really acute condition such as has arisen in the matter of alcoholic use and the narcotic drug problem, then do we see ignorance rampant. As the former has become a political question, it is not meet that it should be discussed at this time or place. All that I desire to do is to call attention to the fact that real education, conducted by some of the greatest physicians, psychiatrists as well as others, in the last two decades, both here and abroad, had reduced alcoholism almost to the point of extinction. Prohibitive laws, restrictive laws, always call forth the latent negativistic qualities of the human race, and as a result we see what we are seeing. If the human race would voluntarily lift itself out of the depths, as in many respects it is doing, a real advance might be registered. But the inmates of a reformatory, kept under control by rules and regulations, are not particularly known to develop thereby firmness of character. It also seems to me that the higher the development of the race, the fewer ought to be the laws necessary to control its activities. Measured by this criterion, our composite mind and intellect are sadly wanting, and more than this, deteriorating.

The narcotic drug situation is another exquisite example of our ineptitude to grasp the fundamentals, but illustrates well our habit of rushing into the middle of the problem. The very first thought of well-meaning though superficial "welfarers" is to "pass a law," pass many laws, restricting and prohibiting the use of narcotic drugs, and all will be well. And so laws—many of them—were passed, repealed, changed, reconstructed, but still the traffic not only continues, but is getting more and more out of bounds, until it now amounts almost to a public scandal. Step by step, those that have studied the problem have retraced the opium and cocain used by addicts, from the victims to the traffickers, to the smugglers, to the growers and now finally to the country in which they are produced, in an effort to stop the trade. We are now witnessing a diplomatic effort to exhort the main producing countries—India, China, and the South American republics—accompanied by the merest suspicion of threat, to restrict the production of these narcotics to the actual medicinal necessities. But as cocain sulphate, for instance, sells in the American market at almost the price of gold, one must be gifted with much optimism to see an end of the traffic attained by these means. This price is made up by the various restrictive laws, taxes, imposts, duties, that are laid upon these products. It therefore becomes profitable to smuggle them. The smuggler deals with the local trafficker, and he in turn not only distributes the drugs but creates a demand for his goods by enlarging his clientele. This he does by offering free drugs to his dupes for bringing in new trade. Thus are new addicts made. As these can rarely pay the price, crimes are engineered for them to carry out which net the wherewithal to pay the pedlers. And so the whole system is an automatically enlarging one, depending entirely on the profits made by the traffickers. Cut these down, and the trade will all but cease. But the only way to do this is to make smuggling unprofitable by abolishing taxes and duties on narcotics and placing them without further restriction than other drugs of the pharmacopeia at the disposal of the physician on prescription. This will immediately produce a rapid fall in the price of narcotics, and it will not be profitable to produce them beyond a low, minimal amount. Two further results of great importance would accrue: first, the addicts would be driven to the physician by whom they would be counted and classified—at present an impossible task; and, secondly, new addicts would not be made beyond an irreducible minimum, as the reason for bringing them into the clutches of the pedlers no longer would exist. It is this part of the problem which is of the greatest importance, for it is here that real preventive medicine should attack. The old offender is beyond the pale—nothing can be done for him; but this solution of the problem does away with his harmful influence in making new addicts—the real crux of the narcotic drug situation.

You may say that this method of attacking the problem is fanciful and its results questionable. The answer is: first, that under the present method of restriction, addicts are increasing by leaps and bounds, and hence the present method is certainly inadequate; and secondly, that clinics conducted virtually on the foregoing basis, at which addicts could get their drugs at cost price, have been established at three different places, New Orleans, San Diego and Los Angeles. In each of these instances, as the profits of peddling narcotics ceased, it is said that peddling instantly stopped, and the addicts came to the clinics under medical supervision. But, strangely enough, it is alleged that each of these clinics was discontinued by the government.

When a group study of the drug addicts is made, we find usually the constitutional state present that is found in many inadequate individuals—inadequate as to behavior and as to social adjustment; inferior in survival ability, that is to say, with a biochemical inferiority, and backward in developmental criteria; they are largely of the so-called status hypoplasticus with defective or ineffectual compensation. That is to say, they offer intrinsically a problem for the neuropsychiatrist, not for the police. And laws will not improve their resisting capacity or in any particular solve their vital problem. But it is with laws that the whole field is harrowed, without one single seed of construction implanted.

ADVANTAGES OF EDUCATIONAL METHOD OVER RESTRICTIVE LAWS

Many of our greatest difficulties in an attempt to improve the race have hardly as yet been touched on. Such present themselves in problems of marriage, for instance, involving the epileptic, the delinquent, the defective, the marriage of consanguinity, and a host of others; the undermining influence of the venereal diseases; the effects of miscegenation; but all of which depend for their ultimate solution on proper education of the individual, and not by the addition of laws to our already overburdened statute book.

Judged by our present-day experiences, one word of counsel may not be amiss in this matter of racial hygiene. Do not let us pass such laws regulating, forbidding and penalizing the actions of our fellows in their attempts to live their lives individually so long as they do not infringe upon our own liberty and freedom. Teach them, educate them, treat their bodies and their minds, help them to lift themselves from the depths, but desist from constantly nagging them with prohibitions. One might assume with some justice, to adopt an old Jeffersonian adage, that the higher the plane of civilization a community has reached, the fewer should be the laws necessary to regulate its living. On such a theory, we are certainly acknowledging progressive deterioration. If we cannot or do not help individuals to help themselves to overcome intrinsic or environmental problems and temptations by proper education and training, and by the solution of their medical problems in the realm of body and mind, then all the laws we pass are futile and involutional in their bearing on the future of the race.

OUR SYSTEM OF EDUCATION

Is our system of education all that it should be in this critical transitional period through which we are now passing? Let us see. There was a time, not so long ago, when attendance at a school or college meant real work. Certain prescribed courses had to be taken whether or not they were particularly palatable to the student. He had to face disagreeable problems which he had to solve, or fail in his course. A few such schools still exist, but they will soon be as extinct as the dodo. The modern tendency is to lighten the student's burden, the child's tasks. And so children are taught through play and at times only such subjects as they desire and none other. The colleges began, some three decades ago, to have so-called "electives" opened to their students. That is, the older students had choices of study. This method has some merit, but gradually these choices became more and more expanded, and more and more were the easier subjects chosen. The path was made easier, the burden lightened, the problems decreased in number and degree. Only a few weeks ago, the president of a famuos university declared himself sponsor of a "self-education study plan" for undergraduates which superficially seems exceedingly attractive, for it enables the undergraduate to choose some particular field for reseach, lessening his other requirements at the same time. But actually such a plan is in exact keeping with modern life; the young adult or adolescent without the experience and mature judgment necessary for a choice of such importance naturally chooses that course most acceptable and which offers the least resistance. He really takes the easier way. The criticism here offered is that life almost never offers such choices, but always presents problems that must be faced and surmounted without play or musical accompaniment. Life's problems themselves are usually disagreeable and provided by others. With no early training or experience to meet such contingencies, we do not face them but evade. This evasion is the basis of our modern weakness of conduct. Real work is rarely done—always is a rapid short-cut substituted; hence, foundations are lacking. Poverty of thought and no independence of judgment are the order of the day.

A public so poorly educated cannot distinguish between the judgment of a physician and a chiropractor, or between a minister and a Christian science reader. Of course, a civilization thus founded cannot but deteriorate. The old American idea of self-help, the old indomitable pioneer spirit, has given way to the new idea of being helped by the law. It is our duty as psychiatrists and neurologists in meeting among ourselves not alone to study abstruse problems of the nervous system while turning a deaf ear and a dull eye meanwhile to the community we ought to serve, but also to enlarge our field of vision and duty and activity to teach, to educate, to stimulate to greater endeavors the youth of our country that it may see wherein lies success for human kind. We ought to make our specialty, paradoxically, a universal power for the advance to higher levels in mind, and thought and behavior of our race.

West Sixty-Seventh Street.

THE PRECIPITIN REACTION OF THYROGLOBULIN

PRESENCE OF THYROGLOBULIN IN THE THYROID LYMPH OF GOITROUS DOGS *

LUDVIG HEKTOEN, M.D.
ANTON J. CARLSON, M.D.
AND
KAMIL SCHULHOF, M.D.
CHICAGO

As reported previously,[1] human thyroglobulin, prepared according to Ostwald's method, contains a main, strictly specific antigenic element, and also apparently lesser antigens that in the rabbit may call forth precipitins for thyroglobulins of other species also, such as beef and swine. The latter thyroglobulins act as strictly specific precipitinogens, so far as the results at hand indicate. Since the precipitin reaction of thyroglobulin seems to be a rather sensitive test, we have applied it in an effort to throw light on the question of how the active secretion of the thyroid gland is given off. For this purpose, we are studying the lymph and blood of the thyroid for the presence of thyroglobulin, and this report deals with the thyroid lymph of goitrous dogs.

PRECIPITIN TEST FOR DOG THYROGLOBULIN

Dog thyroglobulin was prepared in the same way as described,[1] and rabbits were immunized with it by intravenous injections. In the preparation of the thyroglobulin from the dog thyroid, special efforts are made to use thyroids rendered as nearly free from blood as possible, by transfusion with salt solution immediately after death, and by being washed as stated.[1] For injecting rabbits, samples of thyroglobulin are used that give little or no reaction when tested with precipitin serum from rabbits immunized with dog serum. In most cases, however, precipitin serum for dog thyroglobulin contains also some precipitins for dog serum, but in all cases, so far, these precipitins for dog serum have apparently been of the nature of minor precipitins, and in some instances have been present in such insignificant quantities as to be negligible (Table 1). In any case, the precipitins for dog serum may be practically eliminated by mixing antithyroglobulin serum with an equal quantity of dog serum in a dilution of 1 : 200 or 1 : 300 of salt solution, and removing the precipitate that forms after standing a few hours. By injecting intravenously, on three successive days, 5 or 10 c.c. of a 1 : 500 solution by dry weight of dog thyroglobulin, and repeating after an interval of six days, abundant precipitins, as a rule, accumulate in the blood of the rabbits by the fourth or fifth day after the last injection. The precipitin serums used in the observations now recorded gave good reactions after being in contact with dilutions as high as 1 : 70,000 and 1 : 100,000 of dog thyroglobulin, for one hour at room temperature. In all cases, the tests are made in the same way, namely, by the contact or layer method, the precipitin serum being introduced at the bottom of small glass tubes containing the solution of thyroglobulin or serum or lymph to be tested, and the results read after one hour at room temperature. In order to avoid error from the fact that comparatively concentrated solutions of an antigen may not give good reaction, whereas higher dilutions may give good reaction, all tests are made in progressive antigen dilutions. The figures in the tables give the highest dilutions of the solutions and serums (lymph and blood) in which a clean-cut layer of precipitate formed under the conditions stated.

Before we describe the collection and precipitin tests of the thyroid lymph of goitrous dogs, it should be stated that the precipitin serum obtained by injecting dog thyroglobulin is not strictly species-specific, as it may react also with beef and swine thyroglobulins, but, so far, it has not reacted with human, rat or rabbit thyroglobulins. As this question of species-specificness is not of any special importance in the present work, it need not be discussed further at this time.

COLLECTION OF THYROID LYMPH

Under light ether anesthesia, the main neck lymphatic trunk on each side of the neck is isolated and ligated as far below the inferior pole of the thyroid gland as possible. The ligated lymphatic trunks are then allowed to fill up so that by careful dissection both the main trunks and the larger branches can be followed forward to the angle of the jaw, at which point the main thyroid lymph vessels emerging from the superior pole of the thyroid join the neck lymphatic system. The neck lymphatics anterior to the junction of the thyroid lymphatics are ligated, thus excluding lymph from the head region. The lymph collected from the main neck trunk in such preparations is obviously a mixture of thyroid lymph and neck lymph, the relative proportion of the thyroid component in the mixture being unknown, except that in dogs with thyroid hyperplasia, the overgrowth of the thyroid lymphatics is so great that it seems highly probable that the thyroid gland furnishes the greater part of the lymph.

When the thyroid glands are markedly enlarged (active hyperplasia), several of the lymphatics emerging with the thyroid veins at the superior pole are so large that cannulas may be inserted and the lymph collected directly from the thyroid. This is pure thyroid lymph, in the sense that it is not mixed with lymph from any other organ. This lymph is usually slightly tinged with erythrocytes, probably because of the unavoidable injuries to capsular blood vessels in the dissection. So far, we have not been able in the dog to collect lymph directly from the thyroid when of the normal small size. It is needless to add that the success in isolating the thyroid lymphatics depends largely on a bloodless field of dissection

The degree of hyperplasia of the thyroid lymphatic system in goitrous thyroids in dogs seems to parallel the increased vascularity.[2] The thyroid lymphatics become greatly enlarged, and the walls much thicker. In very large goiters, one or more of the lymphatics emerging at the superior thyroid pole may exceed the caliber of the thoracic duct.

Under light ether anesthesia, the lymph from the thyroid gland flows out slowly but steadily, without massage of the gland, provided obstructions or pressure in the collecting system are eliminated. The rate of the lymph flow from the thyroid seems roughly proportional to the degree of vascularity of the gland.

In collecting thyroid lymph, special care was taken to avoid injury to the thyroid nerves and blood vessels. The lymph was collected under light ether anesthesia, and it is impossible to say at present whether the anesthesia and possible injury to the thyroid cells

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* From the John McCormick Institute for Infectious Diseases, and the Hull Physiological Laboratory of the University of Chicago.

[1] Hektoen, Ludvig, and Schulhof, Kamil: The Precipitin Reaction of Thyroglobulin, J. A. M. A. 80: 386-387 (Feb. 10) 1923.

[2] Carlson and Woelfel: Am. J. Physiol. 26: 32, 1910.

rendered the lymph abnormal. One might expect a decrease in thyroid activity and lymph production under ether. It is also possible that some of the thyroid lymph actually collected may have been secreted into the tissue spaces or lymph capillaries a long time before it actually emerged in the main lymphatic trunks. In this way we may have obtained, at least in the initial samples, some thyroid lymph secreted before etherization.

PRECIPITIN TESTS FOR THYROGLOBULIN IN THYROID LYMPH

Soon after collection, the thyroid lymph was tested for thyroglobulin with specific precipitin serum in the manner outlined. Tests were made also of blood serum and lymph from the thoracic duct. The results are illustrated in Table 1. Similar results have been obtained with other antiserums. Clearly, the thyroid lymph contains a specific element that reacts with precipitin serum for dog thyroglobulin, and it seems quite logical to conclude that the specific element is thyroglobulin itself. The figures indicate that the amount that can react with the precipitin varies in different samples of lymph. The possible upward range of this variation in the lymph of goitrous dogs is shown by Table 2, which gives the results of tests in Dog 6 with different antiserums than that used in the tests recorded in Table 1, but not any stronger in the titer of its thyroglobulin precipitin. As Dog 6 had been handled by students before the thyroid lymph was collected, the results naturally suggest that the amount of thyroglobulin leaving the thyroid may vary greatly under different conditions, and that the precipitin test of thyroid lymph may be of value in studying the effects of various factors on its secretion.

TABLE 1.—*Precipitin Tests for Thyroglobulin in Lymph from Goitrous Dog Thyroids*

Thyroid Lymph, Thoracic Lymph and Blood Serum	Precipitin Serum of Rabbits Injected with Dog Thyroglobulin	Comment
Dog 1.—Moderately enlarged thyroids:		The figures give the highest dilutions of lymph and serum in which precipitate developed after contact with antiserum for one hour at room temperature. The tests were made at different times and intervals after the serum was drawn; this serum at no time reacted with dog serum diluted more than 1:20; the original precipitin titer of the serum for dog thyroglobulin was 1:100,000
Thyroid lymph with some neck lymph	32	
Nearly pure thyroid lymph and blood	64	
Blood serum	0	
Dog 2.—Moderately enlarged thyroids:		
Thyroid and neck lymph	8	
Thyroid and neck lymph	32	
Blood serum	4	
Dog 3.—Vascular goiter of fair size:		
Thyroid lymph	32	
Thyroid and neck lymph	16	
Thoracic duct lymph	2	
Blood serum	8	
Dog 4.—Large vascular goiter:		
Thyroid lymph, nearly pure	128	
Thoracic duct lymph	0	
Blood serum	0	
Dog 5.—Large fibrous goiter, lymphatics large:		
Pure thyroid lymph	64	
Thoracic duct lymph	0	
Blood serum	0	

The results at hand do not indicate that thyroglobulin was present in any of the samples of blood serum that have been tested, but further observations are in order.

COMMENT AND SUMMARY

The early view that thyroid hormone is secreted into the lymphatic system rather than into the blood capillaries was based mainly on inconclusive histologic evidence. In 1910, Carlson and Woelfel[2] applied the existing available tests for thyroid secretion to lymph collected from enlarged thyroids in dogs, with uniformly negative results, except some tachycardia and elevation of temperature on intravenous injections of large quantities of the lymph into dogs not under anesthesia; but these effects were also produced by similar injections of dog blood. The iodin test, and the acetonitril test of Hunt were negative, and intravenous injections of large quantities of thyroid lymph in dogs under ether anesthesia had no effect on the heart and blood pressure.

TABLE 2.—*Tests for Thyroglobulin in Thyroid Lymph and Transudate of Dog 6*

Thyroid Lymph and Blood Serum	Precipitin Serums of Rabbits Injected with Dog Thyroglobulin			Comment
	Serum A	Serum A Mixed with Equal Parts of Dog Serum 1:200; Precipitate Removed by Centrifugation	Serum B	
Dog 6.—Large thyroids:				Dog handled by students before lymph was collected
Pure thyroglobulin	2,560	640	1,280	
Thyroid transudate	320	80	320	Thyroid transudate is clear Fluid in tissue spaces of gland
Blood serum	160	0	0	

There is ample clinical evidence, and also experimental evidence (Oswald, Koch[3] and others), that the thyroid hormone is identical with, or contained in, the globulin fraction of the thyroid. The thyroxin of Kendall,[4] an iodized protein radical with a structure nearly identical with tryptophan, retains some or all of the specific physiologic actions of the thyroid hormone, at least in animals containing thyroids. It has not yet been shown that thyroxin can replace the thyroid hormone in man and animals in complete absence of the thyroid. The recent work of Hunt[5] shows less activity of the thyroxin than the whole thyroid (the acetonitril test). It is an open question, therefore, whether thyroxin is the active thyroid secretion. But, assuming that thyroxin is the active hormone, there remains the possibility that it leaves the thyroid in more complex form or as thyroglobulin, and that the final splitting takes place in the tissues, where the active work of the hormone is accomplished.

The present tests demonstrate in the thyroid lymph a thyroid product (thyroglobulin), which probably constitutes or contains the thyroid hormone. As our observations were made on hyperplastic thyroids, they should be repeated, if possible, on dogs with normal thyroids. It remains to determine also whether the blood coming from the thyroid gland contains less thyroglobulin than the thyroid lymph. The failure of the test on the blood from the general circulation may be due to the great dilution of the thyroid lymph when mixed with the total blood, or to rapid absorption of the thyroglobulin by the tissues. Perhaps these points can be settled by experiments.

The precipitin test may furnish a useful index of physiologic and pathologic variations in thyroid activity, in animals under experimental conditions as well as in man, especially in cases of ligation (artery and veins) of the superior thyroid poles under local anesthesia. The main thyroid lymphatics are included in this ligature. If the lymphatics are not torn, they fill up quickly and may be isolated and cannulated, in a relatively bloodless field.

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[3] Koch: J. Biol. Chem. **14**: 101, 1913.
[4] Kendall and Osterberg: J. Biol. Chem. **20**: 501, 1919.
[5] Hunt, R.: Am. J. Physiol. **63**: 257 (Jan.) 1923.

Finally, we would point out that other hormones present problems similar to those of the thyroid. There is no proof as yet, for instance, that the internal secretion of the suprarenal medulla is really epinephrin and not some more complex compound.

RAPID PRECIPITATION PHASE OF THE KAHN TEST FOR SYPHILIS

WITH NEW METHOD FOR INDICATING RESULTS *

R. L. KAHN, Sc.D.
LANSING, MICH.

The active interest which is being shown at present in precipitation tests for syphilis brings to mind the fact that practically no interest was shown in these tests in the early years of the Wassermann reaction. The precipitation tests proposed by Michaelis [1] in 1907, Jacobstahl [2] in 1910, Bruck and Hidaka [3] in 1911 and Hecht [4] in 1914 attracted practically no attention. The medical world apparently desired to give the complicated Wassermann test a thorough trial before turning to simpler tests. And the Wassermann test, as is well known, has been given more than a thorough trial. Indeed, it has been studied perhaps more intensively than any other test related to medical diagnosis. The extensive studies on the standardization of this test by Kolmer and his co-workers, only recently completed, illustrate to what extent workers have applied themselves in attempting to solve its manifold problems. Thanks to these and numerous other studies, however, we not only know the requirements for a presumably correct test, but also the inherent limitations of the test. No one, for example, claims that the Kolmer reaction will not occasionally give negative results in cases of latent or incompletely treated syphilis. Recognizing these limitations, workers are gradually turning to precipitation tests with the hope not only of reducing these, but also of eliminating some of the complex factors of the older test.

Active interest in precipitation tests for syphilis, wherein alcoholic extracts are employed as antigen, may be said to begin with Meinicke's [5] publication in 1917 of his combined water and salt solution methods. Sachs and Georgi [6] soon followed with a simplified reaction. This was followed by Meinicke's [7] third modification, the sigma reaction of Dreyer and Ward,[8] the precipitation tests of Hecht,[9] Wang [10] and Bruck,[11] and the turbidity tests of Dold [12] and Meinicke.[13]

Without going into the distinctive features of the test under consideration,[14] it should be stated that this test is essentially a precipito-agglutination reaction, consisting of two distinct phases, precipitation followed by agglutination or clumping of the precipitated particles. It is perhaps due in some measure to the latter phase that this test has called forth favorable comment from a considerable number of workers (Keim and Wile,[15] Herrold,[16] Young,[17] Ide and Smith,[18] Molmes,[19] Levin,[20] Babonneix, Boucher and Choay,[21] Grant [22] and Dulaney [23]). Experience gained, however, with more than 45,000 examinations in this laboratory has taught us considerable about the limitations of the original procedure. Thus, after having satisfied ourselves again and again that we dealt with an antigen of high sensitiveness demonstrated by comparative tests with the Wassermann test in various stages of syphilis, we nevertheless found that occasionally our test gave a negative reaction, and the older test, a positive one. Another detracting feature of the original method was the necessity of overnight incubation in order to bring forth precipitates in a large number of syphilitic serums.

I shall not take up here the experimental attempts to overcome these two limitations. Our findings, based on more than 2,000 examinations, however, lead us to believe that we have overcome them. The test to be discussed shows complete precipitation in from five to ten minutes after mixing serum with antigen in about 95 per cent. of cases, the final reading being taken at the end of about one hour. The test, furthermore, is so adjusted that the so-called doubtful, one plus and two plus reactions are practically eliminated. Nearly all syphilitic serums give complete or four plus reactions, and yet there is a marked difference between the reaction of the treated case from the untreated one. The

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* From the Bureau of Laboratories, Michigan Department of Health.

[1] Michaelis, L.: Precipitin Reaktion bei Syphilis, Berl. klin. Wchnschr. **44**: 1477, 1907.

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latter phase, after sufficient study, will undoubtedly throw considerable light on the whole realm of serologic diagnosis of syphilis.

As is well known, there still exist differences of opinion among syphilologists as to the diagnostic value of the one plus and two plus serologic reactions. It is widely accepted that these reactions are indicators of the clinical condition of the patient, representing lesions of lesser intensity than those cases giving four plus and three plus reactions. Then, again, there are many syphilologists—among them, in this country, Wile[24] should be particularly mentioned—who insist that one plus and two plus reactions are not necessarily indicators of the degree of syphilitic involvement. Thus, Wile points out that it is not uncommon for a patient to give a one plus or two plus serologic reaction and, after a considerable amount of treatment, a four plus reaction.

Our findings indicate that the latter view is probably the correct one, and that the one plus and two plus serologic reactions given by practically all the various Wassermann systems, as well as by the heretofore reported precipitation tests, are in most cases due to the limitations of these tests, rather than to the degree of syphilitic involvement in the patients. This appears evident from the fact that many serums giving weak serologic reactions can be readily shown by means of the new procedure to give four plus reactions, by merely changing the conditions of the test.

SEROLOGIC RESULTS WITH NEW PROCEDURE

The criteria of the new precipitation procedure are:

1. High concentration of antigen.
2. Employment of undiluted serum.
3. Proper physical state of antigen-salt solution mixture. This is obtained by adding to antigen approximately the smallest amount of physiologic solution of sodium chlorid (0.85 per cent.) which will produce a lipoidal precipitate of such physical state that it will be capable of going into solution again on further addition of salt solution. This antigen-salt solution precipitate will be found to be capable of going into solution also in serum, except that whereas nonsyphilitic serum will remain clear, syphilitic serum will immediately begin to show specific precipitation.

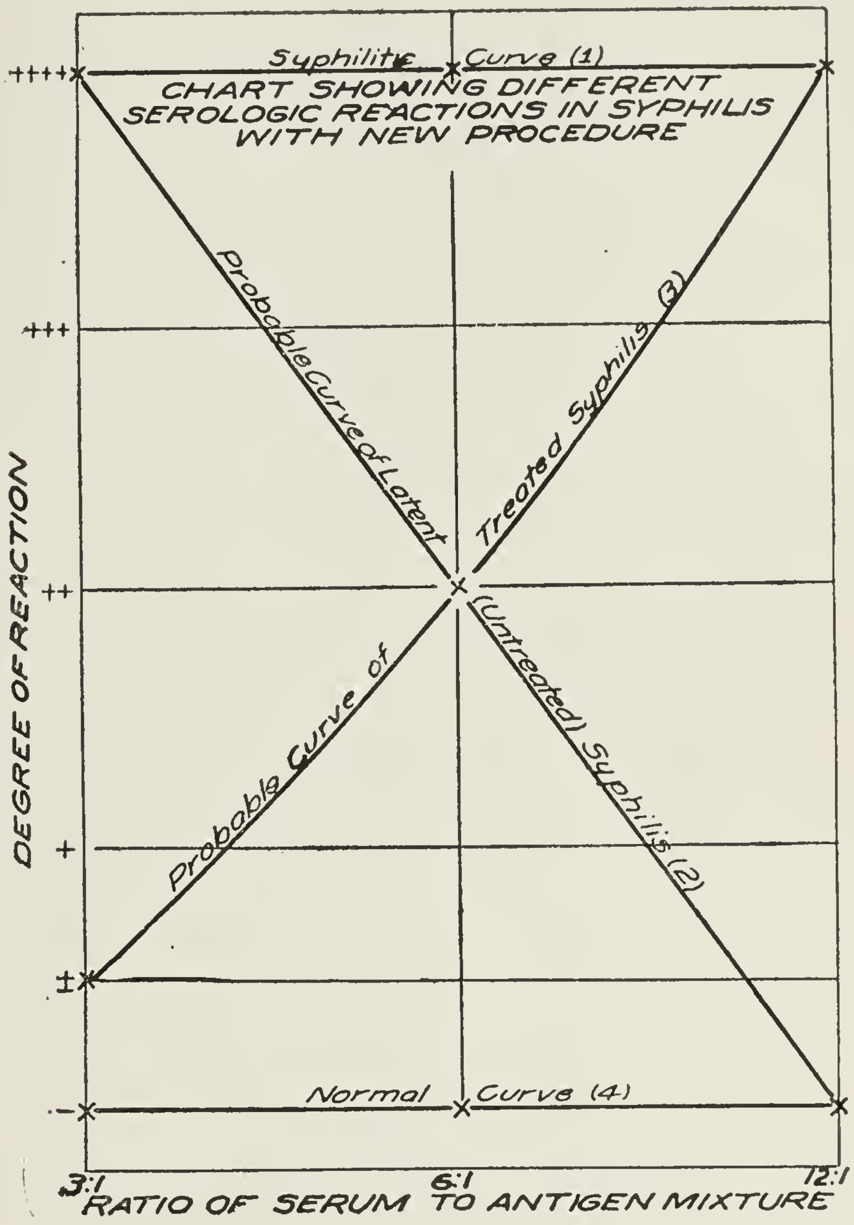
TABLE 1.—*Typical Precipitation Reactions with Four Different Serums*

Serum	Clinical Diagnosis	Serum C.c. Antigen Mixture C.c.	0.15 0.05	0.15 0.025	0.15 0.0125
		Ser.: Ant. Mixt.	3:1	6:1	12:1
1	Hunterian chancre, early secondary		++++	++++	++++
2	Probably latent, untreated		++++	++	—
3	Intensively treated		±	++	++++
4	Free from syphilis		—	—	—

4. Proper quantitative relation between serum and antigen-salt solution mixture. This mixture possesses two distinct properties. It is highly sensitive to precipitation when mixed with proper amounts of syphilitic serum. It is unsensitive and even inhibitory to precipitation with improper amounts of serum. This requires the use of three or four equal amounts of serum in a series of tubes with varying amounts of antigen mixture. The final result is one of the following four possibilities:

1. Complete (++++) precipitation in all tubes.
2. Complete precipitation in a tube or tubes containing the smaller amounts of antigen mixture, with weak or no precipitation in the remaining tube or tubes.
3. Complete precipitation in a tube or tubes containing the larger amounts of antigen mixture, with weak or no precipitation in the remaining tube or tubes.
4. No precipitation in any of the tubes.

Table 1 gives the finding with different serums, illustrating these four possibilities. The amount of serum employed in each case was 0.15 c.c. Larger or smaller quantities may be employed, provided the proper antigen proportions are abided by. Each set up of serum received one-third (0.05 c.c.), one-sixth (0.025 c.c.) and one-twelfth (0.0125 c.c.) amounts of antigen mixture, respectively. The racks were thoroughly shaken for about three minutes, and the final results read in from five to ten minutes.



Precipitation reactions.

These results are further illustrated in the chart. If extensive studies with clinical material should establish a definite relation between the nature of Curves 1, 2 and 3 and the degree of syphilitic lesion, then, indeed, it may be well to indicate the serologic diagnosis by just such curves. At the present time, however, we believe it best to record the serologic findings in each case, as indicated in Table 1, and to take the approximate average of the findings of the three tubes used in the test as the final result. Thus, in this table, the final result in Serum 1 is ++++;

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in Serum 2, + +; in serum 3, + +, and in Serum 4, —.

It is to be remembered, in this connection, that whereas a + or + + reaction with the usual Wassermann technic carries with it the possibility of technical error, this possibility is practically eliminated in this test, since in most cases each reaction is based on definite precipitation in at least one of the three tubes.

Table 2 illustrates the findings with this test in twenty-five cases of treated syphilis. It will be noted that although in most cases there is a tendency for stronger reactions with lesser amounts of antigen, occasionally a serum from a treated case will be found which will give a stronger reaction with the larger amount of antigen and a weaker reaction with the lesser amount. This is particularly illustrated in Case 9. It is conceivable, of course, that in this case the patient had treatment several years ago, and we should therefore be dealing with a different condition from those under immediate treatment.

The findings, as illustrated in Tables 1 and 2, clear up some tentative observations we have made again and again during the course of our serologic studies without being able to corroborate them fully. Thus, we early observed that the less reacting substance a syphilitic serum contained, the less antigen this serum required in order to produce a complete reaction. But the antigen-salt solution mixtures employed in our earlier procedures were not sufficiently sensitive to bring it out as forcibly as this mixture. Furthermore, it is a matter of common observation in connection with the Wassermann test that, whereas in the vast majority of cases, the larger the amount of serum employed, the stronger the reaction, there are isolated cases which give stronger reactions with smaller amounts of serum. This can now be readily explained by the probability that these cases require comparatively large amounts of antigen in proportion to the serum in order to bring forth complete reactions.

Table 2.—*Comparative Results of Wassermann and Author's Tests in Twenty-Five Cases of Syphilis in Various Stages of Treatments* *

Case No.	Wassermann Results	Precipitation Results: Ratio of Serum to Antigen 3:1	6:1	12:1	Average Precipitation Results
1	++	++	++++	++++	+++
2	++++	++++	++++	++++	++++
3	±	—	++	+++	++
4	+++	++	++++	++++	+++
5	++++	++++	++++	++++	++++
6	+	—	++	++++	++
7	+++	++++	++++	++++	++++
8	—	—	+	++	+
9	+++	++++	++	±	++
10	++++	++++	++++	++++	++++
11	++	++	++++	++++	+++
12	±	+	++	+++	++
13	+	++	+++	+++	+++
14	++	+++	+++	++++	+++
15	++++	++++	++++	++++	++++
16	++++	++++	++++	++++	++++
17	±	—	+	+++	+
18	++++	+	++++	++++	+++
19	±	—	++	+++	++
20	+	—	+	+++	+
21	+++	+	++++	++++	+++
22	++	+	+++	+++	++
23	++++	++++	++++	++++	++++
24	+	—	++	+++	++
25	++++	++++	++++	++++	++++

* Our knowledge of these cases is based on history blanks submitted by different physicians.

It might perhaps be well to point out that it is not necessary to limit oneself to the employment of three tubes with 3:1, 6:1 and 12:1 serum-antigen ratios in this test. In special cases, it may be desirable to employ two extra tubes with perhaps a 2:1 and 20:1 serum-antigen ratio as well. Three tubes, according to our findings, merely represent the minimum number for a well defined reaction.

THE METHOD

Preparation of Antigen.—This has been described in The Journal by Keim and Wile.[15] For uniform results in this procedure, it is essential that the dried beef heart be ground into a powder form. Three or four extractions with ether at icebox temperature will be found to be ample for the removal of the ether-soluble elements. After the dried material has been freed from traces of ether by drying, 5 c.c. of 95 per cent. alcohol is added to each gram of powdered muscle and extracted for about ten days at ordinary icebox temperature (about 8 C.). If the temperature of the icebox approaches zero, then one may carry out the extraction for about nine days in the icebox and one day at room temperature. Antigens prepared with lesser extraction periods have been found to give good results, but until further studies fully corroborate this finding, it is well to employ the longer extraction periods. The color standards proposed in earlier studies in connection with the preparation of antigen for our previous procedures are not believed to be necessary for this procedure when powdered heart muscle is employed. In the preparation of antigen for the tests reported in this paper, powdered beef heart, dehydrated (Difco), was employed. To all alcoholic extracts is added 0.4 per cent. cholesterin.

Table 3.—*Comparative Results of Wassermann and Author's Test in Two Thousand and Sixty Examinations*

	Number of Examinations	Per Cent.
Positive* reactions in Wassermann and Kahn precipitation test	405	
Weakly* positive reactions in Wassermann and Kahn precipitation test	50	
Negative reactions in Wassermann and Kahn precipitation test	1,544	
Total agreement	1,999	97.04
Weakly positive reactions in Wassermann and negative in Kahn precipitation test	18	
Negative reactions in Wassermann and weakly positive in Kahn precipitation test	43	
Total disagreement †	61	2.96

* Positive = ++++, +++, and ++ reactions; weakly positive = + and ± reactions.

† This total includes twelve positive reactions. These were not listed separately in order not to complicate the table.

Titration of Antigen.—The object of this titration is to find approximately the smallest amount of physiologic solution of sodium chlorid which, when added to antigen, will produce a precipitate capable of dissolving in salt solution or serum. A mixture of equal quantities of antigen and physiologic solution of sodium chlorid will, in most cases, be found to give desired results. This mixture will contain a heavy white precipitate, which, however, will dissolve readily when added to salt solution or serum.

A set up of four small tubes will usually be found to be ample for this titration. Each tube receives 0.5 c.c. of antigen followed by 0.3 c.c., 0.4 c.c., 0.5 c.c. and 0.6 c.c. of salt solution, respectively. The presence of a precipitate can be observed in each tube. A small quantity, such as 0.1 c.c. of each of these mixtures, is now added to tubes containing 0.2 or 0.3 c.c. of salt solution with a view of finding whether any of the precipitates will go back into solution. The antigen tube receiving the smallest amount of salt solution, the precipitate of which is readily soluble in salt solution, determines the antigen-salt solution proportion to be used in the tests.

Dilution of Antigen for Tests.—Assuming that, according to the titration, a mixture of equal quantities of salt solution and antigen may safely be used in the tests, the following method is employed in the preparation of the mixture: A given quantity of antigen, depending on the number of tests, is measured into a small tube, and an equal amount of salt solution is measured into another tube. The salt solution is poured into the antigen tube, and the mixture poured back and forth several times. This mixture is now ready for use. If 0.5 c.c. of antigen or less is employed, the salt solution may be measured from a pipet. The antigen-salt solution mixture is usually prepared just before using in the tests. It should not be kept longer than a half hour before using.

Performance of Test.—The test consists of three equal quantities of serum with one-third, one-sixth and one-twelfth amounts of the antigen-salt solution mixture, respectively. No rule can be set down regarding the amounts of serum to employ. In our opinion, 0.05 or 0.1 c.c. quantities will give as good results as 0.3 or 0.4 c.c. quantities, provided the correct proportions of antigen are properly added. In this laboratory, 0.15 c.c. quantities of serum are employed with 0.05, 0.025 and 0.0125 c.c. quantities of antigen mixture. These small antigen quantities necessitate the use of a 0.1 or 0.2 c.c. pipet marked in hundredths, or preferably in thousandths, of a cubic centimeter. Furthermore, the antigen mixtures must be pipetted first and by lowering the tips of the pipet down to the bottom of the tubes. Only by following this procedure can one be assured that each tube receives the proper amount of antigen mixture. The serum is inactivated from twenty to thirty minutes at 56 C., and 0.15 c.c. added to each of the tubes. In most of the studies reported in this paper, the serums were inactivated for twenty minutes.

Although we recommend the use of a serum control without antigen mixture and three salt solution controls with regular amounts of antigen mixture, in our experience they have not been found of any help—probably because of the nature of the rapidity of the reaction. A number of positive and negative controls should be used with each set up of tests.

Shaking the Tubes.—After the serum has been added to the antigen-salt solution mixtures, it will be found on gentle shaking that no trace of the original whitish antigen precipitate is visible. The tubes containing the larger amounts of antigen may show slight clouding, but on careful observation one will see only opalescence. In order to elicit rapid precipitation, vigorous shaking of the tubes is of the utmost importance. Racks which necessitate gentle shaking of the tubes for fear that they might drop out cannot be used with good results in this test. Vigorous shaking for fifteen seconds or less will bring out the strongly positive reactions, but the weaker reactions require not less than three minutes' shaking.

Reading of Results.—A preliminary reading is made after the shaking period. The results are read best in front of a window, with a darkened background. Each tube is slanted until it is practically horizontal. This spreads the fluid into a thin layer. The tube is then lifted several inches above the eye level. The thin layer of fluid will then appear clear, or will show the presence of a definite precipitate.

A precipitate suspended in a clear medium represents complete precipitation and is therefore considered a four plus reaction. If the medium is not quite clear, indicating somewhat incomplete precipitation, the reaction is three plus. A precipitate in a cloudy medium is two plus. A weak precipitate in a cloudy medium is one plus.

After about one hour incubation, the tubes showing four plus reactions are picked out of the racks, and the remaining tubes are again shaken vigorously for one minute and the final reading made. This short period of incubation is not sufficient, in most cases, for the formation of clumps in the stronger positive serums. Workers desiring to see the stronger reactions in the form of clumps are advised to extend their incubation period to about three hours. There will be no tendency toward the formation of false precipitates. No matter when the final reading is made, the tubes should receive a vigorous shaking for about one minute, after the strongly positive serums have been picked out. Aside from the fact that shaking helps to render the weakly positive reactions stronger, it disperses the weak, nonspecific precipitates which occasionally form in negative serums. If the strongly positive serums are not picked out during the shaking period, it will be found that the larger particles or clumps will be broken down and the resulting precipitates will have the same appearance as when read after the original shaking period. Some workers may prefer to add an equal amount of salt solution to each tube before the final reading. Salt solution will tend to render clear some slightly cloudy serums. After the addition of salt solution, however, one must not prolong incubation, for there is a tendency toward the formation of false precipitates.

When dealing with weakly positive serums, as is true in early primary cases or immediately after intensive treatment, it occasionally happens that a serum will give a somewhat stronger reaction after about five minutes than after about one hour incubation. In such cases, the average of the combined readings may be taken as the final result.

Recording the Results.—When making a record of the results in any given examination, it is well not only to set down the average findings of the three tubes, but to record also the finding in each tube. Thus, when employing a serum-antigen ratio of 3 : 1, 6 : 1 and 12 : 1, the results might be —, + + and + + + +. The average finding in this examination is only + +, but it is evident that the actual finding throws some light on the case which a physician would not want to miss.

To Test with Different Antigens.—Theoretically, numerous differently prepared antigens should give good results with this test, provided one abides by the antigen titration outlined above. Antigens prepared according to Kolmer and Noguchi, although giving good results with strongly positive serums, have not been found approaching in sensitiveness the antigen prepared according to our original directions. The use of these and other antigens in this test is now under investigation.

The Test with Spinal Fluids.—The method outlined in this paper applies only to serums. Its application to spinal fluids is now being investigated.

SUMMARY

The original procedures of the precipitation test for syphilis proposed by the author possess two important limitations: 1. The weaker serums require overnight incubation to bring forth precipitates. 2. Occasionally, serums from active syphilis give negative reactions although employing a presumably sensitive antigen. A procedure is presented in this paper which entirely overcomes the first limitation, and practically overcomes the second.

At least 95 per cent. of the precipitation reactions with the new procedure are completed in from five to ten minutes after mixing serum with the antigen-salt solution mixture, and the final reading is taken after about one hour incubation. Three equal amounts of serum are employed in each test with varying amounts of antigen mixture. The final reaction is essentially one of the following: (1) precipitation with all amounts of antigen mixture; (2) precipitation with the larger amounts of antigen mixture and negative with the smaller amounts; (3) precipitation with the smaller amounts of antigen mixture and negative with the larger amounts, or (4) no precipitation with all amounts. It is believed that the degree of the reaction with the larger or smaller amounts of antigen mixture is indicative of a definite clinical condition in the patient. Furthermore, experience gained with about 2,000 examinations indicates that there is practically no tendency with this procedure to lose serologic reactions.

RUPTURE OF LARGE MULTILOCULAR OVARIAN CYST *

F. McKELVEY BELL, M.D.
NEW YORK

As a result of early diagnosis, the free clinic and the rapid education in surgical matters of the public generally, the giant ovarian cyst will, in time, let us hope, become obsolete. It is only occasionally now in hospital practice that cases are found. It seems, therefore, worth while to report in detail a case which presents some unusual features in diagnosis as well as in postoperative treatment.

History.—A. M., a woman, aged 30, was admitted to the City Hospital, Feb. 22, 1923, with a diagnosis of seven months' pregnancy. Two months later, on account of pressure symptoms and the enormous distention of the abdominal walls, the obstetrician considered it advisable to induce labor by rupturing the membranes. She was delivered of a practically full-term living child (breech presentation). It was recognized at this time that she had a very large ovarian cyst. Even after delivery, the abdomen was enormously distended and was considerably larger than is ordinarily the case at full term.

The postpartum period was normal up to the third day, when the patient had a chill. The temperature rose to 103, and the pulse to 132. She complained of moderately severe pains throughout the body, as well as in the abdominal cavity. There was tenderness all over the abdomen, but it was not especially marked in any one area. She had nausea, but very little vomiting. Percussion of the abdomen revealed that the note centrally was dull, but in both flanks was resonant. The natural deduction from this sign was that fluid, if present, was encysted and not in the general peritoneal cavity. Special attention is directed to this occasional diagnostic error. We sometimes forget that gaseous distention in the cecum and in the ascending or descending colon gives a tympanitic note, even when there is free fluid in the peritoneal cavity.

With the primary pathologic condition of large ovarian cyst complicating pregnancy, what further complication had ensued postpartum? The diagnosis apparently lay among (1) puerperal septicemia, (2) twisted ovarian pedicle, and (3) general peritonitis.

1. *Puerperal sepsis.* Within three hours of her chill, the woman showed marked signs of sepsis and of shock. Her pulse had risen to 150 a minute, and ranged between that and 160. Her expression was anxious, the pupils were widely dilated, respiration was rapid and shallow, the jaw had fallen open, and her face had a greenish pallor. The systolic blood pressure was low (108), and the leukocytic blood count mounted to 22,000.

I consulted with the obstetrician and was advised that during delivery there had been no unusual happening to cause sepsis. Rigid asepsis had been carried out. In confirmation of this, the lochia looked normal and had a normal odor. Puerperal sepsis could almost with certainty be excluded.

2. *Twisted ovarian pedicle.* The diagnostic evidence against this condition was that: (*a*) the pains were general throughout the body; (*b*) there was no severe vomiting; (*c*) there was high fever; (*d*) the shock was not sudden, but came on gradually over a period of several hours, with the sepsis, and (*e*) the abdominal pain was not violent or unbearable, nor was it referred to any particular area.

3. *General peritonitis.* This was not so easily excluded; but, if this was the diagnosis, what was its source? If due to rupture of the ovarian cyst during labor, why did three days elapse before peritonitis supervened? Why had the bowels moved naturally that day, and in fact even after the onset of her chill, pain and fever? Why was there so little vomiting?

As no condition other than peritonitis seemed possible, with this as a tentative and preoperative diagnosis, it was decided to open the abdomen at once, as the only possibility of saving the patient's life.

Operation.—The patient was brought to the operating table in a state of shock, with a pulse of 160. Laparotomy was performed at 8 p. m. under general anesthesia. An incision 4 inches (10 cm.) in length and in the median line was made midway between the pubes and the umbilicus. When the peritoneum was opened, large quantities of greenish, mucopurulent fluid poured freely out past the sides of an enormous and apparently unruptured ovarian cyst about 18 inches (45 cm.) in diameter. However, on careful palpation of the cyst wall above and posteriorly, two rents, about 1 inch in diameter, were found in the capsule. As the main body of the cyst had not collapsed, it was evidently of the multilocular type (pseudomucinous). The great omentum, in a hurried effort to close the flood-gates, attached itself by newly formed adhesions to the entire upper and anterior surface of the cyst wall. Multilocular cysts per se rarely form adhesions. The serous coat of the intestines showed acute inflammation, the ascending colon was distended, and the peritoneal cavity, generally contained deposits of fibrin and mucopus. *Bacillus proteus* was found in this.

The question naturally arises: When did the cyst rupture? If during labor, why were the symptoms of shock and sepsis delayed for three days; and if, as it would appear, rupture did not occur for a day or two subsequent to labor, what was the exciting factor at that time? I can, of course, give only a theoretical explanation for my belief that rupture did not occur at the time of labor, but subsequently. The cyst wall at the points of rupture was greatly attenuated—scarcely as thick as tissue paper. It is reasonable to suppose that the tremendous pressure exerted on the wall during the latter days of pregnancy so interfered with the blood supply of the cyst as to cause necrosis. However, the mass at that time was under support. A day or two after delivery, with the pressure removed and no doubt an increase in the cyst contents as well, the wall naturally gave way at its weakest portions.

To continue with the operation: The fluid was drained through a trocar, by suction. Including that found free in the abdominal cavity, about 2 or 2½ gallons (from 8 to 10 liters) in all were removed. The pedicle, which was not twisted, was ligated and cut, and the partially emptied cyst removed. The other ovary was normal. The patient was now pulseless and had ceased breathing, but revived under the use of pituitary extract, epinephrin and artificial respiration. As the entire peritoneal cavity had been filled with mucopus and the patient's condition was still very low, the peritoneal cavity, contrary to the usual custom, was flushed with several gallons of hot saline solution, and a great deal was left in the abdomen. A large rubber tube drain was inserted, and the abdomen was closed.

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* Read before the Alumni Association, New York City Hospital, May 16, 1923.

To help temporarily to overcome the sepsis and give her a fighting chance, we decided to give 50 c.c. of 1 per cent. solution of neutral acriflavine intravenously. I had already had some fair results in beginning peritonitis with this chemical. The patient left the operating room with a pulse of 140 and of fair volume. She was placed in the semi-Fowler position; pituitary extract was given every four hours, and a sodium bicarbonate rectal drip was ordered for forty-eight hours. At 10 p. m. she had a chill lasting ten minutes. The following morning the temperature was normal, and the pulse was 90, but at 4 p. m., the temperature was 100, the pulse ran up to 160, and later it was uncountable. Pituitary extract helped her through this crisis. That evening she was given 60 c.c. of 0.5 per cent. solution of neutral acriflavine. She did fairly well until the following evening, when her pulse became weak and thready. The surgical staff was asked to give a transfusion of blood, and 600 c.c. was given by Unger's method. The reaction was dramatic and encouraging. The following morning, the pulse was 70, and the temperature normal. Ten cubic centimeters of leukocyte extract was ordered to be given intravenously three times a day to help overcome the sepsis. A digitalis preparation, epinephrin and pituitary extract were used, according to conditions, as heart stimulants. A blood culture proved negative.

On the following evening the patient required another blood transfusion, which produced a better and more lasting result than the first. As the temperature was again high (102.3), an attempt was made without anesthesia to find whether there was a collection of pus bulging through Douglas' pouch into the vagina. Nothing was found here, and no opening into the peritoneal cavity was made. The following day the temperature was normal, the pulse 84, and respiration 24. After the last blood transfusion, made April 29, although the temperature ranged between 100 and 101, she did well for several days and was taking nourishment well, and the bowels were moving normally. We had strong hopes of her recovery, but four days later she contracted endocarditis and bronchopneumonia, and died of these complications the following day, March 5, eight days subsequent to the operation.

COMMENT

However unfortunate the end-result may have been in this particular patient, emaciated by a trying and complicated pregnancy, handicapped by a recent labor, and debilitated by an enormous cyst, it seems to me of value to report the efforts made to save her and the results observed. Apart from the usual methods that were adopted, three comparatively new elements introduced in the treatment undoubtedly prolonged her life and, I am convinced, bade fair to make a successful issue. They were (1) the intravenous use of a dye (neutral acriflavine) to kill the bacteria; (2) leukocyte extract to help phagocytosis and to neutralize toxins, and (3) most important, direct blood transfusions as a heart stimulant. The blood transfusion seemed also to have an effect similar to antitoxin.

There is one other question worthy of consideration in connection with cases of large ovarian cyst complicating pregnancy, namely, the advisability of operation before gestation has progressed too far. It does not apply in this case, which was first seen here at the seventh month. Would early operation have saved the lives of both fetus and mother? Without operation, statistics show a maternal mortality of from 31 to 39 per cent. and a fetal mortality of from 17 to 20 per cent.

Szmanowicz of the University of Cracow Clinic, in a summary of thirty-five cases in which operation was performed in the first four months of pregnancy, had no maternal deaths and only six miscarriages. In each of the latter cases he found that the corpus luteum had been ablated during the operation. In all cases in which the corpus luteum was left intact there was no abortion.

It naturally follows that if these patients can be seen early and operated on without damaging the corpus luteum, both mother and child may be saved.

815 Park Avenue.

THE USE OF BACILLUS ACIDOPHILUS MILK IN A TUBERCULOSIS SANATORIUM

WILLIAM H. MORRISS, M.D.
WALLINGFORD, CONN.

One of the principal difficulties that arise in the practice of every sanatorium physician is the proper care of the manifold gastro-intestinal complications that occur so frequently in any group of tuberculous patients. It is, indeed, rare that a patient with pulmonary tuberculosis does not develop, at some time in his sanatorium life, a complaint attributable to the gastro-intestinal system. Most frequently this is merely a transitory disturbance, one liable to arise in any group of chronic patients, whatever the nature of their disease when living under conditions of a sanatorium regimen. Aside from this group of minor gastric ailments, there are many patients that develop symptoms of definite gastric motor and secretory disturbances, as well as intestinal symptoms of diarrhea, severe constipation, and generalized abdominal pain. A small proportion of this group can be attributed to tuberculous disease of the intestinal tract, which certainly is far more common than was formerly believed; some of the complaints arise from intercurrent gastro-intestinal disease, such as chronic appendicitis, gastric ulcer and biliary trouble in no way connected with the tuberculous disease elsewhere; but most of them may be fairly regarded as evidencing the effects of the general toxemia of the disease.

A recent publication by Barlow[1] emphasizes the frequency of gastro-intestinal symptoms caused by reflex action of the sympathetic nervous system as a result of the irritation of diaphragmatic pleurisy. This may account for a group of complaints otherwise difficult to explain; but, in our experience, this association has not been frequent, doubtless owing to the fact that we have not made careful enough study with this point in mind.

It is always of the utmost importance to determine whenever possible the causative factor of the symptoms, for if due to either tuberculous invasion of the intestines or to severe toxemia, the prognosis of the patient is very materially altered for the worse, as it is common experience that an intractable gastro-intestinal disturbance most frequently means steady loss of ground for the patient. Whenever the symptoms persist for a number of days and resist treatment by simple remedies, a roentgenologic examination, using a barium meal or enema, seems indicated. With the technic described by Brown and Sampson,[2] a diagnosis of tuberculous colitis can be made in a certain small proportion of the cases, and other valuable information as to motor function of the tract obtained. Gastric analysis is not so useful, as its findings are often difficult to interpret, and it is usually extremely objectionable to the patient.

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[1] Barlow, N., and Thompson, J. C.: Small Pneumothorax in Tuberculosis, Bull. 132, Hyg. Lab., U. S. P. H. S., pp. 170-184.

As recent experience with heliotherapy and quartz crystal irradiation seems to indicate that this procedure influences favorably the prognosis of tuberculous colitis cases, all of our patients with symptoms of intestinal disease who show signs of possible intestinal tuberculosis, whether confirmed by roentgenographic study or not, are given the benefit of this treatment.

In many cases, however, it is impossible to arrive at any definite diagnosis of the underlying gastric or intestinal condition, and treatment must be purely symptomatic and usually proves most unsatisfactory. Any suggested addition to our therapeutic procedure in handling these gastro-intestinal complaints was bound to prove of interest, so that it was not strange that the work carried on by Rettger[3] with *Bacillus acidophilus* attracted our attention. After consultation with Professor Rettger, we determined to employ the treatment at Gaylord Farm. The milk culture of *Bacillus acidophilus* was prepared in our laboratory, using cultures kindly furnished us from time to time by the Yale bacteriologic laboratory. Our technic in manufacture conformed strictly to that described by Rettger and Cheplin.[4] The success of the implantation was controlled by stool examinations made approximately weekly, the percentage of gram-positive rods being determined, as well as the percentage of *Bacillus acidophilus* colonies found on plate culture from the stool. We have found the successful manufacture of the acidophilus milk an extremely difficult procedure to maintain. Contaminations are frequent in spite of great care, and it is only by constant tests and the reinoculation from rest cultures that the milk can be kept uncontaminated and sufficiently rich in *Bacillus acidophilus*.

CLINICAL RESULTS

As our sanatorium is primarily for the care of minimal or moderately advanced cases of pulmonary tuberculosis, our clinical material was greatly restricted; but, in general, three groups of patients were selected for treatment: (1) those having diarrhea of a more or less chronic type, excluding the occasional diarrhea that followed a gastro-intestinal upset; (2) chronic digestive disorders characterized by rather indefinite symptoms of gastric and intestinal gas, nausea and vomiting, sensation of fulness and discomfort and loss of appetite, and (3) obstinate cases of constipation.

In Case 1, treatment was instituted on account of chronic diarrhea and generalized crampy abdominal pain which persisted in spite of bismuth therapy. Roentgen-ray examination of this patient was not done, but stool examination was negative for tubercle bacilli and blood. The patient experienced considerable relief within a few days, and at the end of a month he reported complete cessation of diarrhea. The appetite was greatly improved and he had only occasional slight abdominal pain. During the first month of treatment he gained 3½ pounds (1.5 kg.), against a loss of the same amount in the month previous. The patient's present condition is very satisfactory; there has been no return of the gastro-intestinal symptoms, although the acidophilus milk has been discontinued for over six months.

The indication for treatment in Case 2 was again diarrhea, abdominal pain and intestinal gas. The symptoms were of long standing and had failed to improve under dietary regulation and bismuth medication. Roentgen-ray examination of the gastro-intestinal tract showed partial filling defects and a ragged appearance in the region of the cecum and ascending colon, making a probable diagnosis of tuberculous colitis. After two weeks' treatment the patient was entirely relieved of gas, and had two or three soft, partially formed stools a day, and considerable decrease in the abdominal pain. He lost 1 pound (0.5 kg.) in the four months before treatment and gained 12 pounds (5.4 kg.) in the first four months of treatment. He has had no recurrence of intestinal symptoms, although the milk has been discontinued for about six months.

Table 1.—*Diarrhea Group: Six Cases*

Case No.	Sanatorium Diagnosis	Duration of Treatment	Daily Amount	Result
1	Mod. Adv. B I	5 months	1 qt.	Complete relief
2	Mod. Adv. B II	4½ months	1 qt.	Relief of diarrhea; improvement of other symptoms
3	Mod. Adv. B II	7 months	1 qt.	Relief of diarrhea; improvement of other symptoms
4	Far Adv. B III	4½ months	1 qt.	Relief of diarrhea; improvement of other symptoms
5	Far Adv. B III	10 days	1 pt.	Relief of diarrhea
6	Mod. Adv. B I	4½ months	1 qt.	Relief of diarrhea; improvement of other symptoms

Case 3 presented the same symptom complex of diarrhea, intestinal gas and generalized abdominal pain. Roentgen-ray examination showed a spastic, ragged appearance of the transverse colon, which was diagnosed as "very suspicious of tuberculous colitis." A barium enema given several months later showed a positive filling defect in the ascending colon and cecum. Under treatment, she showed a very speedy improvement of symptoms. The diarrhea was entirely relieved, and the gas and abdominal pain were much improved. The patient is still taking milk, and after seven months has had no recurrence of diarrhea. In fact, during a two weeks' period when the milk was discontinued on account of laboratory difficulties, she had rather marked constipation, which was at once relieved on returning to the milk.

Patient 4 had no chronic diarrhea, but rather a tendency toward constipation. At the time treatment was started, however, she had a severe attack of diarrhea, which was probably of an acute character. Examination of the stools at this time showed dark, tarry soft stools containing considerable blood and numerous tubercle bacilli. A roentgen-ray report after a barium meal was, "Case considered decidedly suspicious of tuberculous involvement of cecum and ascending colon." The diarrhea was almost immediately stopped and the patient felt much better following the feeding of acidophilus milk; her appetite improved, and the general symptoms of abdominal discomfort disappeared. This patient is at present improved and still under acidophilus treatment, which she is loath to abandon. The character of the stools became normal after a few weeks of treatment.

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[2] Brown, Lawrason; and Sampson, H. L.: The Early Roentgen Diagnosis of Ulcerative Tuberculous Colitis, J. A. M. A. **73**: 77-83 (July 12) 1919.

[3] Rettger, L. F., and Cheplin, H. A.: A Treatise on the Transformation of the Intestinal Flora, with Special Reference to the Implantation of Bacillus Acidophilus, New Haven, Yale University Press, 1921.

[4] Rettger, L. F., and Cheplin, H. A.: Bacillus Acidophilus and Its Therapeutic Application, Arch. Int. Med. **29**: 357-367 (March) 1922.

Patient 5 was very ill and developed a severe diarrhea in the terminal stages of the disease. He showed marked improvement in this symptom while under treatment.

Case 6 is of unusual interest and seems worthy of a more detailed report:

> An unmarried man, aged 29, of Polish extraction, whose family history was unimportant, and who had a healthy childhood, and began work at the age of 14, working at various jobs around a silver factory, in May, 1917, enlisted in the army, and after a short period of training, served overseas, was gassed slightly several times, and finally rather severely gassed at Verdun, so that he required hospital treatment for several months. He was discharged in January, 1919, apparently without disability. He said that he never felt well after the gassing, and had more or less constant pulmonary symptoms. He was admitted to Gaylord Farm Sanatorium, June 21, 1920, and diagnosed as having pulmonary tuberculosis and classified as moderately advanced B I. On later questioning, he stated that he had had occasional attacks of bloody stools for two years before admission.
>
> Following admission, the patient made a steady, slow improvement as far as his pulmonary condition was concerned. April 16, 1921, he had an attack of diarrhea and passed several ounces of bright red blood. During the night before the onset of the diarrhea, he vomited some blood. Examination of the abdomen at that time showed no rigidity or muscle spasm, but some tenderness just below the costal margin in the upper left quadrant of the abdomen. Blood examination was negative; the stool showed the presence of some bile, considerable blood, no parasites or ova, and no tubercle bacilli. Roentgen-ray examination showed a normal gastro-intestinal condition except for signs somewhat suggestive of a diverticulum of the colon just below the splenic flexure. As the patient continued to have soft stools and occasionally passed a small amount of bright blood, he was transferred to a general hospital, where another roentgen-ray examination was made and proctoscopic and cystoscopic study of the patient was made. Gastric examination was also made. The result of the study was that all the examinations were negative except that roentgenographic examination showed slight hypermotility at the hepatic flexure, and a tentative diagnosis was made of tuberculous colitis.
>
> During the following summer and winter, the patient continued to have intermittent attacks of diarrhea with bloody stools, but his general condition was good, his weight was above normal, and his pulmonary symptoms showed steady improvement. In February, he had a more severe recurrence of the trouble, and another roentgen-ray series was made, which again proved negative. The patient had at this time several rather large hemorrhages from the bowel, and the diarrhea became severe, averaging from ten to fifteen stools a day. After many varieties of treatment had proved of no avail, the patient was placed on acidophilus milk, March 15, 1922. He experienced an almost immediate relief of diarrhea and abdominal pain, and passed no more blood. The intestinal distention and gas of which he had formerly complained were improved. The patient was continued on the milk therapy until his discharge, August 1. He was seen several months later, and reported no recurrence of his intestinal symptoms.

The difficulty of lack of control experiments that always arises in this sort of a clinical study and which makes most conclusions based on any short clinical series so unreliable was fully realized. Two patients classified as far advanced, who developed diarrhea in the course of their disease and who had many symptoms strongly suggestive of tuberculous involvement, were treated by the addition of buttermilk to their diet, in addition to the usual use of the Alpine sun lamp. Both these patients showed marked improvement in the intestinal condition after a few weeks of treatment, and finally the diarrhea completely cleared up and has not returned after six and eight month intervals. These patients will be referred to later on in the discussion of the laboratory results.

The second group of patients came under treatment for a varied assortment of gastro-intestinal complaints pointing toward no very definite organic lesion. The frequent eructation of gas was a common complaint; epigastric distress, loss of appetite, nausea and vomiting, and indefinite abdominal pains were variously complained of. Five of the series were also complicated by a definite history of constipation, and, of these five, only one secured a measure of improvement as regards this symptom. Six of the group were examined roentgenographically, and four of these showed marked visceroptosis, but otherwise no organic lesion was found. One patient gave a history of previous mucous colitis, but during her stay in the sanatorium she had only occasional mucous shreds in the stools. All of the patients listed under any degree of improvement felt that the milk had helped them and were reluctant to give up the treatment. Patient 7 is perhaps worth special mention. He was very ill; he had contracted a spontaneous pneumothorax during his stay, and his digestion had apparently failed completely. He complained bitterly of constant gastric and intestinal gas, was nauseated, and vomited frequently. He was taking little food of any kind and losing weight rapidly. On institution of treatment, he noticed immediate relief in the stomach condition, he was able to eat, and his appetite returned. Intestinal gas and abdominal pain were entirely relieved. Within the last few weeks he has been taken off the milk, and there has been some return of the former symptoms.

Table 2.—*Indigestion Series: Thirteen Cases*

Case No.	Sanatorium Diagnosis	Duration of Treatment	Daily Amount	Results
7	Far Adv. C III	1 year	1 pt.-1 qt.	Marked improvement
8	Mod. Adv. B I	5 months	1 qt.	Improvement
9	Mod. Adv. B III	2 months	1 qt.	No improvement
10	Incipient B I	2 months	1 qt.	Improvement
11	Mod. Adv. B II	5 months	1 qt.	Improvement
12	Incipient B I	5 months	1 qt.	Slight improvement
13	Mod. Adv. B III	5 months	1 qt.	No improvement
14	Far Adv. B III	3 months	1 qt.	Slight improvement
15	Incipient A I	1 month	1 qt.	Slight improvement
16	Incipient B I	3 months	1 qt.	No improvement
17	Mod. Adv. B I	22 days	1 qt.	Temporary improvement
18	Mod. Adv. B II	3 months	1 qt.	Slight improvement
19	Mod. Adv. B II	3 weeks	1 qt.	No improvement

Patient 20 had a history of obstinate constipation for years. She had habitually used cathartics in large doses, and even then frequently had to resort to the use of enemas. In addition, she complained of chronic indigestion characterized by eructation of gas, epigastric discomfort, and occasional attacks of nausea and vomiting associated with dull pain in the right lower quadrant of the abdomen. She had been living on a restricted diet of eggs, milk, bread and red meats, avoiding all starches and sugars. Roentgen-ray examination showed marked general visceroptosis and hypomotility of the intestinal tract, some barium remaining in the ascending colon after seventy-two hours. The examination was negative for other organic lesions. On instituting the milk therapy, she experienced early relief from the digestive symptoms and was able to handle a regular diet without any discomfort. The constipation improved slowly under treatment, but only after the addition of 100 gm. of lactose to the daily portion. For the first two weeks there was no improvement noted and enemas had to be resorted to several times. Following this, she began to have normal daily bowel movements, and the improvement has continued. After six months of treatment, the acidophilus milk was discontinued and the patient found that she could get along very well, using only an occasional dose of liquid petrolatum.

Table 3.—*Constipation Series: Four Cases*

Case No.	Sanatorium Diagnosis	Duration of Treatment	Daily Amount	Results
20	Mod. Adv. B II	6 months	1 qt., 100 gm. lactose	Marked improvement
21	Mod. Adv. A II	2 months	1 qt., 50 gm. lactose	Slight improvement
22	Mod. Adv. B I	5 months	1 qt., 100 gm. lactose	No improvement
23	Mod. Adv. B II	2 months	1 qt., 50 gm. lactose	Improvement

Indigestion and constipation of long standing were the complaints in Case 21. The indigestion was characterized by gas on the stomach and intestine, discomfort in the epigastrium, and frequent attacks of nausea and vomiting. Roentgen-ray examination again showed marked visceroptosis and general hypomotility, the stomach residue remaining at eight hours, the colon residue at forty-eight hours. This patient also obtained speedy relief from the digestive symptoms, but little improvement in the constipation, in spite of the addition of 100 gm. of lactose.

Patient 22 was an athletic type of girl who complained of long-standing constipation and some intestinal gas and abdominal distention. No roentgen-ray examination was made. She felt that the intestinal symptoms were improved, but noticed little or no improvement in the constipation, even with the addition of lactose to the milk.

Patient 23 had no digestive complaints other than a history of long-standing constipation. She had been forced to take cathartics and frequent enemas for years. Gastro-intestinal examination with the roentgen ray showed marked visceroptosis, with gastric retention at eight hours and residue in the colon at seventy-two hours. She was started on acidophilus milk, Dec. 22, 1922, taking a pint and a half of milk plus 100 gm. of lactose. This dosage apparently acted very well in a few days, but as she complained of severe cramping pains in the intestine and frequent stools without diarrhea, the milk was cut to 1 pint a day, with 50 gm. of lactose. As the cramps still continued, the lactose was discontinued, with the result that the constipation returned. The milk was then increased in amount to 1 quart, but without satisfactory result. February 2, she was placed on 1½ pints of milk with 50 gm. of lactose, and apparently is at present well regulated. The dosage in this case is cited at some length to illustrate the importance of feeding the proper combination of milk and lactose.

Our experience with the treatment of constipation is too limited to admit any generalizations, but it seems probable that satisfactory results can be obtained even in the most obstinate case if the patient is willing to cooperate and if enough care is given in regulation of the dosage of milk and lactose.

LABORATORY RESULTS

In Table 4 the case numbers are the same as those used in the clinical tables. Columns 3 and 4 record the percentages of acidophilus bacillus colonies found in forty-eight-hour plates inoculated from stool suspensions. Columns 5 and 6 refer to the percentages of gram-positive rods found on smears made from stool suspensions with Gram's stain. Column 7 records the day on which the stool examination showed a marked transition toward the acidophilus flora; but as these examinations were made at rather irregular and infrequent intervals, this time period cannot be regarded as a definite report of the time required to produce a change in the flora. The plate record, while it includes only the viable organisms present in the stool in relation to other viable organisms, seems a much more definite indication of transformation than the smear direct from the stool.

It is seen from Column 3 that we secured a fairly satisfactory transition of the flora if only the maximum reading is considered; but, as shown in Column 4, the average percentage found on plates during the period of treatment was far from satisfactory as regards any permanent and consistent change in flora.

Table 4.—*Laboratory Results*

Case No.	Duration of Treatment	Maximum % B. Acidophilus Plates	Average % B. Acidophilus Plates	Maximum Gram-Positive Smear	Average Gram-Positive Smear	Days to Transition	No. Lab. Ex.	Clinical Results
1	5 mos.	40	5.8	27	16.4	39	23	Complete relief
2	4½ mos.	90	49.8	80	53.2	13	17	Relief of diarrhea
3	7 mos.	56	15.0	42	16.8	23	12	Relief of diarrhea
4	4½ mos.	96	37.2	48	30.5	13	5	Relief of diarrhea
5	10 days	45	42.5	33	31.5	7	3	Relief of diarrhea
6	4½ mos.	60	18.7	40	26.9	16	15	Relief of diarrhea
7	12 mos.	60	9.8	55	22.8	30	29	Improvement
8	5 mos.	53	9.9	29	17.4	19	17	Improvement
10	2 mos.	42	19.4	55	28.0	?	6	Improvement
11	5 mos.	92	51.1	85	41.2	9	10	Improvement
12	5 mos.	70	23.2	60	23.8	?	8	Slight improvement
14	3 mos.	10	3.3	15	8.5	?	3	Slight improvement
15	1 mo.	0	0.0	30	30.0	—	2	Slight improvement
17	22 days	97	—	49	—	17	1	Temporary improvement
18	3 mos.	24	13.8	30	22.2	2	6	Slight improvement
20	6 mos.	50	11.0	42	23.4	16	21	Improvement
21	5 mos.	53	9.9	29	17.4	19	17	Slight improvement
23	2 mos.	15	5.6	27	18.0	2	4	Improvement
9	2 mos.	60	21.3	60	56.2	16	10	No improvement
13	5 mos.	72	21.3	22	16.5	17	5	No improvement
16	3 mos.	—	—	—	—	—	—	No improvement
19	21 days	8	4.0	25	17.5	18	2	No improvement
22	5 mos.	39	10.3	38	20.4	20	14	No improvement

It was noted from the very beginning of the study that the clinical improvement noted in many of the patients failed to bear any noticeable relationship to the reports from the laboratory. Most of the patients who improved under treatment did so very soon after the institution of treatment and long before any material change in the intestinal flora could be demonstrated. Many of those showing the greatest improvement never evidenced any consistent alteration toward the acidophilus flora, and, on the contrary, the five cases placed last in Table 4 as showing no improvement under treatment evidenced a fairly satisfactory laboratory picture. In two of our most severe cases of intestinal diarrhea, as already mentioned, when the patients were placed on buttermilk, they were relieved from this disagreeable symptom and were fully as enthusiastic over its share in their improvement as any of those patients taking acidophilus milk.

COMMENT

It is our feeling that whatever improvement has occurred in our small series of patients is due probably to some other factor than the actual transformation of the common intestinal bacteria into the acidophilus type of organism. The psychic element which attaches to any new treatment when given with the suggestion that it is going to bring about marked relief of symptoms doubtless plays a part in our results, but certainly not the predominating rôle. Milk soured by various processes has long enjoyed a useful place in the treatment of gastro-intestinal disorders. Whether the value of acidophilus milk lies in its acidity, the coagulated protein, or in some other chemical property is difficult to answer; but that it is of value to many patients suffering with various gastro-intestinal disorders seems to be shown in our study.

In November, 1921, Cheplin and Wiseman [5] reported favorable therapeutic action by the use of acidophilus milk in a few cases of constipation, and in March, 1922, Rettger and Cheplin published their series of cases of constipation and diarrhea treated by acidophilus milk with favorable results. Kopeloff and Cheney [6] also reported good results from the use of acidophilus milk prepared according to Rettger's technic in seven cases of marked constipation occurring in patients with various psychoses, in four normal patients with mild constipation, and in two patients with intermittent diarrhea. These authors apparently had somewhat the same experience as ours in failing to produce quite the consistent change of flora reported by Rettger.

Bassler and Lutz [7] point out that the so-called substitution of flora is only apparent, as there is no actual decrease in the count of *B. coli* and the anaerobic bacteria in a weighed unit of stool. They attribute whatever benefit may arise from the therapeutic use of acidophilus cultures to their ability to change the reaction of the intestine in the presence of increased putrefaction from an amphoteric or alkaline to an acid reaction. As the usual intestinal flora reappears very promptly after a cessation of feeding *B. acidophilus*, they feel that "all that is accomplished is a camouflage of intestinal toxemia for the time being."

Gompertz and Vorhaus [8] seem most favorably impressed by their study of a group of 200 patients with chronic constipation and symptoms of autointoxication, and 100 patients grouped as having diarrhea, treated by feeding broth cultures of acidophilus bacilli. They attribute their good results to the substitution of the harmless *B. acidophilus* flora for that of *B. coli* type, stating that "the virtue of this remedial agency lies in its ability to inhibit the colon bacillus," leaving us to infer that the untoward symptoms experienced by their patients before treatment can be clearly laid to some metabolic products elaborated through the influence of *B. coli.* In their series of cases, the factor of acid milk feeding can be ruled out, as they employed only small doses of broth culture in treatment. The report of Smith and Kulp,[9] who studied the indican and phenol excretion in the urine of patients on acidophilus milk diet and found very little, if any, alteration in the amounts of these substances, certainly fails to lend backing to the Gompertz theory of decreased autointoxication.

A more recent communication by Kopeloff [10] reports a very interesting series of experiments conducted in a series of constipation cases in an attempt to show what is the active principle in the relief of constipation by *B. acidophilus* milk feeding. He first fed his series of ten patients milk sterilized in an autoclave and observed no relief of symptoms. Then they were given a course of *B. acidophilus* milk which had been pasteurized and to which lactic acid was added to replace that neutralized with sodium hydroxid as a preliminary to pasteurization. Again there was no noticeable improvement. The patients then were put on rich acidophilus milk reinforced with lactose, and great improvement in the symptoms of constipation were noted. This improvement was found to continue for as long as six months after the ingestion of the milk had been discontinued, and viable organisms were recovered from the stools months after the discontinuance of the milk feedings.

It is evident from Kopeloff's experiments that, at least as regards the relief of constipation, the viable organisms in the culture seem responsible for the amelioration of symptoms; but just how this action takes place is still a matter for speculation. It seems quite possible that, while constipation is relieved by some bacterial reaction, the diarrhea and digestive disturbance groups are more benefited by some biochemical reaction not dependent on a transformation of the intestinal flora to an aciduric type, for in our study we have failed to show improvement as dependent on an actual change of flora.

Mothers in Ancient Sweden Fined for Refusing to Nurse Children.—The *Hygienisk Revy* relates that during recent research in the history of pediatrics in Sweden it was found that in 1753 the governor of the Vasa district reported to the king that about half of the children in his province died within the first year of life because the mothers went out to work on their farms while their babies were left to their own resources with a *sughorn.* This was a cow's horn provided with a nipple, which was filled with sour milk and gruel and suspended by a string above the cradle. He asked permission to fine the mothers who did not feed their children at the breast the sum of "10 daler skiljemynt," a monetary denomination no longer in existence, but which would equal about $0.80, par exchange. His request was granted, and it was decided that fines thus collected should be distributed among mothers who could show five or more children above the age of 6.

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[5] Cheplin, H. A., and Wiseman, J. I.: Observations on the Effect of Bacillus Acidophilus upon Cases of Chronic Constipation, Boston M. & S. J. **185**: 627 (Nov. 24) 1921.

[6] Kopeloff, Nicholas; and Cheney, C. O.: Studies on the Therapeutic Effect of Bacillus Acidophilus Milk and Lactose, J. A. M. A. **79**: 609 (Aug. 19) 1922.

[7] Bassler, Anthony; and Lutz, J. R.: Bacillus Acidophilus: Its Very Limited Value in Intestinal Disorders, J. A. M. A. **79**: 607 (Aug. 19) 1922.

[8] Gompertz, L. M., and Vorhaus, M. G.: Bacteriologic and Clinical Experience with Bacillus Acidophilus, J. A. M. A. **80**: 90 (Jan. 13) 1923.

[9] Smith, A. H., and Kulp, W. L.: The Effect of Change of Type of Intestinal Bacteria on Urinary Indican and Phenols, Proc. Soc. Exper. Biol. & Med. **20**: 44 (Oct.) 1922.

[10] Kopeloff, Nicholas: Is the Action of Bacillus Acidophilus a Strictly Bacteriologic Phenomenon? J. A. M. A. **80**: 602 (March 3) 1923.

THE TREATMENT OF CALCIFIED SUBDELTOID (SUBACROMIAL) BURSITIS BY DIATHERMIA

JOSEPH F. HARRIS, M.D.
Associate Physical Therapist, Mount Sinai Hospital
NEW YORK

One of the most common conditions which the physical therapist is called on to treat at present is subacromial bursitis. In the majority of cases treated, the diagnosis is confirmed by the roentgen ray. My purpose in this article is to present only the treatment of bursitis with underlying calcification by diathermia.

Diathermia is, without doubt, the most valuable electrical therapeutic agent that the physical therapist has at his command. Before going into the method of application, it is probably best to state exactly what it is and how it works. Diathermia is the name applied to the use of a high-frequency current which, instead of having intermittent oscillations, has oscillations which are continuous. With a current of this type, the production of heat in the tissues becomes markedly pronounced, and, if care is not taken, is unbearable. The ideal high-frequency machine for this purpose is one running on alternating current, high frequency (oscillations), high voltage and low amperage. The rate of oscillation should be at least one million a second. Two metal plates are used, each connected to the machine by a separate insulated treatment wire. In my own work I use on each plate a thick piece of felt covered either with fine silver cloth or with finely perforated blocked tin. The pads are thoroughly soaked in either a mild saline solution or in water with a little glycerin in it before being attached to the metal plates. By means of a ball and socket joint, each plate is attached to the arm of a wooden clamp, the arms sliding along a cross-bar of wood. This insures a firm grip of the plates against the parts to be treated, and also does away with the necessity of the operator holding them in position.

The best results are obtained by using a machine which runs on a current of 220 volts, alternating current. It is a proved fact that the maximum intensity of heat is always developed halfway between the two plates, and it is due to this that deposits such as occur in bursitis can be readily attacked. Diathermia really creates a noninflammatory reaction in the affected part, and it is due to this physiologic action that absorption of foreign substances takes place. In applying the plates when treating a case of subacromial bursitis, one plate is placed anteriorly and one posteriorly on the shoulder. Care should be taken that the affected bursa lies in the plane between the two plates. Long experience has shown that the average patient will stand between 500 and 700 milliamperes of current. It is usually best to start in with a treatment lasting fifteen minutes, and increase it daily until a treatment lasting one-half hour can be given. If the patient is suffering severely, a daily treatment for at least a week is given. After this, the treatment may be given on alternate days. In order to demonstrate what can be done with this form of treatment, the following cases are presented:

REPORT OF CASES

Case 1.—Mrs. M. F., aged 43, for eight weeks had suffered continuous pain and was unable to raise her arm from her side. A roentgenogram showed a calcification, under the right subdeltoid bursa, which measured 1 inch in length and one-half inch at its greatest width. At the beginning of this trouble, all abscessed teeth had been removed. She received, in all, fourteen treatments, one every other day, and at the end of that period the pain had disappeared and the motion of the arm was normal. I have been able to keep track of this patient for two years, and at no time has she complained of shoulder disability.

Case 2.—H. A. S., a man, aged 36, complained of occasional pain and slight disability only when doing certain acts, such as removing his hat or tying his tie. In this case roentgenograms confirmed the diagnosis by showing a small deposit in the right shoulder subacromially. This measured about one-fourth inch in length. At the end of fifteen treatments all the symptoms had entirely disappeared. Two months after, the patient returned for more treatment, having put excessive strain on his right arm. Owing to the irritated condition of his shoulder, it was necessary for me to give him twenty-five more treatments, but he has been free from all symptoms for over a year. In all fairness, I want to state, with reference to this case, that the average person would not pay much attention to the symptoms presented during his last course of treatment, but this man, being highly neurotic, was quite prone to exaggerate the slightest twinge.

Case 3.—H. B., a man, aged 74, was unable to dress himself, owing to pain and inability to move his shoulder. The case presented the usual symptoms and roentgen-ray findings. Before the roentgenograms were taken, the patient had been treated for arthritis. He received a daily treatment for seven consecutive days, and then was able to go to his home in the South, with no pain and no shoulder disability.

Case 4.—Mrs. M. S., aged 53, came for treatment after having been treated in the hospital for three days, with the arm in abduction. The roentgenograms revealed a deposit subacromially in the right shoulder. Pain was a constant symptom, as well as partial limitation in the shoulder joint. The patient required twenty treatments, but at the end of that time she had the full use of her shoulder joint and was free from pain.

Case 5.—F. F. S., a man, aged 42, was carrying his right arm in a sling and was suffering so acutely that it was necessary to undress and dress him, when I first saw him. The findings were of the usual type. The patient received seven consecutive treatments. After the first three, he was able to sleep at night without the use of drugs, and at the end of seven treatments, all symptoms had disappeared.

Case 6.—H. H., a man, aged 38, was found, by means of the roentgen rays, to have deposits in both shoulders nearly the size of a robin's egg, an unusual condition. Surgical intervention had been advised, since he was unable to raise either arm from the side. Owing to the stress of business affairs, he could not take the time necessary for the operation. He received on each shoulder twenty-one treatments and, at the end of that period, he was able to raise both arms to the level of his shoulders. As his main purpose was to evade operative procedure, he discontinued treatment at this stage, evidently being satisfied with this improvement.

RESULTS

The observations that I am able to make after using this method of treating subacromial bursitis for the past seven or eight years are that about 80 per cent. of the patients recover and 20 per cent. are not helped, or discontinue treatment. The treatment itself is not painful, the patient merely experiencing a sense of heat. As most of these patients have been advised to have surgical intervention, it is readily seen that diathermia should be tried first. This is obvious when one considers that even if the treatment does not help, it can do no harm. Several patients in the last few years who have been advised to have this calcification removed surgically are able to testify to the merits of this form of treatment. Diathermia is not a specific in every case of bursitis with calcification, but I feel sure that in those cases which have failed to respond, the result was due to the nature of the deposit as well as to the duration of the condition.

1 West Ninety-Second Street.

MECKEL'S DIVERTICULUM AND INTESTINAL OBSTRUCTION

HAROLD L. FOSS, M.D.
Surgeon-in-Chief, Geisinger Memorial Hospital
DANVILLE, PA.

There are surgeons of wide experience who have never seen that curious embryologic remnant referred to as Meckel's diverticulum. Certainly, many have never had occasion to remove it, so infrequently is it present and so rarely involved in disease. Yet most surgeons whose work necessitates their performing a large number of laparotomies will find this organ the seat of inflammation or the cause of intestinal obstruction at least once or twice in every thousand or fifteen hundred patients suffering from abdominal symptoms and on whom they are called to operate. When it is found, the discovery usually excites the interest of all those who surround the table and, as a rule, is considered sufficiently remarkable to prompt the calling in of all those in immediate touch with the operating room that they may not miss the opportunity of viewing this anatomic curiosity.

Meckel's diverticulum usually occurs as a finger-like projection extending from the surface of the small intestine for a distance of from 2 to 25 cm., and found within the lower 1 or 2 meters of the ileum. It is present in about 1.5 per cent. of all persons. Balfour reports that in a series of 10,000 consecutive laparotomies the organ was found fifteen times, and of these was involved in five.

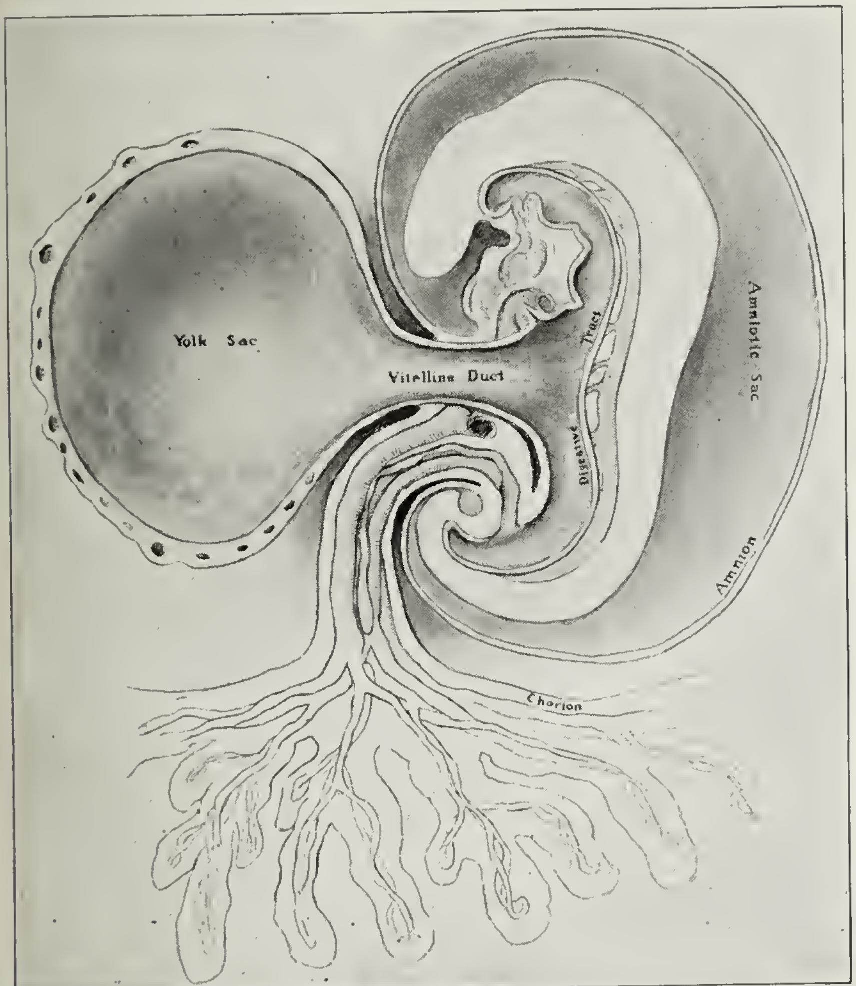

Fig. 1.—Vitelline or omphalomesenteric duct in 2.5 millimeter embryo. Figures 1, 2 and 4 have been redrawn from illustrations by Mr. Max Broedel in Cullen's "The Umbilicus and Its Diseases."

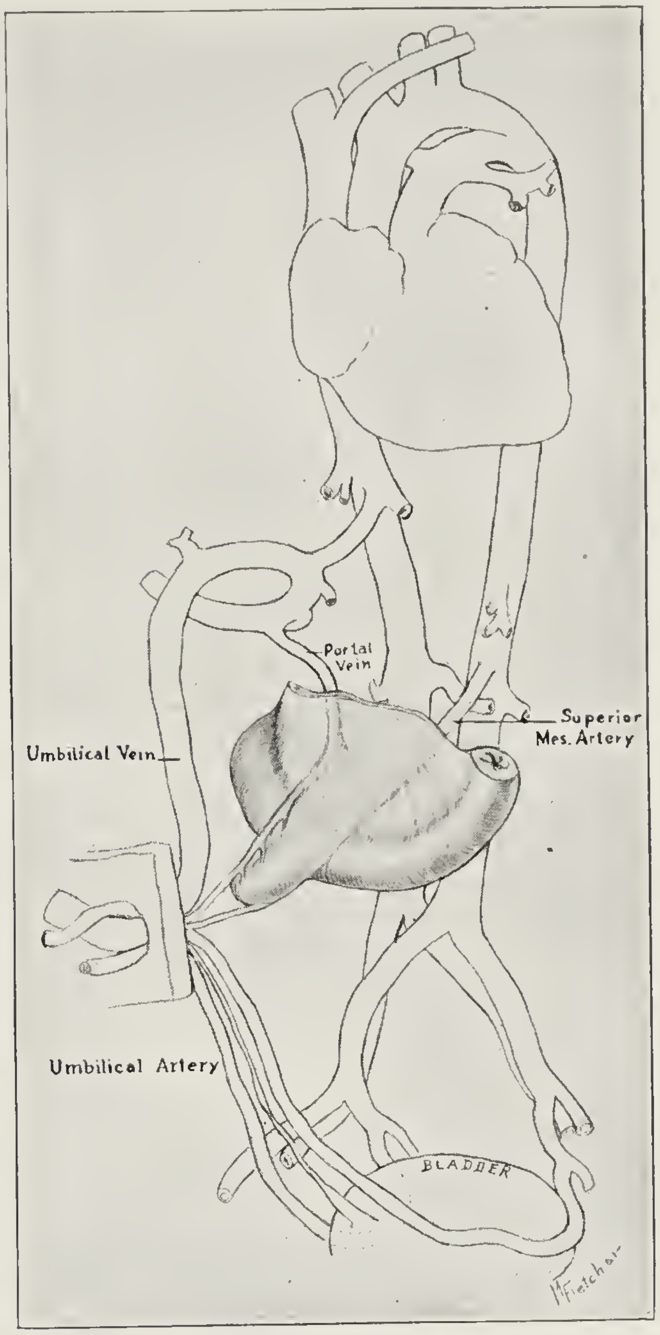

Fig. 2.—Meckel's diverticulum in fetus at term.

For a satisfactory understanding of the mode of production of this fetal remnant, it is necessary to consider for a moment the early development of the embryo. The ova of the lower forms, those which develop outside the body of the parent organism, are provided with a rich pabulum for their nourishment (the deuteroplasm) which surrounds the developing embryo and by which it is gradually absorbed. In higher forms, including man, in which intra-uterine development of the ovum takes place, the early nourishment is supplied by a small, attached receptacle, the yolk sac. In the 2.55 millimeter embryo, this sac is connected to the side of the primitive intestinal tract by means of a short tube, the vitelline or omphalomesenteric duct through which the store of food destined for the nutrition of the rapidly developing embryo is allowed to pass. During the first month of the life of the embryo, as the abdominal walls approach each other, the vitelline duct becomes reduced to a gradually lengthening tubular structure, which in the second month becomes atrophied to a mere cord with, finally, complete solution of continuity between the yolk sac and the primitive intestine. No traces of the duct are present in the bowel wall of the fetus of from 4 to 6 months. In about 1 per cent. of persons this atrophy does not completely take place, but terminates before the main intestinal tube is reached, leaving a projection of varying length attached to the surface of the lower ileum, which persists throughout life as Meckel's diverticulum. Remains of the obliterated blood vessels that once accompanied it may form a cordlike attachment between its tip and the abdominal wall, especially at the umbilicus, which cord is at times instrumental in the production of intestinal obstruction. These bands, the fibrous remnants of the omphalomesenteric vessels, are capable of knotting the diverticulum about coils of bowel, or may form arches under which coils may slip and ultimately become strangulated. Although of tremendous interest when these obstructions occur, such instances are rare, as Dr. Finney has shown in a recent paper on intestinal obstruction in which he states that there was not a single case of acute obstruction due to Meckel's diverticulum at the Johns Hopkins Hospital over a long period of years.

The organ is subject to inflammation and occasionally to acute suppurative processes, with the production of a symptom complex indistinguishable from that of acute appendicitis, for which the condition is nearly always mistaken. Porter has compiled a series of cases in which the diverticulum was the cause of severe intestinal symptoms, which he thus enumerates: obstruction in hernia, 21; obstruction by bands, 101; volvulus, 8; intussusception, 20; diverticulitis, 17; perforations in typhoid, 5; tuberculous ulceration, 2; prolapse of bowel, 2, and pelvic tumor, 1.

As has been the case with many surgeons, I was first attracted to the subject of Meckel's diverticulum by the appearance in my own clinic of a case of acute intestinal obstruction resulting from constriction by an adherent diverticulum. In a review of the recent literature, although it was found that no large series of cases has been reported by any one author, many have described the occurrence of one or two similar cases in their surgical practices.

Coley and Fortuine[1] describe the history of a case under their own observation and also review the histories of twenty-six other cases recently reported in the literature. The operative mortality in this series was about 42 per cent.

Wellington[2] compiled 326 cases of the occurrence of diverticula reported up to 1913, and found that in one third the diverticulum is attached to the umbilicus either by an open fistula or by fibrous bands, under which loops of bowel may strangulate. In his series, the conditions, in order of frequency, were: intestinal obstruction; intussusception; acute diverticulitis; hernial sacs opening at the umbilicus; volvulus; perforations in typhoid, and perforations from foreign bodies.

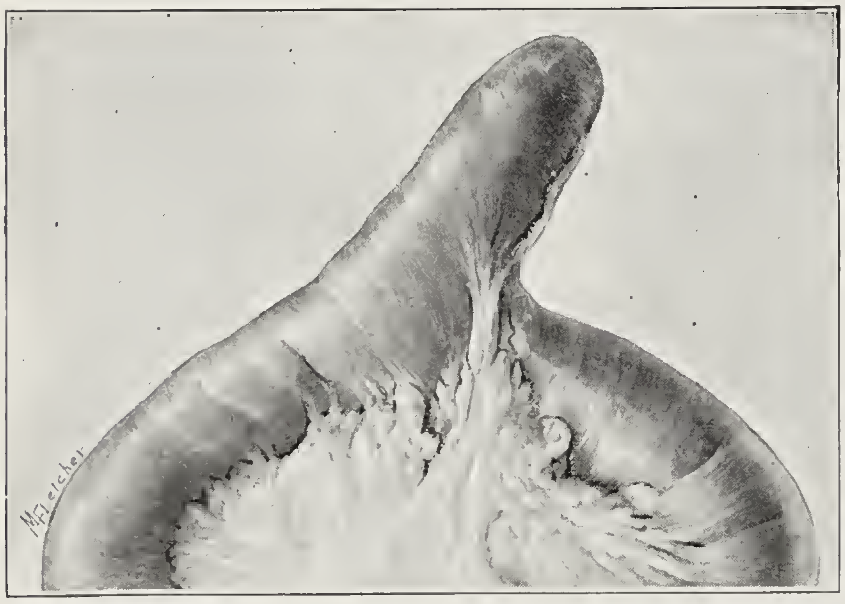

Fig. 3.—Normal Meckel's diverticulum (drawn from necropsy specimen).

Fauntleroy[3] has reported the case of a young seaman who was seized with sudden abdominal pain suggesting acute appendicitis. Operation revealed an intussusception with a Meckel's diverticulum at its head. Bennett[4] cites the case of a young woman with intestinal obstruction due to Meckel's diverticulum adherent to the omentum, thus forming an arch through which 4 feet of ileum had passed. Borden[5] has reported an especially interesting case in which the diverticulum had tied a knot around a loop of bowel and had caused the whole mass to become gangrenous, while Graham[6] has reported three cases of Meckel's diverticulum causing intestinal obstruction, in one of which the diverticulum was attached only to the ileum, in the second to the ileum and to the mesentery of the ileum, and in the third to the ileum and to an abdominal tumor.

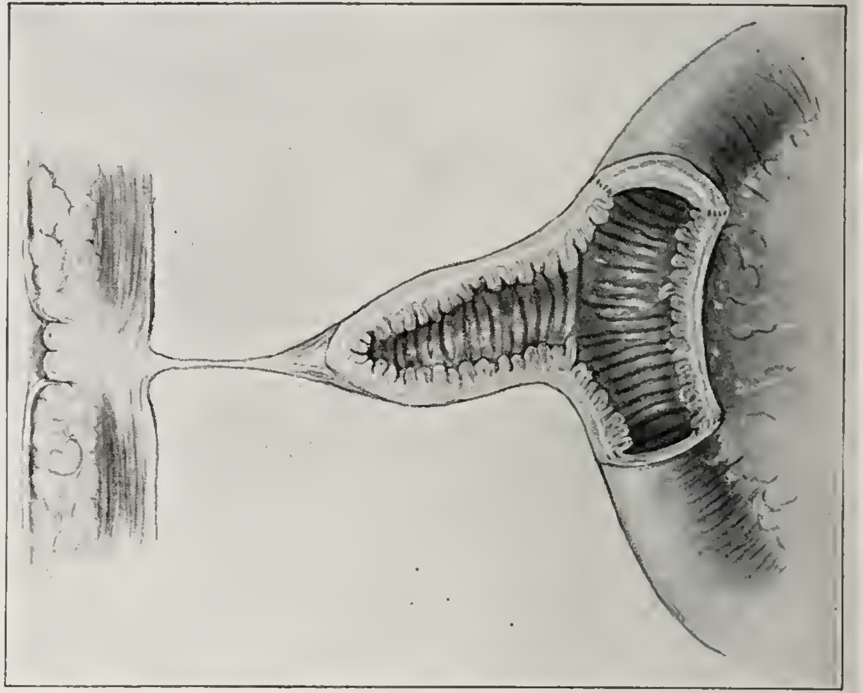

Fig. 4.—Fibrous band (remnant of omphalomesenteric vessels) connecting tip of Meckel's diverticulum with umbilicus.

The mechanism of the formation of intestinal knots when loops of bowel have become incarcerated beneath adherent diverticula was worked out many years ago, and was illustrated by Treves.[7]

Hertzler and Gibson,[8] in addition to reporting a personal case of invagination of Meckel's diverticulum associated with intussusception, have made a careful study of the recorded cases, and append brief histories of forty-one of these in which there were sufficient data to permit a judgment of the anatomic character of the lesion. In this series, the ages of the patients vary from 7 months to 39 years, the average being 13 years. Twenty, or 49 per cent., were under 10 years of age. The sex is given in thirty-eight cases, thirty-one being males and seven females. In thirteen of the forty-one cases, a history of previous attacks is definitely given. In three, a single attack is mentioned; in nine, repeated attacks. Vomiting was recorded in twenty-four cases. Of all the patients on whom resection was done, thirteen died and nine recovered, so far as definite information is available, a mortality of nearly 60 per cent.

Every writer on this subject invariably pays homage to Reginald Fitz and his classical paper, "Acute Intestinal Obstruction," read in Washington before the Congress of American Physicians and Surgeons, in 1888. The paper contained a critical analysis of 295 cases compiled from the literature, the most complete review up to that time. Of the 101 cases of strangulation, twenty-one were due to vitelline remains. Operation was performed in 67 per cent. of the cases of strangulation, with forty-one deaths, a mortality of 61 per cent.

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[1] Coley, W. B., and Fortuine, S. T.: Ann. Surg. **73**: 568 (May) 1921.

[2] Wellington, J. R.: Surg., Gynec. & Obst., January, 1913.

[3] Fauntleroy, A. M.: U. S. Navy M. Bull. **10**: 511 (July) 1916.

[4] Bennett, R A: Lancet **1**: 1117 (June 28) 1919.

[5] Borden, D. L.: Meckel's Diverticulum, J. A. M. A. **74**: 1308 (May 8) 1920.

[6] Graham, R. R.: J. Canadian M. A. **8**: 966 (Nov.) 1918.

[7] Treves: Intestinal Obstruction, p. 50.

[8] Hertzler and Gibson: Am. J. M. Sc. **146**: 364, 1913.

I have looked for Meckel's diverticulum a great many times, especially when, after a diagnosis of acute appendicitis has been made, an apparently healthy organ has been brought up from the right iliac fossa, without discovering it except in one case, when it was highly inflamed, and in one case of intestinal obstruction. Among our necropsies it has been discovered once by our pathologist in the past seven years. I will give a brief abstract of the history of a patient operated on in my own clinic for the relief of acute intestinal obstruction following the strangulation of a loop of ileum by an adherent Meckel's diverticulum.

REPORT OF CASE

History.—J. M., a man, aged 47, admitted to the hospital, Nov. 3, 1922, complained of severe pain throughout the abdomen. There had been no previous history of gastro-intestinal trouble. The symptoms first appeared thirty-six hours before, while the patient was out hunting. Soon after eating an apple, he experienced an acute, severe pain in the upper abdomen, which was soon followed by vomiting. He took a cathartic, but vomited it. His condition rapidly became worse, and he went home and to bed, where he remained for twenty-four hours, the pain becoming more intense and extending through the entire abdomen. There was associated marked nausea, with severe retching. The bowels did not move after the onset. On admission to the hospital, the pains seemed to be somewhat less in intensity; but the distention, which had been slight at first, now became quite marked.

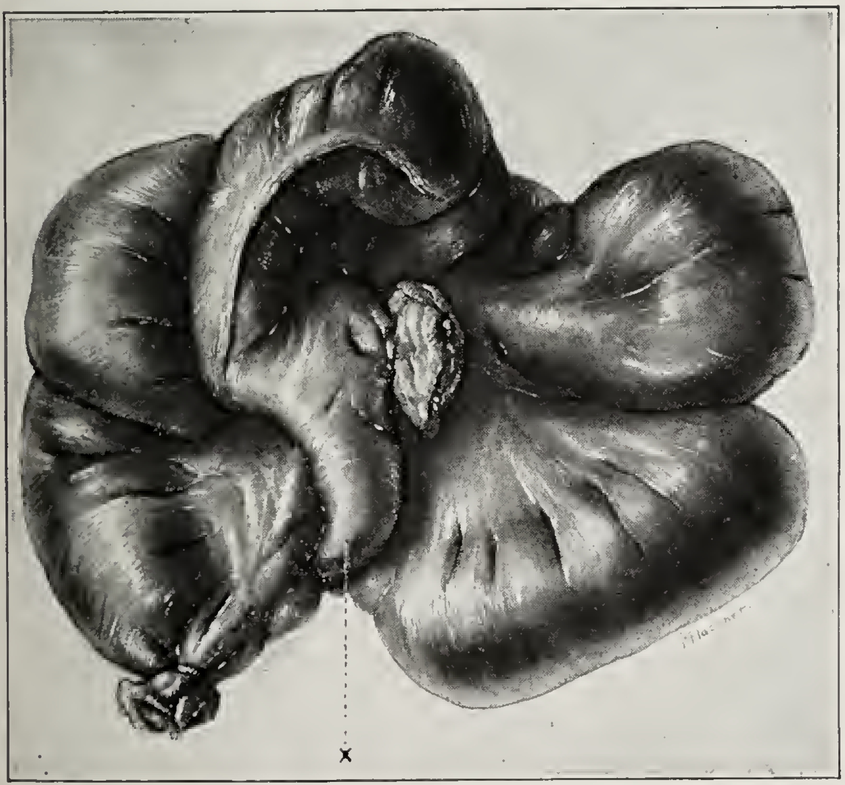

Fig. 5.—Volvulus of ileum with gangrene following constriction by adherent Meckel's diverticulum in patient reported here: resection and end-to-end anastomosis.

Physical Examination.—The patient did not seem especially ill. The temperature was 99, pulse 96, respiration 16, white blood count 5,000, with 68 per cent. polymorphonuclears. The pulse was regular, and the skin dry and warm. There were no special evidences of shock. The chief finding was marked abdominal distention, with tympanites throughout. No masses could be felt. The rectum and hernial rings were negative. There was no vomiting at the time of admission, but gastric lavage brought away a small quantity of dark and slightly offensive fluid. An enema was returned clear, without any decrease in distention or relief from pain. Soon after the administration of the enema there was an increased peristalsis, and a small, spherical mass appeared immediately beneath the umbilicus. This gradually increased in size and was accompanied by increasing tenderness. A diagnosis was made of acute intestinal obstruction with volvulus of the ileum, and operation was decided on.

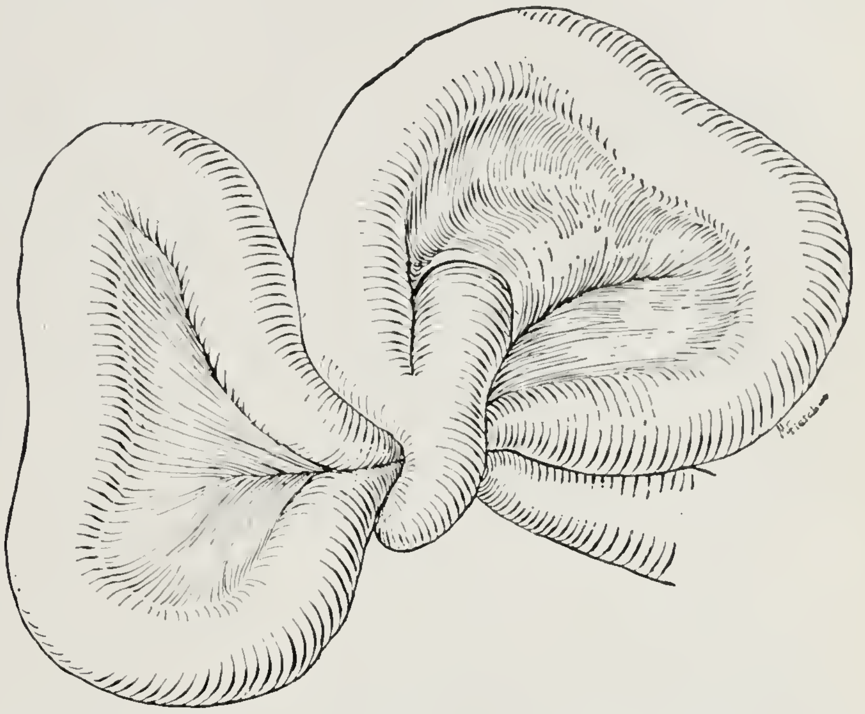

Fig. 6.—Mechanism of production of intestinal obstruction by adherent Meckel's diverticulum.

Operation and Result.—When the abdomen was opened there was an outpouring of dark, bloody serum, while a volvulus involving 2 feet of the lower ileum projected into the wound. The root of the mesentery was found densely compressed by a band connecting Meckel's diverticulum with the mesentery. The involved bowel was black. A resection of the entire mass was performed, in which about 2 feet of ileum was removed and an end-to-end ileocolostomy was performed. The patient was returned to bed, and 1,200 c.c. of saline solution was subcutaneously injected and a rectal tube passed. The patient rested well during the night, and on the following day was started on the routine gastro-enterostomy diet.

On the second day, a small enema was given which brought away nothing but flatus. On the following day there were three large involuntary liquid stools. On the fourth day there were liquid stools, but the bowels were under control. On the fifth day the patient's general condition was excellent. He was given a liquid diet, and on the eighth day was out of bed, following which convalescence was uneventful.

Examination of the specimen revealed the fact that a Meckel's diverticulum, 12 cm. in length, had become reflected partially on itself and attached by its tip to the root of the ileac mesentery. In this way an arch had formed, under which a loop of ileum had passed and become strangulated. Obstruction had been complete, with later thrombosis of the mesenteric vessels and with gangrene supervening.

COMMENT

The differential diagnosis between intestinal obstruction from Meckel's diverticulum and that from other of the usual causes is often most difficult, while the infrequent occurrence of the diverticulum causes the true condition to be about the last thing thought of until the abdomen is opened.

The clinical picture of the condition is not unlike that of intestinal obstruction from volvulus from any cause. The only sign that ever presents itself and which may be considered especially significant is the appearance of a mass at or near the umbilicus.

SARCOMA OF THE ETHMOID

REPORT OF CASE IN WHICH THERE WAS APPARENT RECOVERY AFTER ROENTGEN-RAY THERAPY *

A. R. MACKENZIE, M.D.
AND
E. D. WELLS, M.D.
HUNTINGTON, W. VA.

History.—K. G., a white boy, aged 14 years, a native of West Virginia, whose parents were living and in good health, and who had four brothers, all living, and in good health, their ages ranging from 7 to 21 years, one sister having died when 4 years of age, of diphtheria, had always enjoyed good health and had never had any severe illness until early in the fall of 1922, when he began to complain of headaches and "nosebleeds." The family physician was unable to detect any trouble with the eye or in the nose at that time. In the latter part of November, 1922, a growth was noticed high up in the nose, and the right eye began to swell. About December 15 he was sent to a nose and throat specialist in Charleston, W. Va., who stated that he removed the adenoids and tonsils, and opened an abscess between the eye and nose. We doubt whether all of this was done, because the tonsils were not removed, and just what kind of operation was performed we have been unable to learn. The swelling from that time on gradually increased.

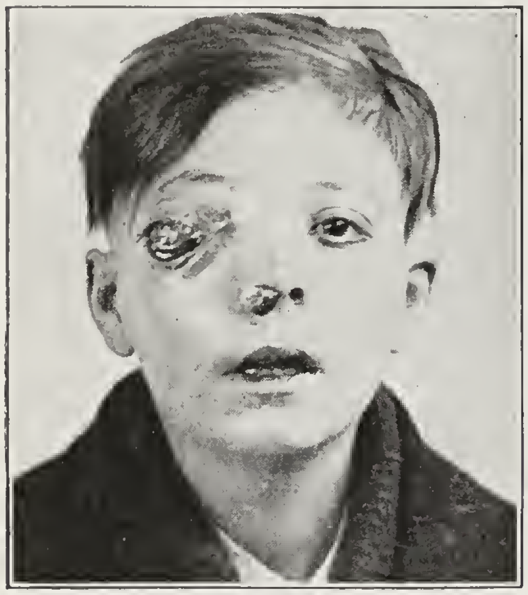

Fig. 1.—Appearance of patient before treatment.

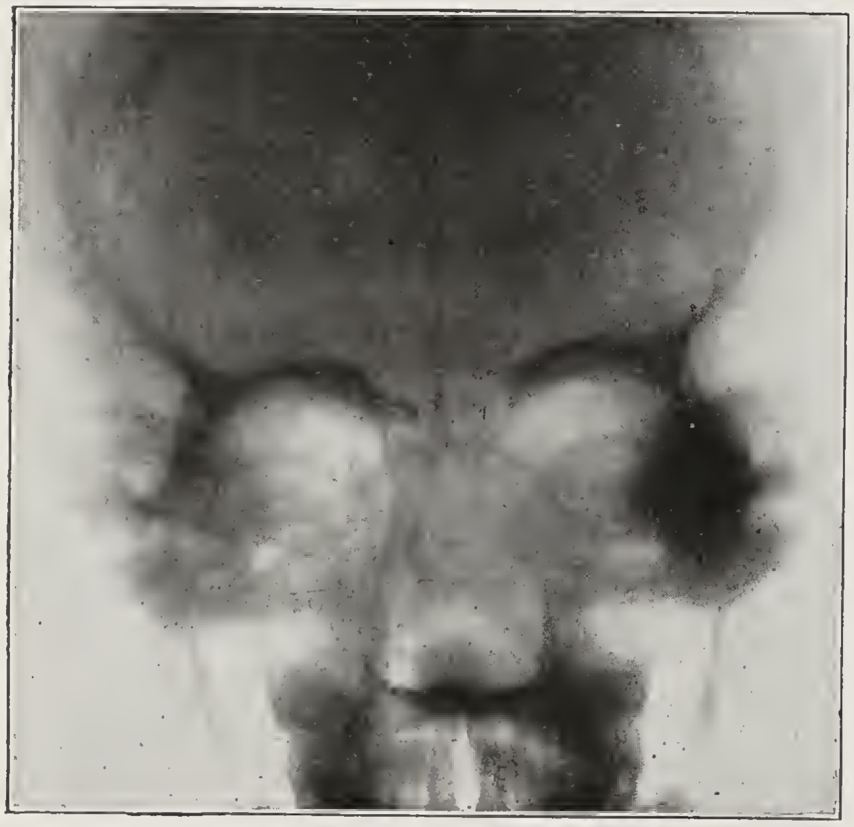

Fig. 2.—Appearance before treatment.

When he presented himself to Dr. E. D. Wells, Feb. 26, 1923, he was emaciated, sallow and anemic, and staggered from weakness on the slightest exertion. Mentally he was dull and apathetic (Fig. 1).

Examination.—Dr. Byrd Hunter found nothing abnormal except for the tumor mass and resulting anemia and emaciation.

Laboratory examination by Dr. F. C. Hodges showed that the blood Wassermann reaction was negative; erythrocytes, 3,420,000; leukocytes, 14,800; hemoglobin between 70 and 80 per cent.; coagulation time, four and one-half minutes; small mononuclears, 12 per cent.; large mononuclears, 18 per cent.; polynuclear neutrophils, 69 per cent.; eosinophils, 1 per cent. The urine was normal.

Dr. E. D. Wells found the right eyeball pushed out and to the right. The mass pushing against the eyeball was located at the inner corner of the orbit and posterior to the eyeball. The eyeball was pushed to such an extent that it was impossible to get a complete view of the cornea. There was a small ulcer on the lower corneal margin. The lower portion of the anterior chamber was filled with what had the appearance of a hypopyon. It was impossible to get any reaction from the pupil. No ophthalmoscopic examination of this eye was made. Vision was restricted to light perception.

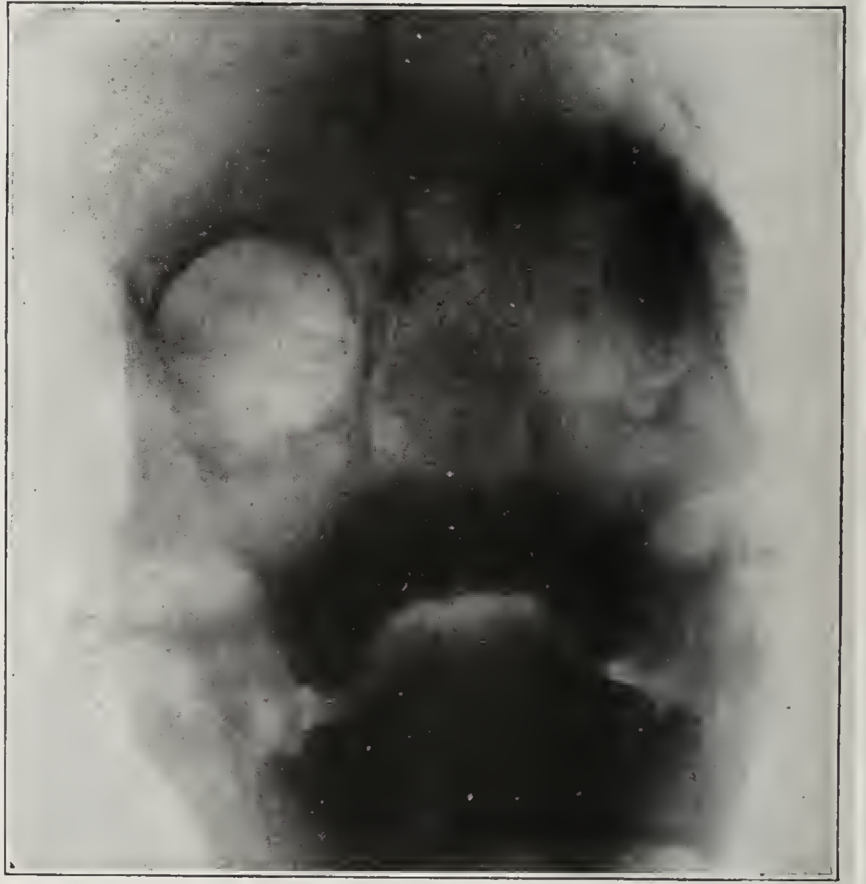

Fig. 3.—Appearance before treatment.

The left eye was normal, with vision of 20/20.

The right nostril was filled with a mass which appeared to be a part of the same mass pushing into the orbit. This mass was protruding from the right nostril three quarters of an inch. There was a constant mucopurulent discharge from the nostril. The left nostril showed no pathologic changes except that the septum was deviated to the left because of the pressure from the mass in the right nostril. The nose was broad and spreading from the internal pressure.

The mucous membrane of the throat and mouth presented a healthy, pinkish appearance, the only pathologic sign being a slight downward bulging of the soft palate on the right side.

The tentative diagnosis was sarcoma of the ethmoid.

The part of the mass pushing against the eyeball was very firm and nodular. The part protruding from the end of the right nostril was "beefy" in appearance and not so firm as the upper portion of the mass, but it bled freely when touched.

Pathologic examination of a section by Dr. F. C. Hodges of Huntington, W. Va., verified by Dr. H. Gideon Wells of the University of Chicago, revealed angiosarcoma.

Roentgenologic examination was made, February 27, anteroposterior and lateral stereoscopic views being made of the skull (Figs. 2 and 3). The anteroposterior views showed the greatest degree of opacity (density), circumscribed in character, in the region corresponding to the ethmoid region, and occupying the whole posterior nasal fossa. The opaque shadow was continuous with and extended from this region upward and outward into the lower portion of the orbital region and beyond the external margin of the orbit, and downward into the space corresponding to the space of the right nostril, but was not so dense. The septum was pushed far over to the left, thinned and barely perceptible in the roentgenogram. The lateral stereoscopic views revealed little additional information.

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* Read before the Cabell County Medical Society, Huntington, W. Va., March 29, 1923.

Treatment and Course.—March 1, Dr. MacKenzie gave the patient one maximum dose, 84 per cent. of the erythema dose, 200,000 peak kilovolts, 5 milliamperes, with a 1 mm. copper and 1 mm. aluminum filter. He was placed in an anteroposterior position with the left eye and the left side of the face protected with a quarter of an inch of lead, padded. There was a noticeable improvement of the tumor and eye, beginning twenty-four hours after irradiation.

The patient was examined by us and seen by other physicians every two or three days after irradiation. The improvement was gradual and constant.

Five days after exposure to the rays, the appearance was that shown in Figure 4. The eyeball gradually receded to its normal position and appearance. The mass in the nose gradually became smaller and smaller and the patient's whole appearance improved, the forlorn expression of the child's face changing to one of happiness and health.

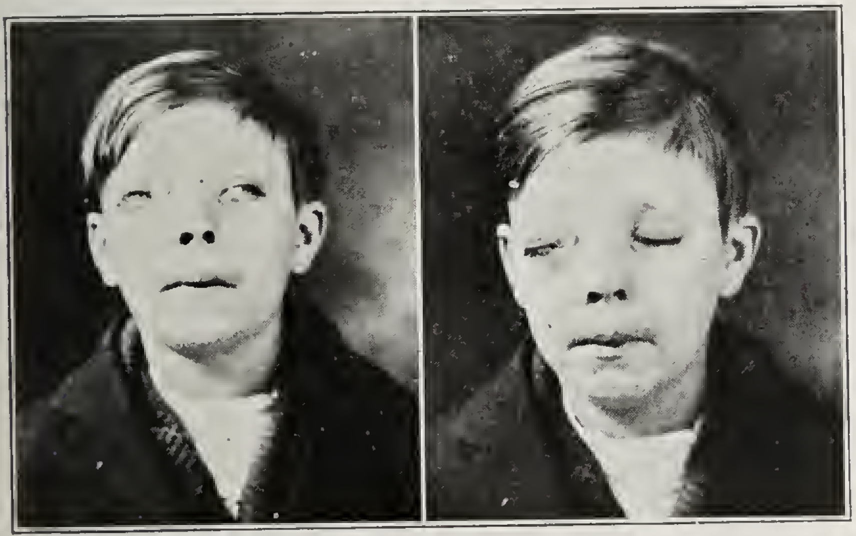

Fig. 4.—Five days after treatment.

Examination by Dr. Wells, six weeks after the treatment, revealed that the right eye had receded to its normal position. The conjunctiva was normal. The cornea was normal, except for a scar resulting from a former ulcer. The anterior chamber was normal. All signs of hypopyon had disappeared. The iris and lens were normal. Vision was 20/20. Ophthalmoscopic examination showed the choroid and fundus normal.

The left eye was normal, with vision of 20/20.

The right nostril showed a very small mass far up in the nose. This mass was about the size of a very small turbinate bone. The mucopurulent discharge had disappeared.

The left nostril had the same appearance as on the first examination.

The throat and mouth showed the same condition as on the first examination, except that the bulging of the soft palate had completely disappeared.

At no time did the patient have any reaction from the rays that caused him the slightest inconvenience or interfered with his comfort in any way. The urine, which was repeatedly checked, remained at all times normal both chemically and microscopically. The blood showed a gradual improvement. The red blood cells increased, the ratio between the red and white cells was normal six weeks after treatment, and at no time did the red blood cell count fall below the count taken the day before treatment, when there were 5,830,000 red blood cells per cubic millimeter; leukocytes, 8,200; hemoglobin, 92 per cent.; small mononuclears, 44; large mononuclears, 4; polynuclear neutrophils, 50, and eosinophils, 2. The blood has remained normal to date. Very little change was noted in the blood pressure at any time.

The temperature ranged from 96.6 to 98.6 F. The irradiation did not seem to influence the temperature curve. The respiratory rate, 20 a minute, remained unchanged throughout. The pulse rate most of the time ranged between 70 and 80, except on the first, third, seventh, ninth and seventeenth days after the first irradiation, when it was increased from 98 to 112. The rate on the days mentioned increased slowly, and decreased in the same manner, lasting twelve hours at a time. The same was experienced after the second irradiation.

The patient's skin has a normal appearance. He gained 10 pounds (4.5 kg.) in the period of six weeks. The weight when the patient was admitted to the hospital was 82 pounds (37 kg.); March 22, it was 87½ pounds (40 kg.); April 15, 92½ pounds (42 kg.). At present he is very active and mentally normal for a boy of his age.

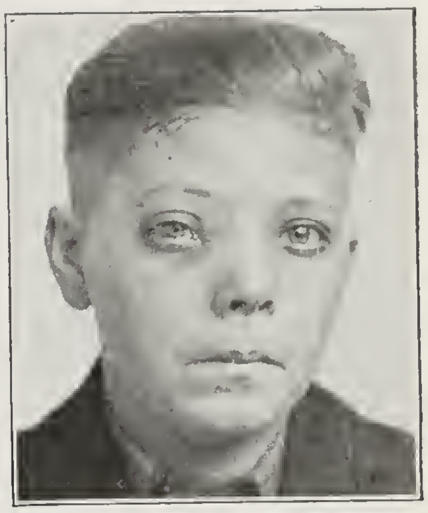

Fig. 5.—Three weeks after treatment.

The anteroposterior roentgenogram (Fig. 6) shows complete disappearance of the growth. A second prophylactic dose was given six weeks after the first irradiation; the same factors were used as for the first dose.

The patient's appetite has been excellent; he eats three full meals a day, with a mixed diet. He has slept well every night since the first treatment, and has not complained of any pain or discomfort.

COMMENT

We have been able to find only about a hundred cases scattered through the literature of sarcoma of the ethmoid, and the author in each case laid more stress on the prognosis than on treatment, speaking of the rapid and fatal termination of all cases. The first attempts of treatment with roentgen rays resulted in injuries to the eye, which were reported by Birch-

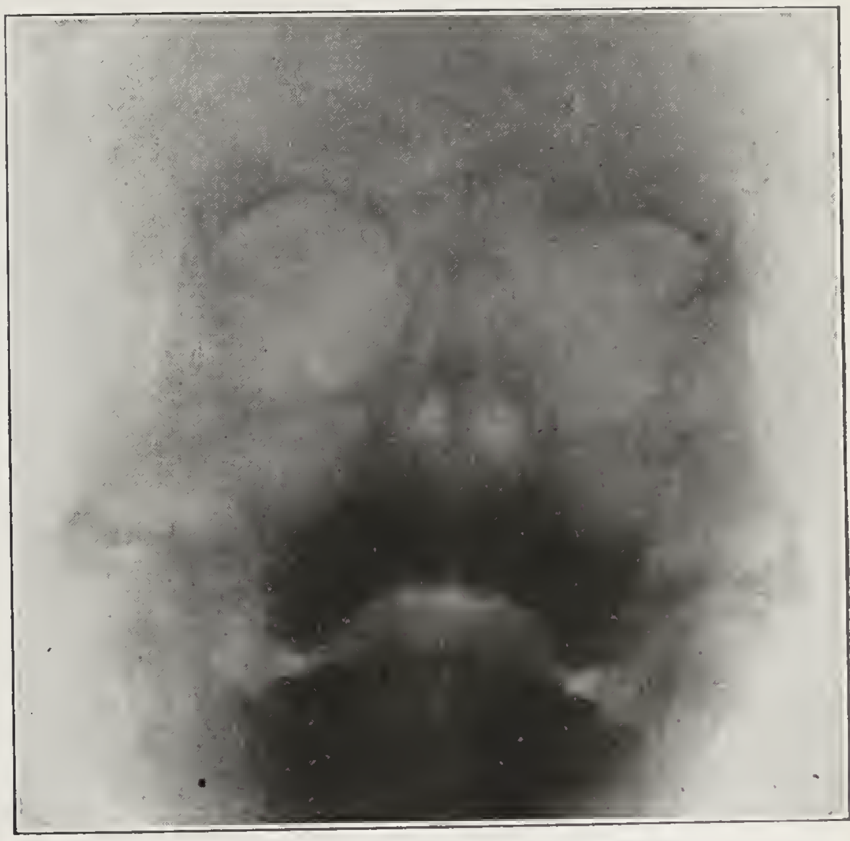

Fig. 6.—Disappearance of growth.

Hirschfield in 1904. It was only after Kupferle's animal experiments with hard rays that further therapeutic experiments were made. Christoph Müller, in 1921, was able to show that the normal eye is not more sensitive than the skin to hard rays.

In reporting this case we feel that there are five points of interest to be considered:

1. The comparative rareness of sarcoma of the ethmoid.
2. The rapidity with which the tumor retrogressed with the return of vision, after one maximum dose of the roentgen ray (a short wave length was given).
3. The rapid improvement of the patient's physical and mental condition.
4. That the short wave length roentgen ray did not damage the finer structures of the eye or the delicate diseased mucous membranes.
5. That this is the first apparent recovery, so far as we have been able to learn, after a careful search of the literature.

The physical, clinical and laboratory examinations revealed no evidence of metastasis.

Despite our enthusiasm, however, we intend to keep the boy under constant observation and not allow our enthusiasm to overrule our better medical judgment. We have encouraged him to stay out in the sunlight as much as possible.

The final outcome will be reported later.

421 Eleventh Street—1111 Fourth Avenue.

PRIMARY CARCINOMA OF THE URETER

REPORT OF A CASE, WITH A REVIEW OF THE LITERATURE [*]

LOUISE H. MEEKER, M.D.
AND
JOSEPH F. McCARTHY, M.D.
NEW YORK

The rarity of primary carcinoma of the ureter and the difficulty of diagnosis should impel every diagnostician to seize with avidity such information as the literature pertaining to the subject may offer, and to store it in his subconscious mind. The perplexities encountered in making a diagnosis are noted by the authors reporting the condition, a correct preoperative diagnosis having been made only five times in thirty-three reported cases; and, if successful treatment is to be carried out, an early and accurate diagnosis is imperative. A first encounter with a case of this type will bring disaster to both physician and patient if the physician fails to profit by the experience of previous observers.

Primary carcinoma of the ureter has been reported since 1879. Hektoen,[1] in 1896, referred to two cases earlier than his own. A review of the literature was made by Albarran in 1902, who compiled reports of ten primary tumors of the ureter, among them five carcinomas, three papillary and two nonpapillary. The first notable review restricted to primary carcinoma of the ureter was made in 1909. In this review, Richter [2] referred to eleven cases. Butler's review,[3] made in 1914, includes nineteen cases previously reported. Schmitt,[4] in 1916, reported twenty primary carcinomas of the ureter. Judd and Struthers,[5] in 1921, compiled twenty-five cases from the literature and added their own case. Suter [6] compiled twenty-two cases in 1922. In the same year, Aschner's [7] list comprised twenty-six cases, to which he added his own case.

To bring the survey of the literature up to the present, we will refer briefly to five cases, one found in the St. Thomas Hospital reports [8] in 1903, one by Hofmann [9] 1916, one by Thomson Walker,[10] 1921, and two by Suter, 1922. These, with the addition of our own case, bring the total of published cases of carcinoma of the ureter to thirty-three.

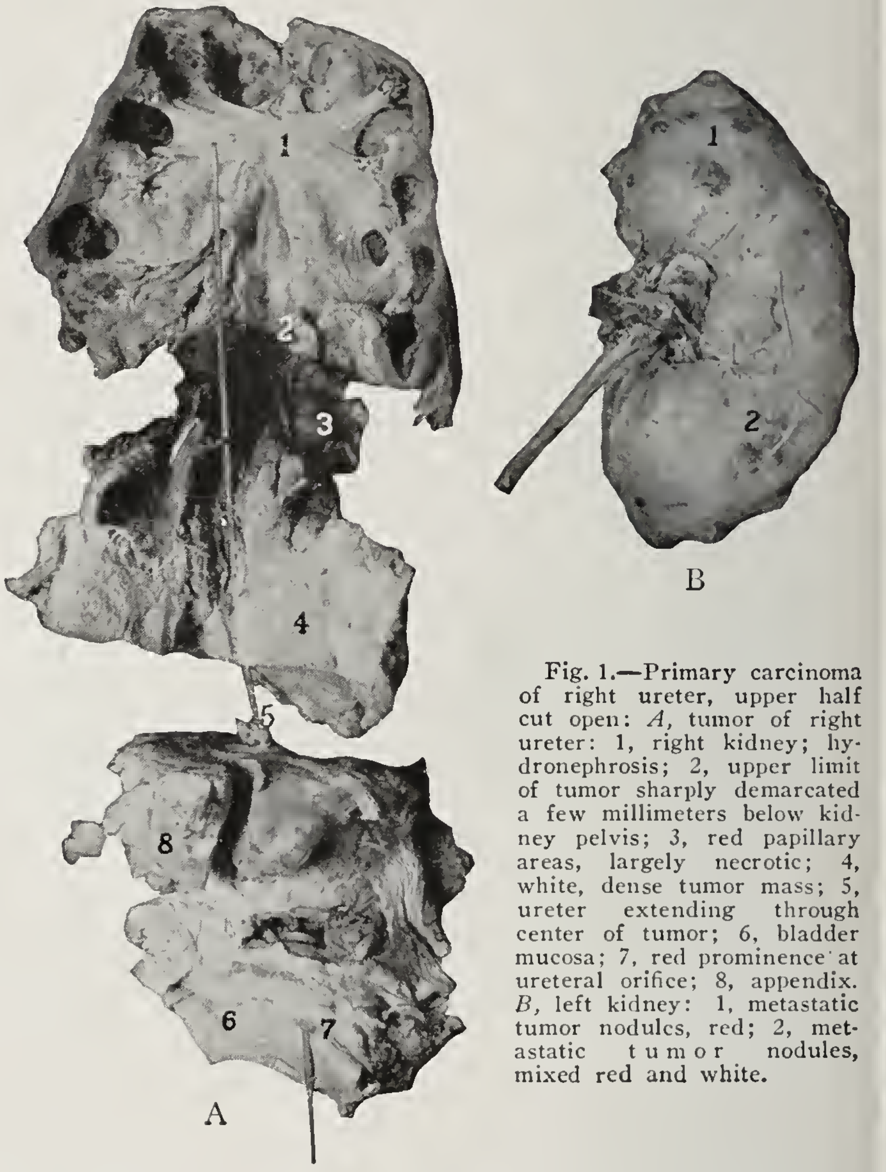

Fig. 1.—Primary carcinoma of right ureter, upper half cut open: *A,* tumor of right ureter: 1, right kidney; hydronephrosis; 2, upper limit of tumor sharply demarcated a few millimeters below kidney pelvis; 3, red papillary areas, largely necrotic; 4, white, dense tumor mass; 5, ureter extending through center of tumor; 6, bladder mucosa; 7, red prominence at ureteral orifice; 8, appendix. *B,* left kidney: 1, metastatic tumor nodules, red; 2, metastatic tumor nodules, mixed red and white.

CASES NOT INCLUDED IN PREVIOUS SUMMARIES

Case 10 (St. Thomas Hospital Report).—A man, aged 69, had had intermittent pain in the back and the abdomen for six months, with recent hematuria. Palpation showed a lump the size of a small orange at the left of the umbilicus. Diagnosis was made postmortem. The left ureter presented a fusiform swelling 2 inches (5 cm.) in length, located at the brim of the pelvis. The ureter above this and the pelvis of the kidney were dilated. The growth in the ureter was fungoid. The prevertebral glands were much enlarged. Microscopic diagnosis was: carcinoma of left ureter; cells of transitional epithelium. The lymph nodes showed metastases.

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[*] Owing to lack of space, the table recording cases is omitted from The Journal. It is included in the authors' reprints.

[*] From the Department of Pathology and Bacteriology and the Department of Urology, New York Post-Graduate Medical School and Hospital.

1. Hektoen, Ludwig: Primary Carcinoma of the Ureter, J. A. M. A. **26:** 1115, 1896.

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6. Suter, F.: Beitrag zur Kastuistik des Uretercarcinoms, Ztschr. f. urol. Chir. **10:** 522, 1922.

7. Aschner, P. W.: Primary Tumors of the Ureter, Surg. Gynec. & Obst. **35:** 749 (Dec.) 1922.

8. Carcinoma of the Left Ureter, St. Thomas Hosp. Rep. **32:** 96, 1903.

9. Hofmann, K. R.: Zur Kasuistik der Tumoren des Ureters, Ztschr. f. Urol. **10:** 369, 1916.

10. Walker, J. W. T.: Proc. Roy. Soc. Med. (Sect. Urol.) **14:** 42 (Feb.) 1921.

CASE 25 (Hoffman's).—A man, aged 35, in whom the trouble began four years previously with hematuria, had had several attacks, and had lost much weight recently. The urine contained a moderate amount of blood. No tumor cells could be demonstrated. Cystoscopy revealed a papillary tumor covering the ureteral orifices. Sectio alta (suprapubic cystotomy) was performed and the bladder opened under spinal anesthesia. A papilloma the size of a pigeon's egg was attached to the left ureteral orifice. Traction on the ureter enabled 10 cm. to be resected, and the stump was implanted in the bladder wall. Six cm. of the ureter showed papillomatous changes. The wound at first healed promptly, and then severe hematuria suddenly intervened. Sectio alta was again performed, with tamponade, a permanent catheter and drainage. There was no recurrence of hemorrhage. Cystoscopy six weeks later showed complete cicatrization with normal function of both ureters; cystoscopy one month later, the same. Microscopic examination revealed papilloma of the ureter, with incipient malignant changes.

CASE 28 (Thomson Walker's).—A man, aged 38, was first presented by Walker to the Royal Society of Medicine as having a benign papilloma of the ureteropelvic junction, right side. Cystoscopic examination had shown no visible tumor, and nephrectomy was performed. The previous hematuria continued, however, and cystoscopy, six weeks later, revealed a papilloma at the right ureteral orifice. Ureterectomy was performed, and a portion of the bladder wall resected, since a papilloma was found near the ureter in the bladder mucosa. The ureter was the size of the thumb, showing a papillomatous carpet with papillomas arranged about the ureteral orifice. The microscopic diagnosis was benign papillomas. Five months after this operation the patient died, and at necropsy multiple masses were found in the abdomen, including growths in the liver. Sections showed carcinoma (type not stated).

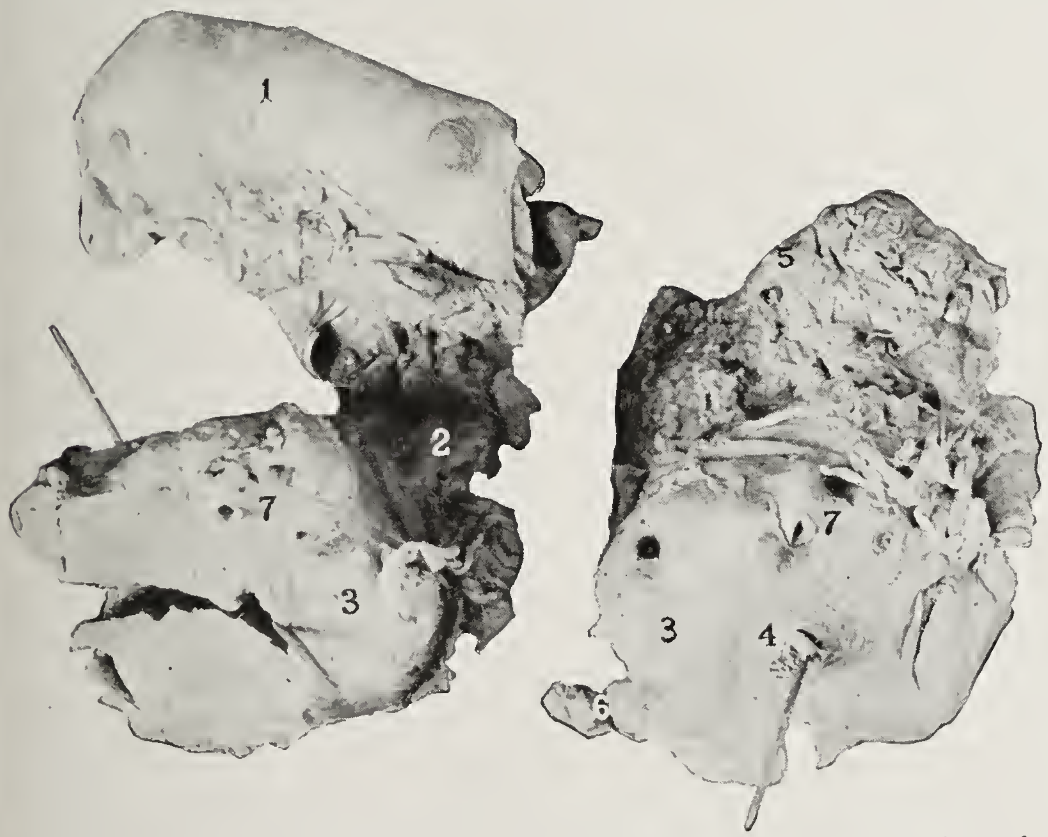

Fig. 2.—Primary carcinoma of right ureter: 1, right kidney; 2, red portions of tumor; 3, white portions of tumor; 4, ureter; 5, bladder; 6, appendix; 7, external iliac vessels.

CASE 30 (Suter's).—A man, aged 65, had had pain in the left renal region for six months, and hematuria for eight days. Palpation was negative except for tenderness and muscular tension. Cystoscopy showed only congestion of the left ureteral orifice. The ureteral catheter encountered an obstruction 8 cm. from the orifice, and blood escaped from the ureter. Nephrectomy was performed. The kidney was enlarged and fluctuating, and the ureter was the size of the index finger. The ureter was incised and catheterized, the catheter meeting an obstruction near the bladder. Hematuria and pain continued. Cystoscopy showed a blood clot in the ureteral orifice. Ureterectomy was attempted and abandoned because of the findings; viz, the upper portion was dilated and fluctuating; over the iliac vessels was a hard cord the size of the thumb, forming an immovable mass, and toward the bladder the ureter was not demonstrable. The patient died nine days later.

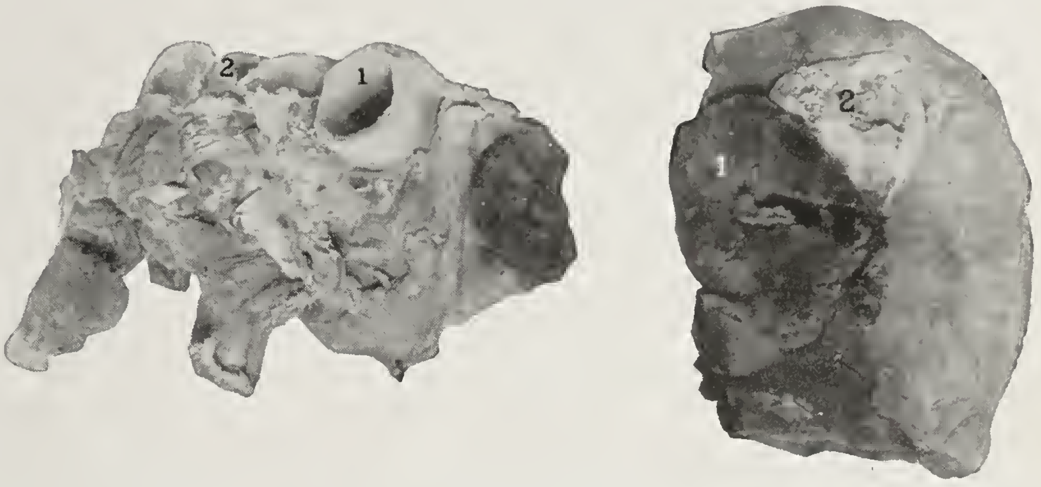

Fig. 3.—At left: 1, aorta; 2, trachea; metastatic tumor masses surround aorta and trachea; masses are both red and white. At right: lung, under surface of left lower lobe: 1, metastatic tumor mass, red; 2, metastatic tumor mass, white.

CASE 31 (Suter's).—A woman, aged 64, had had pain in the right side for two and one-half years, two months with great severity and one month with hematuria. Palpation revealed a mass the size of two fists in the right abdomen. Cystoscopic examination was negative. There was no secretion from the right kidney; the left kindey was normal. The ureteral catheter encountered an obstruction 5 cm. from the vesical orifice, blood escaping after removal of the catheter. Right nephrectomy was performed and, later, ureterectomy. Recovery followed, and the patient was well one year later. Pathologic examination revealed that the kidney pelvis was much dilated, and filled with bloody fluid. The ureter showed an onion-shaped solid tumor in its lower 4 cm., and a solid segment above this 4 cm. long, the size of a lead pencil. Above this it was dilated to the size of the thumb. The lower 1 cm. was normal. On section, the lower part of the tumor was verrucose, with a broad base. Microscopic examination showed a solid carcinoma.

CASE 33.—R. G., a man aged 49, admitted to the New York Post-Graduate Hospital, in the service of Dr. McCarthy, May 7, 1922, and discharged, May 12, complained chiefly of pain in the right hip radiating to the right inguinal region and into the sacropelvic region. The duration was four months. The previous history was negative. Jan. 1, 1922, the patient first noticed a dull, aching pain in the back on the right side. No urinary symptoms accompanied this pain It recurred with increased frequency during the next four months. No gastro-intestinal symptoms were noted, nor had there been observable loss of weight. Physical examination was negative, save for a certain amount of resistance in the right hypogastrium. The patient was negative to the Wassermann test, had a red cell count of 4,500,000, and a white cell count of 21,000; there were 84 polymorphonuclear leukocytes, and 16 lymphocytes per hundred white cells. The urine was negative for tubercle bacilli, and showed occasional pus cells and a few epithelial cells. Dr. W. H. Meyer, who made a roentgenographic examination, stated that the tip of a catheter in the right ureter passed only to the level of the second sacral segment. A ureteropyelogram was attempted, but the fluid was immediately returned to the bladder. No calculi were visualized in either urinary tract. The pronounced gaseous distention of the colon interfered with the proper visualization of the kidney outline.

The total phenolsulphonephthalein elimination for two hours was 39 per cent. Chemical examination of the blood revealed: urea nitrogen, 12.8 mg. per hundred cubic centimeters; sugar, 0.105 per cent.; sodium chlorid, 0.525 per cent.

Cystoscopic examination revealed nothing of an abnormal character save a complete obstruction to the passage of a ureteral bougie or catheter at a point about 6 cm. from the ureteral meatus. A tentative diagnosis was made of possible ureteral calculus and an exploratory operation was suggested, but the patient, after a few days in the hospital, experienced considerable relief from his symptoms and desired that operation be postponed. This was agreed to, with the understanding that he report for subsequent study, which he failed to do. Some time later a telephone message was received from his physician out of town saying that the patient had been seriously ill and had an attack resembling an apoplectic seizure. This was followed by a partial paralysis, which subsequently cleared up. At our suggestion, the patient reentered the hospital, June 15, at which time it was apparent that he must be suffering from an advanced malignancy. He had become thoroughly emaciated, and was cachectic to a marked degree. The abdominal tenderness previously noted was much more pronounced, and a cordlike mass could be palpated but not clearly defined. At this time the diagnosis was malignancy in the colon or ureter. It was deemed inadvisable to operate on him, as his case was hopeless and death a matter of a short time. This took place, July 8. Consent for a limited necropsy was obtained.

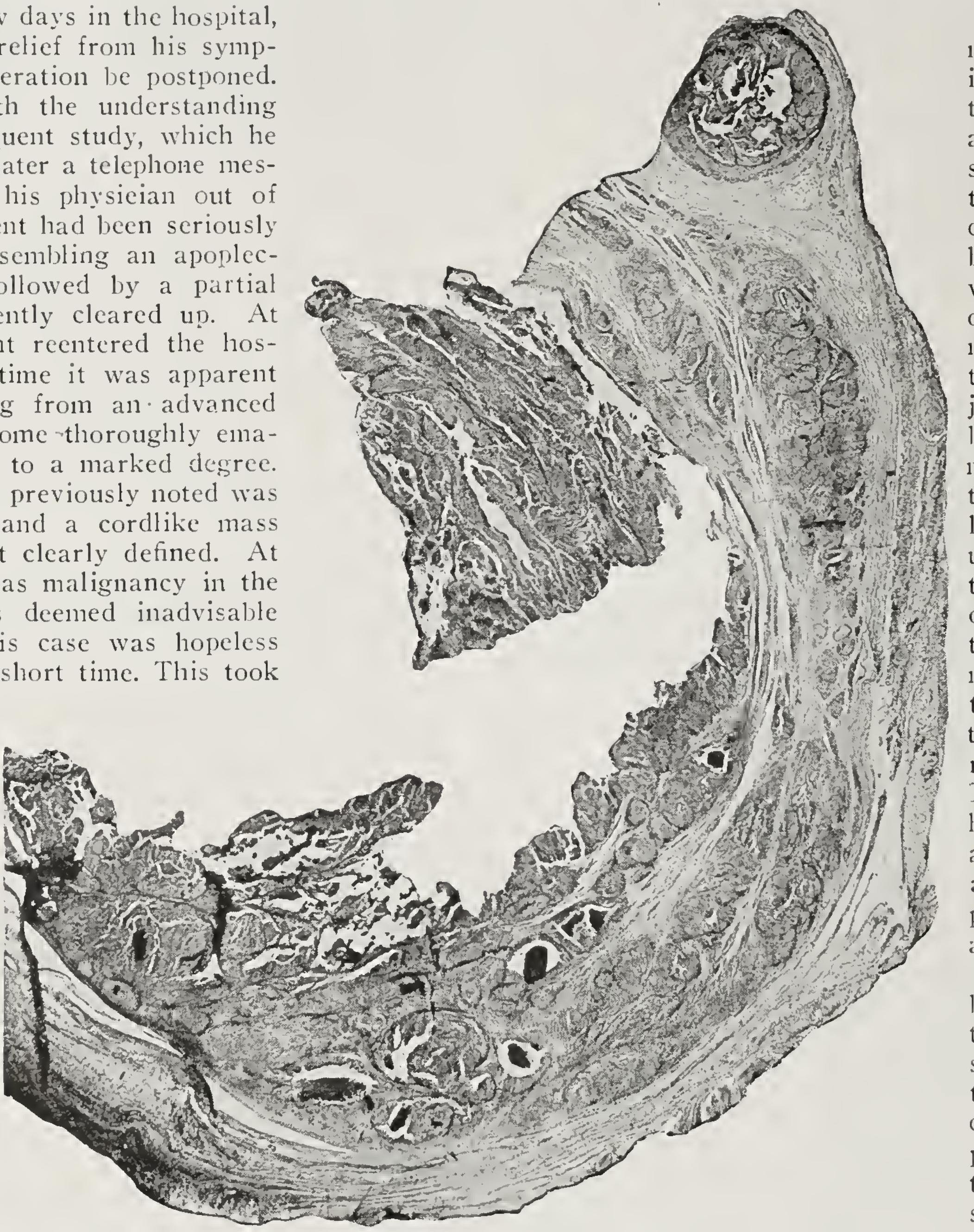
Fig. 4.—Primary carcinoma of ureter; low power; section taken 2 cm. from bladder; papillae and cell nests in the muscle layers.

NECROPSY FINDINGS

The body was markedly emaciated. There was a dimpling of the skin over a hard nodule palpated in the skin and situated midway between the tip of the tenth rib and the anterior spinous process of the ilium. The nodule was 12 mm. in diameter, and showed red markings in the center. On section a hemorrhagic nodule, sharply demarcated, was attached to the under side of the skin. Its cut surface was mottled red and gray.

Abdominal fat was scanty, from 2 to 3 mm. thick. A nodule similar to the one described was seen in the abdominal wall under the umbilicus and projecting into the peritoneal cavity.

The liver weighed 1,800 gm. It extended across the abdomen against the abdominal wall in both sides. Its lower border was 4 cm. above the umbilicus, and presented many gray and red nodules, from 5 to 35 mm. in diameter. On the surface of the liver there were numerous hemorrhagic nodules similar to the one under the skin. Red and gray nodules were scattered throughout the liver.

There was a nodule in the omentum 5 cm. to the left of the median line and 4 cm. below the liver. The nodule was like that under the skin.

The gallbladder was normal, full of fluid bile.

The spleen weighed 98 gm. and measured 95 by 60 by 40 mm. There were numerous adhesions in the region of the spleen. The cut surface showed two red, circumscribed nodules, 10 mm. in diameter, both under the capsule.

The stomach was normal. The duodenum at the lower end was firmly bound to a mass at the brim of the pelvis. The jejunum and ileum were negative. The ascending colon was looped on itself, and was bound by adhesions to an underlying mass at the brim of the pelvis. The appendix was incorporated with the mass, especially for its distal third (Fig. 1).

The mesenteric glands were enlarged, and many hemorrhagic nodules were scattered throughout.

The pancreas was normal, except for three hemorrhagic nodules, one projecting from its lower border, 30 mm. in diameter.

There was a tumor mass (Fig. 2) partly filling the pelvis and attached to its right wall and brim by dense adhesions. It was attached to the bladder, extended downward behind the bladder for 4 cm., and was situated to the right of the median line. This mass surrounded the external iliac vessels, projected forward from the brim of the pelvis for 65 mm., and extended 1 cm. to the left of the median line on the vertebral column. It ascended along the ureter to the pelvis of the right kidney. The tumor was a firm, hard mass, white in its lower two thirds. The third toward the kidney was red, soft and lobulated. Its attachment to the kidney was 3 cm. in diameter. The mass was attached to the right psoas muscle by dense adhesions.

The right kidney lay behind the liver against the diaphragm. It measured 120 mm. from pole to pole, 40 mm. from the cortical surface to the pelvis, and 50 mm. in thickness. The capsule stripped readily. The cortical surface was marked by wide shallow depressions. On the surface of the kidney there were five projecting hemorrhagic nodules at one pole, the largest 12 mm. in diameter, and smaller nodules were scattered over the convexity. On section, the kidney presented a series of thin-walled cysts (dilated calices) with the cortex 8 mm. at its thickest points. The pelvis was dilated to 6 cm., and contained blood-tinged fluid and clumps of reddish gray friable material, apparently blood clot and tissue débris.

The left kidney weighed 190 gm. and measured 125 mm. from pole to pole, 60 mm. from the cortex to the pelvis, and 45 mm. in thickness. The capsule stripped readily. The kidney was bright red, with hemorrhagic nodules on the surface (Fig. 1). The nodules were from 3 to 15 mm. in diameter. On section, nodules were seen in the cortex, especially at the poles, and the attached fat contained red nodules.

The right ureter admitted a fine probe throughout its entire length. On section, the ureter ran through the center of the tumor mass described (Figs. 1 and 2). Papillary, hemorrhagic, friable tissue lined the ureter for 5 cm. downward from the kidney. The mucosa of the ureter could not be recognized in this red, papillary material, which apparently infiltrated the wall and was continuous with the soft, red lobules seen externally. The tumor changed abruptly from the red, soft structure to a dense, hard, white structure that persisted to the bladder wall and was 65 mm. in diameter at its widest point. The ureteral canal had a papillary, ragged lining.

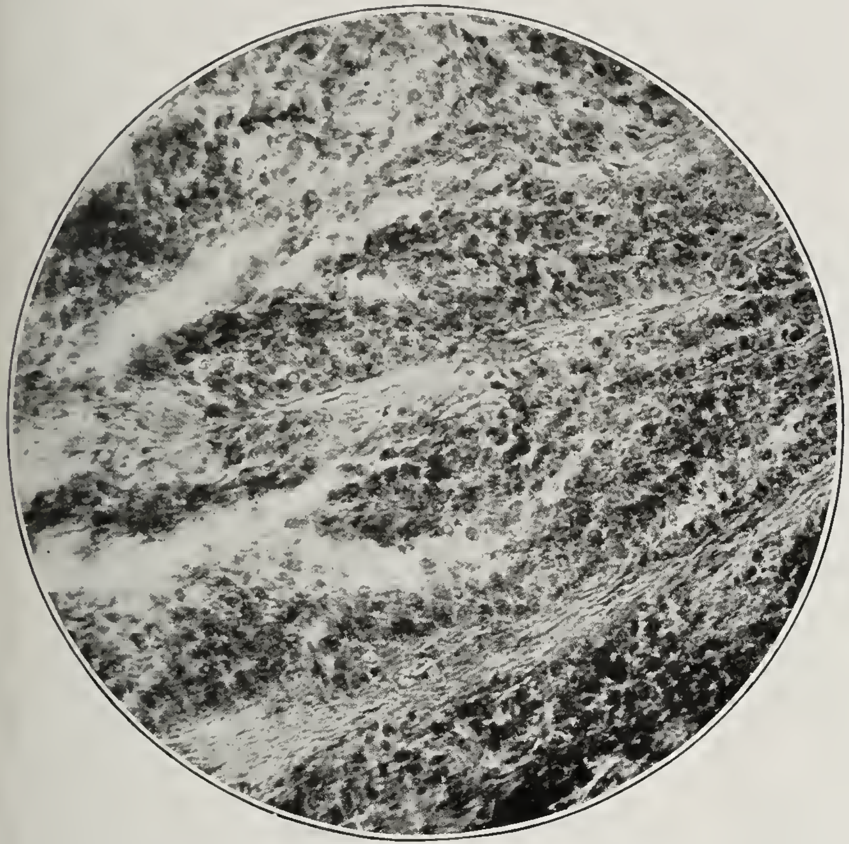
Fig. 5.—Primary cacinoma of ureter: section showing the papillary structure.

There was a small red nodule near the right ureteral orifice in the bladder mucosa; otherwise the mucosa was entirely negative.

The prostate was normal in the gross. The external genitalia were normal.

The suprarenals were negative in the gross. The lymph glands along the vertebral column were large and red.

The pleural cavity was free from fluid. The lungs were only partly collapsed, and showed marked anthracosis.

The right lung weighed 620 gm. It was studded with tumor nodules protruding from all surfaces, some red, some gray. Hemorrhagic nodules surrounded the bronchi and filled the mediastinum (Fig. 3).

The left lung weighed 500 gm. It also was studded with tumor nodules (Fig. 3). The lungs were partially air-containing, and floated low. Sections showed nodules throughout.

The heart weighed 345 gm. The parietal and visceral pericardium contained hemorrhagic nodules. The largest was 5 mm. in diameter. The heart otherwise was normal.

SUMMARY

1. The origin and nature of the fatal illness was primary carcinoma of the right ureter.
2. Secondary and terminal factors were generalized metastases to the liver, pericardium, lungs, spleen, pancreas, left kidney, lymph nodes and skin. There was right hydronephrosis.
3. Anatomic findings consisted of dense adhesions about the tumor; right external iliac vessels embedded in the tumor, and a polypoid nodule, 1 by 2 mm., in the bladder mucosa near the orifice of the right ureter.

MICROSCOPIC

In sections through the ureter, 20 mm. from the bladder mucosa, the lumen of the ureter was almost filled by epithelial cell proliferation (Fig. 4). Papillae were seen at the free border toward the lumen (Fig. 5), and were indicated in the deeper parts by thin connective tissue strands, with lateral branches all covered by layer on layer of epithelial cells. The epithelial cells of adjacent papillae had fused, forming solid sheets of cells. The wall of the ureter at the base of the papillae was invaded by epithelial cells, which penetrated all layers, occurred as nests between the muscle bundles, extended through the lymph channels, and appeared in nodules in the attached fat. Through this portion of the tumor there was considerable fibrous tissue increase and marked infiltration by polymorphonuclear leukocytes and round cells about the new growth epithelium.

The epithelial cells were irregularly polyhedral, with vesicular nuclei and considerable slightly basophilic cytoplasm. The nuclei varied in size from 12 by 18 microns to 25 by 38 microns. The nuclei stained very unevenly; many of them were highly pyknotic. Mitotic figures were fairly numerous: as many as seven or eight might be seen in a single oil-immersion field. There were abortive forms of division: cells with several nuclei and cells in various stages of degeneration.

In sections of the ureter, 25 mm. below the kidney pelvis in the red cystic portions, the new growth was necrotic for the most part. The lumen of the ureter was filled with necrotic material in which there were transections of papillae with central cores of connective tissue and a covering of many layers of epithelium. The epithelial cells presented many bizarre forms. The viable cells were mostly in the wall of the ureter. Blood vessels and spaces without definite walls filled the new growth at this point, and extravasated blood suffused the tumor, producing the red color and cystic structure noted in the gross.

Sections of ureter at its junction with the bladder mucosa showed a ragged but otherwise normal epithelial lining. The deeper parts of the wall, however, contained islands formed by epithelial extensions from the tumor above, and lymph vessels here were seen plugged with tumor cells. The mucosa of the ureter for from 9 to 12 mm. above the opening in the bladder was not involved in the new growth.

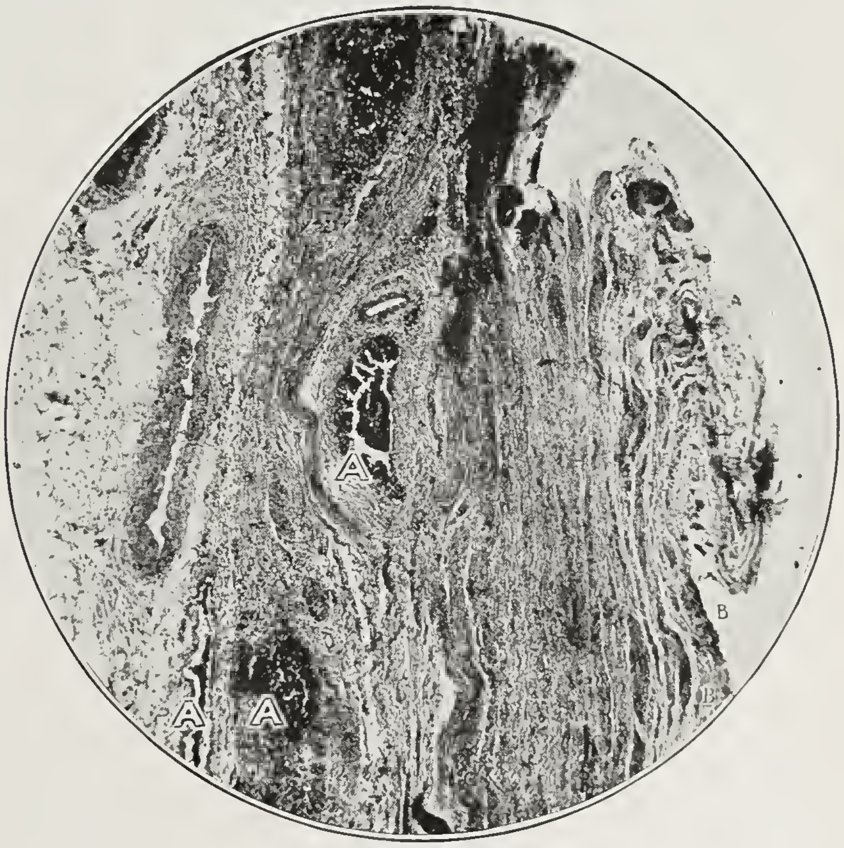

Fig. 6.—Primary carcinoma of the ureter: ureterovesical juncture: *A*, tumor cells; *B*, bladder epithelium.

Sections of the ureter at its junction with the kidney pelvis showed a lining of highly atypical tumor cells (Fig. 7) with blood clot and degenerating tissue covering its surface. The new growth stopped abruptly 9 mm. below the kidney pelvis, with transition to fairly normal pelvic mucosa.

The metastatic nodule in the skin was embedded in the panniculus beneath a thinned epidermal layer. The tumor nodule was well defined by a thin fibrous capsule. Beneath the capsule there was a highly cellular outer zone and an inner portion with large blood spaces. The tumor cells were highly atypical, and presented the characteristics found in the primary tumor near the kidney, that is, in the degenerating, blood-suffused areas. The epithelial cells were loosely arranged with red blood cells in the intercellular spaces.

All the red metastatic masses present in the kidneys, liver, spleen, lungs, mediastinal glands, omentum and skin exhibited, in all respects, the characteristics of the degenerating, blood-suffused areas of the primary tumor as it appeared near the kidney.

The white or reddish white metastatic masses resembled the denser, whiter portions of the original tumor as seen near the bladder. The whiter areas were composed of densely packed epithelial cells with scant stroma. The redder portions contained relatively few epithelial cells, arranged in thin septums between irregular blood channels. The epithelial cells in the latter areas presented the most bizarre forms found in the tumor, and here also degenerating cells were most numerous.

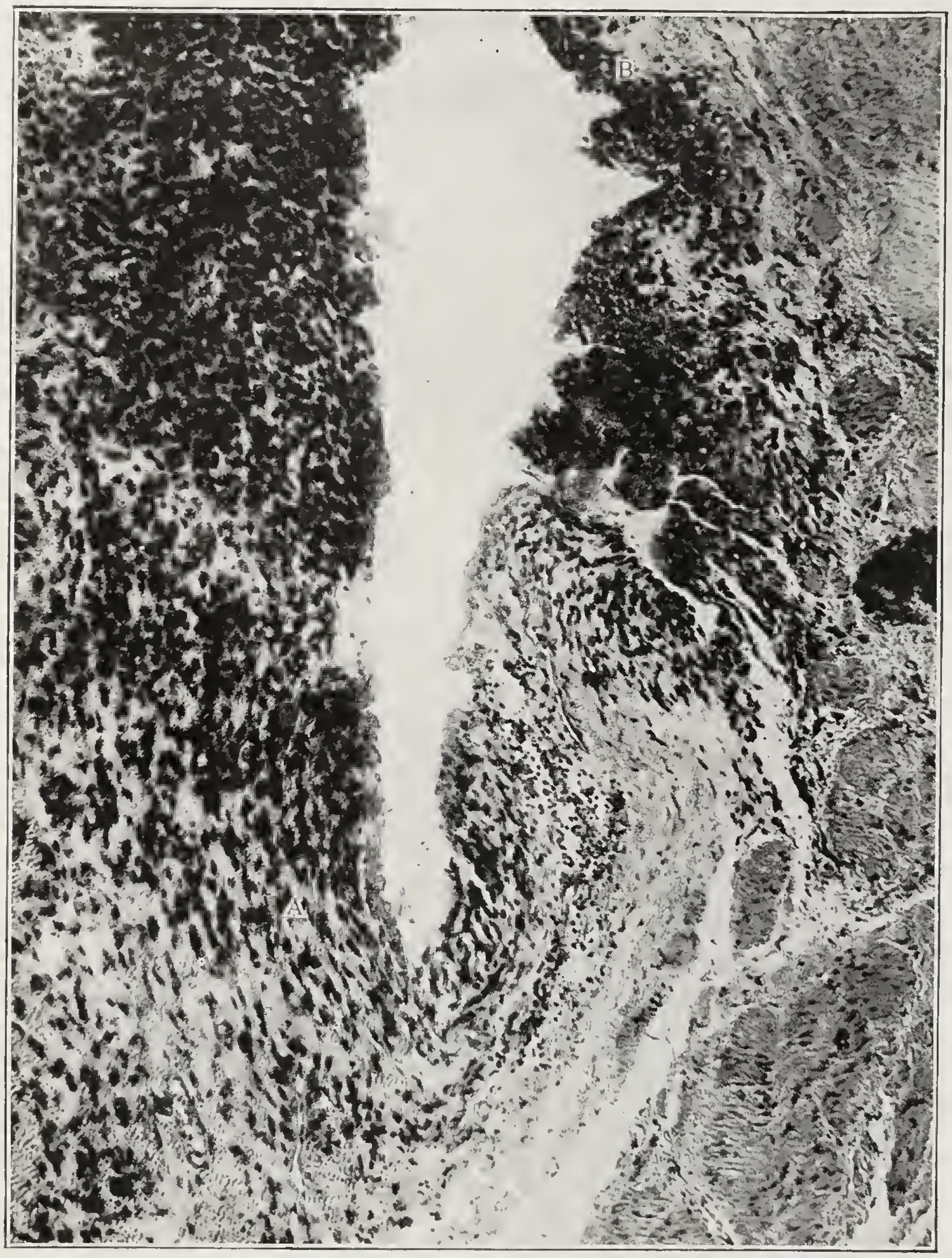

Fig. 7.—Primary carcinoma of the ureter: ureteropelvic juncture: *A*, tumor epithelium; *B*, pelvic epithelium.

Sections of the wall of the hydronephrotic right kidney above the involved ureter showed the usual picture of chronic purulent pyelonephritis.

In all instances there was a marked inflammatory reaction in the tissue surrounding the neoplasic cells.

Concerning the histogenesis of this tumor, the evidence indicates that it had developed from the epithelium lining the ureter. It may have developed primarily as a papilloma or as a villous carcinoma from the start, with later invasion of the ureteral wall (Fig. 8).

The peripheral expansion and fibrosis of the lower portion of the tumor suggest a more chronic process than that in the upper thin-walled, degenerating portion, and would indicate that the origin was in the lower portion of the right ureter with multiple metastases.

From a study of the tabulated cases we find that:

Fourteen cases were in females and nineteen in males. The youngest patient was 15 years of age, and the oldest, 89. Cases were under observation from three weeks [11] to ten years.[12]

Death occurred in fourteen instances before any operative procedure was undertaken, some of them in inoperable cases, and after operation death occurred in eleven instances. Recovery occurred in eight cases after operation; two of these patients were reported in good health when seen one year later.

Pain, hematuria, palpable tumor and hydronephrosis were present in seven cases. Pain without hematuria caused the patient to seek relief in nine instances (the cases of Weising and Blix,[13] Hektoen, Metcalf and Safford,[14] Vorpahl,[15] Zironi,[16] Schmitt, Spiess [17] and Quinby and in the case reported here). Hematuria without other symptoms caused the patient to seek relief in six instances (Toupet and Gueniot [18] Chiari,[19] Finsterer,[20] Hofmann, Walker, and Judd and Struthers), although in the last-mentioned case there was indefinite pain. Cases without a history of hematuria or pain, according to the reports were three (Jona,[21] Minich,[22] and Knack [23]).

Epithelial cells in the urine aided the diagnosis in seven instances (Voelcker.[24] Rundle,[25] Metcalf and Safford, Vorpahl, Zironi, Richter, and Paschkis [26]). Hofmann searched in vain for epithelial cells. Zironi found epithelial "pearls," and Richter found cells in mitosis. Rundle tapped the kidney pelvis and found the epithelial cells.

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11. Quinby, W. C.: Tumors Primary in the Ureter, J. Urol. **4**: 439 (Oct.) 1920.
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24. Voelcker, F.: Carcinoma of the Ureter, Tr. Path. Soc. London **46**: 133, 1895.
25. Rundle, H.: Epithelioma of Ureter Causing Hydronephrosis, Tr. Path. Soc. London **42**: 128, 1896.
26. Paschkis, R.: Primärer Tumor des Harnleiters, Wien. klin. Wchnschr. **23**: 361, 1910.

Obstruction to the ureteral sound was found by Chevassu and Mock,[27] Chiari, Butler, Quinby and Suter, and in our case. Blood was seen to come from the ureteral orifice on cystoscopic examination by Chiari, Judd and Struthers, and Suter. Bleeding was induced at will by the ureteral catheter by Chevassu and Mock, who claim the first preoperative diagnosis of primary carcinoma of the ureter; it was also produced by Chiari and by Suter. Calculus was seen by Davy,[28] Metcalf and Safford, Zironi, Paschkis, and Judd and Struthers. Calculi in the kidney were found by Aschner, who also found associated leukoplakia.

Abdominal tumor was palpable in fourteen cases. Minich found a perforation into the vagina, and Israel felt a tumor in the region of the adnexa. Tumor visible by cystoscopic examination was present six times (Gerstein,[29] Vorpahl, Finsterer, Hoffman, Judd and Struthers, and Walker. In Walker's case the visible tumor appeared seven weeks after the first operation and cystoscopic examination.

Diagnosis by means other than those mentioned was by ureterogram (Quinby).

Operations recorded are: 1. Transvesical cauterization, once (Gerstein). 2. Kidney tapped, once (Rundle). 3. Nephrotomy twice (once by Bironi and once by Aschner, the latter performing a later nephroureterectomy). 4. Resection of ureter and reimplantation twice (Finsterer, and Hofman), with recovery in both instances. Resection of the ureter was attempted by Quinby, but in his case nephrectomy was done ten days later, with final recovery. 5. Nephrectomy without ureterectomy, twice (Israel and Lowenstein, and Davy). 6. Nephrectomy, and later ureterectomy, five times (Van Capellen,[30] Walker, Judd and Struthers, and Suter two cases). 7. Ureterectomy and later nephrectomy, once (Quinby). 8. Primary nephroureterectomy, twice (Chevassu and Mock, Chiari, and attempted by Vorpahl). 9. Exploratory, cases inoperable (Metcalf and Safford, Butler).

Spinal anesthesia was employed twice, with success (Finsterer, Hofmann). Extension along the ureter or to the para-ureteral tissue was the rule. Metastasis to the liver and the lungs is mentioned seven times, and to the lymph glands and other structures, more frequently. Implantation from above is suggested in six instances (Metcalf and Safford, Zironi, Israel and Lowenstein, Butler, Finsterer, and Knack); it seems more than probable in two cases (Vorpahl, Spiess), and seems fairly proved in one case, that of Thomson Walker.

SUMMARY

We would bring to mind the following as aids to diagnosis:

1. The pain is of a relatively atypical nature. In only a very small minority of the cases was it of the radiating type so frequently encountered in ureteral calculus. In but one of these cases was pain described as lancinating, in but four as intermittent. It frequently was referred to the lower abdomen, the back, the sacral and iliac regions, occasionally down the leg of the side affected, and was continuous with exacerbations rather than intermittent with crises so characteristic of calculus.

2. A tumor may or may not be found, and in view of the local tenderness and muscular spasm occasionally encountered, abdominal palpation and rectal examination are best performed under general anesthesia.

3. The urinary findings as to pus are comparatively negligible. In four of the thirty-three cases noted, pus was encountered. The probable explanation of the absence of pus in the urine is the obstructive nature of the ureteral lesion, since there frequently exists associated hydronephrosis or pyonephrosis.

4. It is necessary to make frequent searches of the urine for atypical cells, especially immediately after attempts at ureteral catheterization.

5. The significance of hemorrhage attending ureteral catheterization, when calculus cannot be demonstrated, should not be overlooked.

6. When the ureteral catheter passes the obstruction, functional findings, such as phenolsulphonephthalein and indigocarmin, will very frequently reveal an impairment of the kidney.

7. A ureteropyelogram, when the obstruction may be passed, is of the greatest value. When, however, the growth prevents the passage of a ureteral catheter, the return of the pyelographic fluid along the catheter to the bladder renders the procedure useless. Here we believe that the waxed catheter should be employed in both male and female patients partly as a diagnostic measure, to rule out uratic calculus, and to prevent reflux of the pyelographic medium.[31]

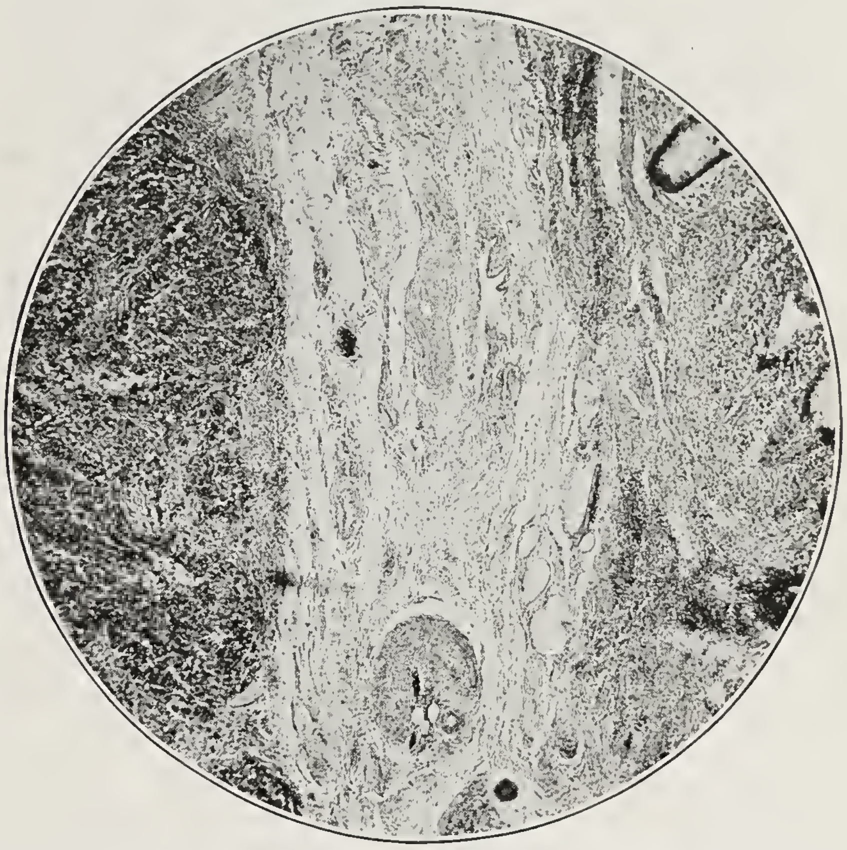

Fig. 8.—Primary carcinoma of the ureter: absence of relation between the carcinoma (left) and the epithelium of the appendix (right); to be compared with Figure 1.

As an alternative technical procedure, an acorn ureteral catheter with filamentous tip is suggested, the patient being placed in the Trendelenburg position. With such an instrument, it would appear quite feasible to introduce a certain amount of the pyelographic medium through the constricted area; if not, it should be possible to obtain a picture of the ureter below the obstruction. This, at least, would offer corroborative evidence. Other roentgenographic measures should be employed, such as a gastro-intestinal roentgenogram and bismuth enema. A diagnosis once established, nephro-ureterectomy is the procedure indicated.

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[27] Chevassu, M., and Mock, J.: Epithelioma primitif de la partie moyenne de l'uretère, Bull. et mém. Soc. de chir. **38**: 522, 1912.

[28] Davy, R.: Clinical Lecture on Excision of Left Kidney, Brit. M. J. **2**: 757, 1884.

[29] Gerstein, K.: Inaug. Diss., Kiel, 1902.

[30] Van Cappellen: Beitr. z. klin. Chir. **49**: 138, 1916.

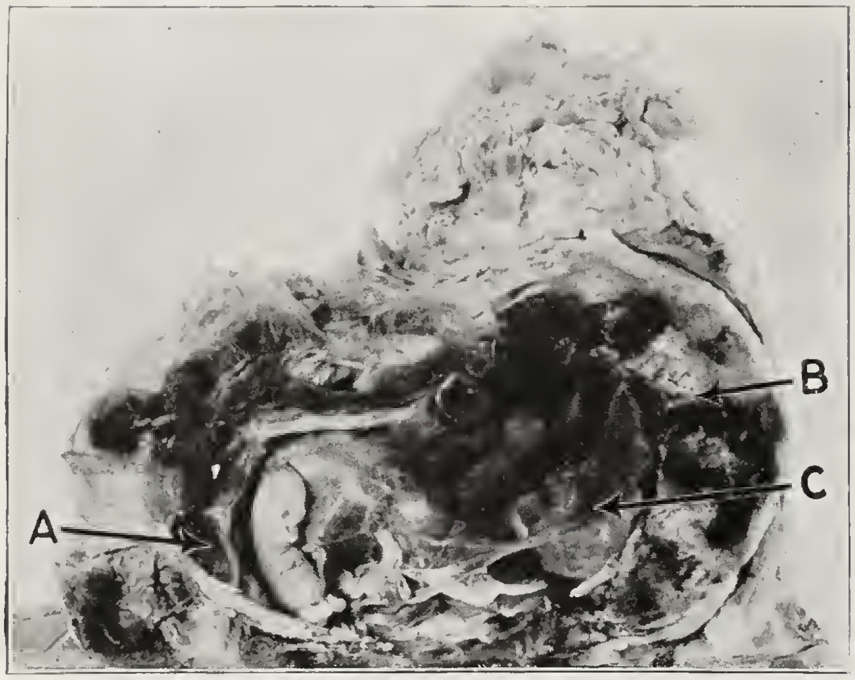
[31] Happily, since the writing of this paper, the technical difficulties attending these steps have been completely eliminated by the new direct operating endoscope of McCarthy (to be reported later).

Clinical Notes, Suggestions, and New Instruments

TRUE OVARIAN PREGNANCY

Overton Brooks, M.D., and L. L. Charpier, M.D., Chicago

This case of ovarian pregnancy is of interest, not only because of the rarity of this condition (there being but seventy-two cases on record), but because of the lack of symptomatology referable either to ovarian disease or to pregnancy, there being no pain or intermenstrual bleeding, and conception taking place in the presence of bilateral pyosalpinx. The majority of cases reported show definite symptoms pointing to ovarian disease, whereas the only symptom of any significance here is the rapid pulse. Anatomically, the relationship of tube, ovary and uterus was not greatly disturbed, and the tube and its fimbriated end could be easily distinguished from the ovary.



Incised specimen laid open: *A*, placenta; *B*, ovarian tissue; *C*, placenta.

REPORT OF CASE

History.—E. R., a woman, aged 23, entered the hospital, May 19, 1922, because of severe generalized pelvic distress with profuse purulent vaginal discharge. The temperature was 100.4 F.; the pulse, 128; the respiration, 20. The patient was taken ill, May 16, with moderate backache and cramplike pain in the pelvis. The onset of pain was gradual, becoming continuous, dull and aching in character. There was no bloody discharge at the onset of pain, although a profuse mucopurulent discharge was seen. This discharge was present one month before the onset of pain, and there was marked, frequent and painful urination. The patient admitted one abortion and gonorrheal infection.

Physical examination revealed double pyosalpinx and endocervicitis. The patient left the hospital at the end of two weeks with a temperature of 98, pulse, 80, and respiration, 20.

The patient reentered the hospital, June 22, and was booked for operation. The temperature was 98.4, the pulse, 128, and respiration, 20. The physical examination was the same as before, except that the mass in the pelvis was much larger.

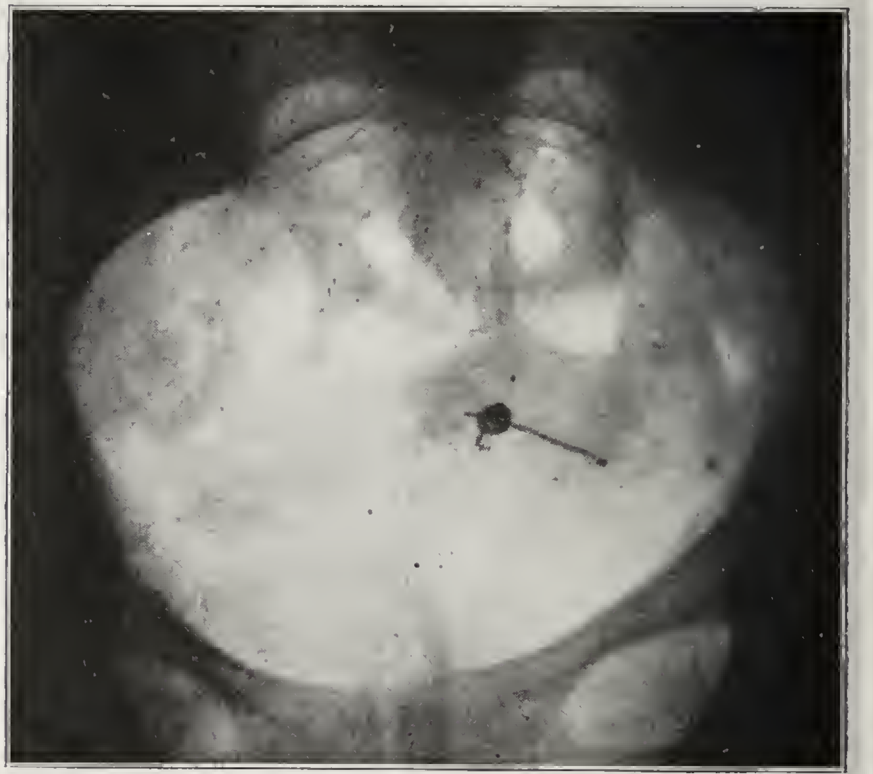
Operation and Result.—Under a general anesthetic a midline incision was made, from the symphysis to the umbilicus. The omentum was found adherent to two large masses which completely filled the pelvis, extending to the umbilicus and adherent to the bowel. The mass on the left side was freed and identified as the left tube and ovary. A left oophorectomy and a salpingectomy were performed. When an attempt was made to remove the mass, it ruptured, freeing about 4 or 5 ounces of bloody fluid, which came from a cyst on the ovary. As it was impossible to separate the mass on the right side from the uterus, because of the complete fusion of the mass, a supracervical hysterectomy was performed, after the bowel had been freed. Examination of the mass on the left side revealed a complete cystic degeneration of the ovary, with a hydropyosalpinx, although there was little pus in the tube. An examination of the mass on the right side disclosed an ovary about 3 inches square, with some cystic degeneration and marked pyosalpinx. The fimbriated end of the tube was attached to the ovary. The uterus was sclerotic, with an almost complete obliteration of the cavity. The ovary on section revealed a perfectly formed placenta and fetus 1 inch long, attached to the wall of the ovary, forming a cavity about 1½ inches square. A section was taken from the mass around the fetus at the placental site, and microscopic examination proved it to be ovarian tissue. A closure was made without drainage, and except for a low temperature, for the first two or three days after the operation, the patient made an uneventful recovery.

608 South Dearborn Street.

FOREIGN BODY IN THE UTERUS TWELVE YEARS WITH NO SYMPTOMS

Isaac Glassman, M.D., New York
Chief Roentgenologist, Stuyvesant Polyclinic; Consulting Roentgenologist, Home of the Sons and Daughters of Israel; Consulting Roentgenologist, Day Nursery

A woman, aged 43, German, housewife, who had been married at the age of 16 and had four children, and who had had no previous illness, was referred for roentgen-ray examination of the pelvis by Dr. Otto Maier, Jan. 24, 1923. A stem gold pessary had been inserted into the cervix of the uterus twelve years before; this did not interfere with the usual regular menstrual periods. Five months previous to the roentgen-ray examination the patient began to complain of hot flushes and irregular menses. This she ascribed to the onset of the menopause. There were no other symptoms. In November, 1921, she developed a slight putrid discharge, which cleared up under the usual treatment. The patient had completely forgotten about the pessary, thinking that it might have been lost.



Outline of body of uterus and broad ligaments, with stem pessary embedded in the body.

A roentgenologic examination with the usual technic for pelvic examination, without previous preparation of the patient, revealed the uterus very distinctly, situated slightly to the right of the median line. Embedded within the body of the uterus was the pessary with one stem pointing toward the right, about 1¾ inches in length. The other stem pointed downward along the lumen of the uterus toward the cervix.

As a general rule, a normal uterus, whether with slight fibrotic change or entirely normal, does not show on the roentgen-ray film. Besides, the tissues seldom react to gold or silver. In this case, the peculiar position of the pessary must have given rise to a low grade inflammatory process which resulted in a deposit of calcium salts in the body of the uterus as well as the adnexa, making the latter visible on the roentgen-ray film. It is to be considered at this period whether the long continued irritation has not given rise to malignant changes.

Taking into consideration the age of the patient and the structural pathologic changes in the body of the uterus, the only logical method of procedure would be an abdominal hysterectomy. This was suggested to the surgeon.

182 Lexington Avenue.

A TYPE OF DOUBLE-EDGED DISSECTING SCISSORS

J. F. Montague, M.D., New York
Assistant Attending Surgeon, Rectal Clinic, University and Bellevue Hospital Medical College

In an attempt to remedy the mechanical shortcomings of the instruments usually used in operations involving undercutting or dissection, I have devised a special type of dissecting scissors which have given me very satisfactory results. They are essentially very thin bladed and blunt pointed scissors of which I use a flat and a curved-on-the-flat model. The features of this special type of scissors are:

1. They possess four cutting edges instead of two, as in any ordinary scissors. This is accomplished by giving the external edge of the scissors blade a "belly" like that of a bistoury, and at the same time a very keen edge. Thus, while ordinary scissors cut only during the process of closing, scissors of the type that I have devised cut during the process of opening as well as during that of closing. This adds very markedly to their efficiency, both from the standpoint of complete severance and from that of rapidity of action (Figs. 1 and 2).

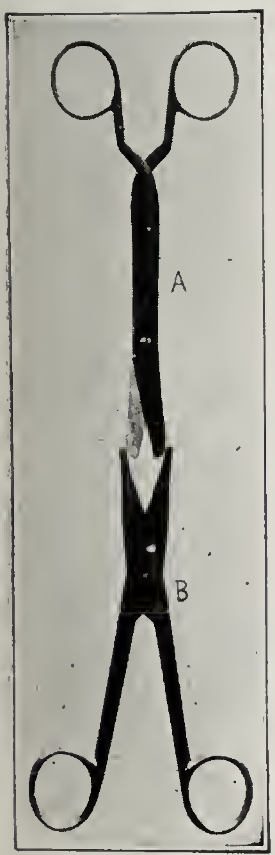


Fig. 1

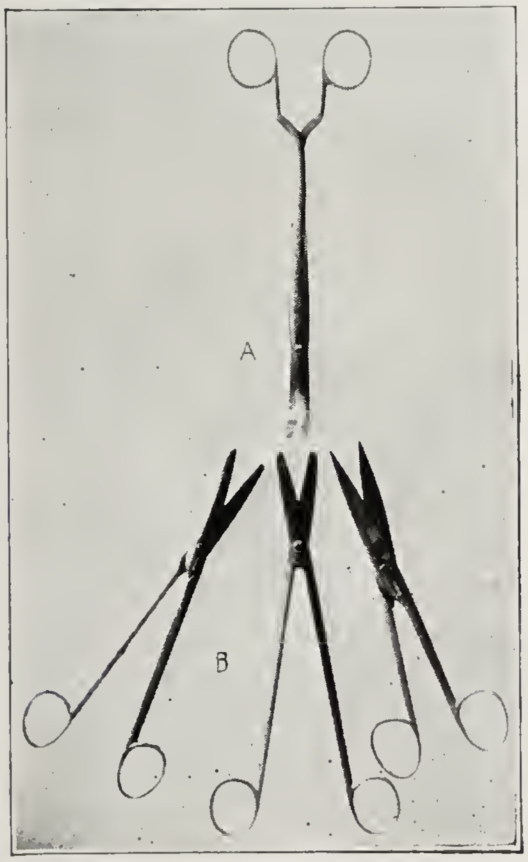


Fig. 2

Fig. 1.—The author's type of double-edged scissors (*A*), compared with the ordinary Mayo dissecting scissors (*B*). The extent of cutting edge presented in the two cases being equal, the vast difference in bulk of the shanks is evident.

Fig. 2.—Curved-on-the-flat model of the author's double-edged type of dissecting scissors (*A*), compared as to bulk of shanks with the ordinary types of curved-on-the-flat scissors. In each case the amount of cutting edge in action is precisely the same.

2. In the crossing of the handles, which permits a maximum spread of blade with a minimum of bulk at the pivot screw, which part of the scissors rests in the operative wound during the undercutting, the efficiency of the scissors is greatly enhanced. This ability to open the scissors to their full extent with only a minimum of bulk at the pivot makes the matter of traumatism at the point of incision negligible.

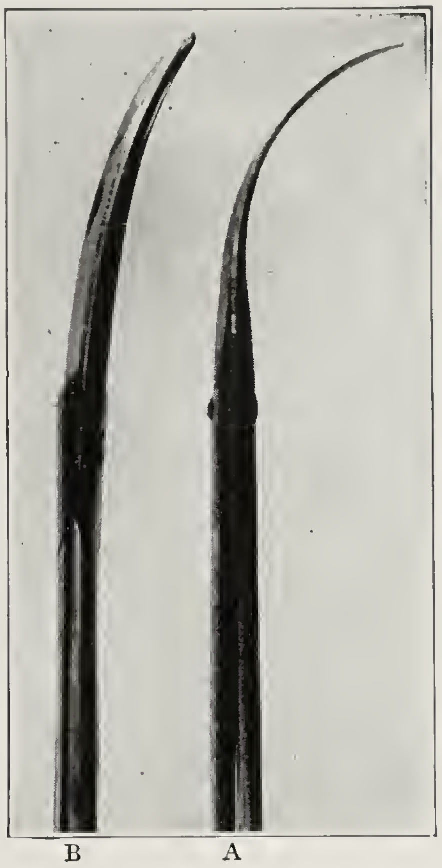


Fig. 3

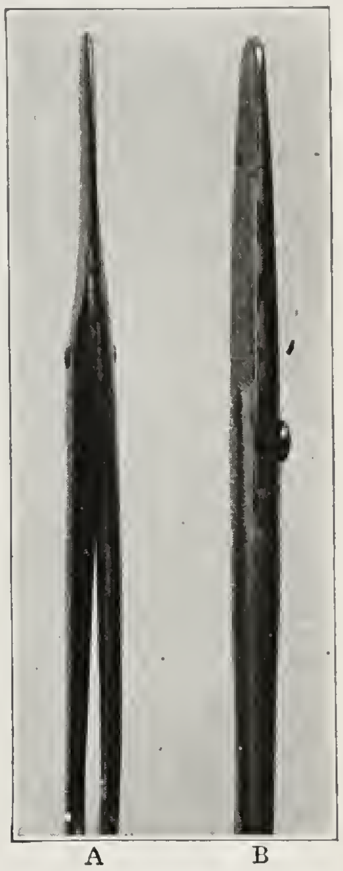


Fig. 4

Fig. 3.—Side view of curved-on-the-flat model, permitting a comparison of author's type (*A*) with ordinary type (*B*) as to thinness of blade, and general contour.

Fig. 4.—Flat model in side view, permitting a comparison of author's type (*A*) with ordinary type (*B*) as to thinness of blade and general contour. All of the instruments shown were made by George Tieman & Co., New York.

Owing to the small bulk of the scissors' shank, the incision need never be more than a quarter to three eighths of an inch in length in the ordinary undercutting operation. This materially decreases the probability of infection, and makes convalesence a comparatively rapid process (Figs. 1 and 2).

3. The angle of the curved-on-the-flat model may be varied to suit the needs of the operator though the angle of the original model, the model shown in Figure 3 has been found to be admirably adapted to use in the field of rectal surgery.

4. By closing the handle of the scissors, one may use the instrument as an elevator of mucosa or for following the various fascial planes, and in this respect they might find considerable use in nose and throat surgery (Fig. 4).

The advantages may be thus summarized:

1. There is rapid and complete dissection or undercutting with a minimum of mechanical motion.
2. There is the least possible traumatism at the operative wound.
3. Only a very small operative wound is necessitated.
4. Accidental perforation is not possible.
5. The slenderness of the blade and shank renders the instrument convenient for the reason that there is no unnecessary bulk in the operative area.

540 Park Avenue.

Licensing the Physiotherapist.—I feel that the state should work out a license plan for the physiotherapist. In fact, I feel convinced that we cannot trust the treatment of diseases of the human body to any one, even as technical assistants to physicians, who has not the basic knowledge. The licentiates should include the properly educated physiotherapist in this state and there should be provision for adequate education for those others who wish to prepare themselves for the work.—R. L. Wilbur, *California State J. Med.* **21**:25 (Jan.) 1923.

A NEW AND MORE ACCURATE TECHNIC FOR INJECTING THE SUPERIOR MAXILLARY DIVISION

S. L. Silverman, D.D.S., Atlanta, Ga.
Professor of Anesthesia and Associate Professor of Oral Surgery, Atlanta-Southern Dental College; Associate Professor of Oral and Dental Surgery, Emory University School of Medicine

Several months ago I discovered that a blocking of the superior maxillary division of the trigeminal nerve could be accomplished by inserting a fine needle (22 gage) through the greater palatine canal and into the sphenomaxillary fossa until it reached the foramen rotundum (Figs. 1 and 2). In the dry skull, this procedure is very simple, the greater palatine foramen being very constant, and located at the apex of the third molar. In the living subject, it is to be found 15 mm. from the median line. Figure 3 shows what at first glance is hard to believe; that is, that the greater palatine foramen lies midway between the median line and the gum line. In edentulous mouths or mouths in which the third molar is missing, the foramen can be found from 3 to 5 mm. in front of the maxillary tuberosity. The technic is simple, but unless one familiarizes himself with this portion of the palate, the percentage of successes will not be encouraging.

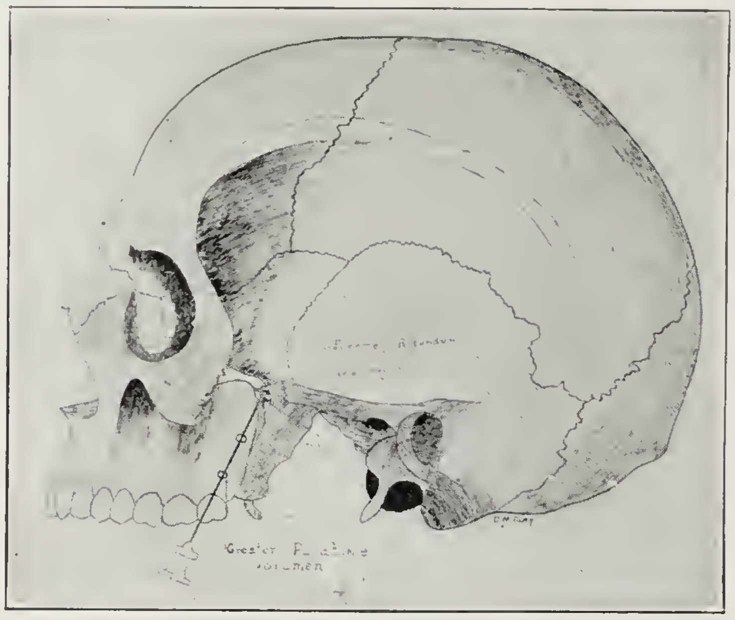


Fig. 1.—Angle given to needle by greater palatine canal.

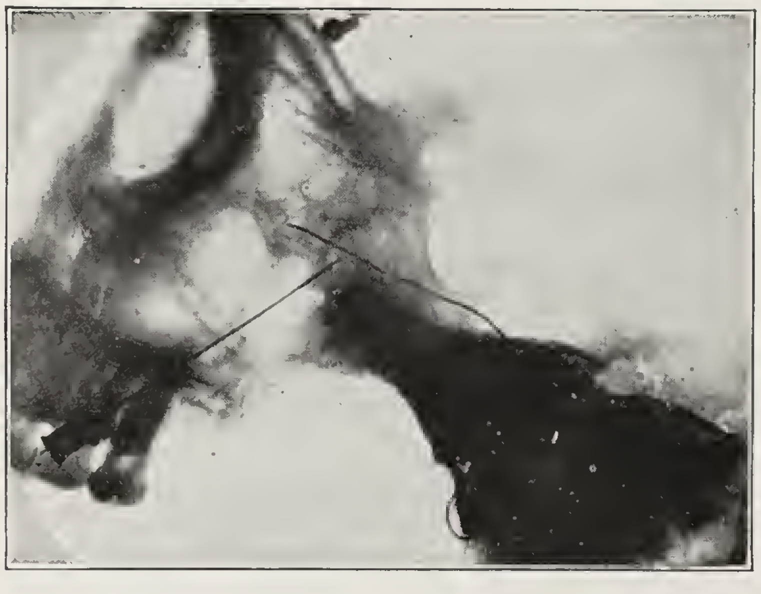


Fig. 2.—Wire representing second division, and needle engaging it at foramen rotundum.

In a few words, the long 60 mm. 22 gage needle is inserted into the greater palatine foramen. It slides up the greater palatine canal, the canal acting as a cannula, so to speak. Then 2 c.c. of procain-epinephrin solution is deposited when a depth of 50 mm. has been reached. The greater palatine canal cannot lead one otherwise than to the region that is to be injected.

The injection of the second division by this route is not difficult, if one remembers that the greater palatine foramen is nearer the median line than is popularly supposed. No irreparable injury to the contents of the canal follows, and the only complication that can result is a transient double vision. The latter never lasts more than one hour. I consider this approach to the foramen rotundum more accurate, less painful and particularly indicated for deep injections of alcohol.

Needles should be of 22 gage, made of nickel. In spite of the temptation, insertion must not be made near the gum line. Since the median line on the palate is always visible in the living subject, it is best to use it as the landmark, and to insert the needle 15 mm. laterally. Five drops of the procain-epinephrin solution should always be injected in the vicinity of the foramen, and the syringe laid aside for five minutes, thus allowing an anesthesia to take place prior to probing the foramen.

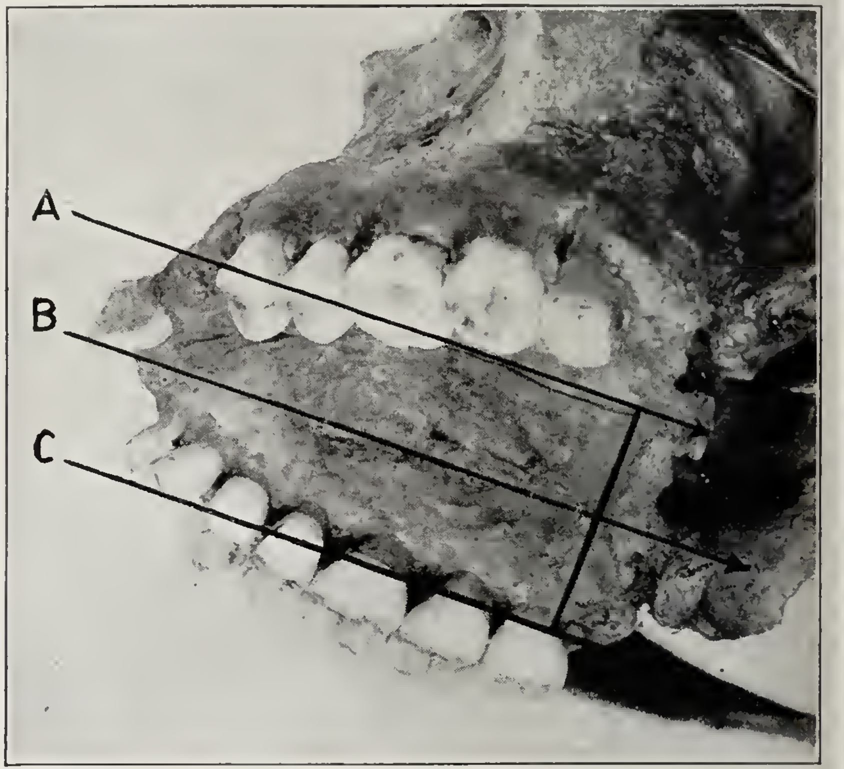


Fig. 3.—The greater palatine foramen is midway between the median line and the gingival line; the average distance of the foramen from either landmark is 15 mm. *A*, median line; *B*, greater palatine foramen; *C*, gingival line.

Fourth National Bank Building.

TREATMENT OF ANASARCA WITH CUPPING-GLASS AND SIPHON

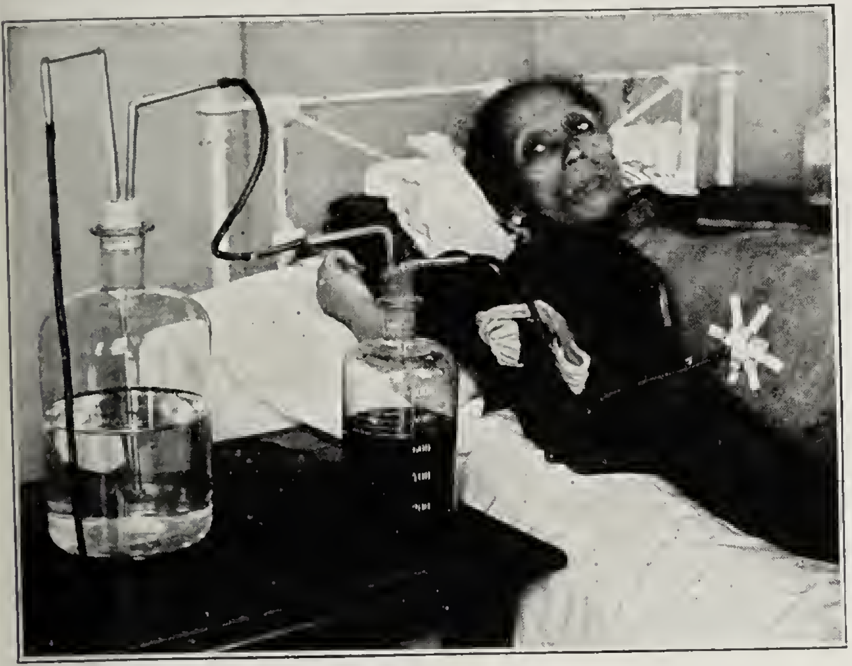
Kinnosuke Miura, M.D., Tokyo, Japan
Professor of Internal Medicine, Imperial University

In certain severe phases of chronic interstitial nephritis, when the water in the skin and cavities of the body is superabundant and when the kidneys are not acting normally, we are obliged to remove this excess of fluid from the surface of the skin by mechanical means. For that purpose several methods are in use, such as the method of incision, the capillary tube of Southey, the elliptic cannula of Curschmann, the bent cannula of Mueller, and the cannula drainage of Fürbringer. The method of Straub and Curschmann, first with a glass funnel and later with an apparatus shaped like a cupping-glass to which is affixed rubber tubing, has not become widely used, comparatively good as it is.

The method of drainage by metal tubes is not satisfactory because of the irritation it induces, and the infection and inflammation which sometimes occur; moreover, the quantity of fluid removable is not great. The method of incision is sometimes very successful, but it is attended by much inconvenience to the patient, who has to sit upright for a long time. Further, if the incision is large, it is inadvisable to make a fresh incision.

It is rather difficult to understand why the method of Straub and Curschmann is not more popular, but this may be due to the complicated nature of the apparatus. It consists of two parts, a flat circular base of caoutchouc or metal attached to the surface of the skin by collodion on which is superimposed a removable cup of the same material. The fluid is drained off by an india-rubber tube.

Some twenty-three years ago, I simplified this apparatus and published an account of this.[1] Since that time I have employed my apparatus with much success in many cases of anasarca and I have made several modifications in the course of time. In this publication I described my apparatus as I first devised it. It consisted of a rather high cupping-glass whose base was affixed to the skin by plaster. At first I was content to drain off the fluid directly downward into an open receptacle; but in later modifications I have used the system of double siphons, by which I am able to minimize the risk of infection and at the same time retain the fluid for examination in its original condition. Moreover, by this system I am able to regulate the degree of aspiration, and in case of abundant discharge, the fluid of the first siphon overflows into the second and automatically replaces the water which was there for the purpose of aspiration.



Apparatus in use.

I reserve this treatment for cases of anasarca and ascites combined. In preparation, I request the patient to remain for about one night with legs and trunk elevated so that the excess fluid gathers about the place of puncture at the lower side of the abdomen. After having made the skin aseptic, I puncture the wall of the abdomen and remove ascites; then, after all traces of blood have disappeared, I impose the cupping-glass on the puncture and set the aspiration of the siphons in action.

The fluid percolates into the first siphon by the aspiration of the second at a speed of 100, 200 or 300 c.c. in an hour. In case the fluid fails to percolate, we must examine to see whether any coagulated matter is present. If this is the case, we must cleanse the glass or the point at which the puncture was made. If successful, we can remove in twenty-four hours a quantity of fluid much greater than that of the urine secreted in the same time, and in a space of two or three days so much fluid is removed that the patient experiences much relief. By this means, in acute cases of interstitial nephritis we can gain time for the condition of the kidneys to improve. In chronic cases, this operation should be repeated as often as necessary, but extreme caution must be taken to prevent infection of the abdominal cavity and of the puncture wound.

As examples of cases treated by this method I will mention only a few successful ones. A merchant, aged 30, was confined to bed for a month with anasarca. He discharged a very small quantity of urine with much albumin, granular and epithelial casts, and occasional red and white blood cells. The whole body was edematous, the scrotum and preputium swollen and transparent, the extremities bulky and glossy, the abdomen tumid and fluctuant, with thick edematous rolls on both sides of the chest. On the lower part of the abdomen and on the upper thighs were many broad striae. From this patient I withdrew, in seven hours, 1,600 c.c. of fluid; in eight hours, 2,800 c.c.; in five hours, 1,600 c.c., etc., so that in five days more than 9 liters was removed.

In another case, that of a woman, aged 43, with acute nephritis and catarrhal pneumonia, I drew from the abdomen by puncture 4,500 c.c. of milky, turbid and greenish fluorescent fluid of specific gravity 1.009, with a few lymphocytes and endothelial cells. After this I applied my cupping-glass with siphons and removed at the first application 7,200 c.c. in three days; at the second application, 9,700 in the same time; at the third, 14,000 in four days, and at the fourth, 23,700 c.c. in the same time.

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[1] 1. Miura, Kinnosuke: Berl. klin. Wchnschr., 1900, No. 39.

ELLIPTIC HUMAN ERYTHROCYTES *

V. P. Sydenstricker, M.D., Augusta, Ga.

In 1904, Dresbach[1] reported the case of a mulatto, aged 22, whose blood, otherwise normal, showed a striking morphologic change, in that 90 per cent. of the erythrocytes were oval or elliptic in outline. The width of the misshapen cells varied between 3.9 and 4.8 microns, the length between 8.5 and 10.7 microns. The patient was in perfect health at the time the observations were made. In 1914, Bishop[2] reported a similar case in a white man, aged 41, who presented himself for treatment on account of acute appendicitis. Aside from the leukocytosis associated with acute inflammation, the blood presented no abnormality other than the presence of from 75 to 80 per cent. of oval and elliptic erythrocytes. Repeated examinations of the blood over a period of eight months showed no variation in the form of the red cells. The blood of one of this patient's sisters showed a similar deformity of the red corpuscles. No variations from normal were found in the resistance of these cells to hypotonic salt solutions, and there was no increase in the reticulocytes. The condition was regarded in both instances as a congenital anomaly, probably a familial defect, since the sister of Bishop's patient showed the characteristic blood picture.

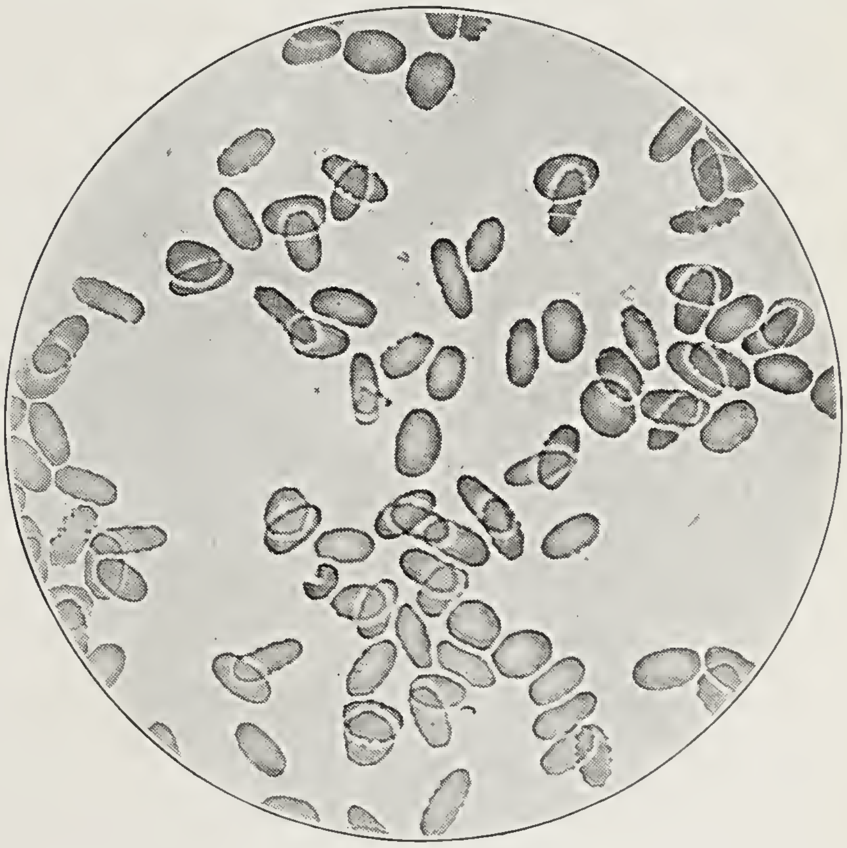

Fig. 1.—Fresh preparation of blood, October, 1922; × 800.

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* From the department of Internal Medicine, University of Georgia Medical Department.

[1] 1. Dresbach, Melvin: Elliptical Human Red Corpuscles, Science **19**: 469, 1904; Elliptical Human Erythrocytes, ibid. **21**: 477, 1905.

[2] 2. Bishop, F. W.: Elliptical Human Erythrocytes, Arch. Int. Med. **14**: 388 (Sept.) 1914.

REPORT OF CASE

J. M., a negro, aged 63, admitted to the University Hospital, Oct. 16, 1922, complained of headache, pains in the back and legs and incontinence of urine. The family history was negative, except for the fact that four children had died in infancy. One son, aged 30, is living and well. The past history showed that the patient had measles and smallpox as a child. He had gonorrhea several times, and a chancre thirty years ago.

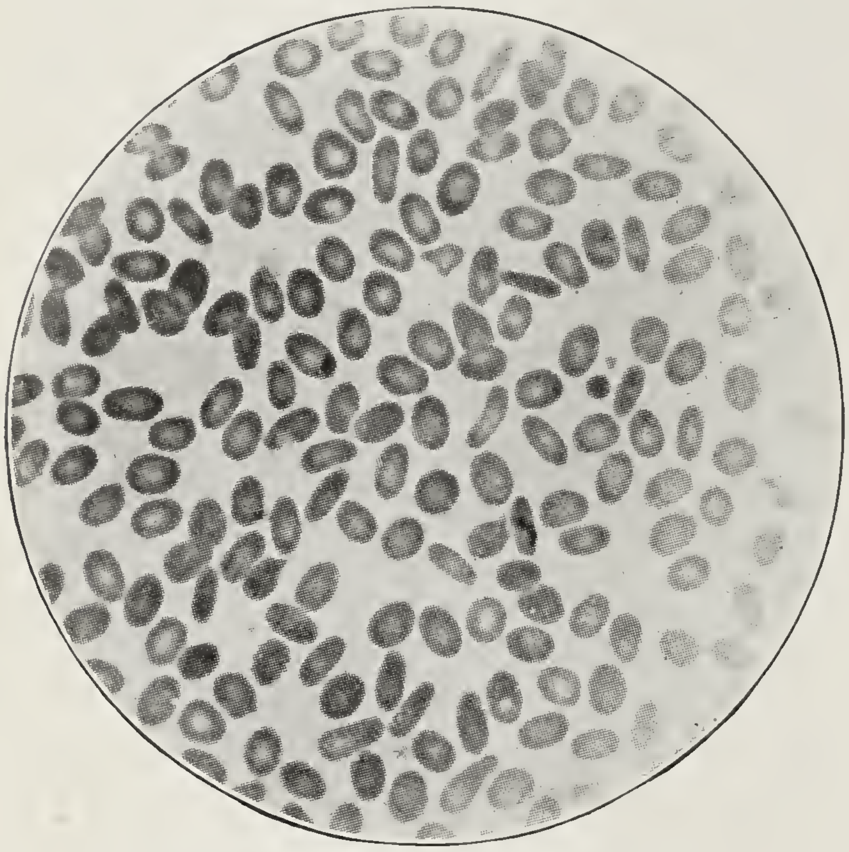


Fig. 2.—Stained smear, January, 1923; × 800.

The present illness is dated by the patient from a stroke of paralysis in September, 1921. At that time, his right arm and leg were paralyzed, and he developed incontinence of urine. The paralysis cleared up in two months' time, but he has suffered from headache, shooting pains in the right leg and constant dribbling of urine ever since.

The physical examination revealed the temperature, pulse and respirations normal. Blood pressure was: systolic, 138; diastolic, 68. There was no scleral jaundice. The pupils reacted normally. There was a small epithelioma just inside the left corner of the mouth. All the superficial lymph nodes were enlarged. There was emphysema of the lungs, moderate cardiac hypertrophy and extensive peripheral arteriosclerosis. The abdomen was negative in all respects. There were the residual signs of a right hemiplegia.

Examination of the blood revealed: red blood corpuscles, 3,540,000; white blood corpuscles, 8,640; hemoglobin, 68 per cent. (Dare). The differential leukocyte count revealed: polymorphonuclears, 31 per cent.; polymorphonuclear eosinophils, 1 per cent.; polymorphonuclear basophils, 1 per cent.; large mononuclears, 26 per cent.; small mononuclears, 36 per cent.; transitionals, 5 per cent. No pathologic leukocytes were seen. There was no malaria. In the counting chamber and in the smears it was noted that the erythrocytes presented a striking abnormality in shape, a very large number of them being oval and elliptic, with occasional very slender forms. All gradations were seen, from normal circular cells to those whose long diameter was three times their width. The possibility of the deformity being an artefact was ruled out by repeated examinations of the blood in Hayem's solution and in fresh preparations. In stained smears, the proportion of oval cells was constantly between 90 and 95 per cent. Measurements of the oval cells gave variations in width between 4 and 6 microns, and in length between 8.5 and 13 microns. The average diameter of the circular cells was somewhat above normal, being between 8 and 8.5 microns.

The fragility of the erythrocytes was normal; with washed cells, hemolysis began at 0.4 and was complete at 0.22. Smears stained with brilliant cresyl blue showed 1.2 per cent. of reticulocytes. Fresh preparations made under sterile precautions and sealed with paraffin showed no changes in twenty-four hours at room temperature.

The Wassermann reaction on the blood was positive, with complete fixation. The blood sugar determination showed 174 mg. of glucose per hundred cubic centimeters. The blood urea nitrogen was 20 mg. per hundred cubic centimeters. The Wassermann reaction on the spinal fluid was negative, as was the colloidal gold test. The urine showed a specific gravity of 1.027; albumin, a trace, and sugar, 3.01 per cent. in the admission specimen.

The patient responded readily to treatment for diabetes, the urine becoming sugar free on the fifth day, and the blood sugar normal on the eighth day. He has been under constant supervision in the outpatient department to date (March 15, 1923), and no change has occurred in the blood picture, although he has been kept sugar free and has received intensive antisyphilitic treatment.

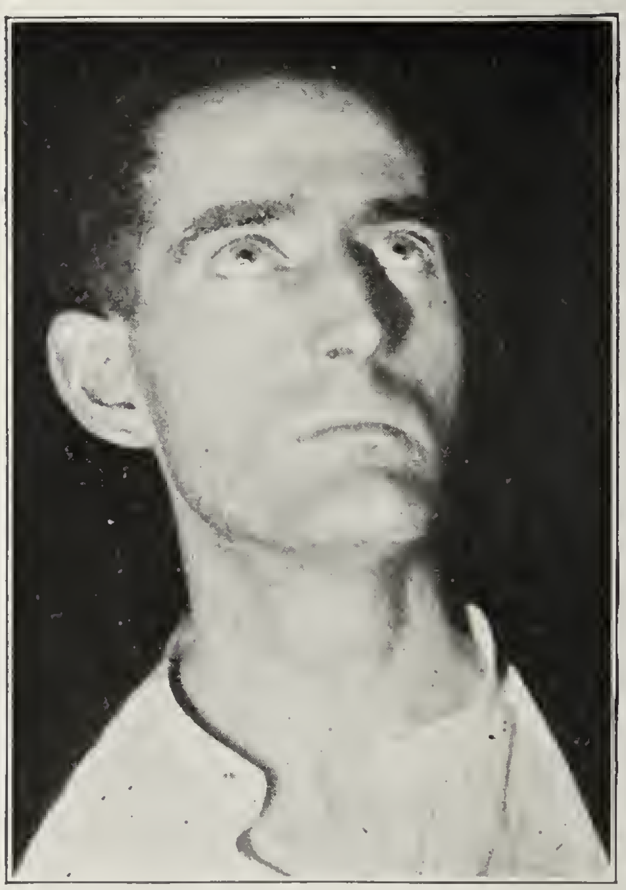
We feel that the blood picture has nothing to do with the patient's infection or his metabolic disorder, except so far as they may affect the differential count. Since our preparations present exactly the same peculiarities presented in Bishop's photomicrographs and described by Dresbach, we feel that this case belongs in the same group as theirs.

The only blood relative of this patient with whom we could establish communication was his son, whose blood was normal in all respects.

MYASTHENIA GRAVIS: REPORT OF A CASE

Arnold S. Jackson, M.D., and Austin D. Bates, M.D.,
Madison, Wis.

R. F., a man, aged 26, was referred to us by Dr. Howell of Fennimore, Wisconsin, on account of weakness, rapid heart, and dyspnea. For the past year, the patient had been growing gradually weaker. While there was general muscular asthenia, the greatest involvement was in the ocular and laryngeal groups of muscles, and in those governing deglutition. The least exertion caused the patient to become weak and dyspneic. When talking, he stopped in the middle of a sentence because of fatigue; and when eating, his muscles became so tired that he would soon become unable to masticate or swallow. During the past six months he had become very nervous and had developed a slight tremor of the fingers. In spite of a good appetite, he had lost 10 pounds (4.5 kg.) in weight.



Appearance of patient with myasthenia gravis: apparent exophthalmos, muscular asthenia and emaciation.

The patient was tall, slender and undernourished, and did not appear acutely ill. Apparent exophthalmos, 2 on a scale 1, 2, 3, 4, was noted at once. The facial expression was apathetic, as may be seen in the accompanying illustration. The pupils were equal, and reacted to light and in accommodation. The cardiac borders were within normal limits, but there was a rough systolic murmur transmitted to the axilla. Examination was otherwise negative, including the ears, nose, throat, teeth, lungs, extremities, reflexes, blood, urine, basal metabolic rate, and quadriceps muscles.

A diagnosis was made of myasthenia gravis, and the patient was sent to the hospital for further observation and treatment. He was placed on absolute rest, and strychnin was given in increasing doses until he was receiving as much as one-fourth grain (0.016 gm.) hypodermically four times a day. Early improvement was noted in the muscles of phonation, mastication and deglutition. His handshake had the vigor of that of a well-nourished man, whereas, before treatment it was merely a weak clasp. He was able to move about without great muscular fatigue, and was dismissed from the hospital three weeks after admission. A communication received about three months after we first saw him stated that he was still improving.

COMMENT

The appearance of this patient resembled somewhat that of a patient with exophthalmic goiter. Exophthalmos, muscular asthenia and emaciation occur in both diseases; but in myasthenia gravis there is no thrill, bruit or hyperplasia of the gland, nor are the vasomotor changes or the history characteristic of exophthalmic goiter.

The symptoms typical of myasthenia gravis are severe general fatigue, thickness of speech, dysphagia, cardiac symptoms, diplopia, ptosis, drowsiness, and muscular fatigue, especially affecting the quadriceps group of muscles.

The origin of the disease is entirely unknown. Coriat[1] suggests the possibility of some of the cases following infection, but the etiology offers an unexplored field for investigation and research.

The usual form of treatment consists in massive doses of strychnin, though the French have used epinephrin with varying success.

The course and termination are variable; the milder type of disease tends to complete cure. Dana[2] reports nine patients alive after a period of observation of from two to seventeen years, and nine others who had died of natural causes or other diseases. Treatment in these cases consisted in rest, elimination, and the administration of large doses of strychnin.

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[1] Coriat, I. H.: Some Personal Experiences with Cases of Myasthenia Gravis, J. A. M. A. **77**: 270 (July 23) 1921.

[2] Dana, C. L.: Myasthenia Gravis: A Therapeutic and Clinical Study, J. A. M. A. **78**: 261 (Jan. 28) 1922.

A CASE OF GLOSSODYNIA WITH LINGUAL TONSILLITIS AS ITS ETIOLOGY: CONTROL THROUGH THE NASAL GANGLION *

Greenfield Sluder, M.D., St. Louis

In 1918, I[1] reported an observation to the effect that glossodynia was secondary to lingual tonsillitis. In 1921, Lee Wallace Dean[2] recorded that glossodynia was controllable through the nasal ganglion. I know that glossodynia may be an isolated manifestation of a nasal ganglion lesion. Many times, however, I have seen it secondary to lingual tonsillitis.

The report of this case seems to me of interest because it brings out lingual tonsillitis as the cause of glossodynia; but although it was established in this way, it persisted after the lingual tonsillitis, and was controllable through the nasal ganglion.

REPORT OF CASE

Miss L. B., aged 32, consulted me, Oct. 20, 1919, because of a chronic faucial tonsillitis for which I did a tonsillectomy, October 28. The result was satisfactory; her general condition improved, and the throat became comfortable. Feb. 10, 1921, she consulted me because of an acute follicular lingual tonsillitis. The acute symptoms subsided in ten days, but there remained considerable swelling of the lingual tonsil, with a desire to clear the throat. April 30, I performed a galvanocautery destruction of a large part of the lingual tonsil. The result was diminution in bulk, cessation of the desire to clear the throat, and a general better feeling in the throat.

October 16, she again consulted me with an acute inflammatory trouble in the remnant of the lingual tonsil, this time, however, accompanied by pain in the left side of the tongue as far forward as the tip. There was a reddened patch just anterior to the palatoglossal junction and an enlarged red papilla at that place. Since I had often seen this phenomenon with acute lingual tonsillitis, and seen it subside in the wake of the attack, I assumed that this time it would also. I was disappointed, however. Applications of silver nitrate solutions in small quantities (50 per cent.) to the reddened patch anterior to the papilla were followed by disappearance of the redness and return to normal. The pain in the side of the tongue, however, continued. When it became evident that the pain lasted after the acute process in the lingual tonsil, and that it resisted further treatment, I anesthetized the nasal ganglion, following Dean's experience. This was followed by immediate relief of the pain. It did not return for two weeks, when I again anesthetized the ganglion, with the same result. This time, however, the pain remained absent for one month, at which time the cocainization was again repeated. Since that time the patient has remained comfortable.

OTHER CASES

I have had six other cases of resistant glossodynia in which I have injected the nasal ganglion. The results of these injections, according to my experience, have followed the routine for that procedure. Some of the patients were apparently cured by one injection; one required two, and I have another patient whose condition is unsatisfactory after the second injection, some of the pain still remaining; I intend to perform another injection. One of these cases is an intractable sphenoid disease that has never come to a state of comfort. The patient has a persistent glossodynia, for which I injected the nasal ganglion three months ago, but without benefit. That this case should remain a failure is not surprising when one recalls that the sphenoid remains in more or less pernicious activity. It will be recalled that the nerve supply of the nasal ganglion on its central side passes through the body of the sphenoid; to wit, the vidian in the floor of the sphenoid; the maxillary just lateral to it in the foramen rotundum, which is separated from the sphenoidal cavity usually by a bone of eggshell thickness. I have often mentioned that a sphenoidal case may give rise to a complete "lower half headache," which I first described as the syndrome of nasal ganglion neurosis.

Clinicians who have dealt with glossodynia will welcome any addition that may prove effective in its treatment. They continue on, month after month, despite all possible treatment. The patient almost always believes he has cancer of the tongue, and it is with much difficulty and a long lapse of time that he is dissuaded from this idea. The best description of glossodynia that I know of is by Sir Henry Butlin.[3]

3542 Washington Avenue.

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* From the laryngologic department of Washington University Medical School.

[1] Sluder, Greenfield: Some Clinical Observations on the Lingual Tonsil Concerning Goiter, Glossodynia and Focal Infections, Am. J. M. Sc. **156**: 248 (Aug.) 1918.

[2] Dean, L. W.: Tr. South. M. A., 1921.

[3] Butlin, Henry: Diseases of the Tongue, 1900.

Laennec.—Laennec was a corresponding member of the Académie de médecine at Paris, but after his discovery of mediate auscultation he resided at Quimper. The Académie has recently been celebrating the centennial of the date when he was admitted to full membership on his return to Paris and assumption of the chair of clinical medicine in the Collège de France. He took part in discussions but there is no record of a serious paper presented by him. He was at the height of his fame and was preparing the revised edition of his "Traité de l'auscultation médiate" which appeared in 1826.

PROCEEDINGS OF THE SAN FRANCISCO SESSION

MINUTES OF THE SEVENTY-FOURTH ANNUAL SESSION OF THE AMERICAN MEDICAL ASSOCIATION, HELD AT SAN FRANCISCO, JUNE 25-29, 1923

(*Continued from page 42*)

HOUSE OF DELEGATES

Third Meeting—Thursday Afternoon, June 28

The House of Delegates reconvened at 2 p. m., and was called to order by the Speaker.

Supplementary Report of the Committee on Credentials

Dr. B. R. McClellan, Ohio, Chairman, reported for the Committee on Credentials, stating that additional delegates had registered, making a total of 134, and moved the adoption of the report.

Seconded and carried.

The Secretary called the roll from the list of delegates furnished by the Committee on Credentials, and announced a quorum present.

The minutes of the previous meeting were read and approved.

Election of Officers

The election of officers being the next order, the Speaker reminded the delegates that nominating speeches were limited to two minutes, and he said he was now ready to entertain nominations for President.

Dr. Jere L. Crook, Tennessee, nominated for president Dr. William D. Haggard, Nashville, Tenn.

Dr. J. W. Van Derslice, Illinois, nominated Dr. William Allen Pusey, Chicago, for President.

The nomination of Dr. Haggard was seconded by Dr. Walter F. Donaldson, Pennsylvania; Dr. Joseph A. Pettit, Oregon; Dr. Randolph Winslow, Maryland, and Dr. A. W. Hornbogen, Michigan.

The nomination of Dr. Pusey was seconded by Dr. William F. Campbell, New York; Dr. Victor G. Vecki, California; Dr. Holman Taylor, Texas; Dr. George F. Keiper, Indiana; Dr. B. L. Bryant, Maine; Dr. E. F. Cody, Massachusetts, and Dr. Walter R. Steiner, Connecticut, after which Dr. T. O. Freeman, Illinois, moved that nominations be closed, and that the House of Delegates proceed to ballot.

Seconded and carried.

The Speaker appointed as tellers Dr. Joseph A. Pettit, Oregon; Dr. Grover B. Wende, New York; Dr. L. L. Sheddan, Tennessee; Dr. R. L. Green, Illinois, and Dr. I. A. Abt, Section on Diseases of Children.

There were 128 votes cast, of which Dr. Pusey received sixty-six, and Dr. Haggard sixty-two.

The Speaker declared Dr. Pusey elected President.

Dr. Jere L. Crook, Tennessee, moved that Dr. Pusey's election be made unanimous.

Seconded and carried.

Nominations for Vice President being in order, Dr. Walter L. Bierring, Section on Practice of Medicine, nominated Dr. William E. Musgrave, California.

Dr. A. E. Bulson, Jr., Indiana, moved that nominations be closed, and that the Secretary be instructed to cast the ballot of the House of Delegates for Dr. Musgrave.

Seconded and carried.

The Secretary cast the ballot, and Dr. Musgrave was declared elected by unanimous vote of the House.

Nominations for Secretary being in order, Dr. J. W. Van Derslice, Illinois, nominated the present incumbent, Dr. Olin West, Chicago, Illinois, for the ensuing year. Dr. Cassius D. Wescott, Section on Ophthalmology, seconded the nomination.

It was moved that nominations be closed, and that the Speaker be instructed to cast the unanimous ballot of the House for Dr. West.

Seconded and carried.

The Speaker cast the ballot and declared Dr. West elected.

In response to calls for a speech, Dr. West said:

Mr. Speaker and Members of the House of Delegates: I have no higher ambition than to serve the medical profession of this country to the best of my ability and to the limit of my capacity, because I believe I can thus best serve my fellow men. I am appreciative and extremely grateful for this expression of your confidence and pledge myself to do all I can for the advancement of the cause of this Association. (Applause.)

The Speaker announced that during the early morning Dr. Arthur T. McCormack, Kentucky, a member of the House of Delegates, was taken seriously ill, and was in St. Francis Hospital.

Dr. Jere L. Crook, Tennessee, moved that the House of Delegates extend to Dr. McCormack its sympathies in his misfortune, with hopes for his speedy recovery.

Seconded and carried.

Dr. G. Henry Mundt, Illinois, moved that the name of Dr. W. D. Haines, Ohio, a member of the House of Delegates, who had also been taken seriously ill, be included in the motion of Dr. Crook.

Seconded and carried.

Dr. George F. Keiper, Indiana, thought it would be a nice thing, in view of the services Dr. McCormack had rendered to the Association, that flowers accompany the words of sympathy.

The Speaker said the Secretary would take care of this matter.

At this juncture, Dr. William Allen Pusey, the President-Elect, was escorted to the platform amid great applause.

Introduced by the Speaker, Dr. Pusey spoke as follows:

Mr. Speaker and Members of the House of Delegates: I have no words for this occasion. My whole professional life has been devoted to the American Medical Association. I can remember when as a boy I delighted to ride with my father on his rounds of practice, in the days when Gross, Yandell and Hodgen were Presidents of the American Medical Association, and hear him talk of the great organization. So, to my mind, the Presidency of the American Medical Association is the greatest honor that can be conferred on any man in American medicine. As I have gone through life, and have kept in touch with the workings of the American Medical Association with its lofty ideals, working for the rank and file of the Association as a whole, my boyish admiration has changed to mature respect. You will understand why I have not words adequately to express my feelings for your having given this great honor to me. I can only infer that in doing this you have indicated your belief that I have been a worthy member of our guild. I realize very well that the Presidency of this Association is an honorary position, but nevertheless I trust I may with propriety pledge myself here to any service for the Association or the profession that I may perform, not only during the next two years, but as long as I am capable of serving.

I thank you with the sincerest gratitude for the distinguished honor you have conferred on me. (Applause.)

Dr. T. C. Routley, official delegate of the Canadian Medical Association to the American Medical Association, was escorted to the platform by the Secretary, was introduced by the Speaker, and thanked the House of Delegates for the courtesy and honor accorded to him.

Dr. Frank Billings, Secretary of the Board of Trustees, stated that on Monday, at the first meeting of the House of

Delegates, there was referred to the Board of Trustees the question of training of disabled veterans of the World War. In connection therewith he presented the following communication from Dr. H. C. Watts, District Medical Officer, San Francisco:

The Board of Trustees,
American Medical Association,
San Francisco, California.

Gentlemen:—Following the interview which I had with you last Sunday, I conferred with the District Manager, U. S. Veterans' Bureau, regarding the advisability of acquainting the director, personally, with the opinion of the American Medical Association that the bureau should take the stand of countenacing only the best in medicine and especially set forth your attitude toward training in chiropractic and other cults, and asking him for a statement of future policy, in order that I might present it to your body. I am today in receipt of the following wire:

"Inform Board of Trustees American Medical Association Bureau stands for only best in medicine and adequate training of all those engaged in treatment of sick. Necessary to stand by existing contracts which were previously made with certain chiropractic schools and only those men to be entered who have educational qualifications which would permit them to enter Class A medical college. No additional men have been entered in training and no more will be entered when men now in training have completed their courses and present contracts have expired. Hines, Director."

I might state in addition to this that the District Manager is immediately promulgating this policy to the Rehabilitation Division of this District, in order that they may fully comply with it.

Dr. Frank Billings, Secretary of the Board of Trustees, placed in nomination for Treasurer, for the approval of the House, Dr. Austin A. Hayden, Illinois.

Dr. Cornelius Van Zwalenburg, California, supported the nomination.

Dr. G. Henry Mundt, Illinois, moved that nominations be closed, and the Secretary be instructed to cast the unanimous ballot of the House for Dr. Hayden.

The Secretary cast the ballot as instructed, and Dr. Hayden was declared unanimously elected.

At this juncture, the Vice Speaker took the Chair, and announced that nominations for Speaker were in order.

Dr. Thomas C. Chalmers, New York, nominated E. Eliot Harris, New York, for Speaker.

Dr. Burt R. Shurly, Section on Laryngology, Otology and Rhinology, nominated Dr. Frederick C. Warnshuis, Michigan.

The nomination of Dr. Harris was seconded by Dr. Philip, Marvel, New Jersey; Dr. Harry A. Davidson, Kentucky, and Dr. S. W. Welch, Alabama.

The nomination of Dr. Warnshuis was seconded by Dr. F. B. Lund, Massachusetts; Dr. L. L. Sheddan, Tennessee; Dr. W. H. Seeman, Louisiana; Dr. William G. Morgan, District of Columbia, and Dr. Joseph A. Pettit, Oregon, after which it was moved that nominations be closed.

Seconded and carried.

There were 127 votes cast, of which Dr. Harris received 50, and Dr. Warnshuis 77.

The Vice Speaker declared Dr. Warnshuis elected Speaker.

Dr. Thomas C. Chalmers, New York, moved that Dr. Warnshuis' election be made unanimous.

Seconded and carried.

In response to calls for a speech, the Speaker said:

Mr. Vice Speaker and Members of the House of Delegates: I want to assure you that I am certainly appreciative of the record you have just made in expressing your attitude of good will and friendship for me. In the coming year I will endeavor to serve the best interests, not of any one man, but the interests of the great American Medical Association whom we represent. (Applause.)

The following officers were nominated and declared duly elected: Vice Speaker, Dr. Rock Sleyster, Wisconsin; Trustees to serve for the term of three years, Dr. Walter T. Williamson, Oregon; Dr. J. H. J. Upham, Ohio, and Charles W. Richardson, District of Columbia.

The Speaker stated that the next order was nominations of standing committees by the President and their confirmation by the House of Delegates.

President Wilbur said he had placed in the hands of the Secretary the nominations for Councils:

Council on Medical Education and Hospitals: Dr. Arthur D. Bevan, Chicago, to fill the vacancy created by expiration of his term; Dr. Louis B. Wilson, Rochester, Minn., to replace Dr. R. L. Wilbur, who automatically retires from the Council because of the acceptance of another official position.

Council on Scientific Assembly: Dr. Roger S. Morris, Cincinnati, to succeed himself.

Judicial Council: Dr. W. S. Thayer, Baltimore, to succeed himself.

Council on Health and Public Instruction: Dr. George Blumer, Connecticut, to succeed Dr. Victor C. Vaughan, whose resignation was presented through the Secretary; Dr. Nathaniel Allison, St. Louis, to succeed Dr. W. S. Rankin, whose term expires.

Dr. J. W. Van Derslice, Illinois, moved that President Wilbur be given further time to appoint a successor to Dr. Upham on the Judicial Council, he having been elected a Trustee.

Nominations for Associate Fellowship

The next order of business being the election of Associate, Affiliate and Honorary Fellows, the Secretary presented the nominations of the Judicial Council and several sections for Associate Fellows, and of the Medical Society of Virginia for Affiliate Fellow.

The Judicial Council nominates the following for Associate Fellowship in the American Medical Association:

William Wesley Ashe, Aijmer, India; Alice Barlow Brown, Wuchang, China; A. A. Bond, Kenya Colony, East Africa; Nathaniel Bercovitz, Hainan, China; Theodore Bliss, Wuchang, China; Chauncey T. Brown, Hengchow, China; Samuel Cochran, Tsinan, China; E. M. Dodd, Montclair, N. J.; Eula Eno, Nanking, China; Frank Ray Felt, Jubbulpore, India; R. H. Goheen, Vengurla, India; Martha Hackett, Canton, China; H. H. Goheen, Vengurla, India; Martha Hackett, Canton, China; Leroy Francis Heimberger, Tsinan, China; Harvey James Howard, Peking, China; H. W. Knight, India; Elizabeth Fair Lewis, Shuntefu, N. China; Elizabeth G. Lewis, Punjab, India; George Davis Lowry, Peking, China; Ralph G. Mills, Peking, China; Barbara M. Nickey, India. Arthur Holmes North, Seoul, Korea; Ray Kenneth Smith, Chairyung, Chosen, Japan; R. T. Shields, Tsinan, China; Joseph Oscar Thomson, Canton, China; W. H. Beach, Chang Rai, Siam; Frank Van Allen, Madura, India; Alexander Stedman Wilson, Kodai Kanal, S. India; Walter Welcome Wood, Lencoes, Porte Nova, Brazil; John Herman Wylie, Paotingfu, China.

M. L. HARRIS, Chairman,
OLIN WEST, Secretary.

Dr. G. Henry Mundt, Illinois, moved that the nominations of the Judicial Council be confirmed.

Seconded and carried.

In the name of the Section on Stomatology, we nominate the following for election as Associate Fellows of the American Medical Association:

Harry Bear, D.D.S., Richmond, Va.; James R. Cameron, Philadelphia; William Claude Adams, Portland, Ore.; Sadi B. Fontaine, Oakland, Calif.; John M. Murphy, Temple, Texas; Bissell B. Palmer, New York; William Rice, Boston; Percy B. Wright, Pasadena, Calif.; John A. Marshall, San Francisco.

ROBERT H. IVY, Chairman,
GEORGE V. I. BROWN, Secretary.

Dr. T. O. Freeman, Illinois, moved that the nominations be confirmed.

Seconded and carried.

In the name of the Section on Pathology and Physiology, we nominate the following for election as Associate Fellow of the American Medical Association:

Ivan Emanuel Wallin, Sc.D., Boulder, Colo.

ARNO B. LUCKHARDT, Chairman,
JOSIAH J. MOORE, Secretary.

Dr. Victor G. Vecki, California, moved that the nomination be confirmed.

Seconded and carried.

The Secretary presented, from the Medical Society of Virginia, the nomination of Dr. Corydon R. Enslow for Affiliate Fellow.

Dr. H. P. Linsz, West Virginia, moved that the nomination be confirmed.

Seconded and carried.

The Secretary presented a communication from the Section on Preventive and Industrial Medicine and Public Health, nominating for Associate Fellows John N. Force, Berkeley, Calif., and Ernest L. Walker, San Francisco, Calif.

It was moved that these gentlemen be elected Associate Fellows.

Seconded and carried.

Dr. William E. Musgrave, California, Vice President, was introduced to the House at this time and said:

Mr. Speaker and Members of the House of Delegates: I suppose every boy dreams dreams. As I followed the plough in the moonshine district of Tennessee as a boy, I dreamed of the period to serve in all capacities, including the Presidency of the United States, but never did I in the wildest flight of my imagination believe or conceive that I would be so honored by this most distinguished body of men in the world. To say I am surprised would express it mildly. I am dumfounded. I had no idea this distinguished honor would be conferred on me. I have tried to be a good physician and to do my part in organization, and I want to pledge my fealty to this great national organization, and to pledge myself as first lieutenant to my chief, Ray Lyman Wilbur of California. (Applause.)

Place of 1924 Annual Session

The selection of the place of meeting for the 1924 session being in order, Dr. Edward H. Ochsner, Illinois, as President of the Illinois State Medical Society, extended a cordial invitation for the Association to meet in Chicago.

The invitation was supported by Dr. Frank Billings, Secretary of the Board of Trustees.

Dr. Everett S. Lain, Section on Dermatology and Syphilology, extended an invitation for the Association to meet in Oklahoma City in 1924.

Dr. Philip Marvel, New Jersey, invited the Association to hold its next session in Atlantic City.

A ballot was taken on the three cities named, which resulted in Chicago being selected as the place of meeting of the 1924 session.

Resolution of Thanks

The Speaker called the attention of the House to the fact that Mr. William Whitford, the official stenographer, had reported thirty-four consecutive meetings of the Association and the proceedings of the House of Delegates ever since it was organized, and said that some recognition should be taken of such a record.

The House thereupon extended a rising vote of appreciation in recognition of his services.

Mr. Whitford thanked the members of the House for the ovation given him and for the recognition accorded him.

Dr. William T. Sarles, Wisconsin, who had retired as Trustee, was presented to the House and said:

Mr. Speaker and Members of the House of Delegates: I was a member of the First House of Delegates, and served five terms as Trustee. I am happy to have had the privilege and opportunity to render what little service I could to the Association. I feel extremely grateful to the members of the House of Delegates for the great honor conferred on me in the past. (Applause.)

Report of Reference Committee on Legislation and Public Relations

Dr. Holman Taylor, Chairman, Texas, presented the report of the Reference Committee on Legislation and Public Relations, as follows:

Your Reference Committee on Legislation and Public Relations respectfully submits the following report:

1. Advertising of infant foods in Hygeia. This matter came before the House of Delegates through a communication from the Philadelphia Pediatric Society, protesting against such advertisements. Your committee finds that the Board of Trustees has established safeguards against the publication of injudicious advertisements in The Journal, and that those safeguards are being applied in the determination of the contents of the advertising pages of Hygeia. Your committee recommends, therefore, that the matter of advertising infant foods in Hygeia be referred to the Board of Trustees for appropriate action.

2. Prescribing of medicinal liquor. Resolutions bearing on the prescribing of medicinal liquor were referred to this committee as follows:

(*a*) A resolution offered by Dr. Chalmers of New York recommending that the Board of Trustees take action to procure the bottling in bond of the liquor intended for medicinal use, and the distribution of such liquor in containers of sizes fit to be dispensed unbroken by the pharmacist.

(*b*) A resolution offered by Dr. Chalmers of New York, asking the endorsement by the House of Delegates of the action taken by the Association for the Protection of Constitutional Rights to procure the removal of the quantitative limits on the prescribing of medicinal liquor:

Whereas, Alcohol is a drug necessary in the treatment of certain diseases, in the opinion of a majority of practicing physicians as heretofore determined by a poll taken by the American Medical Association;

Whereas, The use of alcohol in the treatment of disease is seriously hindered by existing laws and regulations, and notably so by the law limiting, regardless of the condition of the patient, the quantity of liquor that may be prescribed for him; and

Whereas, A group of physicians, organized as the Association for the Protection of Constitutional Rights, has undertaken to safeguard the interests of the sick and the rights of the medical profession against the dangerous limitations inherent in existing statutes limiting the medicinal use of alcohol, and has already succeeded through action in the United States District Court for the Southern District of New York (but subject to final appeal to the United States Supreme Court) in having exising quantitative limitations declared unconstitutional and void; be it

Resolved, That the Association for the Protection of Constitutional Rights be commended for its public-spirited efforts to protect the welfare of the sick and to safeguard the rights of the medical profession against unwarranted and dangerous legislation undertaking to limit with respect to the use of alcohol the resources of the physician for the treatment of disease; and be it further

Resolved, That the Board of Trustees be authorized to cooperate with said Association for the Protection of Constitutional Rights when and as to said Board seems proper.

(*c*) A resolution presented by Dr. O'Donovan of Maryland, adopted by the Medical and Chirurgical Faculty of the State of Maryland, protesting against restriction of the prescribing of alcoholic stimulants.

(*d*) A resolution offered by Dr. Vecki of California asking that the House of Delegates express its disapproval of those portions of the Volstead Act which interfere with the proper relation of the physician and his patient.

Your committee recommends that Resolution *a*, offered by Dr. Chalmers, relative to the adoption of bottled in bond medicinal liquor be adopted. Dr. Chalmers' resolution is as follows:

Whereas, The interests of the patient and the success of the physician require that such alcoholic liquor as is prescribed in the treatment of disease be of known purity and standard alcoholic content; and

Whereas, This can be accomplished only by the marketing of bottled in bond whisky in containers suitable for the dispensing, unopened, by the pharmacist to the patient in such sizes as will meet the patient's need;

Resolved, That the Commissioner of Internal Revenue and the Prohibition Commissioner be again urged to limit as speedily as possible the distribution of whisky to bottled in bond packages, and to provide for the bottling in bond of whisky for medicinal use in packages of sizes suitable for dispensing unopened on prescription, say in packages of 4, 6, 8 and 16 ounces; and

Resolved further, That the Board of Trustees be requested to use its best endeavors to accomplish the ends named in the preceding resolution.

Your committee is of the opinion that the general purport of Resolution *b*, offered by Dr. Chalmers, and of Resolution *c*, offered by Dr. O'Donovan, is embodied in Resolution *d*, offered by Dr. Vecki, and recommends therefore the adoption of the resolution offered by Dr. Vecki as representing the purpose of the three resolutions. Dr. Vecki's resolution is as follows:

Whereas, It has always been the policy of the medical profession to maintain the confidence of its patients as an inviolate secret; and

Whereas, The Volstead Act compels the physician to betray the confidence placed in him by his patient by publishing the nature of his illness; and

Whereas, The said Volstead Act dispenses with the judgment of the physician when treating his patients by limiting the amount of alcoholic remedies he may prescribe; therefore, be it

Resolved, That the House of Delegates of the American Medical Association expresses its disapproval of those portions of the said Volstead Act which interfere with the proper relation of the physician and his patient; and it is

Further resolved, That a copy of this resolution be sent to each of our representatives in the House and the Senate of the United States.

Your committee recommends further that the House of Delegates give its approval to the disinterested and public-spirited action inaugurated by certain physicians organized as the Association for the Protection of Constitutional Rights in New York to remove the quantitative restrictions on the prescribing of liquor now imposed by the federal prohibition laws, which action has resulted in a decision by the United States District Court for the Southern District of New York —subject, however, to final adjudication of the United States Supreme Court—that such restrictions are unconstitutional and void.

Your committee, in making the foregoing recommendations with respect to the several resolutions regarding the prescribing of medicinal liquors, has not been unmindful of the fact that the entire matter is debatable from numerous angles. In order that as much light as possible may be thrown on the various questions relating to it, your committee recommends that the Board of Trustees be requested to inaugurate, through the Council on Pharmacy and Chemistry, a study of the therapeutic effects and uses of alcohol.

Your committee recommends, further, that each constituent Association and component society be urged to take such action as may be practicable to correct and prevent, within its jurisdiction, any abuse of the use of alcohol that may exist or be attempted, under the cloak of professional privilege.

With respect to the medicinal use of alcohol, a minority report will be submitted by Drs. Steiner, Emerson and Rankin.

Respectfully submitted,

HOLMAN TAYLOR, Chairman, J. D. BROOK,
CHARLES E. HUMISTON, H. M. BROWN.

Approved with exception of that part of foregoing that relates to the prescribing of liquor.

W. S. RANKIN, WALTER R. STEINER.
HAVEN EMERSON,

Section 1 was read, after which Dr. Taylor moved its adoption.

Seconded and carried.

Section 2 was read, after which Dr. Taylor moved the adoption of the majority report. Seconded.

Dr. I. A. Abt, Section on Diseases of Children, moved that the whole matter relating to Section 2 be laid on the table.

Seconded and carried.

Supplementary Report of Reference Committee on Hygiene and Public Health

Dr. Joseph A. Pettit, Oregon, Chairman, presented a supplementary report of the Reference Committee on Hygiene and Public Health, as follows:

Your committee moves the adoption of the resolution of the Medical Society of Virginia, introduced by Dr. Leigh, regarding properly prepared articles for the lay press.

Seconded and carried.

Your committee also moves the adoption of the resolution introduced by Dr. Emerson in regard to the National Education Association.

Seconded and carried.

Dr. Pettit moved the adoption of the report of the Committee on Hygiene and Public Health as a whole.

Seconded and carried.

Dr. Charles O'Donovan, Maryland, arose to a question of personal privilege and entered his protest against the action of the House of Delegates in tabling matters referred to in the second part of the report of the Committee on Legislation and Public Relations, which were the subject of resolutions presented by him in accordance with instructions from the Medical and Chirurgical Faculty of the State of Maryland.

Supplementary Report of Reference Committee on Constitution and By-Laws

Dr. William Gerry Morgan, District of Columbia, Chairman, presented a supplementary report of the Reference Committee on Constitution and By-Laws, as follows:

Your Reference Committee on Amendments to the Constitution and By-Laws begs to make the following report:

1. Your committee recommends the adoption of the proposed Amendment to Section 1, Chapter 6, of the By-Laws by adding: "The President, the President-Elect, and the Speaker of the House of Delegates shall be ex-officio members of the Board of Trustees, but without the right to vote."

2. Your committee recommends the adoption of the Amendment to Chapter 1, Section 2, of the By-Laws, introduced by Dr. Keiper with, however, the substitution of the word "two" for "three," and the elimination of all words after the word "years" in the fourth line, so that the last sentence shall read: "Delegates and alternates elected by the Sections, or delegates appointed from the United States Army, United States Navy and the United States Public Health Service shall hold office for two years."

3. Your committee recommends the adoption of the resolution introduced by the Board of Trustees relative to the abolition of the Council on Health and Public Instruction and in lieu thereof the creation of a Bureau of Health and Public Instruction and the necessary changes in the By-Laws in conformity thereto as suggested in the Resolution.

4. Your committee recommends the adoption of the Amendment to Subsection 4 of Section 4 of Chapter 10 of the By-Laws, introduced by Dr. Taylor, which eliminates the words "The members of the Council on Health and Public Instruction shall be members, ex-officio of this committee" and substitute therefor the following: "The Executive Secretary of the Bureau of Legal Medicine and Legislation shall be ex-officio a member of this committee."

In considering the report of the Judicial Council:

1. Your committee approves the proposed amendment to Section 2, Article 1, Chapter II, page 6, of the Principles of Medical Ethics, so that the heading should read "Medical Societies" rather than "Duty of Medical Societies."

2. Your committee approves the amendment to Section 1, Article 3, Chapter II, page 11, so that the heading should read "Consultations should be encouraged."

3. Your committee approves the substitution of the word "should" for the word "may" in Section 5, Article 3, Chapter II, page 13, so that the first three lines of this section should read: "After the physicians called in consultation have completed their investigations of the case they should meet by themselves."

4. Your committee approves that the proposed sentence be added to Section 1, Article 4, Chapter II, page 15: "In embarrassing situations or wherever there may seem to be a possibility of misunderstanding with a colleague, the physician should always seek a personal interview with his fellow."

5. Your committee approves that the fourth line of Section 1, Article 6, Chapter II, page 18, be changed by the elimination of the words "by societies" and the transposition of the word "endowed," so that the line shall read "physician. But endowed institutions."

6. Your committee approves the change recommended in Section 1, Article 6, Chapter II, page 19, so that this section will read, "and organizations for mutual benefit or for accident, sickness and life insurance or for analogous purposes have no claim upon physicians for unremunerated services."

7. Your committee approves the change recommended in the heading of Section 2, Chapter III, page 20, so that the words "Public Health" will form the heading of this section.

Your committee recommends for adoption the resolution to amend the By-Laws, Chapter XIV, which relates to the sections.

Amend Section 2, Officers of Sections, the last sentence, to read:

> Each section shall also elect biennially one delegate and one alternate to the House of Delegates of the American Medical Association to serve for two years.

Your committee recommends the following amendment to Section 1, Chapter VII, of the By-Laws:

> The Speaker of the House of Delegates may appoint from the members of the House such additional committees as he may deem expedient in advance of the annual meeting to expedite the business of the House of Delegates. All such committees shall be subject to the approval of the House of Delegates.

W. G. MORGAN, Chairman, W. H. MAYER,
E. H. CARY, E. L. HUNT, Secretary.
E. A. HINES,

The report was considered section by section, and on several motions, which were duly seconded, the report was adopted.

Dr. Morgan then moved that the report be adopted as a whole.

Seconded and carried.

Report and Resolution of Special Committee on the Death of Dr. Alexander R. Craig

Dr. Walter F. Donaldson, Pennsylvania, presented the following report and resolution of the Special Committee on the Death of Dr. Alexander R. Craig:

The following resolution is respectfully submitted for record in the minutes of the 1923 Session of the House of Delegates of the American Medical Association.

IN MEMORIAM

Alexander Righter Craig, M.D.

WHEREAS, The earthly career of Alexander Righter Craig is completed, we fully realize that a source of strength and inspiration has been removed.

Dr. Craig was a mighty influence in the highest developments of the organized medical profession in America during the last decade. During eleven years, while serving as Secretary of the American Medical Association, he served with its House of Delegates.

The impress of Dr. Craig as a physician, humanitarian and faithful officer may be found throughout many of the records of the Association, and his influence for the best in the future development of the high purposes of our organization will continue through many years to come. Therefore, be it

Resolved, That we express our deep sorrow for the loss of this true physician and wise counselor.

Oscar Dowling, Louisiana,
Holman Taylor, Texas,
Walter F. Donaldson, Pennsylvania.

It was moved that the resolution be adopted.

Seconded and carried.

Report of Reference Committee on Miscellaneous Business

Dr. Southgate Leigh, Chairman, Virginia, presented the report of the Reference Committee on Miscellaneous Business on the various resolutions referred to the committee, as follows:

Regarding resolution No. 1, offered by Dr. J. W. Kerr: Your committee thinks favorably of this resolution and suggests that it be referred to the Bureau of Legal Medicine and Legislation with power to act.

Dr. Leigh moved adoption of this section.

Seconded and carried.

Regarding the report of the Committee on District Division, your committee has considered the report of the special committee appointed at St. Louis last year for the purpose of investigating the suggestion of districting the United States for the better working of the American Medical Association, and agrees with the committee that it is neither desirable nor feasible; therefore, we recommend the adoption of their report as submitted.

Dr. Leigh moved adoption of this section.

Seconded and carried.

Regarding the resolution from the Medical Society of Virginia concerning the Council on Health and Public Instruction, your committee recommends the adoption of this resolution with the addition of the words in the last line "in so far as feasible."

Dr. Leigh moved adoption of this section.

Seconded and carried.

With reference to the resolution submitted by the Virginia Medical Society concerning the Council on Pharmacy and Chemistry, your committee recommends that this be referred to the Board of Trustees for whatever action they deem wise.

Dr. Leigh moved the adoption of this section.

Seconded and carried.

Regarding the resolution submitted by the Medical and Surgical Section of the American Railway Association, your committee recommends the adoption of the resolution.

Dr. Leigh moved adoption of this section.

Seconded and carried.

Relative to the resolution submitted by the Connecticut State Medical Society, your committee recommends that this be referred to the Bureau of Legal Medicine and Legislation with recommendation for consideration and power to act.

Dr. Leigh moved adoption of this section.

Seconded and carried.

Regarding the resolution submitted by Dr. J. R. Kevin, New York, concerning the Physicians' Home Association, your committee recommends the adoption of this resolution.

Dr. Leigh moved adoption of this section.

Seconded and carried.

Dr. Leigh moved the adoption of the report as a whole, as amended.

Seconded and carried.

Communication from State Medical Society of New Jersey

With the unanimous consent of the House, the Secretary read the following communication, a telegram, which was handed to him from the floor by Dr. Philip Marvel, New Jersey:

Newark, N. J., June 27, 1923.

Dr. Philip Marvel, San Francisco:

Resolved, That the Delegates of the Medical Society of New Jersey to the American Medical Association be instructed to use their influence and votes to disassociate the Editorship and General Management of the Association, placing the Editorship entirely separate from the General Management of the Association so that The Journal may represent solely the scientific and ethical side of the American Medical Association, and that they use their influence and vote that an ad interim meeting of the House of Delegates be held at the Headquarters of the Association. As a Delegate, you are instructed by the Society to use your influence and vote for the above.

The above Resolution was unanimously passed by the Board of Trustees and adopted by the House of Delegates of the Medical Society of New Jersey at its Annual Meeting on June 23, 1923. The Editor should devote his entire time to the scientific and ethical aspects of the profession, not to its business. It is impossible for the House of Delegates to do their duty to the Association by having meetings but once a year.

Wells P. Eagleton,
President, State Medical Society of New Jersey.

After the Secretary had read this communication, Dr. Marvel moved that the matter be referred to the Board of Trustees, or to such body as the Speaker might deem proper, and stated that he desired to file it with his personal disapproval.

The Speaker stated that unless there was objection, it would be referred to the Board of Trustees.

As no objection was raised, the communication was so referred.

Report of Reference Committee on Reports of Officers

Dr. E. Eliot Harris, Chairman, New York, presented the following additional report of the Reference Committee on Reports of Officers:

The report of the Board of Trustees, which the committee found interesting and instructive, shows attention to its many duties that is especially commendable. It expresses the value of the services that Dr. George H. Simmons has rendered to the Association by his honesty, individual unselfishness and loyal efforts, which have been productive of the greatest good. The committee submits the following for your action:

Whereas, This year completes the silver service of twenty-five years of constructive endeavor on the part of Dr. George H. Simmons as Editor of the publication which he has made into the foremost medical journal of the world.

Whereas, He was Secretary of the Association during the active period of constructive reorganization, and his plans are now an integral part of this Association; and whereas, he has helped to make American medicine, as represented by the American Medical Association, honored and respected throughout the world; and whereas, from his first connection with The Journal as Editor to the present time he has conducted a campaign against nostrums and quackery with a result that is encouraging to us all; and whereas, in the conflict with the business combinations that exploit the sick the Council on Pharmacy and Chemistry was conceived by him, which in itself is a monument to his constructive genius. Therefore, be it

Resolved, That the House of Delegates, as the representative of the American Medical Association, tenders to Dr. George H. Simmons its appreciation of the value of his constructive services to the American Medical Association and his devotion to its interests during the quarter of a century, which includes the year of 1923.

E. Eliot Harris, Chairman,
A. W. Hornbogen,
H. A. Royster.

Dr. Harris moved that the resolution be adopted and placed in full on the minutes, and that the Board of Trustees be instructed to present an engrossed copy to Dr. George H. Simmons.

Seconded and unanimously adopted.

Dr. Harris then moved the adoption of the report of the Reference Committee on Reports of Officers as a whole.

Seconded and carried.

Report of Reference Committee on Sections and Section Work

Dr. A. E. Bulson, Jr., Chairman, Indiana, presented the report of the Reference Committee on Sections and Section Work, as follows:

Your Committee on Sections and Section Work respectfully reports as follows:

After careful consideration of the report of the Council on Scientific Assembly, we concur in all of the recommendations presented.

1. We especially endorse the recommendation that no changes be made in the number of sections of the Scientific Assembly. This opinion already has had the approval of the House of Delegates as expressed at the St. Louis Session.

2. We feel, however, that the Association should recognize the increasing importance of special medical activities, such as radiology, physiotherapy and occupational therapy; and to that end we wish to express our approval of that portion

of the resolution offered by Dr. Van Zwalenburg which provides that, wherever possible, every section program should contain at least one paper on a subject pertaining to some other specialty of particular interest and importance to members of the section, and your committee makes such recommendation.

3. In view of the fact that laymen are attempting to practice radiology, we recommend that the American Medical Association recognize the science of radiology as an integral part of medicine and surgery.

4. We also wish to emphasize the recommendation that the Scientific Exhibit should be made available and utilized for demonstrating before the sections practical methods of diagnosis and treatment.

5. We recommend that the Committee on Constitution and By-Laws be asked to prepare a by-law to provide for filling any vacancy in the officers of the sections, when such vacancy occurs between sessions.

6. We heartily approve of the diagnostic clinics as suggested by Dr. Frank Billings, but we recommend that these should be held strictly outside the hours assigned for the scientific meetings.

Respectfully submitted,
ALBERT E. BULSON, JR., Chairman,
C. E. MONGAN, Massachusetts,
L. H. MCKINNIE, Colorado,
A. W. BOOTH, New York,
PHILIP MARVEL, New Jersey.

The report was considered section by section, and on several motions, which were duly seconded, the several sections were adopted.

Dr. Bulson then moved the adoption of the report as a whole.

Seconded and carried.

Report of Reference Committee on Rules and Order of Business

Dr. H. P. Linsz, West Virginia, Chairman, presented the report of the Reference Committee on Rules and Order of Business as follows:

Your Committee on Rules and Order of Business respectfully submits the following report: It is recommended that the resolution of Dr. T. C. Chalmers be amended and adopted as follows:

WHEREAS, The honor and integrity of the Medical Profession is being reflected on by the unnecessary, unprofessional and unlawful prescribing of alcoholic liquors by some unscrupulous physicians:

Resolved, That in the judgment of the House of Delegates of the American Medical Association, in session assembled, every state and county medical association should use their best endeavor to discipline physicians who either negligently or wilfully prescribe alcoholic liquors otherwise than in accordance with the law, and to purge the medical profession of physicians who wilfully, under the cloak of their profession, prescribe alcoholic liquors for other than medicinal purposes; and

Resolved further, That the Secretary of this Association forward a copy of this resolution to every state and county medical association affiliated with the American Medical Association.

H. P. LINSZ, West Virginia, Chairman,
J. W. BELL, Minnesota.
W. H. BLOCK, Louisiana,
L. D. SHEDDAN, Tennessee,
S. W. WELCH, Alabama.

At the conclusion of the report, Dr. Linsz moved its adoption. Seconded.

Dr. Victor G. Vecki, California, in discussing the report, said the American Medical Association had already put its stamp of disapproval on the subject matter contained in the resolution of Dr. Chalmers.

Dr. I. A. Abt, Section on Diseases of Children, said that the discussion of this matter could do no possible good, and moved that the resolution be laid on the table. Seconded.

The motion to table failed.

Dr. E. Eliot Harris, New York, moved the adoption of the report of the committee, including the resolutions.

Seconded and carried.

Supplementary Report of Reference Committee on Medical Education

Dr. F. B. Lund, Massachusetts, Chairman, presented a supplementary report of the Reference Committee on Medical Education regarding three items referred to it.

1. Regarding the resolution offered by Dr. Southgate Leigh, from the Medical Society of Virginia, concerning conference with directors of life insurance companies, the committee recommends that it be referred to the Board of Trustees.

Dr. Lund moved the adoption of the recommendation.

Seconded and carried.

2. Regarding the resolution of Dr. S. W. Welch on preparations containing organic extracts, the committee recommends that it be referred to the Council on Pharmacy and Chemistry.

Dr. Lund moved that the recommendation be concurred in.

Seconded and carried.

3. Regarding the resolution of Dr. Keiper on intern training, the committee recommends that it be referred to the Council on Medical Education and Hospitals.

Dr. Lund moved that the recommendation be concurred in.

Seconded and carried.

Dr. Lund then moved the adoption of the report of the committee as a whole.

Seconded and carried.

Further Resolutions

Dr. David J. Davis, delegate from the Section on Pathology and Physiology, introduced the following resolution, which was passed unanimously, June 28, 1923, by that section:

The Section on Pathology and Physiology respectfully recommends to the House of Delegates that a committee be appointed by the President to undertake an investigation of clinical laboratories with a view to secure a responsible and proper supervision of an adequate equipment and facilities for this branch of medical work.

J. J. MOORE, Secretary of Section.

Dr. Davis moved its adoption.

Seconded and carried.

Dr. I. A. Abt, delegate from the Section on Diseases of Children, presented the following resolution from that Section:

WHEREAS, There is an increasing hazard to infant and child life from the accidental aspiration of zinc stearate which is used as a baby dusting powder.

The Section on Diseases of Children, by unanimous vote, does hereby recommend to the House of Delegates of the American Medical Association, that such action shall be taken in cooperation with the manufacturers of said dusting powders, so that caution labels shall be placed on all containers of said powders, and that such changes shall be made in the form of said containers so as to prevent the frequently occurring illnesses and fatalities in instances where such powders are used.

Dr. Abt moved the adoption of the resolution.

Seconded and carried.

Dr. Walter L. Bierring, delegate from the Section on Practice of Medicine, nominated Prof. F. K. Wenckebach, Vienna, Austria, for honorary membership.

It was moved that the nomination be confirmed.

Seconded and carried.

The Secretary called attention to the fact that there was no longer a Council on Health and Public Instruction, and suggested that the action taken in referring a resolution of Dr. Southgate Leigh to that council be reconsidered, and that the same be referred to the Bureau of Health and Public Instruction.

The Speaker stated that unless there was objection, the Secretary would be instructed to make such reference.

As there was no objection offered, the Secretary was so instructed.

Unfinished Business

Under the head of "Unfinished Business," Dr. Walter R. Steiner, Connecticut, presented the following resolution of thanks:

WHEREAS, The annual session of the American Medical Association in San Francisco has been marked by exceeding hospitality, enthusiastic greeting and unusual efficiency; and

WHEREAS, The Local Committee of Arrangements, under the chairmanship of Dr. William E. Musgrave, has been instrumental in the perfection of arrangements, and in the provision of meeting places and entertainment unexcelled for facility and beauty; and

WHEREAS, The press of San Francisco has rendered great service to scientific medicine and to the public by the extensive space and unusual accuracy accorded to accounts of the session; therefore, be it

Resolved, By the House of Delegates, that the gratitude and thanks of the Association be tendered to all for the success of this session, and that we reaffirm the slogan conferred on the city by a former president that "San Francisco Knows How."

Dr. Steiner moved the adoption of the resolution by rising vote.

Seconded and unanimously carried.

Dr. Arthur W. Booth, New York, asked unanimous consent, which was granted, to present the following resolutions:

> WHEREAS, For the first time in the history of organized medicine in New York State, and, so far as can be learned, in the entire United States, a governor has summoned representatives of the organized medical profession in conference to help solve important questions affecting public health, medical education and the practice of medicine; therefore, be it
>
> *Resolved*, That the House of Delegates approve the efforts of the governor of New York State in seeking through the organized medical profession expert opinion and advice on the topics of public health, medical education and the regulation of the practice of medicine; and be it further
>
> *Resolved*, That similar cooperative relationships should be encouraged throughout the several states of the Union.

Dr. Philip Marvel, New Jersey, moved the adoption of the resolutions.

Seconded and carried.

The Secretary read a telegram from the San Francisco Chamber of Commerce, which was addressed to Dr. Ray Lyman Wilbur, President.

The Speaker thanked the delegates and reference committees of the House for their arduous work and for making the session move along so expeditiously and harmoniously for the welfare of the Association. He likewise thanked the members personally for their kindness and courtesy toward him.

As there was no further business to come before the meeting, the Speaker declared the House of Delegates adjourned sine die.

THE SCIENTIFIC ASSEMBLY

THE OPENING GENERAL MEETING

Tuesday Evening, June 26

The opening meeting of the Association was held at the Dreamland Rink, and was called to order by the President, Dr. George E. de Schweinitz, Philadelphia.

Most Rev. Edward J. Hanna, Archbishop of California, delivered the invocation.

Addresses of Welcome

Supervisor Ralph McLeran, representing Mayor James Rolph, Jr., was introduced.

ADDRESS OF WELCOME BY SUPERVISOR RALPH MC LERAN

Mr. President and Members of the American Medical Association: San Francisco in the past has had the privilege and honor of entertaining various gatherings or delegations of people from all over the country and of the world, and it is pleasing, indeed, to see such a large gathering of citizens assembled to extend to the American Medical Association the hospitality of San Francisco. San Francisco has been proud of the reputation it enjoys in extending hospitalities to those who come to our city, and we are particularly proud of having the opportunity and privilege of entertaining the great medical profession of this country.

You have assembled here for further research with the determination to make this a happier world, and it is pleasing to the people of San Francisco to be able to convey the message to this organization that we not only have the utmost confidence in your records, but we have in the past provided generously from our funds for those citizens that are worthy and recommended by you.

We are proud of our private hospitals; we are proud of our public institutions, where the sick poor are being treated by the members of the best medical profession in the world.

Representing as I do his Honor, the Mayor, on behalf of all the people of San Francisco I extend to the American Medical Association a most hearty welcome, and I hope that after you have concluded your labors here the results of your researches will make this city a better city and a better world in which to live. We trust that when you return home you will carry with you a fond recollection of San Francisco, the queen city of the Pacific Coast, whose entrance is by the sea. *(Applause.)*

ADDRESS OF WELCOME BY DR. H. G. BRAINERD, PRESIDENT (1922), MEDICAL SOCIETY OF THE STATE OF CALIFORNIA

Ladies and Gentlemen; Fellow Members of the American Medical Association: We are greatly pleased that so many of our fellow physicians from distant states and foreign lands have made the long and tiresome journey through desert wastes and over rugged mountains to attend the Seventy-Fourth Annual Session of the American Medical Association. We hope that each of you may be repaid for the hardships of the trip by the experiences awaiting you in California. We hope that while you remain with us the typical California June weather, overcast mornings, clear afternoons and cool nights, will prevail, and that while you are in the state you may have the time and opportunity to view many of the scenic beauties of our great state, which stretches along the Western Ocean a distance as great as from Boston, Mass., to Savannah, Ga. Near our northern border Mount Shasta, with its snow covered head reaching 14,500 feet into the clouds, welcomes you who come from the North; a little farther to the south and east, Mount Lassen, the only live volcano in the United States, may fire a salute in your honor to atone for the rather frigid reception given you by Shasta.

Those of you who have crossed our eastern border have come through the passes of the lofty Sierras, which extend nearly the whole length of our state, and have seen some of the many mountain streams, which have been converted into beautiful lakes that furnish water from the eternal snows to irrigate our ranches and furnish light and power to our cities.

While in California you can ill afford to miss visiting the giant redwoods, which the scientists tell us are the oldest living things on this continent, and go thence by auto stage to the Yosemite Valley. Entering it from Inspiration Point, you look down on the wonderful valley lying 3,000 feet below, and El Capitan, a granite giant towering above you on the opposite side of the valley, Dome and Half Dome, his granite brothers, guarding the entrance to the valley at its upper end, with half a score of streams pouring down from the dizzy heights of its perpendicular walls to merge with the Merced River, which meanders placidly through the woods and meadows on the floor of the valley until it passes El Capitan, where it becomes a dashing, roaring torrent. A panorama such as this can rarely be found, and nowhere can it be surpassed for its blending of beauty and grandeur.

Dr. Howard Kelly has been so kind as to send me his reprint on Dr. Lafayette Houghton Bunnell, from which I quote: "Dr. Bunnell was one of a party of the Mariposa Battalion which was pursuing a band of hostile Indians in the spring of 1851. This party encamped in the valley, and at the doctor's suggestion christened it Yosemite, meaning 'Big Grizzly Bear' in the Indian language. The following is what he says on viewing the valley as you may view it from Inspiration Point. He was risking his scalp to get this view while you may enjoy it for a few dollars." Listen to this pioneer Indian fighting doctor:

> None but those who have visited this most wonderful valley can even imagine the feelings with which I looked on the view that was there presented. The grandeur of the scene was but softened by the haze that hung over the valley—light as gossamer—and by the clouds which partially dimmned the higher cliffs and mountains. This obscurity of vision but increased the awe with which I beheld it, and as I looked, a peculiar exalted sensation seemed to fill my whole being, and I found my eyes in tears with emotion.

One of the trips provided by the Entertainment Committee which you should take is through the Muir Woods to Mount Tamalpais, from whose summit a magnificient view is unfolded: the Marin Hills to the north, to the west the boundless Pacific Ocean, and at your feet, stretching out to the west, the south, the north and the east, the land locked Bay of San Francisco, "where all the navies of the world might ride in safety." On the westerly side of the bay, San Francisco, like ancient Rome, rests on its seven hills with Twin Peaks in the background. On the easterly side, rising up from the water's edge, far up on the foothills with Mount Diabolo in the background, is Oakland with its towering city hall as a landmark, and Berkeley, with the campus and beautiful campanile of our state university.

We are especially grateful to the scores of eminent men who have consented to conduct clinics throughout the state, thus to make a success of the first attempt to hold these clinics in the neighborhood of the meeting place of the American Medical Association, and in the name of the Medical Society of the State of California I welcome each and every one of the American Medical Association to every part of our great state.

I hope that those of you who did not come to San Francisco by way of the southern end of the state will visit it before leaving, and while there take a trip to Mount Lowe, and have a view of wonderful extent: Pasadena lying at your feet, Los Angeles, Santa Monica, Venice, Ocean Park and Redondo, San Pedro, Long Beach, between Pasadena and the sea, and far out, if the day is clear, the distant islands of San Clemente and Santa Catalina. You should visit Catalina, "the enchanted isle of the summer sea," with its wonderful bathing, boating and fishing. You also will be well repaid by a trolley trip through the vineyards and the lemon and orange groves, which surpass in extent and productiveness the famous Capo de Oro of Sicily.

You will find a hearty welcome and open house at Santa Barbara, Long Beach, San Diego and Los Angeles. (Applause.)

ADDRESS OF WELCOME BY DR. T. C. EDWARDS, PRESIDENT (1923), MEDICAL SOCIETY OF THE STATE OF CALIFORNIA

Mr. President and Members of the American Medical Association: It is, indeed, a great pleasure for the Medical Society of the State of California to be host to the organized medical profession of the United States, as represented by the American Medical Association. You have members in every part of the country, from the largest cities to the most remote districts where the doctor's practice covers a radius of a hundred miles or more. The nature of your work brings you in very close personal contact with the people, so that in extending a welcome to you, we feel that we are not only greeting you, but the people you serve as well.

We hope to make you so comfortable and happy during your sojourn in our state that you will carry it in your memories as among the red letter days of your lives. Your work is largely altruistic, and many times the compensation you receive is not measured in dollars, but in something immeasurably more valuable to you than money. It is measured in the esteem, honor and love of those you serve. Your position in the scientific world, your relations to society, and your close personal touch with your people, place on you grave duties and responsibilities; and you have not been asleep as to these duties, nor have you failed in the fulfilment of the responsibilities.

To your efforts in the study of the cause and prevention of disease can be largely attributed the improved health conditions in this country. One of your members, in describing conditions in his home town, says that in the five summer months of 1909, he treated ninety-six cases of malaria, fifteen cases of cholera infantum, ileocolitis and dysentery (with two deaths), and seven cases of typhoid fever. Last year, during the same months, he treated one case each of malaria, ileocolitis and dysentery, and not a case of cholera infantum or typhoid fever. There has not been a case of typhoid fever in his town in the last four years. Among the big commercial things you have done is the building of the Panama Canal. Without General Gorgas to have kept alive the human implements, it never could have been accomplished. A study of your sacrifices and achievements from long before the days of de Lesseps to the present time will stir the souls and fire the hearts of men. You have exposed yourselves and sacrificed your lives on the altar of service, bringing health and happiness to countless thousands. This is a part of your contribution toward the fulfilment of your responsibilities. You are here endeavoring to perfect yourselves, so that when you return to your homes you will be better qualified to serve; so that your touch will be gentler, and your sympathies will be greater, and your heart will be kinder. These are the qualities that have created epics to the old family doctor.

We welcome you to our state and extend to you its fullest measure of hospitality. We are proud of the privilege and ask that during your stay in our city by the Golden Gate, where you can see the setting sun of the Occident clasp hands with the rising sun of the Orient—this city that has risen from its ashes to greet you—this city always anxious to be hospitable to her visitors, we ask that you make it your home in the fullest sense of the word. When your labors are over and you leave here, our hospitality has not ended. It matters not whether you go along the shores of our restless Pacific and listen to her grumblings as she breaks over the rocks, or to her rippling laughter as she tries to wet your feet as you tread the sands of our beaches, or whether you are traversing our broad valleys abounding in the rich product of her soil. Mayhap you will find your way into our mountain fastnesses where you can commune with God surrounded by His sublime handiwork, and there rest 'neath the shadow of His eternal snows. Wherever you go, from one end of this great state to the other, you will find members of the Medical Society of California. We are still your hosts, anxious to serve, yours to command. (Applause.)

Report of Local Committee of Arrangements

Dr. William E. Musgrave, chairman of the Local Committee of Arrangements, said:

Mr. President, Members and Friends of Better Medicine: Our good friends, the newspaper men, have been so efficient and so effective in their cooperation with the Committee of Arrangements for this meeting that there is not much for me to say on the subject that has been assigned to me. However, I do wish to call your attention to the fact that the committee has issued a book called "Medical California." This is a book of 220 pages, a copy of which will be furnished to every member registered, and there are a certain number of extra copies for our guests. In this book you will find described in more or less detail every feature of entertainment.

Finally, I wish to call attention particularly to the fact mentioned by President Edwards, that our hospitality and duties as a Committee of Arangements do not cease with the termination of our work in San Francisco, but that Monday and Tuesday of July 2 and 3 will be given over to entertainments in other parts of the state—San Diego County, Santa Barbara County, Fresno County and others—and we hope that you will all be prepared to stay with us in the state for a longer period.

There is one feature of this program that has not been published, and we are going to give you a surprise which will be very pleasant. (Applause.)

(At this juncture the hall was darkened for a moment or two. After the lights were turned on, Miss Helen Daube of San Francisco presented the poem Hygeia.)

ADDRESS OF THE PRESIDENT

President de Schweinitz introduced his successor, Dr. Ray Lyman Wilbur, who delivered his address, entitled "Human Welfare and Modern Medicine" (THE JOURNAL, June 30, p. 1889).

Musical selections were rendered during the meeting by Alexander Saslavsky and his orchestra.

MINUTES OF THE SECTIONS

SECTION ON PRACTICE OF MEDICINE

Wednesday, June 27—Morning

The meeting was called to order at 9 o'clock by the vice chairman, Dr. Alfred Friedlander, Cincinnati.

Dr. Ray W. Matson, Portland, Ore., read a paper on "Results in the Treatment of Pulmonary Tuberculosis by Means of an Artificial Pneumothorax." Discussed by Drs. F. M. Pottenger, Monrovia, Calif.; William C. Voorsanger, San Francisco; Robert A. Peers, Colfax, Calif., and Ray W. Matson, Portland, Ore.

Dr. Walter M. Boothby, Rochester, Minn., read a paper on: "The Total Metabolism in Exophthalmic Goiter." Discussed by Drs. Lovell Langstroth, San Francisco; J. Marion Read, San Francisco; W. P. Clark, San Francisco, and Walter M. Boothby, Rochester, Minn.

The President, Dr. Ray Lyman Wilbur, and the retiring President, Dr. George E. de Schweinitz, addressed the section.

Dr. George Blumer, New Haven, Conn., read a paper on "Infectious Jaundice." Discussed by Drs. Leonard G. Rowntree, Rochester, Minn., and George Blumer, New Haven, Conn.

Dr. Joseph Sailer, Philadelphia, read a paper on "Auscultation in the Diagnosis of Abdominal Conditions." No discussion.

Dr. Anfin Egdahl, Grand Forks, N. D., read a paper on "Chronic Carbon Monoxid Poisoning." No discussion.

Thursday, June 28—Morning

The meeting was called to order by the vice chairman at 9 o'clock.

The following officers were elected: chairman, Dr. Joseph A. Capps, Chicago; vice chairman, Dr. Bryce W. Fontaine, Memphis, Tenn.; secretary, Dr. Eugene S. Kilgore, San Francisco; delegate, Dr. Walter L. Bierring, Des Moines, Iowa; alternate, Dr. Joseph Sailer, Philadelphia.

Dr. William Duncan Reid, Boston, read a paper on "Some Toxic Effects of Digitalis."

Dr. T. Homer Coffen, Portland, Ore., read a paper on "The Favorable Prognosis of Auricular Fibrillation."

Dr. F. K. Wenckebach, Vienna, Austria, read a paper on "Cinchona Derivatives in the Treatment of Heart Disorders."

These three papers were discussed by Drs. Emanuel Libman, New York; A. W. Hewlett, San Francisco; William J. Kerr, San Francisco; Cary Eggleston, New York; Paul D. White, Boston; William Duncan Reid, Boston; T. Homer Coffen, Portland, Ore., and F. K. Wenckebach, Vienna, Austria.

Dr. H. Z. Giffin, Rochester, Minn., read a paper on "A Review of a Group of Professional Blood Donors." Discussed by Drs. E. H. Falconer, San Francisco; Walter V. Brem, Los Angeles, and H. Z. Giffin, Rochester, Minn.

Friday, June 29—Morning

A joint meeting was held with the Section on Pharmacology and Therapeutics and the Section on Pathology and Physiology.

The meeting was called to order at 9 o'clock by the vice chairman of the Section on Practice of Medicine, Dr. Alfred Friedlander, Cincinnati, who announced that the joint meeting would be presided over by Dr. Cary Eggleston, New York, chairman of the Section on Pharmacology and Therapeutics.

The following papers were read as a symposium on "Foods."

Dr. W. D. Sansum, Santa Barbara, Calif.: "Basic Diets in the Treatment of Nephritis."

Dr. W. W. Duke, Kansas City, Mo.: "Food Idiosyncrasies."

Dr. A. E. Taylor, Stanford University, Calif.: "The Complete Diet."

Dr. Herbert Evans, Berkeley, Calif.: "A Hitherto Unknown Dietary Factor Essential for Reproduction."

Dr. E. V. McCollum, Baltimore: "Pathologic Effects of Lack of Vitamin A and the Antirachitic Vitamin."

These five papers were discussed by Drs. George Piness, Los Angeles; E. S. O'Keefe, Boston; M. A. Ramirez, New York; Seale Harris, Birmingham, Ala.; Solomon Solis Cohen, Philadelphia; F. M. Pottenger, Monrovia, Calif.; Lulu Hunt Peters, New York; W. D. Sansum, Santa Barbara, Calif.; W. W. Duke, Kansas City, Mo.; A. E. Taylor, Stanford University, Calif.; Herbert Evans, Berkeley, Calif., and E. V. McCollum, Baltimore.

SECTION ON SURGERY, GENERAL AND ABDOMINAL

Wednesday, June 27—Afternoon

The meeting was called to order at 2 o'clock by the chairman, Dr. Eugene H. Pool, New York.

Dr. A. B. Cooke, Los Angeles, read a paper on "The Ever Present Possibility of Diagnostic Error in Lesions of the Right Iliac Fossa."

Dr. Harry Blackford, Seattle, read a paper on "The Baffling Symptoms of Chronic Appendicitis: Study of Two Hundred and Twenty-Five Cases."

Dr. William E. Lower, Cleveland, read a paper on "Surgery of the Appendix."

These three papers were discussed by Drs. A. J. Ochsner, Chicago; Fred W. Bailey, St. Louis; A. S. Lobingier, Los Angeles; C. H. Magee, Burlington, Iowa; Frank Warner, Columbus, Ohio; R. C. Coffey, Portland, Ore.; Jabez N. Jackson, Kansas City, Mo.; Roy E. Thomas, Los Angeles; W. D. Haggard, Nashville, Tenn.; A. B. Cooke, Los Angeles; Harry Blackford, Seattle, and T. E. Jones, Cleveland.

Dr. Harry H. Kerr, Washington, D. C., read a paper on "Intestinal Surgery." Discussed by Drs. Harold Brunn, San Francisco; J. Shelton Horsley, Richmond, Va.; Foster K. Collins, Los Angeles; R. C. Coffey, Portland, Ore., and Harry H. Kerr, Washington, D. C.

Dr. S. D. Foster, Toledo, Ohio, read a paper on "Posttraumatic Bone Tumors with Infection."

Drs. John J. Morton and W. C. Duffy, New Haven, Conn., presented a paper on "A Clinical and Pathologic Study of Ten Bone Tumors."

These two papers were discussed by Drs. Edwin I. Bartlett, San Francisco; J. F. Percy, Los Angeles; J. C. Bloodgood, Baltimore; S. D. Foster, Toledo, Ohio, and John J. Morton, New Haven Conn.

Thursday, June 28—Afternoon

The meeting was called to order at 2 o'clock by the vice chairman, Dr. Harry P. Ritchie, St. Paul.

Dr. Eugene H. Pool, New York, read the chairman's address, entitled "Management of a Surgical Service."

Drs. Edwin M. Miller and Dean Lewis, Chicago, presented a paper on "The Significance of a Hemorrhagic Discharge from the Nipple."

Dr. John E. Summers, Omaha, read a paper on "Recurrences in Cancer of the Breast."

Dr. Joseph C. Bloodgood, Baltimore, read a paper on "The Diagnosis of Early Breast Tumors Based on the Clinical History and Pathology at the Exploratory Incision."

The three papers were discussed by Drs. Alson R. Kilgore, San Francisco; L. P. McCalla, Boise, Idhao; William C. MacCarty, Rochester, Minn.; J. S. Rodman, Philadelphia; J. F. Percy, Los Angeles, and J. C. Bloodgood, Baltimore.

Dr. E. S. Judd, Rochester, Minn., read a paper on "The Condition of the Common Duct After Cholecystectomy."

Dr. William D. Haggard, Nashville, Tenn., read a paper on "The Diagnosis and Management of Stones in the Common Duct: Review of Thirty Cases."

These two papers were discussed by Drs. Gatewood, Chicago; A. S. Lobingier, Los Angeles; J. Shelton Horsley, Richmond, Va.; R. C. Coffey, Portland, Ore.; E. S. Judd, Rochester, Minn., and W. D. Haggard, Nashville, Tenn.

Friday, June 29—Afternoon

The meeting was called to order at 2 o'clock by the chairman.

The following officers were elected: chairman, Dr. Urban Maes, New Orleans; vice chairman, Dr. Fred W. Bailey, St. Louis; secretary, Dr. J. Tate Mason, Seattle; delegate, Dr. Carl B. Davis, Chicago; alternate, Dr. Frederic W. Bancroft, New York.

Dr. Carl A. Hedblom, Rochester, Minn., read a paper on "Causative Factors and Treatment of Chronic Empyema."

Dr. W. L. Keller, Washington, D. C., read a paper on "The Treatment of Bronchial Fistulas: A Report of Thirty-Five Cases."

Dr. Evarts A. Graham, St. Louis, read a paper on "A Safer Substitute for Lobectomy in Cases of Chronic Suppuration of the Lung."

These three papers were discussed by Drs. Leo Eloesser, San Francisco; Carl A. Hedblom, Rochester, Minn., and Evarts A. Graham, St. Louis.

A joint meeting was held with the Section on Nervous and Mental Diseases, Dr. Walter Timme, New York, chairman of the latter section, presiding.

The following papers were read as a symposium on "Neurosurgery":

Dr. Ernest Sachs, St. Louis: "Diagnosis and Treatment of Head Injuries."

Dr. Charles Bagley, Jr., Baltimore: "Brain Abscess: Clinical and Operative Data."

Dr. William J. Mixter, Boston: "Recent Advances in the Diagnosis of Compression of the Spinal Cord and Cauda Equina."

Dr. Francis C. Grant, Philadelphia: "The Diagnosis of Intracranial Tumors by Means of Changes in the Electrical Conductivity of Brain Tissue."

These four papers were discussed by Drs. Howard Naffziger, San Francisco; Gilbert Horrax, Boston; Lawrence Selling, Portland, Ore.; James B. Ayer, Boston; Ernest Sachs, St. Louis; Charles Bagley, Jr., Baltimore; William J. Mixter, Boston, and Francis C. Grant, Philadelphia.

SECTION ON OBSTETRICS, GYNECOLOGY AND ABDOMINAL SURGERY

Wednesday, June 27—Morning

The section was called to order at 9:15 by Dr. Henry Parker Newman, San Diego, chairman of the council.

Dr. Harry S. Crossen, St. Louis, read the chairman's address, entitled, "Abdominal Surgery Without Detached Pads or Sponges."

The chairman appointed Drs. Rudolph Holmes, Chicago, and Henry Parker Newman, San Diego, to serve on the Executive Committee, Drs. John O. Polak, New York, and Sidney A. Chalfant, Pittsburgh, being absent.

Drs. Reuben Peterson and Roland S. Cron, Ann Arbor, Mich., presented a paper on "The Therapeutic Value of Transuterine Gas Inflation." Discussed by Drs. J. W. Sherrick, Oakland, Calif., and Roland S. Cron, Ann Arbor, Mich.

Dr. Irving F. Stein, Chicago, read a paper on "Pregnancy After Interposition of the Uterus." Discussed by Drs. Albert Goldspohn, Chicago; Fred Morris Loomis, Oakland, Calif.; Edward L. Cornell, Chicago, and Irving F. Stein, Chicago.

Dr. Frank W. Lynch, San Francisco, read a paper on "Retrodisplacements of the Uterus Following Childbirth: A Study of the Development of Its Symptoms." Discussed by Drs. Hiram N. Vineberg, New York; Albert Goldspohn, Chicago, and Frank W. Lynch, San Francisco.

Dr. R. E. Farr, Minneapolis, read a paper on "Local Anesthesia in the Upper Abdomen: The Factors on which Success Depends."

Drs. B. E. Bonar, Salt Lake City, and William R. Meeker, Rochester, Minn., presented a paper on "The Value of Sacral Nerve Block Anesthesia in Obstetrics."

Drs. Otto H. Schwarz and O. S. Krebs, St. Louis, presented a paper on "Scopolamin-Morphin Seminarcosis."

Drs. William C. Danforth, Evanston, Ill., and C. Henry Davis, Milwaukee, presented a paper on "Obstetric Analgesia and Anesthesia: A Consideration of Nitrous Oxid-Oxygen and Various Combined Methods."

These four papers were discussed by Drs. Henry A. Stephenson, San Francisco; W. F. Wakefield, San Francisco; Rudolph W. Holmes, Chicago; W. D. Haggard, Nashville, Tenn.; Henry Parker Newman, San Diego; Frank W. Lynch, San Francisco; R. E. Farr, Minneapolis; W. R. Meeker, Rochester, Minn.; O. S. Krebs, St. Louis, and C. Henry Davis, Milwaukee.

The President, Dr. Ray Lyman Wilbur, and the retiring President, Dr. George E. de Schweinitz, addressed the section.

Thursday, June 28—Morning

The section was called to order at 9:15 by the chairman.

Dr. Nelson M. Black, Milwaukee, read a paper on "Ocular Disturbances in Pregnancy and During the Puerperium." Discussed by Dr. Allen Greenwood, Boston.

Dr. Frederick Howard Falls, Iowa City, read a paper on "A Contribution to the Study of Pyelitis in Pregnancy."

Dr. Herman L. Kretschmer, Chicago, read a paper on "The Treatment of Pyelitis of Pregnancy."

These two papers were discussed by Drs. Ludwig A. Emge, San Francisco; Rudolph W. Holmes, Chicago; Harold A. Miller, Pittsburgh; Frederick Howard Falls, Iowa City, and Herman L. Kretschmer, Chicago.

Dr. William Sharpe, New York, read a paper on "Brain Injuries in the New-Born."

Dr. E. J. Huenekens, Minneapolis, read a paper on "Care of the New-Born in the First Weeks of Life."

These two papers were discussed by Drs. Henry F. Helmholz, Rochester, Minn.; Edward L. Cornell, Chicago; Ernest Sachs, St. Louis; William Sharpe, New York, and E. J. Huenekens, Minneapolis.

Dr. Anna E. Rude, Washington, D. C., read a paper on "The Midwife Problem."

Drs. Fred L. Adair and C. O. Maland, Minneapolis, presented a paper on "Results Gained in Maternity in Which Antenatal Care Has Been Given."

These two papers were discussed by Drs. Hugh A. Cowing, Muncie, Ind.; G. C. H. McPheeters, Fresno, Calif.; Rudolph W. Holmes, Chicago, and Henry Parker Newman, San Diego.

Friday, June 29—Morning

The meeting was called to order at 9:10 by the chairman.

The following officers were elected: chairman, Dr. Frank W. Lynch, San Francisco; vice chairman, Dr. Frederick J. Taussig, St. Louis; secretary, Dr. C. Henry Davis, Milwaukee; delegate, Dr. George Gray Ward, Jr., New York; alternate, Dr. Alfred Baker Spalding, San Francisco.

Dr. Ralph W. French, Fall River, Mass., read a paper on "Incomplete Inversion of the Uterus." Discussed by Drs. Rudolph W. Holmes, Chicago, and Frank W. Lynch, San Francisco.

Dr. Lindsay Peters, Alameda, Calif., read a paper on "Electrothermocautery Treatment of Leukorrhea Due to Endocervicitis." Discussed by Drs. A. B. Spalding, San Francisco; J. F. Percy, Los Angeles, and Robert J. Wilson, New York.

Dr. Kerwin Kinard, Kansas City, read a paper on "Nephrotresis in Recurrent Bilateral Pyelolithiasis in Horseshoe Kidney." No discussion.

Dr. Gunther W. Nagel, Rochester, Minn., read a paper on "Right Paraduodenal Hernia."

Dr. R. C. Coffey, Portland, Ore., read a paper on "The Relation of Right Sided Abdominal Pain to Right Sided Pathology."

Dr. J. Shelton Horsley, Richmond, Va., read a paper on "The Choice of Operations for Gastric and Duodenal Ulcers, with Special Reference to Pyloroplasty."

Dr. Gatewood, Chicago, read a paper on "Achlorhydria in Gallbladder Disease."

These four papers were discussed by Drs. Frederick A. Speik, Los Angeles; C. H. Magee, Burlington, Iowa; B. B.

Davis, Omaha; J. Earl Else, Portland, Ore.; M. G. Wohl, Omaha; R. E. Farr, Minneapolis; Gunther W. Nagel, Rochester, Minn.; R. C. Coffey, Portland, Ore.; J. Shelton Horsley, Richmond, Va., and Gatewood, Chicago.

Dr. Rudolph W. Holmes moved a rising vote of thanks to the Executive Committee who had charge of the program and to all those who aided in making this such a successful meeting. Seconded and carried.

SECTION ON OPHTHALMOLOGY

Wednesday, June 27—Afternoon

The meeting was called to order at 2 o'clock by the chairman, Dr. John O. McReynolds, Dallas, Texas.

The President, Dr. Ray Lyman Wilbur, and the retiring President, Dr. George E. de Schweinitz, addressed the section.

Dr. John O. McReynolds, Dallas, Texas, read the chairman's address, entitled "The Trend of American Opthalmology."

Dr. H. H. Stark, El Paso, Texas, read a paper on "Ophthalmia Myiasis Externa, Due to Larvae of Oestrus Ovis."

Dr. J. W. Kimberlin, Kansas City, Mo., read a paper on "Filaria Loa in Subconjunctival Tissues."

These two papers were discussed by Drs. Edward F. Glaser, San Francisco; Joseph S. Lichtenberg, Kansas City, Mo.; Adolf Barkan, San Francisco; Herbert Moulton, Fort Smith, Ark.; H. H. Stark, El Paso, Texas, and J. W. Kimberlin, Kansas City, Mo.

Dr. Allen Greenwood, Boston, read a paper on "Thrombosis of Central Retinal Vein and Its Branches." Discussed by Drs. William Zentmayer, Philadelphia; F. Park Lewis, Buffalo; Robert W. Miller, Los Angeles; Edward N. Robertson, Concordia, Kan.; Thomas H. O'Connor, San Francisco; Edward Jackson, Denver; Arnold Knapp, New York; Herbert Moulton, Fort Smith, Ark.; George Slocum, Ann Arbor, Mich.; Marcus Feingold, New Orleans, and Allen Greenwood, Boston.

Dr. Cassius D. Wescott, Chicago, made his report as delegate from this section to the House of Delegates.

Dr. Lee Masten Francis, Buffalo, read a paper on a "Proposed Classification of Iritis and Iridocyclitis."

Drs. E. V. L. Brown and Ernest E. Irons, Chicago, presented a paper on "Iritis."

These two papers were discussed by Drs. Cassius D. Wescott, Chicago; C. A. Veasey, Spokane, Wash.; T. B. Holloway, Philadelphia; Lloyd Mills, Los Angeles; F. Park Lewis, Buffalo; John A. Donovan, Butte, Mont.; W. H. Dudley, Los Angeles; Allen Greenwood, Boston; Andrew J. Timberman, Columbus, Ohio; M. H. Lebensohn, Chicago; W. H. Roberts, Pasadena, Calif., and Ernest E. Irons, Chicago.

Dr. Arthur J. Bedell, Albany, N. Y., read a paper entitled "Lens as Seen with Gullstrand Slit Lamp and Corneal Microscope." Discussed by Drs. Lucien Howe, Buffalo; T. B. Holloway, Philadelphia; Marcus Feingold, New Orleans; George F. Keiper, Lafayette, Ind.; William C. Finnoff, Denver; George S. Derby, Boston; Hans Barkan, San Francisco; Lloyd Mills, Los Angeles; Edward Jackson, Denver; John O. McReynolds, Dallas, Texas, and Arthur J. Bedell, Albany, N. Y.

Dr. Walter I. Lillie, Rochester, Minn., read a paper on "Ocular Phenomena Produced by Intracranial Lesions Involving Optic Tracts Near Chiasm." Discussed by Drs. Gilbert Horrax, Boston; George E. de Schweinitz, Philadelphia; Emory Hill, Richmond, Va., and Walter I. Lillie, Rochester, Minn.

Thursday, June 28—Afternoon

The meeting was called to order at 2: 15 by the chairman.

Dr. Roderic O'Connor, San Francisco, presented a little girl on whom he had operated for convergent squint. From 20 degrees in the primary position she is improved to 6 degrees in the primary position, the lateral deviation having disappeared entirely.

Dr. Lucien Howe, Buffalo, presented drawings and charts showing the variation of the curve in the insertion of the ocular muscles.

Dr. Ralph A. Fenton, Portland, Ore., presented a celluloid screen scotometer.

Dr. J. Wilbur Calkins, Oakland, Calif., presented a muscle folder for strabismus.

Dr. Milton H. Shutes, Oakland, Calif., presented a young man with blue sclerae—a member of a family in which for three generations blue sclerae have appeared.

Dr. Harold Bailey, Springfield, Mo., presented lens forceps for cataract extraction.

Dr. Walter B. Lancaster, Boston, read a paper on the "All-or-Nothing Principle of Nerve Conduction and Muscle Contraction in Its Relation to the Eye." Discussed by Drs. Edward Jackson, Denver; Lucien Howe, Buffalo; Roderic O'Connor, San Francisco; W. H. Wilder, Chicago; William Zentmayer, Philadelphia, and Walter B. Lancaster, Boston.

Drs. John Green, Jr., and Greenfield Sluder, St. Louis, presented a paper on "Control of Pain in Functional Hyperesthesia of Ciliary Muscle (Painful Accommodation) Through Nasal (Sphenopalatine, Meckel's) Ganglion." Discussed by Drs. Lloyd Mills, Los Angeles; Thomas E. Carmody, Denver; George S. Derby, Boston, and John Green, Jr., St. Louis.

Dr. Robert G. Reese, New York, read a paper on the "Technic of Iridectomy Done Under a Conjunctival Flap for Glaucoma, Using a Broad Keratome."

Dr. W. H. Wilder, Chicago, read a paper on "Iridotasis."

These two papers were discussed by Drs. Archibald L. MacLeish, Los Angeles; Joseph L. McCool, Portland, Ore.; John Green, Jr., St. Louis; Meyer Wiener, St. Louis; Allen Greenwood, Boston; E. V. L. Brown, Chicago; W. H. Roberts, Pasadena, Calif.; Joseph S. Lichtenberg, Kansas City, Mo.; M. H. Lebensohn, Chicago; Robert G. Reese, New York and W. H. Wilder, Chicago.

Dr. Meyer Wiener, St. Louis, read a paper on "Posterior Sclerotomy with Permanent Drain, for Retinal Detachment." Discussed by Drs. W. S. Franklin, San Francisco; Walter B. Lancaster, Boston, and Meyer Wiener, St. Louis.

Dr. Herbert Moulton, Fort Smith, Ark., read a paper on "Treatment of Methyl Alcohol Blindness, with Especial Reference to Use of Arsphenamin and Neo-Arsphenamin." Discussed by Drs. T. B. Holloway, Philadelphia; John A. Donovan, Butte, Mont.; Frederick W. Lamb, Cincinnati; Henry M. Thompson, Los Angeles; Robert W. Miller, Los Angeles; Joseph S. Lichtenberg, Kansas City, Mo., and Herbert Moulton, Fort Smith, Ark.

Friday, June 29—Afternoon

The meeting was called to order at 2: 15 by the chairman.

Dr. Nelson M. Black, Milwaukee, read the Report of the Committee on Estimating Compensation for Eye Injuries. Dr. Allen Greenwood moved that the report be accepted and placed on file, and the committee continued. Seconded and carried.

Dr. Lucien Howe, Buffalo, offered a resolution regarding three reports of committees not published last year (Committee on International Year Book of Ophthalmology; Committee on Collective Investigation Concerning the Ocular Muscles, and Committee on Hereditary Blindness). On motion, duly seconded, the resolution as applying to each report was adopted separately.

Dr. Albert E. Bulson, Jr., Fort Wayne, Ind., reported that the Committee on Local Anesthesia was not able to complete its report for presentation this year. Dr. Allen Greenwood moved that the committee be continued. Seconded and carried.

Dr.. Albert E. Bulson, Jr., Fort Wayne, Ind., commented on the Report of the Committee on the Knapp Testimonial Fund, which appeared in the presession volume. Dr. Greenwood moved that the report be adopted. Seconded and carried.

Dr. T. B. Holloway, Philadelphia, reported that the Committee on the Knapp Medal awarded the medal this year to Dr. Martin Cullen of New York for his paper on "The Significance of Pathologic Changes in the Fundus in General Arterial Disease and Nephritis." Dr. H. H. Stark, El Paso, Texas, moved that the report be adopted. Seconded and carried.

Dr. Edward Jackson, Denver, for the Board of Ophthalmic Examinations, reported that examinations had been held as usual, but no announcement had been made as to the results. Dr. Nelson M. Black, Milwaukee, moved that this report be accepted. Seconded and carried.

Dr. Nelson M. Black, Milwaukee, moved that a committee be appointed by the chair to investigate the National Safety Code for the Protection of the Heads and Eyes of Industrial Workers, with a view to endorsing it by this section, this committee to report to this section next year. Seconded and carried.

Dr. Nelson M. Black, Milwaukee, read the Report of the Executive Committee.

Dr. J. S. Lichtenberg, Kansas City, Mo., moved that a committee of four be appointed by the Chair to investigate the question of visual requirements for those licensed to drive motor vehicles, and to report to this section at the next meeting. Seconded and carried.

Dr. John Green, Jr., St. Louis, moved that the chairman of the section appoint a member to act for the section on the proposed National Council. Seconded and carried.

Dr. Arthur J. Bedell, Albany, N. Y., moved that the chairman appoint a member to cooperate with other societies in establishing a national museum of ophthalmic pathology. Seconded and carried.

Dr. Allen Greenwood, Boston, moved that the recommendation of the board regarding an additional medal from the Knapp fund be adopted. Seconded and carried.

Dr. Arthur J. Bedell, Albany, N. Y., moved that this section go on record as approving the recommendations of the board regarding the report of the Association of Out Patient Clinics of the City of New York. Seconded and carried.

Dr. Cassius D. Wescott, Chicago, moved that the report of the Executive Committee be adopted in toto. Seconded and carried.

The following officers were elected: chairman, Dr. George S. Derby, Boston; vice chairman, Dr. Walter Scott Franklin, San Francisco; secretary, Dr. William C. Finnoff, Denver; delegate, Dr. Cassius D. Wescott, Chicago; alternate, Dr. Harry S. Gradle, Chicago.

The following were elected as members of the Committee on the Awarding of the Knapp Medal: Drs. Edward Jackson, Denver; F. Phinizy Calhoun, Atlanta, Ga., and Walter R. Parker, Detroit.

Drs. Walter Scott Franklin and Frederick C. Cordes, San Francisco, presented a paper on "Ossification in a Chalazion." Discussed by Dr. William C. Finnoff, Denver.

Dr. Otto Barkan, San Francisco, read a paper on "Active Agent in Milk Injections."

Dr. Ben Witt Key, New York, read a paper on "Antidiphtheric Serum in Ocular Infections: A Clinical Experimental Study of Ninety-One Cases."

These two papers were discussed by Drs. Frederick A. Kiehle, Portland, Ore.; Wilson Johnston, Portland, Ore.; John O. McReynolds, Dallas, Texas; W. H. Wilder, Chicago; George Slocum, Ann Arbor, Mich.; Otto Barkan, San Francisco, and Ben Witt Key, New York.

Dr. Arnold Knapp, New York, read a paper on "Orbital Changes Produced by Radium in Cancer of the Upper Jaw." Discussed by Drs. George H. Kress, Los Angeles; Philip C. Means, Santa Barbara, Calif.; Allen Greenwood, Boston; Edward Jackson, Denver; W. H. Wilder, Chicago; George W. McCoy, Los Angeles; Robert W. Miller, Los Angeles, and Arnold Knapp, New York.

Dr. Hans Barkan, San Francisco, read a paper on "Cataract Extractions Performed by Prof. Josef Meller of Vienna, 1919-1921: Review of Two Hundred and Forty-Nine Operations."

Dr. George S. Derby, Boston, read a paper on "Modern Aids to Cataract Extraction."

These two papers were discussed by Drs. William H. Wilmer, Washington, D. C.; Charles A. Maghy, San Francisco; John O. McReynolds, Dallas, Texas; Kasper Pischel, San Francisco; Dorland Smith, Bridgeport, Conn.; Walter B. Lancaster, Boston; Roderick O'Connor, San Francisco; Andrew J. Timberman, Columbus, Ohio; W. H. Wilder, Chicago; William Zentmayer, Philadelphia; Allen Greenwood, Boston; Hans Barkan, San Francisco, and George S. Derby, Boston.

Dr. William F. Bonner, Wilmington, Del., read a paper on "Premature Presbyopia." Discussed by Drs. W. O. LaMotte, Wilmington, Del., and William F. Bonner, Wilmington, Del.

SECTION ON LARYNGOLOGY, OTOLOGY AND RHINOLOGY

Wednesday, June 27—Morning

The meeting was called to order at 9:15 by the chairman, Dr. William B. Chamberlin, Cleveland.

Dr. William B. Chamberlin, Cleveland, read the chairman's address.

Dr. George F. Keiper, Lafayette, Ind., moved that the section, in view of certain matters that had appeared before the House of Delegates, proceed to the consideration of Special Business. Seconded and carried.

Dr. Wendell C. Phillips, New York, read a resolution introduced before the House of Delegates regarding the packing, labeling and distributing of concentrated lye and other caustic alkalis, and of corrosive acids.

(See minutes of the House of Delegates.)

Dr. Phillips moved that the Section on Laryngology, Otology and Rhinology approve this resolution. Seconded, and, after discussion by Drs. W. C. Woodward, Chicago, H. M. Taylor, Jacksonville, Fla., and John A. Donovan, Butte, Mont., carried.

Dr. Wendell C. Phillips, New York, read the annual report of the Committee on Lye Legislation, and moved the adoption of the report and its recommendations. Seconded and carried.

Dr. Charles W. Richardson, Washington, D. C., presented the matter of a monthly journal of Otology and Laryngology and offered the following resolution:

Resolved, By the Section on Laryngology, Otology and Rhinology of the American Medical Association in session assembled that the Board of Trustees of the Association be requested to establish a monthly journal pertaining to the specialty of otology and laryngology.

Dr. Richardson moved the adoption of this resolution. Seconded, and after discussion by Drs. Wendell C. Phillips, New York, and Robert Levy, Denver, carried.

Dr. Harold M. Hays, New York, moved that a committee on the problems of the hard of hearing be formed or appointed by the chairman. Seconded and carried.

Dr. H. M. Taylor, Jacksonville, Fla., read a paper entitled "Some Observations on Causes and Prevention of Otologic Conditions Following Swimming and Diving." Discussed by Drs. Hill Hastings, Los Angeles; Ralph A. Fenton, Portland, Ore.; George F. Keiper, Lafayette, Ind.; W. M. Stookey, Salt Lake City; Lee Cohen, Baltimore; Cullen F. Welty, San Francisco; Dennis J. McDonald, New York; M. M. Cullom, Nashville, Tenn.; E. B. Cayce, Nashville, Tenn.; Isaac H. Jones, Los Angeles; Emma S. Merritt, San Francisco, and H. M. Taylor, Jacksonville, Fla.

The President, Dr. Ray Lyman Wilbur, and the retiring President, Dr. George E. de Schweinitz, addressed the section.

Dr. Millard F. Arbuckle, St. Louis, read a paper on "Systemic Manifestations of Sinus Disease." Discussed by Drs. E. Lee Myers, St. Louis; Dennis J. McDonald, New York; I. D. Kelley, Jr., St. Louis; C. A. Broaddus, Salt Lake City, and Millard F. Arbuckle, St. Louis.

Dr. I. D. Kelley, Jr., St. Louis, read a paper on "Clinical Observations of Adenoids Removed with a Direct Vision Adenotome." Discussed by Drs. Frederick W. Lamb, Cincinnati; David R. Higbee, San Diego, Calif.; W. S. Tomlin, Indianapolis; M. F. Arbuckle, St. Louis; Burt R. Shurly, Detroit, and I. D. Kelley, Jr., St. Louis.

Dr. Burt R. Shurly, Detroit, read a paper on "Removal of Tonsils, with Especial Reference to Methods Other than Complete Enucleation." Discussed by Drs. George H. Kress, Los Angeles; E. R. Lewis, Los Angeles; W. S. Tomlin, Indianapolis; George W. McCoy, Los Angeles; Lee Cohen, Baltimore; Cullen F. Welty, San Francisco; George F. Keiper, Lafayette, Ind.; Sanford Blum, San Francisco; M. R. Bren, Palo Alto, Calif., and Burt R. Shurly, Detroit.

The chairman appointed Drs. George F. Keiper and Burt R. Shurly members of the Executive Committee, in the absence of Drs. Ross H. Skillern, Philadelphia, and J. A. Stucky, Lexington, Ky.

Dr. Charles G. Stivers, Los Angeles, presented a moving picture demonstration on the "Reeducation of an Aphasic." No discussion.

THURSDAY, JUNE 28—MORNING

The meeting was called to order at 9: 15 by the chairman.

Dr. Harry Boyd-Snee, South Bend, Ind., read a paper on "The Clinical Picture of Streptococcic Osteomyelitis of the Temporal Bone." Discussed by Drs. Austin A. Hayden, Chicago; Harold M. Hays, New York; Cullen F. Welty, San Francisco; Charles W. Richardson, Washington, D. C.; G. Henry Mundt, Chicago; John W. Carmack, Indianapolis; Philip C. Means, Santa Barbara, Calif.; H. V. Dutrow, Dayton, Ohio, and Harry Boyd-Snee, South Bend, Ind.

Dr. Eugene R. Lewis, Los Angeles, read a paper on "Hypodermic General Anesthesia." Discussed by Drs. Neil C. Trew, Los Angeles; I. D. Kelley, Jr., St. Louis; H. R. Lucas, Portland, Ore.; C. A. Broaddus, Salt Lake City; R. E. House, Ferris, Texas; H. T. Bailey, Phoenix, Ariz.; Harold M. Hays, New York; David R. Higbee, San Diego, Calif.; Cullen F. Welty, San Francisco; W. S. Tomlin, Indianapolis; John A. Donovan, Butte, Mont.; Burt R. Shurly, Detroit; R. W. Miller, Los Angeles; Geoffrey Williams, Washington, D. C.; Robert Levy, Denver; Arthur C. Jones, Boise, Ida.; William B. Chamberlin, Cleveland; Wendell C. Phillips, New York, and Eugene R. Lewis, Los Angeles.

Dr. Amédée Granger, New Orleans, read a paper on "The Sphenoid and Ethmoid Positively Identified in Roentgenograms Made with the Head Held in the Author's Position." Discussed by Drs. M. P. Burnham, San Francisco, and Amédée Granger, New Orleans.

Dr. Gordon B. New, Rochester, Minn., read a paper on "Congenital Obstruction of the Larynx and Pharynx." Discussed by Drs. Thomas E. Carmody, Denver; Samuel Iglauer, Cincinnati, and Gordon B. New, Rochester, Minn.

Dr. Bert E. Hempstead, Rochester, Minn., read a paper on "Mastoiditis Without Apparent Middle Ear Involvement." Discussed by Drs. William Ellery Briggs, Sacramento, Calif.; Francis L. Rogers, Long Beach, Calif.; Thomas E. Carmody, Denver; Lee Cohen, Baltimore; H. M. Taylor, Jacksonville, Fla.; Harold M. Hays, New York; Cullen F. Welty, San Francisco; Harold Bailey, Springfield, Mo.; Charles W. Richardson, Washington, D. C.; Anna M. Flynn, San Francisco; George F. Keiper, Lafayette, Ind.; Frank E. Detling, Los Angeles, and Bert E. Hempstead, Rochester, Minn.

Dr. Wendell C. Phillips, New York, read a paper on "Some Comments on Diagnosis and Treatment of Septic Sinus Thrombosis." Discussed by Drs. Ralph A. Fenton, Portland, Ore.; Harold M. Hays, New York; Malcolm C. Rose, New York, and Wendell C. Phillips, New York.

FRIDAY, JUNE 29—MORNING

The meeting was called to order at 9: 15 by the chairman.

The following officers were elected: chairman, Dr. Wendell C. Phillips, New York; vice chairman, Dr. Harrington B. Graham, San Francisco; secretary, Dr. Samuel Iglauer, Cincinnati; delegate, Dr. Burt R. Shurly, Detroit; alternate, Dr. J. A. Stucky, Lexington, Ky.

Dr. Dennis J. McDonald, New York, presented a nasopharyngoscope.

Dr. William P. Sprague, San Anselmo, Calif., presented a nasal vacuum douche.

Dr. Charles W. Richardson, Washington, D. C., chairman of the Committee on the Education of the Deaf Child, reported: "Your committee has to report progress. No definite schemes have been entered into this year, but there is a very promising outlook for funds to enable us to put into action many of the projects that we have in view. The committee hopes that during the ensuing year the efforts that have been made in this line will bear fruit. Through the efforts of the committee and from the reports of the various members, we can see a decided improvement in the medical mind in regard to the deaf child."

Dr. Robert Levy, Denver, moved that the report be accepted and the committee continued. Seconded and carried.

In the absence of the chairman of the Necrology Committee, Dr. Emil Mayer, New York, the secretary read a letter from Dr. Mayer reporting the death of but one member during the year, Dr. Joseph Weinstein, New York.

The report of the Committee on Lye Legislation had been made at the Wednesday morning session, and the chairman at this time read this list of members of the enlarged committee suggested by Dr. Chevalier Jackson: William B. Chamberlin, Cleveland, chairman; Chester H. Bowers, Los Angeles; Thomas E. Carmody, Denver; Lee W. Dean, Iowa City; Henry H. Forbes, New York; Thomas H. Halsted, Syracuse, N. Y.; Samuel Iglauer, Cincinnati; C. J. Imperatori, New York; J. W. Jervey, Greenville, S. C.; Robert C. Lynch, New Orleans; Richmond McKinney, Memphis, Tenn.; T. W. Moore, Huntington, W. Va.; H. B. Orton, Newark, N. J.; Ellen J. Patterson, Pittsburgh, and H. Marshall Taylor, Jacksonville, Fla.

The secretary read the report of Dr. Henry H. Forbes, New York, delegate to the Tenth International Congress of Otology. On motion, duly seconded, the report was accepted and filed.

Dr. Burt R. Shurley, Detroit, made a report from the House of Delegates. Dr. Thomas E. Carmody, Denver, moved that the report be accpeted and approved. Seconded and carried.

Under the head of New Business, the matter of the appointment of a committee from this section, to confer with other committees from similar societies to report at the next meeting in regard to the advisability of establishing an examining board in otolaryngology similar to the board at present existing in ophthalmology, was taken up. Dr. Robert Levy, Denver, moved that a committee of two be appointed by the chair to take up this matter and present it to the Board of Trustees for approval and action. Seconded and carried. The Chairman appointed, on this committee, Drs. Norval H. Pierce, Chicago, and George E. Shambaugh, Chicago.

Dr. Harold M. Hays, New York, presented the report of the Committee on Problems of the Hard of Hearing. Dr. Francis L. Rogers, Long Beach, Calif., moved that a committee of five be appointed to be known as the Committee on Problems of the Hard of Hearing. Seconded and carried. The Chairman appointed, on this committee, Dr. Harold M. Hays, New York, chairman, and Drs. Norval H. Pierce, Chicago; Wendell C. Phillips, New York; George E. Shambaugh, Chicago, and Horace Newhart, Minneapolis.

Dr. Austin A. Hayden, Chicago, moved that a committee of five be appointed by the Chair to take up with the Board of Trustees the matter of compiling information regarding the otolaryngologic hygiene of swimming, and to disseminate this information to the profession and public through proper channels. Seconded and carried. The chairman appointed, on this committee, Dr. H. M. Taylor, Jacksonville, Fla., chairman, and Drs. Ralph A. Fenton, Portland, Ore.; Hill Hastings, Los Angeles; M. F. Arbuckle, St. Louis, and Lee M. Hurd, New York.

Miss Coralie N. Kenfield, San Francisco, read a paper and made a demonstration on "The Education or Reeducation of the Deafened Adult."

Dr. Luis P. Berne, New York, read a paper on "The Correction of External Nasal Deformities."

Dr. Lee Cohen, Baltimore, read a paper on "Corrective Rhinoplasty: Some Reasons for Faulty Results."

These two papers were discussed by Drs. Philip C. Means, Santa Barbara, Calif.; William B. Chamberlin, Cleveland; Kasper Pischel, San Francisco; Samuel Iglauer, Cincinnati; Gordon B. New, Rochester, Minn; Luis P. Berne, New York, and Lee Cohen, Baltimore.

Dr. Isaac H. Jones, Los Angeles, read a paper on "Neurotologic Studies in Epilepsy: Preliminary Report." Discussed by Drs. Hugo A. Kiefer, Los Angeles; W. F. Bonner, Wilmington, Del.; Cecil E. Reynolds, Los Angeles, and Samuel D. Ingham, Los Angeles.

The chairman thanked the members for their attention and interest as well as their cooperation during the year.

Dr. Burt R. Shurly, Detroit, moved that a vote of thanks be given the medical profession of San Francisco for their hospitality and courteous treatment of the visiting members. Seconded and carried by rising vote.

SECTION ON DISEASES OF CHILDREN

Wednesday, June 27—Afternoon

The meeting was called to order at 2 p. m., by the chairman, Dr. Borden S. Veeder, St. Louis.

Dr. Borden S. Veeder, St. Louis, read the chairman's address, entitled "Pediatrics and the Child." No discussion.

Dr. Isaac A. Abt, Chicago, introduced a resolution relative to the use of zinc stearate which was adopted and referred to the House of Delegates. (See minutes of House of Delegates).

Dr. Frank C. Neff, Kansas City, Mo., read a paper on "Active Immunization Against Diphtheria in Private Practice." Discussed by Drs. E. J. Huenekens, Minneapolis; C. A. Earle, Des Plaines, Ill., and Frank C. Neff, Kansas City, Mo.

Dr. H. F. Helmholz, Rochester, Minn., read a paper on "The Relation of Infections of Upper Respiratory Tract to Pyelitis." Discussed by Drs. Langley Porter, San Francisco, and H. F. Helmholz, Rochester, Minn.

Dr. Walter Fritz Winholt, Chicago, read a paper on "Epidemiology of Colds in Children." Discussed by Drs. F. P. Gengenbach, Denver, and Walter Fritiz Winholt, Chicago.

Dr. A. H. Byfield, Iowa City, read a paper on "Rôle of Parental Nutrition in Causation of Rickets." Discussed by Drs. William Palmer Lucas, San Francisco; John A. Foote, Washington, D. C., and A. H. Byfield, Iowa City.

Dr. M. L. Turner, Des Moines, Iowa, read a paper on "Some Observations from Nature." Discussed by Drs. Isaac A. Abt, Chicago; Carol Lincoln Sweet, Elk, Calif., and M. L. Turner, Des Moines, Iowa.

The President, Dr. Ray Lyman Wilbur, and the retiring President, Dr. George E. de Schweinitz, addressed the section.

Thursday, June 28—Morning

A joint meeting was held with the section on Preventive and Industrial Medicine and Public Health. For a report of the proceedings, see the minutes of the Section on Preventive and Industrial Medicine and Public Health.

Friday, June 29—Afternoon

The meeting was called to order at 2 o'clock by the chairman.

The following officers were elected: chairman, Dr. Henry F. Helmholz, Rochester, Minn.; vice chairman, Dr. Henry Dietrich, Los Angeles; secretary, Dr. Edgar J. Huenekens, Minneapolis; delegate, Dr. Isaac A. Abt, Chicago.

The executive committee introduced the following resolution, which was thereupon, on motion, made, seconded and carried, and referred to the secretary for transmission to the House of Delegates:

Resolved, That the Section on Diseases of Children of the American Medical Association appoint Dr. John Foote of Washington, D. C., a committee of one to represent the section in asking for a revision of that portion of the International Code for the classification of causes of death which concerns the new-born and early infancy.

A resolution concerning immunization against diphtheria. Having passed the experimental stage and proved it is a safe and successful method for active immunization against diphtheria, the use of toxins and antitoxins by physicians in their practice is hereby recommended by the Section on Diseases of Children, American Medical Association, in Session in San Francisco, June, 1923.

Respectfully submitted.

Borden S. Veeder,
Maurice Ostheimer,
Frank Neff,
Executive Committee.

(Not transmitted to House of Delegates.)

Dr. T. C. McCleave, Berkeley, Calif., introduced the following resolution, which was thereupon seconded and carried:

Resolution on the Suggestions Made in the Chairman's Address: *Resolved,* That the Section on Diseases of Children, in accordance with the recommendations contained in the chairman's address, respectfully asks the Council on Scientific Assembly to change the name of our section so that it will read "Section on Pediatrics."

The following papers were read as a symposium on "The Mental Aspect of Child Health":

Dr. Olga S. Bridgman, San Francisco: "The Psychology of the Normal Child."

Dr. Isaac A. Abt, Chicago: "The Neuropathic Child."

Dr. Louis A. Lurie, Cincinnati: "The Subnormal and Psychopathic Child As Exemplified in Special Clinic."

These three papers were discussed by Drs. William Palmer Lucas, San Francisco; John A. Foote, Washington, D. C.; Ralph H. Kuhns, San Francisco; Carol L. Sweet, Elk, Calif.; Langley Porter, San Francisco, and Olga S. Bridgman, San Francisco.

Dr. H. M. McClanahan, Omaha, read a paper on "Measles: Data Gathered in a Period of Forty Years." Discussed by Drs. W. H. Reasner, Minneapolis; T. C. McCleave, Oakland, Calif.; Frank C. Neff, Kansas City, Mo., and Newell Jones, Alhambra, Calif.

Dr. Edward Dyer Anderson, Minneapolis, ready a paper on "Study of the Physical Signs of Hilum Gland Enlargement in Children." Discussed by Drs. Henry F. Helmholz, Rochester, Minn.; F. P. Gengenbach, Denver, and Edward Dyer Anderson, Minneapolis.

Drs. Henry Dietrich and Hugh K. Berkley, Los Angeles, presented a paper on "Foreign Bodies in the Bronchi." Discussed by Drs. Isaac A. Abt, Chicago, and Henry Dietrich, Los Angeles.

SECTION ON PHARMACOLOGY AND THERAPEUTICS

Wednesday, June 27—Afternoon

A joint meeting was held with the Section on Dermatology and Syphilology. For a report of the proceedings, see the minutes of that section.

Thursday, June 28—Afternoon

The meeting was called to order at 2 o'clock by the chairman, Dr. Cary Eggleston, New York.

The following officers were elected: chairman, Dr. Paul J. Hanzlik, San Francisco; vice chairman, Dr. W. Worth Hale, Boston; delegate, Dr. Cary Eggleston, New York.

The secretary, Dr. Paul D. White, Boston, read the names of the following applicants for fellowships in the Section on Pharmacology and Therapeutics: Isidor Greenwold, Ph.D., New York; Frances Krasnow, Ph.D., New York, and Dr. Ambrose Hunsberger, Philadelphia. Moved, seconded and carried that these candidates be recommended to the House of Delegates for election as associate Fellows.

(Not transmitted to the House of Delegates.)

Dr. Cary Eggleston, New York, read the chairman's address, entitled "The Absorption and Elimination of Drugs by Man." No discussion.

Dr. H. B. Weiss, Cincinnati, read a paper on "The Treatment of Mercuric Chlorid Poisoning." Discussed by Drs. Roger S. Morris, Cincinnati; Orville Harry Brown, Phoenix, Ariz.; L. C. Gatewood, Chicago; Phoebus Berman, Los Angeles; Solomon Solis Cohen, Philadelphia; Cary Eggleston, New York, and H. B. Weiss, Cincinnati.

Dr. J. B. Collip, Edmonton, Alberta, Canada, read a paper on "Glucokinin—A New Plant Hormone."

Dr. Frederick M. Allen, Morristown, N. J., read a paper on "The Treatment of Diabetes with Insulin."

Dr. R. T. Woodyatt, Chicago, read a paper on "The Treatment of the Precomatose Case of Diabetes."

These three papers were discussed by Drs. W. D. Sansum, Santa Barbara, Calif.; Seale Harris, Birmingham, Ala.; Charles W. McGavran, Columbus, Ohio; C. F. Griffin, San Francisco; J. B. Collip, Edmonton, Alberta, Canada, and Frederick M. Allen, Morristown, N. J.

Friday, June 29—Morning

A joint meeting was held with the Section on Practice of Medicine and the Section on Pathology and Physiology. For a report of the proceedings, see the minutes of the Section on Practice of Medicine.

SECTION ON PATHOLOGY AND PHYSIOLOGY

Wednesday, June 27—Morning

The section was called to order at 9 o'clock by the chairman, Dr. Arno Benedict Luckhardt, Chicago.

Dr. Arno Benedict Luckhardt, Chicago, read the chairman's address, entitled "A Plea for the More Rapid Progress of Scientific Medicine." No discussion.

Drs. Kenneth M. Lynch, Dallas, Texas, and George T. Caldwell, Dallas, Texas, were appointed to serve on the executive committee, in the absence of two of its members.

Dr. Michael G. Wohl, Omaha, read a paper on "Fungus Diseases of Man in the State of Nebraska."

Dr. Henry Albert, Reno, Nev., read a paper on "Actinomycosis of the Abdominal Wall."

Dr. A. H. Sanford, Rochester, Minn., read a paper on "The Distribution of Actinomycosis in the United States."

These three papers were discussed by Drs. David J. Davis, Chicago; H. E. Robertson, Rochester, Minn.; George T. Caldwell, Dallas, Texas; G. B. New, Rochester, Minn.; Peter Bassoe, Chicago; Harlan P. Mills, Phoenix, Ariz.; Roy W. Hammock, Los Angeles; Michael G. Wohl, Omaha; Henry Albert, Reno, Nev., and A. H. Sanford, Rochester, Minn.

The President, Dr. Ray Lyman Wilbur, and the retiring President, Dr. George E. de Schweinitz, addressed the section.

Dr. David J. Davis, Chicago, read a paper on "A Comparative Study of the Actinomycosis-Like Granules in the Tonsils of Man, Pig and Cow." Discussed by Drs. Henry Albert, Reno, Nev.; Oliver P. Terry, Lafayette, Ind., and David J. Davis, Chicago.

Dr. Kenneth M. Lynch, Dallas, Texas, read a paper on "The Occurrence of Blastocystis in Intestinal Inflammation." Discussed by Drs. David J. Davis, Chicago, and Kenneth M. Lynch, Dallas, Texas.

Dr. F. W. Hartman, Detroit, read a paper on "The Kolmer Complement Fixation as a Specific Test for Syphilis, Based on the Routine Examination of Seven Thousand Specimens of Blood." Discussed by Drs. R. A. Kilduffe, Los Angeles; Wilfred H. Kellogg, San Francisco, and F. W. Hartman of Detroit, Mich.

Dr. William G. Exton, New York, read a paper on "The Euscope as an Aid to Microscopy." Discussed by Drs. Henry Albert, Reno, Nev.; Fred Weidman, Philadelphia, and William G. Exton, New York.

Dr. M. H. Rea, Philadelphia, read a paper on "Studies on Aneurysm of the Aorta." Discussed by Dr. Fred Weidman, Philadelphia.

Thursday, June 28—Morning

The section was called to order at 9 o'clock by the chairman.

Dr. C. W. Greene, Columbia, Mo., read the report of the Committee on the Feasibility of Standardization of Laboratories.

(See minutes of House of Delegates.)

Dr. William Ophuls, San Francisco, read a paper on "Periarteritis Acuta Nodosa." Discussed by Drs. H. E. Robertson, Rochester, Minn., and William Ophuls, San Francisco.

The following officers were elected: chairman, Dr. Kenneth M. Lynch, Dallas, Texas; vice chairman, Dr. C. W. Greene, Columbia, Mo.; delegate, Dr. David J. Davis, Chicago.

Dr. Walter V. Brem, Los Angeles, read a paper on "Agglutination Studies After Triple Typhoid Vaccination." Discussed by Drs. William Ophuls, San Francisco; R. A. Kilduffe, Los Angeles, and Walter V. Brem, Los Angeles.

Dr. H. E. Robertson, Rochester, Minn., read a paper on "Endothelioma of the Pleura—the Pathologic Significance of the Term." Discussed by Drs. William Ophuls, San Francisco, and H. E. Robertson, Rochester, Minn.

Dr. William Carpenter MacCarty, Rochester, Minn., read a paper on "The Cytologic Diagnosis of Neoplasms." Discussed by Drs. Michael G. Wohl, Omaha; William Ophuls, San Francisco; H. E. Robertson, Rochester, Minn.; Ward Burdick, Denver; F. W. Hartman, Detroit; H. J. Corper, Denver; Albert Schneider, Portland, Ore., and William Carpenter MacCarty, Rochester, Minn.

Dr. Montrose T. Burrows, St. Louis, read a paper on "Studies on the Etiology of Cancer." Discussed by Drs. Evarts A. Graham, St. Louis; William Carpenter MacCarty, Rochester, Minn., and Montrose T. Burrows, St. Louis.

Dr. S. A. Levinson, Chicago, read a paper on "The Effect of Passive Hyperemia of the Liver on Tubercle Formation." Discussed by Drs. H. J. Corper, Denver; Lydia M. De Witt, Chicago, and S. A. Levinson, Chicago.

Dr. F. R. Nuzum, Santa Barbara, Calif., read a paper on "Some Chemical Blood Changes in Chronic Alcoholism." Discussed by Drs. Montrose T. Burrows, St. Louis; C. W. Greene, Columbia, Mo., and F. R. Nuzum, Santa Barbara, Calif.

Dr. C. W. Greene, Columbia, Mo., read a paper on "The Available Oxygen During Nitrous Oxid Anesthesia." Discussed by Drs. Arno B. Luckhardt, Chicago, and C. W. Greene, Columbia, Mo.

Friday, June 29—Morning

A joint meeting was held with the Section on Practice of Medicine, and the Section on Pharmacology and Therapeutics. For a report of the proceedings, see the minutes of the Section on Practice of Medicine.

SECTION ON STOMATOLOGY

Wednesday, June 27—Morning

The meeting was called to order at 9 o'clock by the chairman, Dr. Robert H. Ivy, Philadelphia.

Dr. Robert H. Ivy, Philadelphia, read the chairman's address, entitled "Tuberculous Lesions of the Oral Cavity." Discussed by Drs. Thomas E. Carmody, Denver; Herbert A. Potts, Chicago; Gordon B. New, Rochester, Minn; E. W. Hayes, Monrovia, Calif., and Robert H. Ivy, Philadelphia.

Dr. Herbert A. Potts, Chicago, read a paper on "Osteitis Fibrosa (von Recklinghausen's Disease)." Discussed by Drs. Josef Novitzky, San Francisco; Gordon B. New, Rochester, Minn.; George V. I. Brown, Milwaukee; Robert H. Ivy, Philadelphia, and Herbert A. Potts, Chicago.

Dr. G. Reese Satterlee, New York, read a paper on "Results Following Removal of Dental Infection in Chronic Gastro-Intestinal Disorders." Discussed by Drs. Josef Novitzky, San Francisco; F. V. Simonton, San Francisco, and T. Sidney Smith, San Francisco.

The President, Dr. Ray Lyman Wilbur, and the retiring President, Dr. George E. de Schweinitz, addressed the section.

The paper of Dr. G. Reese Satterlee was further discussed by Drs. Robert Burns, Jr., San Francisco; F. W. Kroll, San Francisco; W. Claude Adams, Portland, Ore., and G. Reese Satterlee, New York.

Dr. E. F. Tholen, Los Angeles, read a paper on "A Consideration of Impacted Teeth." Discussed by Drs. H. A. Potts, Chicago; S. B. Fontaine, Oakland, Calif.; Robert H. Ivy, Philadelphia, and E. F. Tholen, Los Angeles.

Thursday, June 28—Morning

The meeting was called to order at 9 o'clock by the chairman.

Drs. Harry Bear, Richmond, Va.; James R. Cameron, Philadelphia; William Claude Adams, Portland, Ore.; Sadi B. Fontaine, Oakland, Calif.; John M. Murphy, Temple, Texas; Bissell B. Palmer, New York; Percy B. Wright, Pasadena, and John A. Marshall, San Francisco, on motion by Dr. Eugene S. Talbot, Chicago, seconded by Dr. E. F. Tholen, Los Angeles, and duly passed by the members of the section, were nominated for election as associate Fellows.

Dr. John Albert Marshall, San Francisco, read a paper on "Changes in Tooth Structures Resulting from Deficient Diet."

Dr. L. L. Stanley, San Quentin, Calif., read a paper on "Diet of Prisoners at San Quentin." Discussed by Dr. Guy W. Clark of the University of California.

The papers of Drs. Marshall and Stanley were discussed by Drs. Herbert A. Potts, Chicago, and John Albert Marshall, San Francisco.

Dr. Joseph A. Pettit, Portland, Ore., read a paper on "The Contribution of Oral Lesions to the Cause of Cancer."

Dr. Albert J. Ochsner, Chicago, read a paper on "The Treatment of Cancer, with Particular Reference to the Region of the Maxillary Sinus."

These two papers were discussed by Drs. Harry P. Ritchie, St. Paul; George V. I. Brown, Milwaukee; J. F. Percy, Los Angeles; Henry Schmitz, Chicago; Carl Beck, Chicago; Thomas E. Carmody, Denver; H. M. Greene, Portland, Ore.; A. C. Sellery, Long Beach, Calif.; Josef Novitzky, San Francisco; Joseph A. Pettit, Portland, Ore., and Albert J. Ochsner, Chicago.

Dr. J. F. Percy made further remarks regarding the use of his cautery in the treatment of cancer. Discussed by Dr. Gordon B. New, Rochester, Minn.

Friday, June 29—Morning

The meeting was called to order at 9 o'clock by the chairman.

The following officers were elected: chairman, Dr. Joseph A. Pettit, Portland, Ore.; vice chairman, Dr. James G. Sharp, San Francisco; secretary, Dr. George V. I. Brown, Milwaukee; delegate, Dr. Eugene S. Talbot, Chicago.

Dr. Eugene S. Talbot, Chicago, read a paper on "The Teeth of the Cyclostomata (Lampreys) and the Teeth and Spines of the Elasmobranchii (Dogfish, True Sharks and Rays)." Discussed by Prof. J. S. Kingsley, Berkeley, Calif., and Drs. John A. Marshall, San Francisco; F. V. Simonton, San Francisco; Josef Novitzky, San Francisco, and Eugene S. Talbot, Chicago.

Dr. Guy S. Millberry, San Francisco, read a paper on "Combating Infectious Diseases Arising in the Oral Cavity and Their Sequelae, with Special Reference to the Dental Problem."

Dr. Percy B. Wright, Pasadena, Calif., read a paper on "Oral Prophylaxis and Preventive Dentistry: What the Physician Can Do to Help."

These two papers were discussed by Drs. F. W. Kroll, San Francisco; Robert Burns, Jr., San Francisco; Guy W. Clark, San Francisco; Herbert A. Potts, Chicago; Josef Novitsky, San Francisco; C. H. Farman, Los Angeles; S. B. McKerrihan, Portsmouth, Ohio; H. A. Tuckey, San Francisco; Guy S. Millberry, San Francisco, and Percy B. Wright, Pasadena, Calif.

Dr. F. V. Simonton, San Francisco, read a paper on "Further Studies of the Histopathology of Pyorrhea."

Mr. A. T. Batchelder, San Francisco, read a paper on "The Effect of Instrumental Treatment of Pyorrhea on the Quantity of Micro-Organisms in the Mouth." Discussed by Drs. T. D. Beckwith, Berkeley, Calif.; Josef Novitsky, San Francisco; T. Sydney Smith, San Francisco; Eugene S. Talbot, Chicago, and F. V. Simonton, San Francisco, and Mr. A. T. Batchelder, San Francisco.

SECTION ON NERVOUS AND MENTAL DISEASES

Wednesday, June 27—Afternoon

The meeting was called to order at 2 o'clock by the chairman, Dr. Walter Timme, New York.

Dr. Walter Timme, New York, read the chairman's address.

Dr. Cecil E. Reynolds, Los Angeles, read a paper on "Modern Conceptions of the Origin and Seat of the Epileptic Phenomena." Discussed by Dr. Ralph H. Spangler, Philadelphia.

Dr. S. A. Kinnier Wilson, London, England, read a paper on "Rôle of Trauma in the Etiology of Organic and Functional Nervous Diseases."

The President, Dr. Ray Lyman Wilbur, and the retiring President, Dr. George E. de Schweinitz, addressed the section on the scientific work of the Association.

The paper by Dr. S. A. Kinnier Wilson was discussed by Drs. W. F. Schaller, San Francisco; F. E. Coulter, Los Angeles; Thomas J. Orbison, Los Angeles; David S. Booth, St. Louis; Edwin F. Patton, Sacramento, Calif.; C. E. Reynolds, Los Angeles, and S. A. Kinnier Wilson, London, England.

Dr. Josephine A. Jackson, Pasadena, Calif., read a paper on "Leptomeningitis and Temporary Dissociation of Personality: Report of Case." Discussed by Dr. Thomas J. Orbison, Los Angeles.

Drs. Charles E. Nixon and Hans Lisser, San Francisco, presented a paper on "Endocrine Aspect of Certain Neuropsychiatric Cases." Discussed by Drs. C. E. Reynolds, Los Angeles; Walter Timme, New York; Harold W. Wright and Charles E. Nixon, San Francisco.

Dr. Thomas J. Orbison, Los Angeles, read a paper on "Constitutional Psychopathic Individuals, and Some of the Problems They Present." Discussed by Drs. Solomon Schwager, Pittsfield, Mass.; F. O. Pryor, Santa Rosa, Calif., and Thomas J. Orbison, Los Angeles.

Dr. Edward Livingston Hunt, New York, read a paper on "Epidemic (Lethargic) Encephalitis: Studies of the Recent New York Epidemic." Discussed by Drs. D. H. Morgan, Akron, Ohio; Peter Bassoe, Chicago; William House, Portland, Ore., and Edward Livingston Hunt, New York.

Thursday, June 28—Afternoon

Dr. James B. Ayer, Boston, read a paper on "Puncture of the Cisterna Magna: Discussion of Its Value After Three Years of Clinical Use." Discussed by Drs. Harry C. Solomon, Boston; William A. Jones, Minneapolis, and James B. Ayer, Boston.

Dr. Lawrence Selling, Portland, Ore., read a paper on "Value of Labyrinthine Tests in Cerebellar Diagnosis." Discussed by Dr. I. Leon Meyers, Los Angeles.

Drs. Samuel D. Ingham and T. C. Lyster, Los Angeles, presented a paper on "Abnormalities of Visual Fields Associated with Organic Brain Lesions." No discussion.

Dr. Walter D. Shelden, Rochester, Minn., read a paper on "Facial Paralysis Associated with Recurring Edema of the Face." Discussed by Drs. David S. Booth, St. Louis; William Jackson Schatz, Allentown, Pa.; Walter Timme, New York, and Walter D. Shelden, Rochester, Minn.

Dr. Edwin G. Zabriskie, New York, read a paper on "Certain Peculiarities in the Development of Neurosyphilitic Types of Congenital Syphilis." No discussion.

Dr. Ross Moore, Los Angeles, read a paper on "Treatment of Encephalitis." No discussion.

Dr. I. Leon Meyers, Los Angeles, read a paper on "The Causation of Spasticity." Discussed by Drs. David S. Booth, St. Louis, and I. Leon Meyers, Los Angeles.

Dr. Gilbert Horrax, Boston, read a paper on "Arachnoiditis Simulating Brain Tumor, Its Surgical Treatment and End-Results." Discussed by Drs. William Alexander Jones, Minneapolis; Charles E. Reynolds, Los Angeles; Ernest Sachs, St. Louis, and Gilbert Horrax, Boston.

Friday, June 29—Afternoon

The following officers were elected: vice chairman, Edwin G. Zabriskie, New York; secretary, James B. Ayer, Boston; delegate, Tom B. Throckmorton, Des Moines, Iowa; alternate, William House, Portland, Ore. The name of the newly elected chairman was incorrectly transmitted to The Journal, and is omitted until official advices are received.

Dr. Howard C. Naffziger, San Francisco, read a paper on "Anatomic Considerations in Ventriculography." Discussed by Drs. Gilbert Horrax, Boston; Ernest Sachs, St. Louis; Charles Bagley, Jr., Baltimore; Edward B. Towne, San Francisco; William Jason Mixter, Boston; C. C. Coleman, Richmond, Va.; James B. Ayer, Boston; Howard C. Naffziger, and Emmet Rixford, San Francisco.

A joint meeting was held with the Section on Surgery, General and Abdominal. For a report of the proceedings, see the minutes of that section.

SECTION ON DERMATOLOGY AND SYPHILOLOGY

Wednesday, June 27—Afternoon

A joint meeting was held with the Section on Pharmacology and Therapeutics.

The meeting was called to order at 2:15 by the chairman of the Section on Dermatology and Syphilology, Dr. Marcus Haase, Memphis.

Dr. Haase appointed Dr. Grover W. Wende, Buffalo, to serve on the Executive Committee, Dr. Walter J. Highman, New York, being absent.

The following papers were read as a symposium on "The Treatment of Syphilis":

Drs. James Herbert Mitchell and G. F. Sutherland, Chicago: "Effect of Treatment on Bone Lesions of Congenital Syphilis."

Dr. R. V. A. Lee, San Francisco: "The Pharmacology of Mercury."

Dr. H. G. Irvine, Minneapolis: "The Treatment of Early Syphilis."

Drs. Albert Keidel and Jarold E. Kemp, Baltimore: "The Treatment of Visceral Syphilis."

H. C. Solomon, Boston: "The Treatment of Neurosyphilis."

These five papers were discussed by Drs. Harry A. Alderson, San Francisco; E. D. Chipman, San Francisco; H. M. Greene, Portland, Ore.; L. G. Rowntree, Rochester, Minn.; Charles L. Rybke, Portland, Ore.; Walter V. Brem, Los Angeles; Solomon Solis Cohen, Philadelphia; Franklin W. Cregor, Indianapolis; I. L. McGlasson, San Antonio, Texas; Harold N. Cole, Cleveland; Arthur M. Rogers, Los Angeles; Paul J. Hanzlik, San Francisco; W. J. Wallace, Oklahoma City; Cary Eggleston, New York; Samuel Ayres, Jr., Los Angeles; Jeffrey C. Michael, Houston, Texas; James Herbert Mitchell, Chicago; R. V. A. Lee, San Francisco; Albert Keidel, Baltimore; H. G. Irvine, Minneapolis, and H. C. Solomon, Boston.

Dr. Cary Eggleston appointed Dr. Paul D. White, Boston, to serve on the Executive Committee of the Section on Pharmacology and Therapeutics, Dr. Carl Voegtlin, Washington, D. C., being absent.

The President, Dr. Ray Lyman Wilbur, and the retiring President, Dr. George E. de Schweinitz, addressed the sections.

Dr. Leonard G. Rowntree, Rochester, Minn., reported the result of action taken by the sections at the 1922 session regarding representation in the House of Delegates.

Thursday, June 28—Afternoon

The meeting was called to order at 2:10 by the chairman, Dr. Marcus Haase, Memphis.

Dr. Marcus Haase, Memphis, read the chairman's address, entitled "Etiology Unknown."

Drs. Fred D. Weidman and Walter J. Freeman, Philadelphia, presented a paper on "Xanthoma Tuberosum." Discussed by Dr. Fred Wise, New York.

Dr. Howard Fox, New York, read a paper on "Roentgen Ray Versus Vaccines in the Treatment of Acne."

Drs. Herman Sharlit and Walter J. Highman, New York, presented a paper on "Chromogenic Indicators in Dermatology."

Drs. William H. Guy and F. M. Jacob, Pittsburgh, presented a paper on "Erythema Dose of Radium: An Experimental Study."

These three papers were discussed by Drs. Henry J. Ullmann, Santa Barbara, Calif.; E. D. Chipman, San Francisco; Fred Wise, New York; Samuel Ayres, Jr., Los Angeles; William H. Guy, Pittsburgh; Moses Scholtz, Los Angeles; I. L. McGlasson, San Antonio, Texas; J. C. Pickett, San Francisco; Thomas W. Ross, Portland, Ore.; Harry E. Alderson, San Francisco; Earl D. Crutchfield, Galveston, Texas; F. A. Butler, San Diego, Calif.; Jesse Ettelson, Portland, Ore., and Howard Fox, New York.

Friday, June 29—Afternoon

The meeting was called to order at 2:05 by the chairman, Dr. Marcus Haase, Memphis, Tenn.

The following officers were elected: Chairman, Dr. Harold N. Cole, Cleveland; vice chairman, Dr. I. L. McGlasson, San Antonio, Texas; secretary, Dr. James Herbert Mitchell, Chicago; delegate, Dr. Howard Fox, New York; alternate, Dr. Otto H. Foerster, Milwaukee.

Dr. I. L. McGlasson, San Antonio, Texas, read a paper on "Hyperglycemia as an Etiologic Factor in Certain Dermatoses." Discussed by Drs. Douglass W. Montgomery, San Francisco; Jeffrey C. Michael, Houston, Texas; L. A. Kennell, San Diego, Calif.; Jesse Ettelson, Portland, Ore., and I. L. McGlasson, San Antonio, Texas.

Dr. Otto H. Foerster, Milwaukee, read a paper on "Match Dermatitis." Discussed by Drs. Harry G. Irvine, Minneapolis; Howard Fox, New York; James Herbert Mitchell, Chicago; William H. Guy, Pittsburgh; Fred Wise, New York; Fred D. Weidman, Philadelphia, and Otto H. Foerster, Milwaukee.

Dr. William Allen Pusey, Chicago, read a paper on "Roentgen-Ray Therapy Twenty Years Ago." Discussed by Drs. Everett S. Lain, Oklahoma City; Howard Fox, New York; Fred Wise, New York; Henry J. Ullmann, Santa Barbara, Calif., and William Allen Pusey, Chicago.

Dr. Jeffrey C. Michael, Houston, Texas, read a paper on "Dermatoscopy: A Study of Blood Vessel Form and Arrangement in Various Dermatoses." Discussed by Drs. William Allen Pusey, Chicago; Fred Wise, New York; Fred D. Weidman, Philadelphia, and Jeffrey C. Michael, Houston, Texas.

Dr. Samuel Ayres, Jr., Los Angeles, read a paper on "Chronic Actinic Cheilitis." Discussed by Drs. Kendall P. Frost, Los Angeles; H. M. Green, Portland, Ore.; Everett S. Lain, Oklahoma City; Fred Wise, New York; James Herbert Mitchell, Chicago; Fred D. Weidman, Philadelphia; Harry E. Alderson, San Francisco; Jesse Ettelson, Portland, Ore.; Louise E. Taber, San Francisco; Moses Scholtz, Los Angeles, and Samuel Ayres, Jr., Los Angeles.

Dr. Howard Fox, New York, moved a rising vote of thanks to the San Francisco members who had done so much to make the meeting a success.

Seconded and carried.

SECTION ON PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH

Wednesday, June 27—Afternoon

The section was called to order at 2 o'clock by the chairman, Dr. John A. Ferrell, New York.

Dr. John A. Ferrell, New York, read the chairman's address, entitled "The Trend of Preventive Medicine in the United States."

Dr. A. T. McCormack, Louisville, Ky., moved that the address be received, and that the secretary be requested to confer with the general manager of the association for the purpose of arranging for the publication of the address in such a way that it can be put in the hands of all members of state legislatures and all members of the House of Representatives and the United States Senate.

Seconded by Dr. Oscar Dowling, New Orleans, and carried.

The President, Dr. Ray Lyman Wilbur, and the retiring President, Dr. George E. de Schweinitz, addressed the section.

Dr. Oscar Dowling, New Orleans, read a paper on "Reciprocal Responsibility of the Health Officer and Other Public Officials." Discussed by Drs. C. W. Garrison, Little Rock, Ark., and S. W. Welch, Montgomery, Ala.

Dr. Frederick D. Stricker, Portland, Ore., read a paper on "Blue Sky Health Propaganda." Discussed by Drs. A. T. McCormack, Louisville, Ky., and Frederick D. Stricker, Portland, Ore.

Dr. L. M. Powers, Los Angeles, read a paper on "Typhus Fever in Southern California." Discussed by Drs. Walter

M. Dickie, Sacramento, Calif.; Willard J. Stone, Pasadena, Calif.; William M. Kerr, Washington, D. C.; S. W. Welch, Montgomery, Ala., and L. M. Powers, Los Angeles.

Dr. Paul A. Turner, Seattle, read a paper on "Preventive Medicine Problems Peculiar to the Pacific Coast." Discussed by Drs. John M. Dodson, Chicago; A. T. McCormack, Louisville, Ky.; John C. Spencer, San Francisco; J. C. Perry, San Francisco, and N. E. Wayson, San Francisco.

Dr. James A. Hayne, Columbia, S. C., read a paper on "Problems in the Control of Diphtheria." Discussed by Drs. F. M. Meader, Detroit; S. W. Welch, Montgomery, Ala., and James A. Hayne, Columbia, S. C.

Dr. Frank L. Kelly, Berkeley, Calif., read a paper on "The Administrative Value of the Virulence Test for Diphtheria Bacilli, with a Report on the Use of Field Cultures." Discussed by Drs. John N. Force, Berkeley, Calif.; N. E. Wayson, San Francisco, and Frank L. Kelly, Berkeley, Calif.

Thursday, June 28—Afternoon

A joint meeting was held with the Section on Diseases of Children.

The following papers were read as a symposium on "Preventive Pediatrics—Neonatal Mortality: Its Causes and Prevention":

Dr. Alfred Baker Spalding, San Francisco: "Syphilis and Other Maternal Infections."

Dr. John A. Foote, Washington, D. C.: "Birth Injuries, Congenital Defects and Hemorrhagic Disease of the New-Born."

Dr. F. P. Gengenbach, Denver: "Relation of Infant Feeding to Early Infant Mortality."

These three papers were discussed by Drs. Louis I. Dublin, New York, and A. M. Rogers, Los Angeles.

Dr. Walter M. Dickie, Sacramento, Calif., read a paper on "Place of Medicine in Public Health." Discussed by Drs. S. P. McKerrihan, Portsmouth, Ohio, and Lulu Hunt Peters, New York.

Dr. John M. Dodson, Chicago, read a paper on "Growing Importance of Preventive Medicine in General Practice." No discussion.

Dr. Henry Boswell, Sanatorium, Miss., read a paper on "Prevention and Control of Tuberculosis as It Concerns the Medical Profession." Discussed by Drs. Frances M. Pottenger, Los Angeles; H. A. Pattison, New York; Louis Boonshaft, San Jose, Calif.; Thomas D. Wood, New York; Montague Cleeves, Glendale, Calif.; O. M. Gilbert, Boulder, Colo., and Henry Boswell, Sanatorium, Miss.

Friday, June 29—Afternoon

The section was called to order at 2 o'clock by the chairman.

The following officers were elected: Chairman, Dr. W. S. Leathers, University, Miss.; vice chairman, Dr. Walter N. Dickie, Los Angeles; secretary, Dr. W. F. Draper, Washington, D. C.; delegate, Dr. W. S. Leathers, University, Miss.

Dr. John Sundwall, Ann Arbor, Mich., read a paper on "Constructive Activities in Public Health." Discussed by Dr. Adelaide Brown, San Francisco.

Dr. W. F. Draper, Washington, D. C., read a paper on "Fundamentals of Rural Health Service." Discussed by Drs. Victor G. Heiser, New York; H. A. Pattison, New York; Walter V. Brem, Los Angeles, and W. F. Draper, Washington, D. C.

Dr. Frederick P. Gay, Washington, D. C., read a paper on "The Use of Antiserums in the Treatment of Disease." Discussed by Drs. Walter V. Brem, Los Angeles, and J. C. Geiger, Chicago.

Dr. Victor G. Heiser, New York, read a paper on "Menace of the Unvaccinated."

Drs. J. P. Leake, Washington, D. C., and John N. Force, Berkeley, Calif., presented a paper on "Smallpox and Vaccination."

These two papers were discussed by Drs. Hugh S. Cumming, Washington, D. C.; G. K. Olmsted, Denver; T. B. Beatty, Salt Lake City; Louis J. Dublin, New York; Paul A. Turner, Seattle; W. M. Miller, St. Louis; M. R. Bren, Palo Alto, Calif.; H. O. Jones, Chicago; Victor G. Heiser, New York, and John N. Force, Berkeley, Calif.

Dr. H. A. Pattison, New York, read a paper on "Fatigue as a Factor in the Cause and Treatment of Tuberculous Disease." Discussion by Dr. Robert A. Peers, Colfax, Calif.

Dr. Robert T. Legge, Berkeley, Calif., read a paper on "Miners' Silicosis, an Occupational Hazard: Its Etiology and Prevention." No discussion.

Dr. J. C. Geiger, Chicago, read a paper on "Fruit Poisoning." No discussion.

SECTION ON UROLOGY

Wednesday, June 27—Morning

The meeting was called to order at 9:15 by the chairman, Dr. Henry G. Bugbee, New York.

The chairman appointed Dr. Homer G. Hamer, Indianapolis, and Dr. W. P. Willard, San Francisco, to serve on the Executive Committee, Drs. Richard F. O'Neil, Boston, and James A. Gardner, Buffalo, being absent.

Dr. Miley B. Wesson, San Francisco, read a paper on "Fascias of the Urogenital Triangle." Discussed by Drs. E. M. Watson, Buffalo; B. A. Thomas, Philadelphia; Homer G. Hamer, Indianapolis, and Miley B. Wesson, San Francisco.

Dr. Ernest M. Watson, Buffalo, read a paper on "Surgical Trigon: Its Pathology, a New Method of Diagnosis and Its Operative Management." Discussed by Drs. Miley B. Wesson, San Francisco; C. E. Burford, St. Louis; Terry M. Townsend, New York; Oliver Lyons, Denver; W. J. Wallace, Oklahoma City; Herman L. Kretschmer, Chicago, and Ernest M. Watson, Buffalo.

Drs. Albert E. Goldstein, Baltimore, and J. F. Lutz, Glenn Rock, Pa., presented a paper on "New Procedure for Performing Litholapaxy." Discussed by Drs. William F. Braasch, Rochester, Minn.; B. A. Thomas, Philadelphia; Joseph Walker, Tacoma, Wash.; Victor G. Vecki, San Francisco; Joseph L. Boehm, New York; R. E. Fox, San Francisco; Herman L. Kretschmer, Chicago; C. E. Burford, St. Louis; E. G. McConnell, San Francisco; John C. Spencer, San Francisco; Henry G. Bugbee, New York, and Albert E. Goldstein, Baltimore.

The President, Dr. Ray Lyman Wilbur, and the retiring President, Dr. George E. de Schweinitz, addressed the section.

Drs. Harold L. Morris and Clarence I. Owen, Detroit, presented a paper on "Study of Chemical Solvents Used in Dissolving Foreign Substances in Urinary Bladder, Such as Paraffin, Beeswax, Gum and Urethral Pencils." Discussed by Drs. Albert E. Goldstein, Baltimore; W. E. Stevens, San Francisco; Herman L. Kretschmer, Chicago; William F. Braasch, Rochester, Minn.; Homer G. Hamer, Indianapolis; Oliver Lyons, Denver, and H. L. Morris, Detroit.

Dr. Raymond L. Schulz, Los Angeles, read a paper on "Stone-Evacuating Cystoscope." Discussed by Drs. Victor G. Vecki, San Francisco; Paul A. Ferrier, Pasadena, Calif.; Albert E. Goldstein, Baltimore, and Raymond L. Schulz, Los Angeles.

Thursday, June 28—Morning

The meeting was called to order at 9:15 by the chairman, Dr. Henry G. Bugbee, New York.

Dr. Henry G. Bugbee, New York, read the chairman's address, entitled "The Present Scope of Urology."

Drs. W. R. Delzell and O. S. Lowsley, New York, presented a paper on "Examination and Treatment of Cases of Seminal Vesiculitis."

Dr. Daniel E. Shea, Hartford, Conn., read a paper on "Seminal Vesicles in Arthritis, with a Discussion of the Symptomatology and the Surgical and Nonsurgical Treatment." These two papers were discussed by Drs. George F.

Farman, Los Angeles; James R. Dillon, San Francisco; Louis C. Jacobs, San Francisco; B. A. Thomas, Philadelphia; Martin Malony, San Francisco; Anders Peterson, Los Angeles; Arthur M. Rogers, Los Angeles; W. R. Delzell, New York, and Daniel E. Shea, Hartford, Conn.

Dr. B. A. Thomas, Philadelphia, read a paper on "Factors in the Reduction of Morbidity and Mortality in Prostatectomy."

Dr. James R. Dillon, San Francisco, read a paper on "Perineal Prostatectomy by a Modified Technic."

These two papers were discussed by Drs. Herman L. Kretschmer, Chicago; Homer G. Hamer, Indianapolis; C. E. Burford, St. Louis; Wirt B. Dakin, Los Angeles; W. E. Stevens, San Francisco; Anders Peterson, Los Angeles; Oliver Lyons, Denver; James Steinburg, Los Angeles; Albert E. Goldstein, Baltimore; James C. Negley, Los Angeles; B. A. Thomas, Philadelphia, and James R. Dillon, San Francisco.

The secretary announced that one of the most valued members of the section, Dr. Frank Hinman of San Francisco, was ill in a sanatorium and suggested that the members send some expression of sympathy.

Dr. B. A. Thomas, Philadelphia, moved that the secretary be empowered to send a message of sympathy and express the regret of the section at Dr. Hinman's inability to be present at the meeting, and their gratification over the award of the Gold Medal to his scientific exhibit. Motion seconded and unanimously carried.

Friday, June 29—Morning

The meeting was called to order at 9:10 by the chairman, Dr. Henry G. Bugbee, New York.

The secretary read a letter which had been received from Dr. Walter Timme regarding a proposed invitation to Professor Steinach of Vienna to attend the 1924 session. No action was taken.

The following officers were elected: Chairman, Dr. Herman L. Kretschmer, Chicago; vice chairman, Dr. Frank Hinman, San Francisco; secretary, Dr. George Gilbert Smith, Boston; delegate, Dr. William F. Braasch, Rochester, Minn.; alternate, Dr. C. E. Burford, St. Louis.

Dr. W. E. Stevens, San Francisco, moved a rising vote of thanks to Dr. Herman L. Kretschmer as retiring secretary for the excellent manner in which he had conducted the affairs of the section during his entire term of office. Seconded by several and unanimously carried.

Dr. Albert E. Goldstein moved a rising vote of thanks to the California members of the section for their courtesy and hospitality to the visiting members. Seconded by several and unanimously carried.

Dr. O. W. Butler, San Francisco, read a paper on "Repair in Hydronephrosis, with Reference Particularly to the Late Changes of Repair Following Obstructions of Short Duration." Discussed by Drs. Albert E. Goldstein, Baltimore, and O. W. Butler, San Francisco.

Drs. William F. Braasch and A. J. Scholl, Jr., Rochester, Minn., presented a paper on "Unusual Clinical Data with Renal Tuberculosis." Discussed by Drs. Anders Peterson, Los Angeles; Herman L. Kretschmer, Chicago; Paul A. Ferrier, Pasadena, Calif.; B. A. Thomas, Philadelphia; W. E. Stevens, San Francisco; Walter G. A. Schulte, Salt Lake City, and William F. Braasch, Rochester, Minn.

Dr. William E. Stevens, San Francisco, read a paper on "Urology in Women." Discussed by Drs. William F. Braasch, Rochester, Minn.; Herman L. Kretschmer, Chicago; Albert E. Goldstein, Baltimore; B. A. Thomas, Philadelphia; Louis C. Jacobs, San Francisco; Martin Molony, San Francisco; Joseph L. Boehm, New York; Charles P. L. Mathe, San Francisco, and W. E. Stevens, San Francisco.

Dr. Alexander H. Peacock, Seattle, read a paper on "Changes in Ureter Found by Routine Pyelograms and Ureterograms."

Drs. John W. Marchildon and Emil E. Hein, St. Louis, presented a paper on "Necessity of the Simultaneous Use of Cystoscope and Roentgen Ray."

These two papers were discussed by Drs. W. E. Stevens, San Francisco; Herman L. Kretschmer, Chicago, and John W. Marchildon, St. Louis.

Dr. Granville MacGowan, Los Angeles, read a paper on "New Method of Performing Complete Urethrectomy in Extensive Strictures of the Bulbar Urethra." Discussed by Dr. Robert V. Day, Los Angeles.

Dr. Robert V. Day, Los Angeles, read a paper on "Prostatectomy, Perineal and Suprapubic." Discussed by Drs. Homer G. Hamer, Indianapolis, and R. L. Rigdon, San Francisco.

SECTION ON ORTHOPEDIC SURGERY

Wednesday, June 27—Morning

The meeting was called to order by the chairman, Dr. Willis C. Campbell, Memphis, Tenn.

Dr. S. L. Haas, San Francisco, read a paper on "Further Studies on the Survival of Bone After Removal from the Body." Discussed by Drs. L. W. Ely, San Francisco; Fred H. Albee, New York; Arthur L. Fisher, San Francisco, and S. L. Haas, San Francisco.

Dr. Charles LeRoy Lowman, Los Angeles, read a paper on "An Operative Method for Correction of Certain Forms of Flatfoot."

Dr. John Prentiss Lord, Omaha, read a paper on "The Value of Osteotomy of the Os Calcis and Inward Displacement of the Posterior Fragment (Gleich Operation) in Operations for Extreme Flatfoot."

The President, Dr. Ray Lyman Wilbur, and the retiring President, Dr. George E. de Schweinitz, addressed the section.

The papers of Drs. Lowman and Lord were discussed by Drs. M. S. Henderson, Rochester, Minn.; Arthur L. Fisher, San Francisco; H. Winnett Orr, Lincoln, Neb.; Franklin A. Lowe, San Francisco; Walter G. Stern, Cleveland; E. W. Cleary, San Francisco; Charles LeRoy Lowman, Los Angeles, and John Prentiss Lord, Omaha.

Dr. F. J. Gaenslen, Milwaukee, read a paper on "Notes on Foreign Orthopedic Clinics." Discussed by Drs. Joel E. Goldthwait, Boston; W. G. Stern, Cleveland; M. S. Henderson, Rochester, Minn.; Montague Cleeves, Los Angeles; H. Winnett Orr, Lincoln, Neb.; Samuel Fosdick Jones, Denver; William Arthur Clark, Pasadena, Calif., and F. J. Gaenslen, Milwaukee.

Dr. Charles A. Parker, Chicago, read a paper on "Treatment of the Pathologically Flexed Knee." Discussed by Drs. H. Winnett Orr, Lincoln, Neb.; M. S. Henderson, Rochester, Minn.; John Prentiss Lord, Omaha; Frank A. Lowe, San Francisco, and Charles A. Parker, Chicago.

Dr. Ellis Jones, Los Angeles, read a paper on "Synovectomy in Chronic Arthritis of the Knee Joint." Discussed by Drs. Walter I. Baldwin, San Francisco; Fred H. Albee, New York; Joel E. Goldthwait, Boston; Joseph G. Noble, Muskogee, Okla.; M. C. Harding, San Diego, Calif.; Samuel Fosdick Jones, Denver; Frank A. Lowe, San Francisco, and Ellis Jones, Los Angeles.

Thursday, June 28—Morning

Dr. Walter G. Stern, Cleveland, read a paper on "Arthrogryposis Multiplex Congenita." Discussed by Drs. Willis C. Campbell, Memphis, Tenn.; G. J. McChesney, San Francisco; F. J. Gaenslen, Milwaukee; Joel E. Goldthwait, Boston; Charles LeRoy Lowman, Los Angeles, and Walter G. Stern, Cleveland.

Dr. H. B. Thomas, Chicago, read a paper on "Fusion for Scoliosis." Discussed by Drs. Fred H. Albee, New York; F. J. Gaenslen, Milwaukee, and H. B. Thomas, Chicago.

Dr. Melvin S. Henderson, Rochester, Minn., read a paper on "Nonunion of Fractures." Discussed by Drs. Dean Lewis, Chicago; Walter B. Coffey, San Francisco; James Eaves, San Francisco; S. L. Haas, San Francisco; Carl Beck, Chicago; Archibald E. Chace, Texarkana, Ark.; E. W. Cleary, San Francisco; Walter I. Baldwin, San Francisco, and Melvin S. Henderson, Rochester, Minn.

Dr. Willis C. Campbell, Memphis, Tenn., read the chairman's address, entitled "Fracture of the Neck of the Femur."

Dr. C. F. Eikenbary, Spokane, Wash., read a paper on "Fractures of the Lower End of the Humerus in Children." Discussed by Drs. M. C. Harding, San Diego, Calif.; F. J. Gaenslen, Milwaukee; E. W. Cleary, San Francisco; Charles A. Parker, Chicago; Frank A. Lowe, San Francisco; Walter G. Stern, Cleveland, and C. F. Eikenbary, Spokane, Wash.

Dr. Samuel Fosdick Jones, Denver, read a paper on "Compression Fracture of the Spine, Developing Delayed Symptoms (Posttraumatic Spondylitis or Kuemmell's Disease)." Discussed by Drs. Alfred Edward Gallant, Los Angeles; William A. Clark, Pasadena, Calif.; Walter G. Stern, Cleveland, and Samuel Fosdick Jones, Denver.

Dr. Leonard W. Ely, San Francisco, read a paper on "The Second Great Type of Chronic Arthritis: Fourth Study." Discussed by Drs. John V. Barrow, Los Angeles; Wallace Harold Barnes, San Francisco, and Leonard W. Ely, San Francisco.

Dr. Fred H. Albee, New York, read a paper on "Rehabilitation Surgery." Discussed by Drs. Charles LeRoy Lowman, Los Angeles, and Fred H. Albee, New York.

FRIDAY, JUNE 29—MORNING

The following officers were elected: Chairman, Dr. Henry B. Thomas, Chicago; vice chairman, Dr. F. J. Gaenslen, Milwaukee; secretary, Dr. James Archer O'Reilly, St. Louis; delegate, Dr. John Ridlon, Chicago; alternate, Dr. Melvin S. Henderson, Rochester, Minn.

Dr. Joel E. Goldthwait, Boston, exhibited slides.

Dr. H. Winnett Orr, Lincoln, Neb., read a paper on "Certain Improvements in Technic in Operating on and the After-Care of Chronic Infections of the Bone." Discussed by Drs. Arthur L. Fisher, San Francisco; F. J. Gaenslen, Milwaukee; S. Fosdick Jones, Denver, and H. Winnett Orr, Lincoln, Neb.

Dr. W. L. Brown, El Paso, Texas, read a paper on "Osteomyelitis Variolosa (Chiari)." Discussed by Drs. F. B. Sheldon, Fresno, Calif., and W. L. Brown, El Paso, Texas.

Dr. Alfred E. Gallant, Los Angeles, read a paper on "The Mechanism of Low Back Pain, with Special Reference to the Sacro-Iliac Joints." Discussed by Drs. George Martyn, Los Angeles; Joel E. Goldthwait, Boston, and Alfred E. Gallant, Los Angeles.

Dr. Leo Eloesser, San Francisco, read a paper on "Obstruction to the Lymph Channels by Scar." Discussed by Drs. W. G. Stern, Cleveland; LeRoy P. Kuhn, Chicago; Emmet Rixford, San Francisco, and Leo Eloesser, San Francisco.

Dr. H. W. Chappel, Los Angeles, read a paper on "The Value of Selective Voluntary Exercise in Restoring Certain Diseased or Traumatic Joints." Discussed by Drs. Arthur L. Fisher, San Francisco; Charles LeRoy Lowman, Los Angeles; Edgar L. Gilchrist, San Francisco, and H. W. Chappel, Los Angeles.

SECTION ON GASTRO-ENTEROLOGY AND PROCTOLOGY

WEDNESDAY, JUNE 27—MORNING

The meeting was called to order at 9 o'clock by the chairman, Dr. J. Rawson Pennington, Chicago.

Dr. J. Rawson Pennington, Chicago, read the chairman's address, entitled "Historical Sketch of the Development of Gastro-Enterology and Proctology in the United States."

Dr. Max Einhorn, New York, read a paper on "The More Practical Functional Tests of the Liver." Discussed by Drs. W. F. Cheney, San Francisco; John V. Barrow, Los Angeles; W. W. Boardman, San Francisco, and Max Einhorn, New York.

Dr. Walter C. Alvarez, San Francisco, read a paper on "Present Day Problems in Regard to the Gallbladder." Discussed by Drs. Roland Cummings, Los Angeles; William Carpenter MacCarty, Rochester, Minn.; Max Thorek, Chicago; Seale Harris, Birmingham, Ala.; A. J. Ochsner, Chicago, and Fletcher B. Taylor, San Francisco.

Dr. Seale Harris, Birmingham, Ala., read a paper on "Pancreatitis as Related to Gastro-Intestinal and Gallbladder Infections; with Special Reference to Diet in the Prevention and Treatment of Diabetes." Discussed by Drs. Frederick M. Allen, Morristown, N. J.; Max Einhorn, New York, and Seale Harris, Birmingham, Ala.

Dr. W. M. Beach, Pittsburgh, read a paper on "The Hysterical Rectum and Anus." Discussed by Drs. James T. Fisher, Los Angeles; Frank M. Mikels, Long Beach, Calif.; R. W. Jackson, Fall River, Mass.; L. A. Buie, Rochester, Minn., and W. M. Beach, Pittsburgh.

The President, Dr. Ray Lyman Wilbur, and the retiring President, Dr. George E. de Schweinitz, addressed the section.

THURSDAY, JUNE 28—MORNING

The meeting was called to order at 9 o'clock by the chairman.

Dr. L. A. Buie, Rochester, Minn., read a paper on "Benign Strictures of the Rectum." Discussion by Drs. J. Earl Else, Portland, Ore.; Harry P. Ritchie, St. Paul; J. F. Montague, New York; R. W. Jackson, Fall River, Mass., and L. A. Buie, Rochester, Minn.

Dr. F. C. Yeomans, New York, read a paper on "Carcinoma of the Rectum: Diagnosis and Surgical Prognosis." Discussed by Drs. F. K. Collins, Los Angeles; R. C. Coffey, Portland, Ore.; F. A. Speik, Los Angeles; R. W. Jackson, Fall River, Mass., and F. C. Yeomans, New York.

Dr. E. C. Fishbaugh, Los Angeles, read a paper on "Forced Milk Feeding in Adult Undernutrition." No discussion.

Dr. W. E. Hart, Decatur, Ill., read a paper on "Phytobezoars: A Study of Seven Cases." Discussed by Drs. F. A. Kinslow, San Francisco; Sidney K. Simon, New Orleans, and W. E. Hart, Decatur, Ill.

Dr. R. O. Moody, Berkeley, Calif., read a paper on "Results of a Roentgenologic Study of the Position of the Stomach, Liver and Colon in Six Hundred Healthy Adults." Discussed by Drs. Seale Harris, Birmingham, Ala.; E. C. Fishbaugh, Los Angeles; G. R. Satterlee, New York, and R. O. Moody, Berkeley, Calif.

FRIDAY, JUNE 29—MORNING

The meeting was called to order at 9 o'clock by the chairman.

The following officers were elected: chairman, Dr. Franklin W. White, Boston; vice chairman, Dr. Ralph W. Jackson, Fall River, Mass.; secretary, Dr. Sidney K. Simon, New Orleans; delegate, Dr. Louis J. Hirschman, Detroit; alternate, Dr. Martin E. Rehfuss, Philadelphia.

The chairman appointed Drs. Seale Harris and James T. Pilcher as members of the executive committee.

Dr. G. A. Dowling, Seattle, read a paper on "Amebic Infections in the State of Washington." Discussed by Drs. F. D. Garrett, El Paso, Texas; Harold W. Wright, San Francisco; F. C. Yeomans, New York; Sidney K. Simon, New Orleans; J. Rawson Pennington, Chicago, and G. A. Dowling, Seattle .

Dr. Max Thorek, Chicago, read a paper on "Acute Total Volvulus of the Stomach." Discussion by Drs. James T. Pilcher, Brooklyn, and Max Thorek, Chicago.

Dr. J. F. Montague, New York, read a paper on "The Relation of Pruritus of the Anus to Chronic Diseases of the Abdominal and Pelvic Viscera." Discussed by Drs. W. M. Beach, Pittsburgh; F. C. Yeomans, New York; Mary E. D. Rose, New York; R. A. Whiffen, San Jose, Calif., Sidney K. Simon, New Orleans; James T. Pilcher, Brooklyn, and J. F. Montague, New York.

THE SCIENTIFIC EXHIBIT

The exhibit of last year was generally conceded to have been the best held up to that time; the San Francisco Exhibit, however, was even better. The general arrangement of booths along the long spacious aisles of the San Francisco Auditorium, together with the excellent illumination, was commended by the judges as a model for future years. Of course, the excellent facilities of the large auditorium permitted the utilization of more space than is usually available. In the educational section appeared exhibits of various government and philanthropic organizations; also the departments of the American Medical Association. The pathologic group was exceptionally interesting. The exhibit on hydronephrosis was in itself a model. Here one entered a room in which every detail as to excellence of presentation was seemingly worked out, so that the highly scientific character of the work could be better appreciated. A particularly pleasing feature in connection with this exhibit was the recognition given to the younger researchers in the Department of Urology, University of California, by the head of the department. One would pass from the hands of one demonstrator to the other as he progressed. The exhibit was divided in three parts with appropriate subdivisions—anatomic study, biologic study and clinical hydronephrosis. The Department of Pathology, Vanderbilt University, exhibit of necropsy and surgical specimens attracted considerable attention because of the personal demonstrations given continuously by the exhibitor, Dr. Benjamin Terry. Other pathologic exhibits of interest were those of the Department of Anatomy, University of California; Mayo Foundation; also drawings (Mr. Ralph Sweet); casts of vital organs (Dr. C. R. Gowen); biologic reactions of arsphenamin (Dr. Jean Oliver); pathology of coronary obstruction (Dr. R. L. Benson); experimental pathology (Dr. F. E. Blaisdell), and glass model of pelvis of term fetus (Dr. M. B. Wesson). Among the medical exhibits were: experimental tuberculosis exhibit (Dr. H. J. Corper); osseous development in endocrine disorders (Drs. William Engelbach and Alphonse McMahon); some types of ductless gland disease (Dr. Hans Lisser); also a number of electrocardiographic exhibits. In the surgical exhibit was an attractive display of facial reconstruction, quite different from that of last year (Dr. V. P. Blair); experimental and pathologic work on bones and joints (Dr. Leonard Ely); local anesthesia technic (Dr. R. E. Farr), and exhibits of roentgenograms (Dr. Irving F. Stein and Dr. Amédée Granger). The total number of exhibits was forty-four, divided into education (16), pathologic (13), medical (9) and surgical (6).

REPORT OF COMMITTEE ON AWARDS

The Committee on Awards makes the following awards:

The Gold Medal to Dr. Frank Hinman and associates for the thorough organization of their research, the value of the investigations and the excellence of the details of the presentation.

The Silver Medal to Dr. Benjamin Terry for the demonstration of instructive specimens of pathologic anatomy. The committee believes that such demonstrations should be a part of the Scientific Exhibit each year.

A certificate of merit to:

(1) The U. S. Public Health Service for its exhibits, illustrating food poisoning, and tularemia.

(2) The Department of Anatomy, University of California, for the demonstrations with the hormone of the hypophysis, on the relations between fertility and nutrition, the physiology of the ovary, and the position of certain abdominal viscera.

(3) The League for the Conservation of Better Health of California, for the exhibit relating to hospital betterment, better health service, the state campaign for high standards of medical practice, and for the improvement of laws relating to preventive medicine and the prevention of legislation that would lower the standard of health and retard the progress of medicine.

The committee would comment favorably on the exhibit of the Mayo Clinic, illustrating diseases of the eye and color photography; Mr. Ralph Sweet for medical illustrations, and the exhibits of Drs. H. J. Corper, Hans Lisser, R. E. Farr, Amédée Granger, and Irving Stein.

The committee commends the installation of the exhibit as regards place, space and light, and recommends that it might well serve as a model for future exhibits; it also urges the presentation in future, not only of specimens illustrating original research, but also well selected educational material, and would point out to future exhibitors the advantages of plainly printed and easily visible legends and of expert demonstrators.

George Dock,
Urban Maes,
Arno B. Luckhardt.

THE MOTION PICTURE THEATER

The motion picture theater, run in connection with the Scientific Exhibit, operated continuously during the session hours from noon on Monday to noon on Friday. Thirty-three speakers were scheduled for the sixty-one periods, which were of either thirty or forty-five minutes' duration. So well did the speakers cooperate that the schedule was adhered to strictly to the minute. The attendance was generally between 400 and 450; frequently people had to be turned away. When it is remembered that the theater was located on the fourth floor, the constant attendance must be considered a compliment to the material presented.

REGISTRATION AT SAN FRANCISCO

The total registration at the San Francisco session was 3,726. Below are given two summaries, one by sections and one by states:

Registration by Sections

Practice of Medicine	1,207
Surgery, General and Abdominal	788
Obstetrics, Gynecology and Abdominal Surgery	292
Ophthalmology	240
Laryngology, Otology and Rhinology	171
Diseases of Children	132
Pharmacology and Therapeutics	25
Pathology and Physiology	73
Stomatology	22
Nervous and Mental Diseases	128
Dermatology and Syphilology	76
Preventive and Industrial Medicine and Public Health	117
Urology	111
Orthopedic Surgery	87
Gastro-Enterology and Proctology	54
More than one section, or no section given	203
Total	3,726

Registration by States

Alabama	12	Nevada	26
Arizona	27	New Hampshire	2
Arkansas	11	New Jersey	17
California	1,914	New Mexico	16
Colorado	47	New York	137
Connecticut	16	North Carolina	8
Delaware	3	North Dakota	10
District of Columbia	25	Ohio	146
Florida	2	Oklahoma	17
Georgia	7	Oregon	114
Idaho	25	Pennsylvania	67
Illinois	187	Rhode Island	2
Indiana	46	South Carolina	5
Iowa	45	South Dakota	3
Kansas	32	Tennessee	25
Kentucky	14	Texas	102
Louisiana	24	Utah	47
Maine	3	Vermont	1
Maryland	15	Virginia	15
Massachusetts	47	Washington	100
Michigan	57	West Virginia	12
Minnesota	49	Wisconsin	36
Mississippi	14	Wyoming	4
Missouri	80	Miscellaneous	60
Montana	13		
Nebraska	39	Total	3,726

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SATURDAY, JULY 14, 1923

THE CONTROL OF VENEREAL DISEASE

Although numerous panaceas for the prevention and control of venereal disease have been suggested, none seem to have sufficient virtue to warrant general acceptance. During the war, committees were appointed by practically every military medical service, and various methods were tried on a large scale, but the methods applicable under military conditions, with perfect control, are not generally adapted to civilian life in which the individual has freedom.

About a year ago, the minister of health of Great Britain appointed a representative committee to inquire into certain aspects of the problem, particularly with a view to answering two questions: (1) What, in the present state of knowledge, are the most efficient medical measures for preventing these diseases, and (2) How far is it ethically justifiable to apply such measures? The committee has considered not only the medical measures involved but also the social aspects of venereal disease control; it felt that no purely medical measures could be successful in controlling these diseases. It held that the extension of knowledge as to the nature of the diseases and their consequences is of first importance. The community should be made to appreciate that:

(*a*) Promiscuous intercourse is the main cause of the prevalence of venereal disease.

(*b*) There is no absolute preventive except continence, and a single exposure may result in infection.

(*c*) A large number of the sufferers from venereal disease are innocent persons, especially women and children.

(*d*) Syphilis is a disease of great gravity, which, if not treated in its early stages, may have serious results, including affections of the circulatory system and of the nervous system, as, for example, general paralysis of the insane.

(*e*) Syphilis is transmissible by a mother to her children, and is a frequent cause of miscarriages, stillbirths, and deaths in early infancy, and, in children who survive, of mutilating deformities, deafness, blindness, mental disease and other defects.

(*f*) Gonorrhea is a more serious disease than is commonly believed, and, if not promptly treated, may have serious after-consequences.

(*g*) Gonorrhea is a frequent cause of sterility and serious pelvic disease in women, and a cause of blindness in children born of women suffering from gonorrhea.

(*h*) The presence of these diseases in the community is a menace to the maintenance and advancement of the physical and intellectual standard of the race.

The medical measures seem to fall into two categories: those for preventing disease in persons exposed to infection and those for rendering noninfective and curing persons already diseased. The British committee was in thorough agreement with investigations made elsewhere to the effect that the chance of failure for disinfection increases rapidly as the interval between the exposure and the application of the disinfectant lengthens. Disinfection within an hour, it is said, is generally successful. It was agreed that it is extremely difficult for a woman to disinfect herself, and that the prospects of success of disinfection in the case of a woman are greatly less than in the case of a man. After a thorough consideration of all the evidence available as to the value of disinfection, the committee concluded that the community in which there has been efficient instruction, and in which such control and influences as have been mentioned obtain, may reasonably expect substantial results from prophylactic measures, although the actual results are often less favorable than has been claimed. The committee was especially insistent on the belief that there is no justification for putting obstacles in the way of individuals who desire to procure the necessary disinfectants, but added that the laws should be altered so as to permit a properly qualified pharmacist to sell such disinfectants in a form approved and with instructions for use approved by some competent authority. It added further its belief that the commercial advertisement of such disinfectants should be prohibited.

Instruction by competent physicians in charge of clinics was considered to be the best method for teaching the prevention of infection, and the committee agreed that money spent on a general system of providing facilities for self-disinfection would certainly be less profitable than money spent either on the treatment of disease or on those measures of education and improvement of social conditions referred to in the list already quoted.

The committee's opinion as to the treatment of venereal disease is enlightening, in view of similar observations which have been made in this country. "Speaking generally," says the report, "the general medical practitioner is not yet adequately equipped with the most advanced knowledge of venereal diseases and their treatment to enable him to deal competently with all the cases that come before him, and an improvement in medical education in regard to venereal disease is necessary." Further, the work of existing venereal disease clinics is of high value, and the system is one that ought to be encouraged, extended and improved. In this connection the committee points out that discontinuance of treatment is not so common as the general discussions seem to indicate, and that secrecy is highly desirable if patients are to be induced to attend the clinics and to continue treatment. "In the present state of public opinion," says the report, "any system of general compulsory notification of venereal disease would tend to concealment and would prove a backward step." The survey also led to the belief that the venereal diseases are declining at a substantial rate, as they were before the war, and that increased attention along the lines indicated will result in a still greater diminution of such cases.

THE PLEUROPULMONARY REFLEX

Among the accidents which follow exploratory thoracentesis, the pleuropulmonary reflex is perhaps most important. This symptom-complex, which Rogers described in 1864 as an "eclamptic fit," is characterized by cardiorespiratory failure, tonic and clonic contractions of the muscles, and loss of consciousness. Roch noted thirty-nine cases of pleuropulmonary reflex in 1905, Cordier eighty-four in 1910, and Dayton fifteen fatal cases after ordinary thoracentesis in 1911. The use of artificial pneumothorax in treatment in recent years has caused an increase in the number of pleural reflexes. Sachs noted twenty-two cases in 1,122 patients thus treated, Forlanini twelve in 134 patients, and Saugman twenty-two, of which two were fatal.

Several explanations have been offered for this distressing occurrence. It has been suggested that it is a mere coincidence and also that it may be due to gas embolism, to status lymphaticus, to inflation of the pleural cavity with gas below body temperature, and to imperfect anesthetization. Stivelman[1] says that these views are erroneous because the accident recurs with succeeding punctures; necropsies fail to reveal status lymphaticus, and the reflex occurs most frequently when inflation is not attempted. Moreover, he asserts that it occurs just as frequently after complete anesthetization of the needle track as when no anesthetic is used.

In almost 2,000 instances of thoracentesis which Stivelman reviews, the needle track was carefully anesthetized. One hundred and sixty-two were for initial pneumothorax, and among these the pleural reflex occurred ten times. It was severe in six instances, mild in three and fatal in one. Cardiorespiratory embarrassment was always present; temporary paralysis occurred seven times, tonic and clonic muscular contractions five times, and unconsciousness and precordial pain each four. In most of the reflex cases, careful examination revealed extensive infiltration of the pleura and lung at the punctured point. In contrast to this series of cases, pleuropulmonary reflexes occurred only twice in 1,824 punctures for "gas refills."

In seventeen of his twenty-three cases, Dayton found that the lung had been injured. In the cases that came to necropsy, at the punctured site there was either unresolved pneumonia, tuberculosis or compression. Saugman noted that when everything possible was done to avoid injuring the lung, the number of these accidents markedly decreased. Stivelman's analysis shows that in more than three fourths of the cases the visceral pleura and lung had been injured by the needle, and that an acute pathologic process was present in the injured area. A pleuropulmonary reflex practically never occurred when, as in the gas refill cases, the pleural surfaces were widely separated.

It is reasonable to believe, therefore, that injury to the visceral pleura and the underlying lung tissue is frequently the cause of these accidents, and that some can be prevented. Since the reflex occurs in "dry taps" perhaps more often than when fluid is found, fewer punctures should be made without definite indications.

THE DREYER TUBERCULOSIS VACCINE

Newspapers have carried extended notices of the Dreyer so-called "defatted" tuberculosis vaccine. Many inquiries have been received, indicating that, with ever-watchful hopefulness, physicians and patients are still alert for news of any promising announcement of a successful specific treatment for tuberculosis. The complete report of the researches conducted by Professor Dreyer, of the department of pathology in Oxford University, appears in the *British Journal of Experimental Pathology* for June, and an extensive abstract is available in the *British Medical Journal* for June 23, 1923, both just received.

It has long been known that the tubercle bacillus has a coating of waxy or fatty material, generally called lipoidal substances. Experiments conducted in this country and elsewhere seem to indicate that the virulence of organisms rests, to some extent, on the concentration of such lipoids in their coats or capsules. As Dreyer says, "there was an *a priori* probability that the failure to produce immunization was due to them." It seems quite possible, as Dreyer reiterates, that these substances protect the specific bacterial proteins and prevent their liberation from the body of the bacterium, thus checking or completely stopping the production of the sole adequate stimulus of the immunity reaction of the infected body. In view of these facts, it was determined to attack the problem by attempting the removal of the lipoidal elements from various bacterial organisms of the acid-fast and gram-negative types. Such organisms are commonly prepared for staining by treatment with formaldehyd and acetone, and the British pathologists were able to devise a method for the preparation of "defatted" antigens, using these two substances. The method is thus described:

> Tubercle bacilli are grown on the surface of glycerin broth or other suitable liquid mediums for two or three weeks. The fluid is decanted off and the organisms are ground up in a mortar with a few drops of liquor formaldehydi. More

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[1] Stivelman, B. P.: Pleuropulmonary Reflex: Its Etiology, Prevention and Treatment, Am. J. M. Sc. **165**: 836 (June) 1923.

formaldehyd is gradually added with constant grinding until from 150 to 200 c.c. of the liquor formaldehydi have been added to each 5 grams of bacilli weighed wet. This suspension is heated in a flask to 100 C. for four hours, filtered, and the residue washed three or four times with acetone. The suspension is then filtered through calcium-free paper, and the residue extracted three or four times with acetone and then in a Soxhlet apparatus. The insoluble residue is dried and ground in a sterile mortar. A weighed quantity is ground up with sterile saline solution to a paste, more saline being added during the grinding. It is then centrifuged. The supernatant fluid is pipetted off and, when diluted with saline, containing formaldehyd, constitutes the antigen suspension. There are, of course, many details of standardization and measurement of dosage to be observed, and these are given in full in the complete article.

In brief, such experimental evidence as is available indicates that the injection of this antigen produces antisubstances in the serum which are demonstrable by test tube experiments. Four guinea-pigs subjected to experimental tuberculosis seemed to show signs of immediate healing when treated with the vaccine. Finally, it is the opinion of Drs. Paul Fildes and G. T. Western, after observation of sixty patients treated in the London Hospital with the new antigen, that "improvement has taken place in nearly all cases and is, in our opinion, of the order which exceeds obviously that obtainable by any other form of treatment which is applicable to these conditions." It was also their opinion that the specific vaccines prepared by this method and used in six cases of streptococcal infection, seventeen cases of staphylococcic infection, and five cases of gonorrhea, produced results which compared favorably with previous experiments with vaccine-treated cases but which were not so interesting as those with the tuberculosis cases.

The waxy capsule of the tubercle bacillus has long excited the interest and curiosity of research workers. In their excellent compilation of the chemistry of tuberculosis, Wells, DeWitt and Long trace these investigations through the literature of many countries. Last year Long and Campbell determined the proportion of total tubercle bacillus lipin present as wax, and immunologic experiments seem to indicate that the virulence of the organism bore some relation to the amounts of wax in the capsule. In fact, experiments have been made with vaccines made from the waxy portion of the organism.

It is unnecessary, of course, to remind our readers that this work is in the experimental stage, at least so far as it concerns the treatment of tuberculosis. The experiments are scientific and have good theoretical basis; future developments will be observed with great interest.

Radium.—The total supply of radium in the United States, it is reported, is about 100 grams, most of which is owned by physicians. Rich deposits of radium having recently been found in the African Congo, the Radium Company of Colorado has closed its mines and is now an agent for the Congo supply, which, although richer than the Colorado supply, yields only 1 part of radium to 5,000,000 parts of ore.

Current Comment

FISH AND THE BRAIN FOOD FICTION

During the World War, many efforts were devoted to the plan of conserving certain types of food supplies, and of encouraging the use of other more readily available but less popular products. These attempts to alter the traditional dietary habits and food customs of large numbers of persons called for not a little energy in the direction of education and propaganda by all sorts of agencies sympathetic with the governmental food administration bureaus. The hope of increasing the consumption of a great variety of fish in place of the much needed meat was fostered for a number of more or less obvious reasons. A peculiar difficulty was encountered in the fact that fish is largely a "Friday food" in many homes, and rarely enters there into the meals of the remaining days of the week. There is, of course, no physiologic reason why such a limitation in the use of fish should continue in vogue; indeed, there are reasons why fish could advantageously become a more frequent ingredient of the diet in many parts of the country. From this standpoint, the campaign to advertise fish into all-the-week use has a defensible propriety. It will not be easy to change the established limitations of "fish day," but the attempt is certainly justifiable. Not so much can be said of another form of advertisement which tends to perpetuate a long-fostered illusion. Recently, campaigns have been directed to increase the use of specific fishes. In widely circulated advertisements of "shad—order it today" we are told by the promoters of the sales effort that "it is a tissue builder and for brain workers has no equal." Here is an unworthy perpetuation of the old absurd adage that fish is brain food. The fallacy of the assumption that there are specific foods for brain, skin, muscle, lungs or liver building have been pointed out too often to require repetition. It seems unfortunate that large organizations should continue in these days of enlightened knowledge of nutrition to foist on a partly untutored public the idea that fish makes brawn or brains in greater measure than does bread or milk or meat—or even the extremest vegetarian diet. Fish is a wholesome food; its nutrient virtues deserve to be extolled, but they will only be belittled by the revival of an ancient fiction.

GRADUATE MEDICAL EDUCATION IN THE UNITED STATES

Special attention is called to the statement regarding graduate medical education included in the annual report of the Council on Medical Education and Hospitals to the House of Delegates.[1] The undergraduate curriculum can be best developed only when the fields of both premedical and graduate medical education are well worked out. The higher premedical requirements relieved the medical curriculum of the essential courses in physics, chemistry and biology, and provided the student with a better foundation for the more complex medical subjects. A well developed curriculum for graduate medical schools will provide a place for technical subjects now crowded in the undergraduate curriculum. Clinical teachers frequently consume much valuable time in the undergraduate school in discussing subjects which belong in the graduate school. This time would be spent far better in emphasizing the essential principles of the various clinical specialties, in which all general practitioners should have a thorough grounding. With the development of the graduate school, the medical curriculum could be so graded that all subjects would be taught in their logical sequence to the benefit of both undergraduate and graduate students. The former would obtain a better knowledge of general medicine which, in the graduate school, would enable him better to master the advanced courses. The principles governing graduate medical schools contained in the Council's report are of particular importance at this time, since the need of increased opportunities in graduate medical instruction has become so well recognized. Not only should these opportunities be enlarged, but also the character of the training provided should be greatly improved and certain evils which heretofore have developed in graduate teaching should be eliminated, particularly that of granting pretentious and ornate diplomas after ridiculously short or inadequate courses of instruction. The training in each of the various clinical specialties, particularly, should be materially strengthened, whether it be provided in a continuous course of two or more years, or whether provision be made for it in a series of short, graded courses. All short courses should be adequately safeguarded so that they may not become easy short-cuts into special fields for which a longer training is essential. The further development of graduate medical education will have several beneficial results: It will bring into practical use an abundance of clinical material in this country not now being utilized, and convert many large hospitals into active educational centers; there will be a stimulus for better work in the institutions where such medical instruction is given; it will enable more physicians to secure an improved knowledge and skill either for general practice or a chosen specialty, and, finally, this improved medical service will benefit not only the patients in the hospitals but also the public at large.

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[1] Graduate Medical Education, J. A. M. A. **80**: 1934 (June 30) 1923.

THE NUXATED "JACK"

Mr. William Harrison ("Jack") Dempsey retains the world's championship and, of course, "Nuxated Iron" (if we are to believe the advertisements which appeared promptly on the day following the fight) was responsible. With the enormous financial interests at stake, we cannot understand how Mr. Gibbons' manager overlooked such a sure thing. Knowing (as per advertisements) that it was "Nuxated Iron", that made Ty Cobb "come back"; knowing, by the same token, that it was "Nuxated Iron" that helped Jess Willard whip Frank Moran and Jack Dempsey whip Jess Willard and, later, Georges Carpentier, it would seem that Mr. Dempsey's latest opponent showed neither good sense nor business acumen in failing to avail himself of the alleged potentialities of the pills sold under the name of "Nuxated Iron"—a name, apparently, prompted by the fact that analysis indicated that they contained very little iron and a negligible amount of "nux." Seriously, it is a sorry commentary on the intelligence of the reading public that the manufacturers of "Nuxated Iron" find that it pays them to spend many thousands of dollars in telling the readers of newspapers that these preposterous pills had anything whatever to do with the outcome of the recent prize fight. The world's greatest showman said that the American public loves to be humbugged.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

Chiropractor Begins Jail Sentence.—It is reported that E. P. Brack, chiropractor of Huntsville, started, June 21, to serve a jail sentence of thirty days, imposed several months ago in the circuit court for practicing medicine without a license.

Model Milk Law.—Tuscaloosa is, it is said, the first city in the state to adopt the state's new model milk ordinance; Gadsden adopted the model law, June 19, and Montgomery, it is believed, will do so shortly. The model law, which, among other things, establishes a uniform grade of milk throughout the state, protects both the dairymen and the consumers, and is a distinctly advanced piece of legislation.

Chiropractors Must Pass State Board Examination.—Chiropractors and other "drugless" practitioners who are graduates of mechanotherapy schools will be granted certificates to practice in the state provided they pass an examination given by the state medical board. New regulations were formulated, according to reports, at a session of the board, June 15, at which it was decided to examine applicants in certain branches, which include, among others, chemistry, anatomy, physiologic chemistry, bacteriology and pathology.

ARIZONA

State Medical Society Officers.—At the thirty-second annual meeting of the Arizona State Medical Association, Grand Canyon, June 22, the following officers were elected: Dr. Charles A. Thomas, Tucson, president; Drs. Roderick D. Kennedy, Globe, Charles S. Vivian, Phoenix, and Arthur C. Carleson, Jerome, vice presidents; Dr. Delamere F. Harbridge, Phoenix, secretary; Dr. Clarence E. Yount, Prescott, treasurer, and Dr. William W. Watkins, Phoenix, state council member. Dr. Frederick M. Allen, New York, among others, addressed the meeting.

CALIFORNIA

Judge Cuts Malpractice Judgment.—Dr. John A. Copeland, Delano, will be granted a new trial in the suit for malpractice, instituted by Mrs. Jeanette Moran, unless the plaintiff agrees to cut the judgment already awarded from $25,000 to $6,000, according to reports. It was charged that Mrs. Moran's son, following a railroad accident, died as the result of negligence on the part of Dr. Copeland.

DISTRICT OF COLUMBIA

University News.—The General Education Board, New York, pledged $250,000 toward an endowment for Howard University School of Medicine provided the university would raise a similar sum through public subscription by July 1. Three years are allowed to collect the pledges, thus making the entire $500,000 available by July 1, 1926. It was recently reported that all but $3,060 of the amount necessary had been subscribed and that there would be no difficulty in securing pledges for that sum within the allotted time.

Dr. Tullidge Surrenders.—It is reported that Dr. Edward Kilbourne Tullidge, an assistant navy surgeon during the World War convicted by court martial in Washington of violating a federal law, who, sentenced to five years at hard labor, escaped when en route to prison, surrendered recently in Washington and is now serving sentence. After escaping, Dr. Tullidge remained in Mexico until 1921, when he returned to this country, dropped his title and went into business as a broker in Houston and Beaumont, Texas, and later in New Orleans. Dr. Tullidge formerly practiced in Philadelphia and in Middleton, Conn.

IDAHO

Personal.—Dr. John H. Einhouse, Moscow, has been appointed medical director in charge of vocational men in training at the University of Idaho to succeed Dr. David B. Harvison, who has resigned.

Society News.—At the recent annual meeting of the Idaho State Medical Association the following officers were elected for 1924: Drs. Fred A. Pittenger, Boise, president; Edgar L. White, Lewiston, vice president; Joseph N. Davis, Kimberly, secretary-treasurer. The next meeting will be held in Boise.

ILLINOIS

Dr. Massie Appeals Case.—Dr. John G. Massie, Belleville, recently convicted of working a confidence game in connection with the sale of oil stock in Oklahoma, has taken his case to the supreme court of Illinois on a writ of error, according to reports. It is said that the Illgahoma Gasoline and Petroleum Company, which was pictured as owning a tract of land having producing wells, owned nothing and was "ousted" from a small leasehold for failure to pay rent, and that stock in the company was sold after this had occurred.

Hospital News.—Arrangements have been made by the director of public welfare to have motion pictures taken at the various state hospitals, to be shown at the state fair and similar gatherings. The purpose of the state hospital cinematograph is to give the public a clearer understanding of conditions and problems in the institutions.—The new $150,000 Philadelphia Memorial Hospital, Mooseheart, known as the "City of Childhood," has been completed. The building was donated to Mooseheart by the Philadelphia lodge of the Order of Moose, and is one of the 147 buildings on the Mooseheart estate, which represents an expenditure of $6,500,000 in buildings.

Chicago

Chicago Medical Society.—According to a recent report of its secretary, the Chicago Medical Society is the largest local medical society in the world, having a membership record of 3,771 active members, fifty honorary members, and forty-three nonresident members. It has fifteen branch societies. The central society held twenty-seven meetings during the last year.

Tuberculosis Placement Bureau.—The placement bureau of the Chicago Tuberculosis Institute has, since the beginning of 1923, filled fifty-two positions and registered 161 applicants. In the seven years of its existence, the bureau has made a total of 787 placements in thirty-one states, 48.2 per cent. of which were in Illinois, and 11.2 per cent. in Indiana. Since Mrs. Theodore Sachs, who started the bureau, has become superintendent of the Tuberculosis Institute, the placement bureau is in charge of Miss Annie J. Morrison. No charge is made for assistance in finding suitable positions for tuberculous applicants, and correspondence with nurses and organizations which it aims to serve is solicited.

IOWA

Society News.—At its fiftieth meeting, June 21, at Ottumwa, of the Des Moines Valley Medical Society, the following officers were elected: Dr. Eppie S. McCrea, Eddyville, president; Drs. Albert P. Johnson, Sigourney, and Henry C. Young, Bloomfield, vice presidents; and Dr. Walter E. Anthony, Ottumwa, secretary-treasurer.

Hospital Cornerstone Laid.—The cornerstone of the new Lutheran Hospital to be erected in Mason City was laid, June 3. The institution, to be known as St. Luke's Hospital, is being financed by citizens of Mason City and the Lutherans of northern Iowa. The completed structure will cost $600,000. Ground was broken for the building, April 8.

KENTUCKY

Commencement at Louisville.—Dr. Henry A. Christian of the Harvard Medical School delivered the commencement oration at the University of Louisville School of Medicine, his subject being "The Science and Art of Medicine in Relation to the Community." The annual week of clinics was followed by the alumni banquet at which Dr. John Van Duyn of the class of 1865, and now professor of the history of medicine in Syracuse University College of Medicine, presided. Mayor Houston Quin was a guest. He assured the alumni that the Louisville City Hospital was being administered more efficiently under the management of the school of medicine than it had ever been administered before.

LOUISIANA

Dowling Tests Health Board Prison Control.—The state supreme court was called on, June 14, by Dr. Oscar Dowling, president of the state board of health, to determine whether the act of the legislature in 1918 giving the health officer authority to condemn parish prisons for insanitary conditions is constitutional. Dr. Dowling had condemned the Calcasieu Parish Prison, DeQuincey, stating that the place was insanitary and that he found male and female prisoners, both white and colored, kept in cells with nothing but the iron bars between them. Judge Clark granted a temporary injunction on Dr. Dowling's petition, but later, when the case was heard on the merits, the act was called unconstitutional, and the injunction was dissolved with the exception of that part relating to the manner in which men and women were jailed. The court ordered the sexes divided.

Board of Health to Close Dairies.—Legal steps will be taken to close seven dairies which have not complied with certain requirements concerning the tuberculin test of cows whose milk is sold in New Orleans, it was announced, June 30, by Dr. John Callan, superintendent of the city board of health. Of 191 dairies, only seven have not met the requirements; four others went out of business. It is said that among 5,947 cows tested by the board in Orleans and Jefferson parish, 877 were found tuberculous and slaughtered. Before a dairy is placed on the board of health's honor roll, it must comply with the following rules: Add no cows to a herd before having them tested; replace no employees with others who have not submitted to a physical examination; add no water to milk; sterilize utensils, including bottles; purchase no milk from other dairies that do not comply with regulations; keep milk up to standard; maintain sanitary and orderly milk rooms.

MARYLAND

Personal.—Dr. William H. Welch, director of the school of hygiene and public health, Johns Hopkins University, Baltimore, received the honorary degree of doctor of science from the University of Cambridge, England, June 12.

Insulin Clinics.—To handle the large number of diabetic patients applying for insulin treatment, a special series of eight clinics under the supervision of Dr. William S. McCann will start at the Johns Hopkins Hospital, July 19. Only thirty physicians may attend. Clinics will be held on Tuesdays and Fridays at noon, and a second series is contemplated in the fall.

MASSACHUSETTS

Harvard Plans Medical Dormitory.—The Harvard Medical School Alumni Association started a campaign for $750,000, June 20, to erect a dormitory that will house 250 medical students. The association wants that amount of money by Jan. 1, 1924. President Joslin stated, it is said, that every graduate will be asked to contribute something to help erect the dormitory.

Student Sues Medical School for Wasted Year.—It is reported, that Antonio L. Ruggerio, New York, has entered suit against the College of Physicians and Surgeons of Boston to recover $3,000 damages. Ruggerio claims he was induced to come to Boston and to waste a school year by false representations by the school. He alleges among other things that faculty members were advertised in the catalogue who were never in attendance, that the instructors were for the most part inefficient, and that several subjects advertised in the catalogue were not given.

MICHIGAN

Typhoid Fever Compensable.—The Supreme Court of Michigan held in the case of *Frankamp* v. *Fordney et al.* that typhoid fever contracted by an employee of a hotel as a result of drinking well water furnished by the hotel is compensable as an accident within the meaning of the workmen's compensation act.

Ford Hospital Treats Veterans Free. — The Henry Ford Hospital, Detroit, has offered free treatment to disabled World War veterans, and more than fifty are already undergoing treatment. This arrangement for veterans continues until December 31, 1924, when it will be renewed for another definite period if necessary. Another arrangement has also been effected between the American Legion and the Henry Ford Hospital whereby in extreme cases of destitute families of former service men, children needing hospitalization will be treated when designated by the Legion office.

The Nursing Problem in Detroit.—A recent announcement by the Detroit department of health gives the results of a survey of the nursing problem in that city. The Delray district, about one tenth of the city, is entirely taken care of by generalized nursing; the remaining nine tenths operates under the specialized plan. It appears that during the first five months of 1923, the eighteen general nurses in the Delray district rendered 17,338 services, and the 152 specialized nurses in the remainder of the city, 85,530. There was a monthly average for the former of 191 services rendered, and for the latter, 113. The principal types of service covered in both plans are school nursing, tuberculosis, contagion, infant welfare and special investigation. It is said that while it appears that the general nurse gives a larger number of services, she does relatively less work than the special nurse in every type of service except infant welfare, and that such type accounts largely for the greater showing for the general nurse. It is further said it is possible that part of the time used on infant welfare might have been more profitably spent on some other type of service. A generalized nursing program must be carefully watched, therefore, to prevent its becoming "one-sided." This limited study of both systems in Detroit seems to indicate that for cities up to 100,000 and possibly 200,000 population, the generalized nursing plan is feasible provided exceptionally good supervisors are available and there is a reasonably good supply of good nurses. There are, the announcement concludes, fewer pitfalls to be avoided in the specialized plan.

MINNESOTA

Hennepin County Medical Society.—The annual memorial service of the Hennepin County Medical Society was held, June 4, at the Church of the Redeemer in Minneapolis, with Dr. Fred L. Adair, president of the society, presiding. The memorial address was delivered by the Rev. Marion D Shutter. The members of the society who died in 1922 were Drs. Albert J. Murdock, Hugh N. McDonald, Frederick A. Knights, John D. Anderson, James W. George, Richard J. Hill and Julius P. Sedgwick.

MISSOURI

Personal.—Dr. James R. McVay, Kansas City, has been appointed a member of the state board of health by Governor Hyde to succeed Dr. Franklin E. Murphy, who resigned.——Dr. Ralph L. Thompson, St. Louis, has resigned as professor of pathology at St. Louis University School of Medicine, following twenty years of service. The university has decided to name the museum the Ralph L. Thompson Collection of Pathological Specimens.

NEBRASKA

Society News.—The twenty-first semiannual session of the Sioux Valley Eye and Ear Academy was held in Omaha, July 9. The first day was devoted to addresses and discussions, and the second to clinics in hospitals of the city. Dr. Jesse B. Naftzger, Sioux City, Iowa, is president of the society.

NEW JERSEY

Medical Society Aims to Standardize Disability.—At the annual session, Atlantic City, June 23, the Medical Society of New Jersey authorized the appointment of a committee to work out a basis for standardizing injuries which come under the workmen's compensation act of New Jersey. Dr. Wells P. Eagleton, Newark, president, it is said, will appoint as chairman of the committee Dr. Elbert S. Sherman, Newark. After an exhaustive study, a schedule will be arranged that aims to fix the percentage of disability resulting from any injury covered by industrial insurance, and thus eliminate the difference of opinion that usually prevails in settling compensation problems.

NEW YORK

Annual Conference of State Sanitary Officers.—At the Saratoga Springs conference, June 26-28, in an address on "Health Administration in Rural Districts," Dr. Allen W. Freeman, professor of hygiene and public health, Johns Hopkins School of Hygiene and Public Health, said there are 231 counties in thirty-three states which now have whole-time health officers, and that these officials serve 11.6 per cent. of the rural population of the United States. In 1920, the number of counties having this type of health administration was 109.——Dr. Clarence Floyd Haviland, chairman of the state hospital commission, in discussing "Mental Disease as a State Problem," said that one form of mental disease, dementia praecox, numbers twice as many cases in hospitals in the United States as does tuberculosis, and that the annual cost of the care of the insane in this country is $75,000,000. New admissions of insane in New York, according to Dr. Haviland, number between 8,000 and 9,000 a year, and 41,300 are now under the care of that state.

New York City

William John Gies Fellowship.—A trust fund for establishing a fellowship in biological chemistry in the College of Physicians and Surgeons, Columbia University, to be named in honor of the founder of that department, Dr. William John Gies, Ph.D., will be presented at the twenty-fifth anniversary. The committee will present to Professor Gies an illuminated book containing testimonial letters of appreciation from former students, and from friends in this country and Europe, and which contains the names of contributors to the scholarship fund.

Brooklyn Wants Millbank Health Exhibit.—Dr. T. J. Reilly of the Brooklyn Bureau of Charities has requested that the health demonstration to be conducted in Greater New York be held in Brooklyn. The Millbank Memorial Fund was created by Mrs. Elizabeth Millbank Anderson in memory of her parents, to show the way to sound health. New York State will have three such demonstrations, one at Syracuse, one in Cataraugus County, and one in New York City. The Brooklyn Chamber of Commerce and the Kings County Medical Society are supporting the Bureau of Charities in its request.

International Congress of Mental Hygiene.—Dr. Clifford W. Beers, secretary for the National Committee for Mental Hygiene, with headquarters in New York City, has been visiting London, Paris and Belgium in the interest of the First International Congress of Mental Hygiene, which will be held in the United States, probably in 1925. Delegates from ten countries made the journey to Paris to confer with Dr. Beers regarding the projected congress. Among the delegates were Dr. G. C. Ferrari of Bologna, Dr. B. Rodriguez Arais of Barcelona, Dr. Ladislaw Haskovec of Prague, Dr. Gustave Olah of Budapest, Dr. Viggo Christiansen of Copenhagen, Dr. Auguste Ley of Brussels, Dr. Hans Evensen of Christiania, Dr. H. Boyle of London and Dr. C. K. Clarke of Toronto. It was the consensus of opinion that a world-wide effort should be made for the prevention of nervous and mental disorders.

Hudson Towers: A Combination Hotel Hospital.—The American Bond & Mortgage Company has announced an issue of bonds for a building to be called Hudson Towers and located at Seventy-Second Street and West End Avenue, New York City. The building is to provide a combination of a modern hotel with features for the needs of physicians and their patients. In addition to a large dining room, there will be 358 chambers, 81 special rooms, 211 baths and 12 public baths. Among the physicians associated with the project are Drs. Joseph A. Blake, Evan Evans, John F. Erdmann and Adrian Lambert, and there are seventy-four other physicians in the advisory council. It is stated that the entire staff of the Hudson Towers will be required to carry out the wishes, instructions and orders of a patron's physician or surgeon. There will be roentgen-ray, chemical and pathologic laboratories. Operating rooms will be equipped with facilities to meet the most modern requirements.

Hospital News.—Plans are being made for the erection of a $2,000,000 building for the Italian Hospital to replace the present structure at 617 East Eighty-Third Street. A campaign to raise this amount will be conducted among Italian-Americans throughout the country.——Members of the theatrical profession and those engaged in its various branches have united to establish in New York City a hospital for the exclusive use of the profession. It will be the first of its kind in the United States. Dr. McCall Anderson has been elected chairman of the executive committee, which will assist in raising the necessary funds, estimated to be about $1,000,000. The committee has under consideration two sites on the west side between Thirty-Fourth and Fifty-Ninth streets. The plan is to erect an eight-story building to contain from seventy to 100 beds, and to run the institution without profit. The medical staff includes Drs. Joseph A. Blake, Thomas McCall Anderson, Evan M. Evans, Walter E. Lambert, Joseph C. Taylor, William Brown Doherty, Harry Steers Holland, Charles Gilmore Kerley, Floyd C. McDaniel, William Broaddus Pritchard, Andrew R. Robinson and Royal Whitman.

NORTH CAROLINA

Antityphoid Campaign.—The annual campaign against typhoid fever in Wake County began July 2. Forty vaccination dispensaries were designated in various parts of the county. July 7, 14, 21 and 28, the people of Raleigh will be vaccinated in the health department quarters in the court house. There were fifty-five cases, with eleven deaths from typhoid fever in the county last year.

Extension Courses for Physicians.—A twelve weeks' postgraduate extension course for physicians throughout the state began, June 18, for which 350 physicians registered. Instruction will be carried on in eighteen cities located on four circuits. Three courses in internal medicine on three circuits of six towns each will be given, and, beginning July 16, a course in general pathology on another circuit. The plan calls for a lecture and a clinic each week in each of the communities designated. The instructors, it is reported, are Dr. Frank A. Chapman, Rush Medical College, Chicago; Dr. Charles Sidney Burwell, Johns Hopkins University, Baltimore; Dr. Benjamin T. Terry, Vanderbilt Medical School, Nashville, Tenn., and Dr. Frank Dennette Adams, Washington, D. C.

OHIO

Physician Held for Manslaughter.—Dr. William W. Davis, Bainbridge, ex-coroner of Ross County, according to reports, was bound over to the grand jury, June 27, and held under $5,000 bond. It is alleged that Dr. Davis, while driving his car, collided with a buggy, and that, as a result, Mrs. E. H. Schiff, Polk Hollow, received injuries from which she died, June 7.

Chiropractors Fined. — Judge Berry, Columbus, fined six local chiropractors $100 and costs recently for practicing medicine without a license. D. H. Gefell would not pay the fine, it is reported, and was taken to jail. Harriet Clemens, one of several chiropractors who, it is reported, were sentenced to jail, May 6, for refusing to comply with state medical laws, was released on a writ of habeas corpus.

Conference on Sheppard-Towner Law.—A conference of an advisory committee of physicians, representatives of health organizations, the Ohio Public Health Council, and officers of the state department of health was held recently in Columbus to formulate policies for the application of the Sheppard-Towner Maternity Law. The advisory council consists chiefly of a representative obstetrician and a pediatrician from each of the larger medical societies. It was agreed that the entire program of activity under the provisions of this law should be educational and preventive, including the educational work under the state department of health, jointly with the approval and cooperation of the local profession, and should be limited to instruction and to demonstrations accruing as benefits to the entire community and not as personal service to individuals. It is the intention of those whose duty it will be to carry out this law that the personal relationship between the individual practitioner and his patients must at all times be preserved, and not in any manner interfered with. It is planned to organize a series of general health demonstrations in which the bureau of child hygiene and the state department of health will cooperate with health districts, and in which the hygiene of maternity and infancy will be given special consideration. Before beginning the actual work, it was considered advisable to hold preliminary meetings with the county medical, dental and other societies to present the objects and extent of the proposed demonstrations.

OREGON

A Stop-Over at Portland.—A party of distinguished Eastern physicians en route to the American Medical Association session at San Francisco, which had attended the Pacific Northwest Medical Association meeting at Seattle, was entertained at breakfast at the University Club, Portland, by Dr. Richard B. Dillihunt, dean of the University of Oregon Medical School, and others, and taken for an inspection of the school and new county hospital. The party left for San Francisco in the evening following a trip over the Columbia Highway.

PENNSYLVANIA

Sanitary Work Ordered.—The Pottsville city council voted $10,000, July 3, for a sanitary survey. A state engineer's visit to Pottsville brought about a decision to do the work at once. New sewer connections, it is said, have not been possible for nearly ten years.

Lancaster to Enforce State Milk Regulations.—Despite the announcement of the independent milk distributors that they would fight the state ruling that all milk be either Grade A or pasteurized, the attorney of the local health board was instructed to prepare an ordinance to conform to the state ruling.

Committee Appointed to Study Commissioner's Questions.—The president of the Dauphin County Medical Society, it is reported, has appointed a committee to study certain problems submitted by the state health commissioner. The committee consists of Drs. Clarence R. Phillips, Jesse L. Lenker, Daniel E. Hottenstein, H. A. Zimmermann, Hewitt C. Myers and William J. Middleton. The following questions have been submitted: (1) Should the policy of placing a warning placard on premises where measles, German measles, mumps, whooping cough or chickenpox exists be continued? (2) Do you approve permitting immune children from houses in which the above diseases exist to attend school? (3) Is a policy of no release from diphtheria quarantine except on negative nose and throat cultures practicable? (4) Have you any suggestions which might lead to earlier recognition of typhoid fever and notification of the health authorities?

Philadelphia

Smallpox Quarantine Extended.—Five thousand persons living in the area bounded by Broad, Sixteenth, Ellsworth and Wharton Streets were vaccinated, June 27. This was an extension of the quarantine of the previous day between Fifteenth and Eighteenth streets.

Dr. Furbush's Will.—The will of the late Dr. C. Lincoln Furbush, director of public health, directs that in the event of the death of his wife, and of his daughter without issue, the principal of his estate be divided among five schools, a hospital and a welfare association.

Joseph Leidy Commemorative Meeting.—The fourteen scientific institutions with which Dr. Joseph Leidy, naturalist, was connected will unite in commemorating the one hundredth anniversary of his birth, Dec. 6, 1923, in the hall of the Academy of Natural Sciences, Nineteenth Street and the Parkway.

SOUTH CAROLINA

Personal.—Dr. Bowman C. Crowell, Charleston, has been appointed to the chair of pathology in Jefferson Medical College, Philadelphia, to succeed Dr. William M. L. Coplin, who resigned a year ago.

Interest in Typhoid Vaccination Grows.—The director of the Anderson County Health Unit, Dr. Eren E. Epting, on June 19 visited Starr, Iva, Long Branch, Neals Creek and Barkers Creek communities, vaccinating 171 persons against typhoid fever. It is said that crowds awaited the health officer at each place, and that the total number that has been vaccinated thus far is 538. There are more than twenty cases of typhoid fever in the county.

UTAH

State Medical Association Speakers.—Among the speakers who addressed the state medical association meeting in Salt Lake City, June 21, were Dr. William A. Pusey, Chicago, who spoke on "Changing Views in Eczema"; Dr. William C. MacCarty, Rochester, Minn., who spoke on "Methods of Teaching," and Dr. Grover W. Wende, Buffalo, who spoke on "Protean Phases of Cutaneous Syphilis." At the afternoon session, clinics were conducted by Dr. Albert J. Ochsner, Chicago; Dr. Emmanuel Libman, New York, and Dr. Vilray P. Blair, St. Louis.

VIRGINIA

The Fake "Oriental University" Under Fire.—Application was made by Attorney General J. R. Saunders in the circuit court of Richmond, June 29, for revocation of the charter of the "Oriental University" of Cherrydale, Virginia, according to reports. It is said that federal agents representing the diplomatic and executive branches of the government have been investigating this "school" for some time, and that if its charter is revoked, the institution will be prosecuted for using the mails to defraud. It appears that degrees of all kinds are sold both in this country and abroad, and that prominent men, now dead, are listed on the faculty. The head of the "school" claimed, it is said, that by virtue of his ability as a medium, he could get in touch with these dead faculty members. The Swiss government has made it a criminal offense to obtain a degree from this establishment.

WASHINGTON

Course for General Practitioners.—A course of graduate medical lectures and clinical and laboratory demonstrations will be given in Seattle, July 16-20, under the auspices of the University of Washington Extension Service. The speakers will be: Dr. John M. T. Finney, Johns Hopkins University Medical School; Dr. Alfred Stengel, University of Pennsylvania; Dr. Oliver S. Ormsby, Rush Medical College, Chicago, and Dr. Edward C. Rosenow, University of Minnesota.

Hospital News.—With $20,000 appropriated by the state legislature for the eastern state hospital at Medical Lake, work will be shortly started in remodeling and refurnishing the old school building to provide additional space for the care of 200 insane patients. The two buildings formerly occupied by the Women's Industrial Home and Clinic are already in use.——A revision of plans to accommodate a greater number of the state's charges at the smallest possible cost has led to the abandonment of the project to construct a new war unit at Northern State Hospital for the Insane, Sedro-Wooley, from the appropriation made by the last legislature, and a new home for nurses and employees will be erected instead. The building to provide living quarters for approximately 120 nurses and attendants will be located at the west end of the grounds, apart from other buildings of the institution.

WISCONSIN

County Health Work.—Fifteen county health centers in the state, proved successful by a year of actual work, will be transferred this summer to a different town in each county, to render the service more accessible to all parts of the county, the state board of health announced, June 18.

Metropolitan Life Insurance Company Statistics. — The company paid in death claims during 1922 more than $52,500,000, about 70 per cent. of which was disbursed on account of deaths in the preventable or postponable class. The largest amount, $6,700,000 was paid on account of tuberculosis. This was only slightly larger than the amount paid for heart disease ($6,659,000). For the three principal cardiovascular-renal diseases (heart disease, chronic nephritis and cerebral hemorrhage), the payments during 1922 amounted to $13,953,000, or 27 per cent. of the total. Suicides occasioned the payment of $1,030,000, and homicides, $609,341. Cancer was responsible for the payment of $4,630,000.

GENERAL

Drive for Neuilly Hospital.—The drive for $300,000 for constructing a 110 bed annex to the American Hospital in Paris netted $263,000 up to June 29. It appears certain the goal will be reached in the time set. Mrs. Herman Oelrichs gave $10,000 for a roentgen-ray plant; Mortimer Schiff, $10,000, and Mrs. W. K. Vanderbilt, $5,000.

Foreign Health Officers to Visit Here.—A mission comprising public health officials from twenty-one different countries will soon visit the United States to study public health administration in this country. It will be under the auspices of the League of Nations' health committee. Similar missions have already visited England, Austria, Italy and Belgium, it is reported.

Dr. Farrand Heads Tuberculosis Association.—Dr. Livingston Farrand, president of Cornell University, was elected president of the National Tuberculosis Association at its recent annual convention in Santa Barbara, Calif. President Harding and Col. George E. Bushnell, U. S. Army, retired, were named honorary vice presidents. Memphis, Tenn., was selected as the next convention city.

Pasteur Stamps Arrive.—Copies of the Pasteur commemorative stamps, which are the first French issue with a portrait since that of Emperor Louis Napoleon was used, have arrived in this country. They were issued for the centenary of the distinguished scientist and are in the three values used for international mail. They were designed by M. Prudhomme.

Contributions for Tuberculosis Campaign. — Fifty million contributions totaling $25,000,000 have been made in the last fifteen years to the tuberculosis associations of this country through the annual Christmas seal sales, it was announced at the annual meeting of the National Tuberculosis Association, Santa Barbara, Calif., June 22, according to reports. Last December, about eight million people contributed in this manner a total of $3,800,000. The average contribution in the Christmas seal sale, it was said, is about 50 cents.

Independence Day Accidents.—Figures received from sixteen states, it is reported, show that thirty-three persons were killed and 150 injured by the various forms of fireworks devoted to celebrating Independence Day, 1923. Illinois and Pennsylvania tied with five deaths each. Missouri led with the number of persons injured, having a total of seventy-six; Illinois was second with twenty-eight. Nine of the twenty-six who were given hospital attention in Chicago on the Fourth of July were injured by stray bullets or buckshot.

Railroad Car for Demonstrating First Aid.—The American Red Cross will soon put in service a Pullman car reconditioned and equipped for first aid demonstration work. The lecture room, which will accommodate fifty persons, is arranged so it can be quickly transformed into an emergency hospital for thirty patients. Two surgeons with assistants will constitute the staff. The first trip will be over the Baltimore and Ohio system, during which trip the staff will cooperate with Red Cross chapters in various cities to promote first aid classes in organizations, schools and colleges.

New Society Formed.—The American Association for the Study of Allergic Diseases was formed in San Francisco, June 25, as an outgrowth of the meeting of the Western Society for the Study of Hay Fever, Asthma, and Allergic Diseases. The new organization will be limited to 100 members who have specialized in this work, and will meet yearly at the same time and place as the American Medical Association. The following officers were elected: Dr. Grant L. Selfridge, San Francisco, president; Dr. Albert H. Rowe, Oakland, Calif., secretary-treasurer.

Salicylic Acid in "Moonshine." — Salicylic acid is being used by illicit winemakers in Louisiana to arrest fermentation, according to a report received by Federal Prohibition Commissioner R. A. Haynes. Salicylic acid, because of its solubility in an alcoholic solution, is not removed from wine by filtration. Its use as a preservative in any food has been prohibited for years by the Pure Food Law. The indiscriminate use of this acid by winemakers unacquainted with what constitutes a poisonous quantity is very likely to produce harmful effects. Action will be taken under the United States Pure Food Law, it is said.

American Therapeutic Society Election. — At the twenty-fourth annual meeting of the American Therapeutic Society in San Francisco, June 23, the following officers were elected: Dr. George Herbert Evans, San Francisco, president; Drs. Charles L. Greene, St. Paul, William F. Milroy, Omaha, and Robert D. Rudolf, Toronto, Canada, vice presidents; Dr. Lewis H. Taylor, Washington, D. C., secretary, and Dr. Spencer L. Dawes, New York, treasurer. Dr. Noble P. Barnes, Washington, D. C., was reelected chairman of the council. Dr. Lewis H. Taylor, Washington, and Dr. Spencer L. Dawes, New York, were elected to serve five-year terms on the council. Dr. James M. Anders, Philadelphia, was elected to serve the unexpired term of Dr. John B. White, New York.

Awards for Scientific Exhibits.—Awards for the scientific exhibits at the American Medical Association meeting in San Francisco were made as follows: the gold medal to Dr. Frank Hinman and his associates at the University of California; the silver medal to Dr. Benjamin T. Terry, Nashville, Tenn. Certificates of merit were given to the U. S. Public Health Service; the department of anatomy, University of California, and the League for the Conservation of Public Health of California. The following were given honorable mention: Dr. Hans Lisser, head of the department of endocrinology, University of California Hospital, and Mr. Ralph Sweet, the Mayo Clinic; Dr. Harry J. Corper, Denver; Dr. Robert E. Farr, Minneapolis; Dr. Amedee Granger, New Orleans, and Dr. Irving F. Stein, Chicago.

Malaria in Russia.—The epidemic subdivision of the department of health of Russia recently reported that the district of Buzuluk was most affected with malaria, having had 96,690 cases in 1922 and that double the number of cases had appeared in the first two months of 1923 than appeared in corresponding months of the previous year. It is estimated that 90 per cent. of the population will be affected at the height of the epidemic this summer. The American Friends' Mission which has been working in the Buzuluk district, and which hopes to continue anti-malaria work on a much larger scale, has been unable to help the masses because of the lack of quinin. The government is aware of the serious situation in this district but is concentrating its antimalaria work in Turkestan and the Caucasus from which regions malaria spreads to other parts of Russia. The medical section of the American Friends' Service Committee has organized committees of physicians in various parts of the United States to conduct campaigns for contributions of medicines, clothing, medical instruments, literature and money for the use of the mission in Russia. Correspondence on this subject should be addressed to the American Medical Aid for Russia, care of the American Friends' Service Committee, 20 South Twelfth Street, Philadelphia, Pa.

Comment on Hygeia in Sweden.—The editor of *Hygienisk Revy* of Lund, Sweden, June 15, 1923, says: "The first two numbers of the periodical *Hygeia,* which has been started by the powerful American Medical Association for the purpose of hygienic education, lie before us. The contents of both numbers are excellent and predict prosperity for the undertaking. Problems of importance to the great public are treated by prominent authors at the same time in a scientific and easily understandable way. The articles are excellently illustrated. A periodical such as *Hygeia* is of importance not only for the United States. Increased resources have through the same been presented to the work in the corresponding fields in other countries. The high standard of the periodical will raise the demand on similar publications everywhere. The excellent popular science material in *Hygeia* will eventually be adapted to conditions in other countries to be used for corresponding educational work far beyond the boundaries of the United States. We extend our most sincere welcome to the new magazine. We also take this occasion to express our gratitude to the Propaganda Department of the American Medical Association which for the last two years has been systematically supplying the *Hygienisk Revy* with data on nostrums and quackery."

Federal Limitation on Medicinal Use of Liquor Again Held Unconstitutional.—The limits imposed by the federal prohibition laws on the amount of alcohol that may be prescribed for a given patient, and on the number of prescriptions that a given physician may issue, within stated periods, have been held unconstitutional by Judge George M. Bourquin. The decision was rendered in Helena, Mont., it is reported, in connection with the prosecution of Dr. J. B. Freund, of Butte, who was charged with issuing more than one hundred prescriptions within a ninety-day period, and with having prescribed more than one-half pint of alcohol to one patient in ten days. Judge Bourquin's decision goes further than did the decision recently rendered by Judge Knox, in that it denies the constitutionality, not only of so much of the federal prohibition laws as applies to the amount of liquor that may be prescribed, but also of the portions limiting the number of prescriptions that may be issued. The limitation upon the number of prescriptions that may be issued is, the decision says, "nothing but an arbitrary restriction upon the number of patients a physician shall treat in ordinary course of circumstances, or is an unreasonable mandate to malpractice in respect to them." Present indications are that the entire matter will find its way into the United States Supreme Court through appeals on behalf of the United States.

Rockefeller Institute.—The board of scientific directors of the Rockefeller Institute for Medical Research announces the following promotions and appointments: Dr. Oswald T. Avery and Dr. Walter A. Jacobs, hitherto associate members, have been made members; Dr. Michael Heidelberger, Dr. Christen Lundsgaard, Dr. Peter K. Olitsky and Dr. Louise Pearce, hitherto associates, have been made associate members; Dr. David I. Hitchcock, Dr. Frederic M. Nicholson, Dr. Henry S. Simms and Dr. Leslie T. Webster, hitherto assistants, have been made associates; and Dr. Mimosa H. Pfaltz, hitherto a fellow, has been made an assistant. The following new appointments are announced: Associate members, Dr. Jacob J. Bronfenbrenner and Dr. Paul A. Lewis; associates, Dr. Oskar Baudisch, Mr. Herbert L. J. Haller, Dr. Stuart Mudd; assistants, Mr. Arnold M. Collins, Dr. John H. Crawford, Dr. Robert Elman, Dr. Joseph H. B. Grant, Mr. Moses Kunitz, Dr. Cecil D. Murray, Dr. Everett S. Sanderson, Dr. David T. Smith, Mr. James Vander Scheer, Dr. Lars A. Welo; fellows, Miss Gladys Bryant, Dr. Charles Korb, Miss Dorothy Loomis and Dr. Elmer L. Straub. Dr. J. Howard Brown, hitherto an associate in the department of animal pathology, has accepted a position as associate professor of bacteriology at Johns Hopkins Medical School, Baltimore, and Dr. Fred A. Taylor, hitherto an associate in chemistry, has accepted a position as head of the department of biochemistry at the William H. Singer Memorial Research Laboratory, Pittsburgh.

LATIN AMERICA

El Salvador Medical Medal.—The medical students of San Salvador publish *El Salvador Médico* as the organ of their society, the Sociedad Emilio Alvarez. A recent issue announces the details of the foundation by this society of the "Master's Medal," the *Medalla del Maestro,* a diploma and gold medal to be awarded as a tribute to a professor who has been particularly efficient and beloved and who is retiring on account of having reached the age limit or after serving for twenty years, or is compelled to retire for health reasons after having served for ten years.

Personal.—The *Brazil Medico* mentions the arrival in Brazil of Dr. George Vincent to inspect the work of the Rockefeller Foundation after six years of effort in that country. He was accompanied on his trip of inspection by Drs. Almir Madeira, physician to the Leopoldina Railroad; Mark Boyd, chief of the malaria campaign service, and Alvaro Andrade of the Foundation.——The *Médica Ibera* states that Prof. E. V. Segura, of the chair of ear, nose and throat diseases at Buenos Aires, was tendered a reception by the dean of the Madrid faculty of medicine on his recent visit to Europe in the interests of international exchange of university professors. Our exchange adds that a committee has already been organized for the purpose in Paris, and that the professors invited to lecture are to be the guests of Argentina on leaving the shores of Europe.——The *Repertorio de Medicina y Cirugía* of Bogota mentions the return from Europe of Drs. C. J. Chaves Vargas and Ernesto García P. and the departure of Dr. José Miguel Cortés for a trip to the United States.——The new incumbent of the chair of radiology in the medical faculty of Bogota is Dr. Martin Weiser, recently arrived from Germany.——The *Archivos de Medicina* of Madrid states that Dr. Recasens, professor of gynecology and dean of the medical faculty, is soon to visit Buenos Aires to lecture at the request of the university, before he goes to Berlin in November on a similar errand.——Dr. L. Avendaño, professor of legal medicine at Lima, and Dr. G. Fernández Dávila, assistant professor, have organized a service for consultation on medicolegal questions, the Consultorio Médico Forense, as Peru has no official medicolegal experts.——Dr. Emilio G. Roca, professor of obstetrics at the University of Guayaquil and formerly dean, has been appointed professor emeritus, and Dr. Arturo Serrano has been elected to fill the vacancy.——The *Folha Medica* gives the details of the presentation of the portrait of Dr. Eugenio de Menezes to the Rio de Janeiro Faculty of Medicine, of which he has long been the secretary.——Dr. Alberto da Cunha, official delegate from Brazil to the International Conference at Santiago, was invited to lecture on Chagas' disease.——Dr. A. Noceti has returned to Buenos Aires from a year in Europe.——Dr. José Tonontegui, physician of the Spanish embassy at Buenos Aires and president of the Confederación de Sociedades Españoles, has been elected president of the Asociación Médica Española, founded in Argentina last fall and affiliated with the Colegio de Médicos of Madrid. The secretary and founder is Dr. Fernando Gómez Montañe.

FOREIGN

Medical Society to Celebrate Centennial.—The Accademia Medico-Fisica of Florence, Italy, is preparing to celebrate, next year, the hundredth anniversary of its foundation. It is proposed to publish a souvenir volume giving the history of the progress of medicine as reflected in the proceedings of the society.

Medical Radiology in Italy.—The Fifth Congress of the Italian Society for Medical Radiology will meet at Palermo, Oct. 19, 1923, with Prof. G. Scaduto in the chair. The subjects appointed for discussion are "Roentgen-Ray Treatment of Skin Diseases"; "Pneumoradiography," and "Roentgen Rays in Diagnosis of Disease of the Urinary Apparatus." The secretary is Dr. S. Sgroi, Via Alloro 58, Palermo.

New Bacteriologic Department Opened.—The new building for the department of bacteriology of the University of Durham College of Medicine, England, was opened with appropriate ceremonies, May 25. When in 1918 it was found impracticable to build on the present college of medicine site, due to lack of space, the council of the sister institution, Armstrong College, magnanimously offered a site adjacent to the agricultural department, and offered to advance the capital necessary to erect the building, only stipulating that Armstrong College be consulted as to the design and structure of the building, the college of medicine to rent the building. This generous offer was accepted with thanks by the college of medicine, which now has one of the best bacteriologic departments in the country.

Personal.—Dr. J. Kyrle, professor of dermatology at the University of Vienna, has been elected foreign member of the Swedish Medical Association.——The prize founded by the king of Italy at the Accademia dei Lincei at Rome was divided this year between Profs. G. Levi and U. Pierantoni of the University of Turin for work on "Normal and Pathologic Morphology."——Prof. Christian Eijkman of Utrecht is retiring from his chair and the charge of the Hygiene Institute, having reached the age limit. His pioneer work on beriberi and other deficiency diseases was done in the Dutch East Indies, but he continued to work after returning to the Netherlands in 1898. The list of his works is long. ——Dr. F. Henrijean, professor of clinical medicine at the University of Liége, has received an honorary degree from the University of Toulouse.——Dr. P. N. Hansen, Copenhagen, has received the decoration of the French Legion of Honor.——Dr. A. Pais, Rome, recently received a severe shock from a high voltage electric current in his electrologic laboratory, which incapacitated him for several days.

Deaths in Other Countries

Dr. **R. J. Ewart**, Barking, England, statistician, recently. ——Dr. **J. G. Ogle**, Reigate, England, recently.——Dr. **Edward John Steegmann**, Leeds, England, June 8, aged 56.——Dr. **George F. Murrell**, London, England, June 5, aged 55.—— Dr. **Frederick E. Rainsford**, Dublin, Ireland, June 6.——Dr. **M. K. Löwegren**, the first professor of ophthalmology in Sweden, who founded at Lund the first eye clinic in Sweden, and translated the works of Hippocrates into Swedish, aged 87.——Dr. **Ignacio Allende**, professor of clinical medicine at the University of Buenos Aires for twenty years and subdirector of the Pasteur Institute, one of the leading physicians and writers of Argentina.——Dr. **H. Lacombe**, professor of physical and natural sciences at the University of Rio de Janeiro, director of the *Revista de Medicina*.——Dr. **Karl Malmsten**, former president of the Swedish Medical Association, aged 74.——Dr. **Martin du Magny**, Bordeaux. ——Dr. **Javier Santero**, Buenos Aires, formerly professor at the University of Madrid and editor of the *Siglo Médico*, and author of works on "Hygiene," "Paralysis" and "Diatheses," as well as of plays and other literary works, aged 75. ——Dr. **Augusto Durand**, Lima, succumbed to strangulated diaphragmatic hernia.——Dr. **O. Josué**, Paris, vice president of the Société de biologie.——Dr. **H. Bircher**, director of the Aarau hospital.

Government Services

Hospitals Authorized

Pursuant to instructions from the Secretary of War, June 27, 1923, the organization of General Hospital No. 62, Organized Reserves (St. Luke's Hospital Unit, Jacksonville, Fla.), has been authorized.——Pursuant to instruction of the Secretary of War, the organization of General Hospital No. 61, organized reserves (Latter Day Saints Hospital Unit, Salt Lake City), has been authorized.

Army Medical Building Completed

The first building of the Army Medical School, located at the Walter Reed General Hospital, in Washington, is completed and will be ready for occupancy within thirty days. The cost of the unit now completed is $450,000. It contains laboratories for the various sections, operating rooms and a roentgen-ray unit. An important part of the building is the section in which all typhoid vaccine for the army and U. S. Public Health Service will be made.

Foreign Letters

LONDON

(From Our Regular Correspondent)

June 23, 1923.

A "Ross Institute"

The approaching twenty-fifth anniversary of Sir Ronald Ross' epoch-making discovery that malaria is transmitted to man by the mosquito has led a number of influential persons, including leaders of the profession in this country, Mr. H. H. Asquith (ex-prime minister), Dr. Roux, director of the Pasteur Institute, Paris, Dr. R. M. Strong of Harvard University, Dr. William H. Welch of Johns Hopkins, and Sir Charles Sherrington, president of the Royal Society, to make an appeal to the public. They point out that the discovery has revolutionized medical science and living conditions throughout the tropics and, among other great things, enabled the Panama Canal to be constructed. It is impossible to exaggerate the services Ross has rendered. He must be ranked among the great investigators whose labors, like those of Pasteur, Lister, Jenner and Golgi, have conferred inestimable and lasting benefits on mankind. All the world has shared in these benefits, but Great Britain, which has vaster tropical areas than have ever been ruled by a single power, has profited most abundantly, and she owes a very special debt of gratitude to the son who has rendered this service. There is in process of organization an institute to be called the "Ronald Ross Clinique for Tropical Diseases and Hygiene," in which it is proposed that laboratory research and clinical investigation shall be combined as closely as possible in accordance with his teaching. There are already in this country two schools of tropical medicine which have done good work, but their activities are in the main educational. It is proposed that the institute shall supplement and not compete with them; that its primary object shall be research, that a clinical establishment shall be maintained in intimate conjunction with the laboratories, and that the master mind of Ross, assisted by other experts, shall have the fullest scope for the initiation and continuation of researches into the still unsolved problems of tropical medicine. There is a Pasteur Institute in Paris; a Kitasato Institute in Japan; a Gorgas Institute in Panama. It is strongly felt that Great Britain should honor one of her greatest investigators by establishing a Ross Institute in London. To initiate this, $250,000 is required. The public is invited to send subscriptions to the honorary treasurer, Lord Willoughby de Broke, 29 Queen Anne Street, London.

The Mortality of Coal and Metalliferous Miners

In the Section of Epidemiology of the Royal Society of Medicine, Prof. F. L. Collis read an important paper on the mortality of coal and metalliferous miners in England and Wales. He found that in coal mining pneumonia, bronchitis and accidents were responsible for rates considerably above the average, while those for alcoholism and phthisis were below it. The age distribution of phthisis brought it into line with the type affecting workers exposed to silica dust, but the unusually low prevalence required explanation. Possibly, Mavrogordato's work provided the clue. He found that in guinea-pigs exposed to coal and silica dust, once silica is fixed in the lungs, coal exerts no eliminative effects; but previous or even simultaneous exposure to coal dust appears to set up a condition in the lung inimical to the fixation of silica. In the three forms of metalliferous mining—tin, lead and ironstone—the two former stood out not only by an excessive general mortality but also by an excessive one in the same groups of disease—phthisis with respiratory diseases and chronic interstitial nephritis.

Veins of tin ore not only contained quartz but lay in a rock largely made up of quartz, and much dust was generated in the workings. The high rate and age distribution of phthisis were in accordance with what occurred among men exposed to the dust of silica. Recent work on the toxicity of colloidal silica lent interest to the high rates for chronic interstitial nephritis. The conclusion suggested was that silica dust was gradually converted into soluble silica in the lungs and caused the well-known fibrotic changes, but some escaped into the blood, to be excreted by the kidneys, which consequently were similarly affected. Where lead ore occurred in a granite (silicious) rock, the phthisis mortality was excessive, but not when it occurred in a limestone rock. Phthisis among hematite miners appeared to resemble, in a modified way, fibroid phthisis, and might be due to iron oxid. Other workers exposed to iron oxid, such as boiler makers, showed a similar statistical type, which was not found in miners in iron carbonate. Alumina dust, judged from the mortality of slate quarriers, resembled iron oxid and silica in its effects on the lungs. An interesting point in connection with tuberculous silicosis was its low power of infecting contacts not themselves exposed to the dust, such as the wives and children of miners.

A Diploma in Bacteriology

The first diploma in bacteriology in this country has been instituted by the University of Manchester. Candidates will be required to attend a course designed to supply a thorough training in the general principles of bacteriology and advanced courses in one or more special branches. Graduates in medicine or science of any approved university may enter for the course, and the syllabus has been designed to meet the wishes or requirements of medical graduates who wish to qualify for bacteriologic posts, or to obtain a special knowledge of medical bacteriology, and also of graduates in science who wish to take up some branch of bacteriologic work. The course comprises (*a*) general bacteriology, including the morphology and physiology of bacteria and classification, the history of bacteriology, quantitative methods of investigation and elementary bacteriologic chemistry; (*b*) special courses in two or more of: (1) bacteriologic analysis of water, milk and other foods; (2) advanced bacteriologic chemistry; (3) biometry; (4) parasitism, infection and resistance; (5) epidemiology; (6) comparative pathology. A thesis including personal observations in the laboratory must be submitted. The increased importance of bacteriology in human and veterinary medicine, agriculture and other branches of applied science has influenced the university in deciding that an adequate training should be available for those who desire to undertake bacteriologic work of any kind. In the ordinary medical curriculum it is impossible to include more than the rudiments of the subject, and at present there is virtually no provision for nonmedical students, such as those engaged in biochemistry or kindred subjects, to whom a knowledge of bacteriologic methods would be of great service.

A Surgeon on the Panel System

A strong criticism of the panel system was made by Mr. H. J. Waring, vice chancellor of the University of London and surgeon to St. Bartholomew's Hospital, in an address to the British Hospitals Association. He regarded the system as very insufficient. It provided medical assistance in the main for slight ailments. When the patients suffered from serious affections, it was nearly always necessary that they should be sent to a hospital. The deficiencies of the system appeared to be primarily due to the fact that it was assumed that most patients could be cured by drugs. This method was to be expected from many practitioners only when the large number of patients treated was considered. They had little time to investigate individual patients, and were unable, owing to lack of facilities, to use many of the modern scientific aids to diagnosis. Consequently, they were prone to attempt to deal with a patient by alleviation of symptoms and not by finding out the root cause of the disease.

PARIS

(From Our Regular Correspondent)

June 15, 1923.

The Auditory Function in Relation to Talent for Music

Dr. Pierre Chantriot recently discussed before the Faculté de médecine of Lyons the early manifestations of musical genius. Chantriot is a musician himself and is sprung from a family of musicians. He stated that it was his endeavor to penetrate the thick cloud which enveloped musical genius and its first manifestations. He studied, in this connection, auditory sensibility and sensory and motor function in musicians, after having performed several experiments on psychomotor reactions. He would like to have completed his study by researches on the cranium and ears of great masters; but he did not meet with the cooperation of musical conservatories that he had hoped to find.

It is self-evident that the ear constitutes the basis of musical genius. The ear is to the musician what the eye is to the painter. But, though the ear is indispensable for the education of the musician, for the composer it is only a secondary aid, for had not Beethoven lost his hearing completely when he composed the wonderful Ninth Symphony, the climax of his immortal work? It has not been proved that the ears of composers are particularly good or characterized by any peculiar formation, as some writers have asserted who claim to have noted in musicians a peculiar inclination of the tympanic membrane. It is doubtless true that, in the development of musical genius, the ear plays a paramount part, since it alone can transmit to the cerebral cortex the impressions that constitute the basis for the ideas of the future composer. It does not necessarily follow that the organ of hearing possesses special physical qualities—at least not such as are perceptible to the investigator; but one must admit that practice may cause the ear to acquire a certain special quality—a certain finesse—that is distinct from auditory acuity. Excellent musicians often possess only a mediocre auditory acuity, associated with an intense musical sensibility.

According to Chantriot, a child acquires a sensibility to rhythm very young. An appreciation for relative height of tones and the relation of tones to one another develops later, except in the case of precocious subjects such as Mozart and Saint-Saëns. From his study of psychomotor reactions in musicians and nonmusicians, Chantriot reached the unexpected conclusion that the auditory psychomotor reaction is longer in musicians, and that the more gifted the musician, the longer the reaction. Genealogical tables published by Chantriot show how great is the influence of education on the musical development of individuals. Rare have been the instances of great composers who have not trained their ear from birth amidst familial musical talent. John Sebastian Bach was less indebted to heredity for the unfolding of his genius than to the fact that he constantly heard musical masterpieces executed by his father, brothers, uncles and others.

The League of Nations Health Conference

The League of Nations Health Conference, meeting in Paris, decided, at the instance of the British delegate, Sir George Buchanan, to begin a special research on the development of cancer. A committee was appointed to examine into the reasons for the divergences that exist between the statistics on the mortality due to certain forms of cancer in England, Wales, Holland and Italy.

The conference was requested by the government of Albania to lend its aid in launching a systematic campaign against malaria, which is ravaging Albania and checking its economic development. Since the war, malaria has made great inroads in eastern Europe. It is showing a tendency to extend toward the north and the west, and the League of Nations Health Conference holds that there is urgent need of an international inquiry into the most efficacious and the most economical method of combating the disease. It therefore appointed a special committee composed of Dr. Lutrario of Rome, Prof. Léon Bernard of Paris, and Sir George Buchanan of London.

An American Nurses' Training School

The American Committee for the devastated regions of France which has at Soissons a nurses' center, under the direction of Miss Evelyn T. Walker, desires, before closing its work in France, to establish here some useful and permanent foundation. It was found that Paris has no training school for nurses that is provided with the modern equipment of American schools. The committee has been studying the project of creating such a school, and has collected the necessary funds for the realization of its plans. The new school will be established at Auteuil, in a large park. Adjoining this school, and closely connected with it, a model hospital of 150 beds will be erected at the same time, which will serve for demonstration purposes in the training of the pupils of the school and will include all the services necessary for the adequate instruction of nurses. The object that the founders of the school at Auteuil have in mind is to create a model institution which, of itself, would not, of course, meet the needs of nurse training for the whole country, but which, like the Florence Nightingale school at Bordeaux (The Journal, Aug. 6, 1921, p. 476) might serve as an example for other new institutions of the kind. For admission to this institution, applicants must have had not only a thorough secondary school education but at least the first years of college training, and, since the number of pupils will be limited, it will doubtless be necessary to establish a competitive entrance examination.

Public Assistance Funds in Paris

M. Jean Varenne, investigator for the Council of Surveillance of the Public Assistance Department of Paris, has just published a report replete with reliable and interesting statistics on the work and resources of this department, which, it appears, owns many buildings in Paris secured through gifts or legacies, or acquired in a more laborious way through the investment of the increments of its productive holdings. It holds also considerable wooded and agricultural land. It owns twenty-four farms in the departments of the Marne, Seine-et-Marne, and the Oise. The Assistance publique has also many securities acquired through donations or bequests. Before the war, the revenue from its stocks and bonds exceeded that from its real estate holdings.

As of Dec. 31, 1922, the total annual revenue from real estate was 4,542,512 francs, which is 1,545,230 francs more than the figures for 1913. On the same date, the annual income from stocks and bonds reached the sum of 3,300,865 francs, a decrease of 1,124,682 francs as compared with the showing for 1913. If we add to these two sources of revenue the amounts received from the public charity bureaus, the total annual income of the Assistance publique reaches the sum of 13,500,000 francs. Yet, large though this sum is, it does not supply the Assistance publique with sufficient funds for the administration of its numerous hospitals and its other different services. The municipal treasury therefore contributes an annual subvention toward the maintenance of equilibrium in its budget. Before the war this subvention amounted to about 30,000,000 francs, but it has now reached the sum of 100,000,000 francs. [It will be noted that when the present value of the franc is considered, there is no essential difference between the two last mentioned sums.—Ed.]

Unveiling of the Monument Erected to the Memory of Magnan

The monument erected to the memory of Dr. V. Magnan, at the Sainte-Anne Asylum, has just been dedicated. Magnan was for many years chief physician of this establishment. The monument represents Magnan at the bedside of a patient. His face wears a very kindly expression. The monument is from the chisel of Dr. Paul Richer. The speakers who delivered the addresses at the dedication ceremonies called to mind the many services of Magnan, emphasizing the progress that he brought about in psychiatry, and lauding the part that he took in the fight against alcoholism, in which movement he was especially active. It was also brought out that, in spite of the great significance of his works, the thing that awakened in him the greatest feeling of pride was that he succeeded in suppressing the use of the straight-jacket, solitary confinement, and other objectionable methods of bringing patients under subjection.

Tuberculosis and Dental Caries

At the last congress of the Association française pour l'avancement des sciences, held at Montpellier, Dr. Siffre, director of the Revue odontologique, sharply criticized the Ferrier theory, which is widely accepted in France, according to which the demineralization or decalcification of bone plays an important part in the symptomatology of tuberculosis. Siffre has analyzed twenty-six teeth of frankly tuberculous subjects, and was unable to discover that tuberculous persons develop dental caries more readily than the nontuberculous. To be sure, tuberculous persons may have many carious teeth, but careful inquiry will reveal that these subjects have suffered from diseases which have affected the structure of the teeth. On the other hand, many tuberculous persons have excellent teeth. Inversely, individuals of good healthy stock sometimes have poor teeth. During the discussion that followed Siffre's communication, Dr. Nux of Toulouse pointed out that it is not uncommon to find in the Basque provinces toothless subjects, or persons with many carious teeth, who are nevertheless strong and robust, with a remarkably good bony framework.

Against the assertions that in tuberculous or debilitated persons Ferrier's recalcifying treatment brings not only amelioration in general condition but also marked improvement in the quality of the teeth, Siffre urges that recalcifying treatment could not possibly, within a few weeks, change the structure of the tissues of the teeth. When we recall that the enamel and dentin of a tooth require years for development, it is impossible to conceive that, during the course of a general pathologic condition, the organism can thus rapidly restore the dentin.

The Carnegie Hero Fund

The Carnegie Foundation, established to reward acts of heroism performed by civilians, met recently under the chairmanship of M. Emile Loubet, former president of the republic. Among the acts of heroism that were rewarded, either by the bestowal of medals or by allocations of money to the heroes themselves or to their families, may be mentioned the achievements of the interns Perrochaud and Baudet, both of whom died from diseases acquired in the line of duty, and the roentgenologists Richard (of Havre), Contal and Jacquot, all of whom were gravely injured by roentgen rays.

BELGIUM

(From Our Regular Correspondent)

May 27, 1923.

History of Medicine

On the occasion of the Fifth International Congress of Historical Sciences, which met at Brussels during the month of April, under the presidency of Professor Pirenne, a section of history of medicine was established. All branches of the history of medicine (pathology, schools, therapeutics, veterinary medicine, etc.) were taken up by various speakers. As deserving of particular mention, I would cite the communications of Jeanselme and C. G. Custom and the research of Dr. and Mrs. Singer of London, who traced the history of the oath of Hippocrates. Galen, Celsus and Aretaeus are silent on this subject, but Scribonus, Anenzoar and physicians of the Arabic school, who were influenced by the Syrians, mention it in a form in which it was molded with the evolution of civilization. The history was then followed to the time when the Fathers of the church—for example, Gregory of Nazianzen and St. Jerome—expressed their approval of its highly moral tone.

M. Van Schevensteen of Antwerp presented a memoir worthy of interest owing to its local color, which deals with the itinerant oculist in the rural districts of Belgium in the seventeenth and eighteenth centuries, as set out by newspaper notices. In this story we have an epitome of the history of specialization in medicine, beginning with empiricism but leading to the enrichment of every specialty by its own independently developed knowledge and by the ideas it has borrowed from general medicine; this has eventuated in the modern conception which permits rational practice of a special branch of the healing art. A number of studies on the history of medicine have been published, which furnish evidence of the activity of the Cercle médical of Antwerp.

Syphilis and Tattooing

Before the Society of Tropical Medicine, Dr. Dubois presented recently the interesting case of a negress who was suffering from syphilis of three months' standing. She had been tattooed, and presented small keloids on the arms, the abdomen and the hips. All the tattoo marks were covered and fringed with papular syphilids. The syphilitic lesions showed absolute election for the sites of the tattoo marks, for there were no lesions on any other part of the body.

Reforms in Medical Education

The Academy of Medicine recently approved the following proposals:

"CANDIDATES" OF MEDICINE

All students who are "candidates" of medicine should be required to participate in the practical drill in physiologic chemistry, which at present is optional, and should be compelled to pass a practical test in the subject.

DOCTORS OF MEDICINE

1. The courses in general and special pathology should be combined into one course and called surgical pathology.

2. The courses in operative surgery and regional anatomy should be assigned to the professor of clinical surgery. These courses should be confined to: (*a*) demonstration of the principal operations performed in the clinic which it is impossible to demonstrate in detail on the living subject, and (*b*) a summary of the anatomic relations of the region concerned in each operation.

3. The course in pharmacodynamics should be supplemented by practical exercises. Some ideas of pharmacognosy and pharmacy should be given in connection with every drug.

4. The attention of students should be drawn to the practical importance of roentgenology and physiotherapy.

5. From the course in general pathology as it is understood at present, the following topics should be detached: (*a*) infectious diseases (infection and immunity), which should be attached to the course in medical bacteriology and medical parasitology and designated: general pathology of infectious diseases; (*b*) neoplasms (to be attached to the course in pathologic anatomy), and (*c*) propedeutics

The course in general pathology will thus become a course in pathologic physiology of an experimental character.

6. The course in bacteriology and medical parasitology should be made obligatory and should be accompanied by demonstrations and practical drills.

7. The practical propedeutic instruction of the medical and surgical polyclinics should be given when the student enters on his preparation for the doctorate.

8. An obligatory and very practical course in the elements of various specialties indispensable to every practitioner should be made part of the preparation for the doctorate. This course should be confined to a few hours.

9. The curriculum as it stands accords too great importance to the ophthalmologic clinic, which should be treated as are the other specialties.

OTHER SUGGESTIONS OF A GENERAL NATURE

Certain general suggestions were also made:

1. The instruction in the medical schools should be practical, based essentially on the objective method.

2. The practical exercises should be carried out with the cooperation of a number of assistants, monitors or senior students, and preparators, who are intimately associated with the students.

3. The medical faculties should establish a detailed program of the subjects to be treated by the various professors, in order to avoid overlapping and omissions in the courses.

The Sanitary Condition of Belgium

The average number of deaths occurring annually from pulmonary tuberculosis during the years 1906-1910 was 7,459. In 1913 the average fell to 7,191; in 1920 it was 6,570, and in 1920, 6,468. This decrease is satisfactory when we consider that the war, as a necessary result of its privations, probably caused an abnormal number of victims. The efforts put forth to combat this terrible scourge have therefore not been in vain.

The heart, under modern conditions of life, kills 10,787 persons annually, a figure approximately equal to that of 1906-1910. Between 1906 and 1910, bronchitis, bronchopneumonia and pneumonia carried off, respectively, 6,700, 5,521 and 6,580 persons annually; in 1921 these figures became, respectively, 4,191, 5,449 and 5,054. One figure is particularly disturbing: From 1906 to 1910, an average of 7,669 children under 2 years of age died annually from diarrhea and enteritis; in 1921 the number of victims of these terrible diseases was 6,313. This improvement is due in large measure to the useful work of the committees for the education of the mother. Very often, alas, the ignorance of the mother is the cause of the child's death.

Cancer and malignant tumors appear to be increasing; as compared with 4,565 deaths annually from these causes between 1906 and 1910, the record for 1921 was 5,905. Also meningitis is a frequent cause of death: from 1906 to 1910, 2,503 persons succumbed annually to its attacks; in 1921 there was a decrease, but still 2,104 victims. There has been a sharp decline in the mortality from measles. Whereas for the 1906-1910 period the average number of deaths was 2,563, in 1921 only 776 cases ended fatally. The same favorable report can be rendered for scarlet fever, the annual mortality from which dropped from 1,042 to 237. Whooping cough has also decreased—969 deaths as against 2,422, and diphtheria claimed only 727 victims in 1921, as compared with 1,153. Influenza, however, increased; in the period from 1906 to 1910 the average number of deaths was 1,753; in 1921 the total was 2,264.

In 1921 there were 3,346 deaths due to violence, classified thus: homicides, 183; suicides, 931, and accidents, 2,079; of doubtful cases, 153. Of the 931 suicides, 687 were men and 224 women. The age distribution was: under 16, 7; between 16 and 25, 138; from 25 to 40, 201; 40 to 50, 187; 50 to 60, 198; 60 to 70, 116, and above 70, 82. As to station in life, 348 were unmarried, 449 were married, 123 were widowed, and 7 were divorced. From the standpoint of vocation, 141 were agriculturists, 128 merchants, 314 industrialists, 95 members of the liberal professions and 253 unclassified.

The Hygienic Aspects of Nutrition in Relation to the Home

An exposition on hygiene as applied to nutrition and domestic science in general has just opened at Antwerp. The purpose of this exposition is to utilize drawings, pictures, installations, sample equipment and lectures to spread knowledge of hygienic modes of living, in adequate apartments, and of healthful, sane nutrition. In a word, it seeks to bring before the public the general means of improving the environment and material conditions of the individual. One of the chief attractions will be the practical demonstration, by means of models, of child welfare work, first aid to the injured, etc.

BERLIN

(From Our Regular Correspondent)

June 9, 1923.

Congress of Psychology

After a long struggle, psychology succeeded in divorcing itself from philosophy, but only to yield to the enticements of the natural sciences. Today we observe the reverse process taking place. Psychology is now wresting itself from the embraces of the natural sciences, and is turning more than ever toward philosophy and metaphysics. The recent congress of psychology, held at Leipzig, showed plainly the new trend of events. Human personality was the central idea of the experimental psychologists. A congress of psychology had never before been able to attract so large an attendance—900—a good record when the prevailing economic distress is considered. Or would it be more accurate to say that it was on account of the economic distress that the attendance was so good? It is doubtful whether a printed report of this congress will be issued, as it does not seem likely that the money needed will be available. It is well known that a large number of valuable articles have been written but cannot be printed for lack of funds. In view of these facts, therefore, the oral exchange of ideas becomes doubly important.

THE PSYCHIC SUBSTRATE

The proceedings began with a comprehensive paper by Krüger of Leipzig on the psychic substrate, which he defined on the basis of Dilthey's views. In contradistinction to the inanimate substances of Nature, which we conceive of as existing only in the aggregate, psychic representations give us in all respects the impression of individual completeness, as having a significance of their own apart from other similar representations. For example, melody has in itself the character of completeness; it is more than an aggregation or mere synthesis of tones. In addition to the complete ideas which become definite concepts of our psychic life, we find in the psyche a qualitatively determined substrate, whence our completed ideas develop. This psychic substrate is not formless, and signifies more than a mere something that has risen above the threshold of consciousness. This substrate consists of real psychic units which have a constant value and determine that, under certain circumstances, we shall act thus and thus and have such and such experiences, and, under other circumstances, we shall act differently and have different experiences. In this sense we may speak of differentiated structural material, but it is wrong to employ the term *"Strukturen"* (psychic structural material) to experiences of immediate origin. The nature of psychic structural material becomes known to us only through study of its evolutional manifestations. The departure of modern philosophers from the evolutional concept has had disastrous results. After all, there can be but one psychology.

A NEW DEFINITION OF PSYCHIC PHENOMENA

Professor Poppelreuter of Bonn endeavored, in the course of this address, to give a new definition for psychic phenomena. In spite of severe brain injuries, for example, affecting the visual centers, visual concepts may still be produced. Owing to the injury, the optic stimulation of consciousness is interrupted; the apparatus destined to effect the stimulation is impaired but not consciousness itself. The subject whose brain has been injured still wishes to form concepts. He knows, too, that he has what he wants in his note-book, as it were, but the note-book has been destroyed. Only the apparatus that furnishes stimulation to consciousness has been destroyed, not consciousness itself. Therefore, it is not the various sense functions (seeing, hearing, etc.) that constitute consciousness; that is, the genuine psychic substrate, but rather that something which sometimes functions through the optic apparatus. This something does not necessarily cease to function because the neuropsychic apparatus that carries the stimuli to the consciousness has been destroyed. These interesting elaborations, which, in their ultimate analysis, point to a psychic substrate existing apart from and independent of the body proper, were vigorously assailed by Professor Goldstein, who, quite contrary to Poppelreuter's theory, advanced and defended a thesis according to which brain injuries impair or even inhibit the fundamental functioning of consciousness.

Klemm of Leipzig demonstrated how a Häcksel recording machine can be used to test a person's capacities under changing conditions. Using the Häcksel machine as a model, Klemm built an experimental machine in which the shape, length, and resistance of the crank could be changed at will. Precise recording apparatus registered the variations in performance under varying working conditions. From the records thus secured, one could figure out with which type of machine the best and highest performance or output could be obtained under the most favorable physical and psychic working conditions. Klemm's researches open up the way to valuable experimentation, and, although the results will eventually have to be worked out with greater precision, he has blazed the path for research work of a similar kind on other machines. Especially noteworthy and valuable, from the standpoint of expert industrial engineering, were the precise findings that Klemm was able to reach with respect to the marked sensitiveness of workmen to slight changes in working conditions; for instance, to a change in the length of a cranking arm.

PROBLEMS OF ACCIDENT INSURANCE AND PSYCHOTECHNICS

An address by Professor Marbe of Würzburg dealt with the "Problems of Accident Insurance and Psychotechnics." From former accidents, deductions may be drawn with reference to future accidents. His investigations showed that, of 3,000 persons, those who, during the previous five years, have had no accidents, during the five years immediately following, suffer 0.52 accidents; those who had one accident during the previous five-year period, will have 0.91 accidents, and those who, during the first five-year period, had several accidents, will, during the following five years, have 1.34 accidents. It will thus be noted that those who had several accidents during the first five-year period had, during the second period, almost three times as many accidents as those who had no accidents during the first period. This same "law" held good when the 3,000 persons were divided into thirty groups of 100 each and a special research was made on each group. The deduction, therefore, seems justified that, in all probability, the unlucky persons who have had frequent accidents will not, in the future, be spared such experience, but will continue to suffer more accidents than those who hitherto have seldom had an accident. In viewing the total number of accidents, those accidents that are caused by mere chance, such as the falling of a brick from a roof, are less significant than accidents involving a personal element, such as those caused by jumping from moving cars or trains, or through carelessness in the management of a machine. Marbe suggests, therefore, that accident insurance premiums might consistently be differentiated according to the frequency with which applicants for insurance have suffered accidents in the past. In connection with vocational guidance tests it would also be well for the examiner to endeavor to ascertain whether and to what extent the examinee is subject to accidents, since for many trades and professions such a disposition is a great disadvantage.

TYPES OF PERSONALITY AND THE METHODS OF DETERMINATION

Selz of Bonn and Sommer of Giessen discussed the various types of personality and the methods of determination. Whereas Selz treated the problem from the theoretical and psychologic standpoint and gave due consideration to all the important researches on the subject that have appeared during recent years, Sommer revealed more the practical psychologist and psychiatrist. His discussion dealt more with the character side of the problem. Even in otherwise normal persons, Sommer brought out, there may be a pathologic streak. Unwarranted distrust and suspicion are sometimes due to a paranoic tendency. Persons who react quickly cause us occasionally to think of the manic type. Whereas persons with abulic and hypochondriac tendencies may make no progress, those belonging to the manic type often manage to get on. A trace of the manic type would, therefore, not be a bad thing for some persons. Depressive characteristics are found in persons who are lacking in self-esteem—who are always reproaching themselves for lack of courtesy and the like. Persons who are easily fatigued often have a tendency to neurasthenia and should constantly be on their guard lest they overdo either physically or mentally. Unfavorable psychogenic symptoms are often present in subjects essentially normal. If there are no such symptoms, it is sometimes rather an indication of low mentality. At this point the speaker took up the discussion of genius and persons endowed with high gifts and described the inventor type, which he had studied in 700 inventors. Sommer sought to explain biologically why these high gifts appear at certain times in certain persons, while at other times they are entirely lacking. With reference to Bismarck, Zeppelin, Goethe and others, he endeavored to explain the origin of their genius by showing that their descent was through special crossings of various supertypes.

Further addresses on subjects in general psychology and psychopathology followed, in all of which a departure from the atomistic and a turning toward the integral conception—from the descriptive presentation to the intellectual apprehension—of psychic phenomena was noticeable.

USE OF TOOLS BY ANIMALS

Ettlinger of Münster spoke on the use of tools by animals. When the so-called "weaver ants" weave loose leaves together for their nests and use larvae in lieu of a weaver's shuttle, or when the "sand wasp," in closing its nest on the ground, pounds with a stone as if with a hammer, we are inclined to regard these acts as the achievements of intelligence, whereas such acts are probably due entirely to the promptings of instinct. Also in the case of anthropoid apes it is a striking fact that their highest mental feats—for instance, the skilful use of tools (sticks) to secure certain coveted fruit—are performed under the influence of an emotion, whereas it is well known that the emotions are a hindrance to sound reasoning.

PSYCHOLOGIC RESEARCHES ON ANIMALS WITH REFERENCE TO SPACE

Schneider of Leipzig gave a report of psychologic researches on animals with reference to space, the experimental subjects being the restrained occupants of the Leipzig Zoological Gardens. It is remarkable to what extent animals are influenced by space conceptions. For instance, a falcon, acquired by purchase, when placed in a fine large, new cage, did not eat and would have carried his "starvation strike" to a fatal end, if some one had not hit on the idea of sending for his old cage. Not until he was restored to his wonted place could he be induced to partake of food. An encaged she-bear was frequently noted to make a certain definite number of pawing motions, always at the same stone. The polar bear had the habit of swinging the door of his cage. One day, when the outer cage-door was left open by mistake, he did not leave the cage but continued, as usual, his swinging of the gate, until the oversight was discovered. Animals often become ugly when their habits are interfered with. Owls always roost in certain definite places in their cage. Their order is governed strictly by rule—chance plays no part. The way many animals are influenced by space conceptions reminds one of the habits of some persons who always seek out a certain favorite table in a restaurant.

Katz of Rostock experimented with five chickens for a period of three months and reported on their intelligence and differences in character. "Jungfer," as he called the most intelligent, was of a somewhat hasty disposition, showed an almost hysterical activity at times, and, on occasion, could become quite chummy, but then, again, became suddenly irritable and ruled like a despot over her less assertive mates. "Walküre," on the other hand, possessed a proud reserve; was never overzealous in securing her share of the food; was always tolerant toward her companions, and through her proud bearing made every one believe that she possessed a high type of intelligence, which was, however, far from being the case, as was clearly brought to light at last by the intelligence tests instituted by Katz. To illustrate: Whereas Jungfer, after picking at kernels of wheat lodged under a pane of glass would wisely desist after the seventh trial, Walküre and her other companions kept picking away forty-seven times or more before they finally concluded that their endeavors were likely to remain fruitless. In another experiment, when a strip of wire netting was placed between the experimental subjects and a supply of food on the ground, which could not be quite reached through the apertures in the netting, Jungfer was the only fowl that promptly took the air and easily cleared the hurdle, thus securing for herself the tempting morsels, while Walküre and her other less gifted mates continued to pick at the netting in a most foolish fashion, all power of intelligence for the time being inhibited by the emotions awakened by the enticing display of food. This interesting series of experiments was brought to an end for the reason that Katz had no more money to buy feed for the birds, and the experimenter saw that there was nothing else to do but to use his experimental subjects to supply his own table.

THE PROBLEM OF HEREDITARY TRANSMISSION

On the fourth day of the congress, the problem of hereditary transmission was brought up. Taking the approved work of the biologists as a basis, Peters of Jena endeavored to show what psychology may learn from biology. It must be admitted that human personality is an extremely complex subject. Psychologists cannot get as simple and as sharply defined results as do the biologists in their researches on the operations of the mendelian law of heredity, but must rest content to struggle constantly with complications. That is shown by the researches on the hereditary transmission of talent for music, temperament, etc. This complexity is due partly to the fact that environment plays such an important rôle.

BUDAPEST

(From Our Regular Correspondent)

May 12, 1923.

The Causation of Phosphorus Necrosis

At the meeting of a provincial medical society, the causation of phosphorus necrosis was discussed. The majority of the members concurred with the English theory that the fumes of the lower oxid of phosphorus, given off from the moist phosphorus paste in the course of manufacturing matches, act locally. The other members regarded the maxillary necrosis as a local manifestation of a general disturbance. At the close of the discussion it was concluded that both views are partly correct and that caries of the teeth is a necessary factor in exciting the acute local necrosis, but that the phosphorus fumes exert no specific action on exposed bone or periosteum. There must be some systematic predisposing influence from a primary infection of the tissue as an adjunct to the local irritation. This explanation places the local irritation in a secondary position as an exciting cause. This contention is borne out by the comparative frequency of the occurrence of spontaneous fractures of the long bones in match-makers of many years' standing, and the brittle condition of the bone assuredly accounts in some degree for the low resistance of the jaw to local inflammatory injury. Further, the bone of a match-maker and healthy bone show a distinct difference in the relative proportions of phosphoric acid to lime; this is observed also in cases of "phossy jaw," as it is called in England. By the aid of the roentgen rays it can be clearly demonstrated that bone formed in young persons while working in factories in which phosphorus is used is much denser that it would otherwise be.

Enuresis in Childhood

Dr. Eugen Konrad of Szolnok read a paper in the Medical Union of the town on enuresis in children. He said that the difficulty often encountered in the treatment of this complaint renders the subject one of considerable interest. He designates the condition as a form of incontinence in which the urine is passed without the knowledge, or against the will, of the patient. It may be due to a demonstrable affection of the urinary tract, to a severe affection of the nervous system, or to general illness with interference with consciousness. What is generally understood by the term is a more independent lesion of which the functional disturbance is the only symptom. In infancy, enuresis is physiologic; later in life it is a frequent symptom of imbecility, one of the evidences of defective development. Sometimes it is due to careless training in habits, so that it is not necessarily pathologic even when it continues after the third year. The attention of the physician is demanded when it recurs in a child who had acquired nocturnal continence. Most children who suffer from enuresis are the offspring of neuropathic parents. Two causes participate in bringing about the condition: first, the hereditary taint, and, secondly, imperfect training. Not infrequently it can be ascertained that one parent suffered from this condition. In many children who have suffered from or been cured of enuresis, symptoms of hysteria develop. A proof of the hysterical element is the fact that the affection sometimes breaks out in epidemic form in schools and institutions. The disturbance ceases as soon as the affected children are isolated. Healthy children do not fall victims to this imitation of disease; those who do are neuropathic or hysterical. The remedies that have been found useful in hysteria prove serviceable in enuresis and vice versa.

Epidemic Jaundice

Particular interest attaches to an outbreak of an epidemic of jaundice in a large Hungarian village, and in the adjacent estates. A somewhat similar outbreak, described as epidemic catarrhal jaundice, is recorded as having occurred in Hungary about thirty years ago. On that occasion, however, the febrile phenomena were marked, whereas in the present epidemic, fever has not been prominent. Its infective nature is shown by the transmission to neighboring estates (farms employing many laborers), by persons suffering with the disease; and it is noteworthy that men were more frequently infected than women in the proportion of two to one. The outbreak began during March; the first indications of infection were extreme drowsiness and lassitude, sometimes amounting to prostration, and aches and pains all over the body that suggested influenza until the supervention of jaundice cleared up the diagnosis. The total number of cases was about 140; only two proved fatal. The average duration of the illness was about a month, this being about the same as in noninfective catarrhal jaundice. It is authoritatively stated that it was not due to the defect in the water supply, though the responsible factor is as yet unknown.

A Case of Actinomycosis of the Gum

Dr. Adolf Erdös of Nagyvarad relates a case of actinomycosis in a girl from a prick with a straw between the first and second molar teeth. The gum bled for a few minutes and the wound healed rapidly, but five weeks later a hard, painless swelling, about the size of a walnut, had formed over the site of the wound. After nine months it was extirpated and found to be composed of fibrous tissue, within the meshes of which was granulation tissue with a few drops of pus containing the ray fungus.

Marriages

Griswold Delacroix Nammack, Far Rockaway, N. Y., to Miss Margaret Irene Paisley of New York, June 25.

Orval Isaac Nesbit, Valhalla, N. Y., to Miss Zena M. Pettit of Fort Stanton, N. M., May 14.

Baxter Clyde Culler, Kernersville, N. C., to Miss Josephine Goodwin of St. Louis, June 12.

Joseph S. Stovin, New Haven, Conn., to Dr. Mabel Burnett Cohn of Albany, N. Y., June 12.

Arthur J. Nicolay to Miss Jennette Tiefenbruin, both of St. Louis, at Waterloo, Ill., June 20.

Alexander P. Robertson, Alton, Ill., to Miss Elizabeth Crump of East St. Louis, June 6.

Harry Joseph Dwyer, Chicago, to Miss Madeleine Marie Lyon of Oak Park, Ill., June 20.

Albert C. Furstenberg, Ann Arbor, Mich., to Miss Elizabeth Maloy of Jackson, June 18.

Samuel Meredith Strong to Miss Helen Lyman, both of New York, June 26.

John B. D'Albora to Miss Florence O'Toole, both of Brooklyn, June 14.

Donald H. Morgan to Miss Helen Banta, both of Oberlin, Kan., June 17.

Deaths

Hermann Michael Biggs ⊕ state commissioner of health of New York, died of pneumonia June 28 at his home in Manhattan, aged 63. Dr. Biggs was born in Trumansburg, N. Y., Sept. 29, 1859. He graduated from Bellevue Hospital Medical College, 1883, was intern at Bellevue, 1883-1884, assistant pathologist and pathologist, 1886-1899, pathologist at the City Hospital, 1886-1892; lecturer and professor of pathologic anatomy Bellevue Hospital Medical College, 1885-1894; professor of therapeutics and clinical medicine, 1897-1907, associate professor of medicine, 1907-1914, and professor of medicine since 1914. He was pathologist and director of bacteriologic laboratories of the New York Department of Health, 1892-1901, and general medical officer, 1901-1914. Dr. Briggs was appointed state commissioner of health in 1914. He had been a director of the Rockefeller Institute of Medical Research since its organization in 1901, and consulting physician for the Hospital for Contagious Diseases since 1889. He was a fellow of the New York Academy of Medicine, the New York Pathological Society, an honorary fellow of the Sanitary Institute of Great Britain, a member of the British Medical Association, and of the International Tuberculosis Union. During the World War, Dr. Biggs was a member of the War Relief Commission of the Rockefeller Foundation, the general medical board of the Council of National Defense, the Advisory Committee of the United States Food Administration, and the American Red Cross. He was medical director of the General League of Red Cross Societies, Geneva, 1920. Dr. Biggs was one of the first to use diphtheria antitoxin in this country and to direct its production. He was knighted by the king of Spain for distinguished service in preventive medicine.

James George Kiernan, Chicago; died of diabetes July 1, aged 71. Born in New York, June 18, 1852. Dr. Kiernan graduated from the New York University Medical College, New York, 1874. He was assistant physician at Ward's Island Hospital, now the New York State Insane Hospital, 1874-1878, and as an officer in the New York Neurological Society was active in reforms in psychiatry and neurology brought about by that society. He was assistant professor of nervous and mental diseases, Chicago Medical College, 1881-1882, and superintendent of the Cook County Insane Hospital, Chicago, 1885-1889. Dr. Kiernan was professor of forensic psychiatry, Kent College of Law, Chicago, 1890-1902. He was expert for the defense in the Guiteau trial, 1881, the Mooney trial, 1884, and in many other noted cases.

Henry Jay Love ⊕ East Moline, Ill.; University of Michigan Medical School, Ann Arbor, 1907; city physician; at one time secretary of the Rock Island County Medical Society; formerly on the staffs of the Atchison, Topeka and Santa Fe Railway hospitals, Fort Madison, Iowa, and Topeka, Kan.; served in the M. C., U. S. Army, during the World War, with the rank of captain; aged 42; was drowned, June 18.

Horace Mann Starkey ⊕ Rockford, Ill.; Chicago Medical College, 1878; member of the American Academy of Ophthalmology and the Chicago Ophthalmological Society; formerly professor of clinical ophthalmology and otology, Northwestern University Medical School, Chicago; at one time on the staff of the Cook County Hospital, Chicago; aged 72; died, June 22.

Eben Foskett ⊕ New York; New York University Medical College, 1895; member of the New York Obstetrical Society; formerly clinical professor of gynecology, University and Bellevue Hospital Medical College; at one time on the staff of the Booth Memorial Hospital; aged 59; died, June 14, of chronic nephritis and arteriosclerosis.

Jackson Temple ⊕ Santa Rosa, Calif.; University of California Medical School, San Francisco, 1906; also a pharmacist; formerly city health officer; served in the M. C., U. S. Army, in France, during the World War, with the rank of captain; aged 44; died, June 22, at the Mary C. Jesse Hospital, following an appendectomy.

Louis Jay Perkins, Lewiston, Idaho; Keokuk (Iowa) Medical College, 1892; member of the Idaho State Medical Association; served in the Spanish-American and World wars; formerly mayor of Lewiston; at one time member of the school board; aged 57; died, June 16, of cerebral hemorrhage.

John William McGuire, Chicago; Baltimore (Md.) Medical College, 1894; member of the Illinois State Medical Society; served in the M. C., U. S. Army, during the World War; aged 54; died, June 21, at the Englewood Hospital, of chronic myocarditis and chronic interstitial nephritis.

Julio Fernando Arteaga, Havana, Cuba; University and Bellevue Hospital Medical College, New York, 1901; bacteriologist and medical inspector of the public health service of Cuba and editor of the *Revista de Medicina y Cirugia* of Havana; aged 47; died, April 26.

Oscar M. Marquart ⊕ Springfield, Ohio; Miami Medical College, Cincinnati, 1884; aged 65; died suddenly, June 22, at Seattle, of heart disease, while en route to San Francisco to attend the annual session of the American Medical Association.

R. M. Jones, Paducah, Ky.; Kentucky School of Medicine, Louisville, 1889; member of the Kentucky State Medical Association; past president of the Marshall County Medical Society; aged 66; died, June 12, of cerebral hemorrhage.

B. A. Mattison, McCormick, S. C.; Atlanta (Ga.) Medical College, 1883; member of the South Carolina Medical Association; aged 65; died, June 3, at Augusta, Ga., of hemorrhage, following operation for pancreatic cyst.

Frank Noble Martin, Benton Harbor, Mich.; University of Michigan Medical School, Ann Arbor, 1906; served in the M. C., U. S. Army, during the World War; aged 39; died, June 19, at El Paso, Texas, of tuberculosis.

Isaac H. Robbins, Richwood, W. Va.; American Eclectic Medical College, Cincinnati, 1892; member of the West Virginia State Medical Association; mayor of Richwood; aged 55; died, June 14, of heart disease.

William Elbert Killinger ⊕ Victoria, Va.; Tulane University of Louisiana School of Medicine, New Orleans, 1921; formerly on the staff of the Kendig Brothers Hospital; aged 29; was drowned, June 17.

Hampton S. Henderson ⊕ Grand Junction, Colo.; Atlanta (Ga.) College of Physicians and Surgeons, 1899; aged 46; died, June 19, at St. Mary's Hospital, following an operation for ulcer of the stomach.

Francis Felix Neff ⊕ Concord, Calif.; Jefferson Medical College of Philadelphia, 1887; aged 61; was instantly killed, June 18, when the automobile in which he was driving was struck by a train.

Daniel David Lustig ⊕ San Francisco; University of California Medical School, San Francisco, 1885; member of American Psychiatric Association; aged 61; died, June 27, of pericarditis.

Henry Cheever Sibree, Sturgeon Bay, Wis.; Chicago (Ill.) Medical College, 1878; formerly city physician; aged 70; died, June 20, at a hospital in Kalamazoo, Mich., of cerebral hemorrhage.

Thomas J. Wedding, Whitesville, Ky.; University of Louisville (Ky.) Medical Department, 1884; member of the Kentucky State Medical Association; aged 65; died in June, of diabetes.

Henry Tracy Ivy, Hillsboro, Texas; Medical College of the State of South Carolina, Charleston, 1880; member of the State Medical Association of Texas; aged 65; died, June 11.

Frank D. Sanford, Gunnison, Colo.; Missouri Medical College, St. Louis, 1872; aged 72; formerly mayor of Gunnison; at one time county physician; died suddenly, in his office, June 22.

William Lorne MacDougall, Philadelphia; Medico-Chirurgical College of Philadelphia, 1910; member of the Medical Society of the State of Pennsylvania; aged 66; died, June 23.

Edward Ambrose Sweeney, Wilkes Barre, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1892; aged 57; died, June 21, at Philadelphia, of myocarditis and nephritis.

Louis O. Gauthier, Quebec, Que., Canada; Laval University Faculty of Medicine, Quebec, 1896; aged 50; died, May 20, at the St. Francois d'Assise Hospital, following a long illness.

Harry P. Haag, Liberty Center, Ohio; Toledo (Ohio) Medical College, 1889; member of the Ohio State Medical Association; aged 59; died, June 17, following a long illness.

Edward Burton Ward, Selma, Ala.; New York University Medical College, New York, 1882; member of the Medical Association of the State of Alabama; aged 63; died, June 10.

Lester Albert Dickman, Hills, Minn.; University of Minnesota Medical School, Minneapolis, 1901; aged 46; died, June 6, of an overdose of poison, presumably self-administered.

Herbert Roderick Bird ⊕ Madison, Wis.; Rush Medical College, Chicago, 1877; Civil War veteran; aged 74; died, June 25, at a sanatorium in Waukesha, of heart disease.

Charles Sewell Thall, Brooklyn; Long Island College Hospital, Brooklyn, 1894; aged 50; died, June 19, at the Cumberland Street Hospital, of heart disease and anemia.

Joseph Edgar Mitchell, Kosse, Texas; Tulane University of Louisiana School of Medicine, New Orleans, 1921; aged 30; died, June 17, of gangrenous appendicitis.

William Horace Sibley, Jacksonville, Fla.; Bowdoin Medical School, Portland, 1869; Hahnemann Medical College and Hospital, Chicago, 1878; aged 78; died recently.

Vladimir Kowal, Philadelphia; Jefferson Medical College of Philadelphia, 1920; on the staff of the Stetson Hospital; aged 31; died, June 21, of nephrolithiasis.

Charles Leopold Wertheimer ⊕ Cincinnati; Medical College of Ohio, Cincinnati, 1905; aged 45; on the staff of the Seton Hospital, where he died, June 14.

James Albert Gordon Tonge ⊕ Wakenda, Mo.; Kansas City (Mo.) Medical College, 1899; aged 61; died, June 15, at Carrollton, of carcinoma of the bladder.

Joel T. Tinder, Parsons, Kan.; Central College of Physicians and Surgeons, Indianapolis, 1883; aged 78; died, June 23, at the Mercy Hospital, of paralysis.

Albert Henry Dodge, San Francisco; University of Pennsylvania School of Medicine, Philadelphia, 1877; aged 73; died, June 11, of chronic myocarditis.

Samuel Mitchell, Mapleton, N. D. (licensed, North Dakota, 1886); formerly county coroner; aged 64; died, June 15, at a local hospital, of chronic nephritis.

B. Frank Humbert, Mount Vernon, Ohio; University of Wooster Medical Department, Cleveland, 1879; aged 70; died, June 11, following a long illness.

George S. Waterhouse ⊕ Mapleton, Iowa; State University of Iowa College of Medicine, Iowa City, 1895; aged 53; died, June 21, of cerebral hemorrhage.

Robert Edmund Lee La Bauve, Edna, Tex.; Vanderbilt University Medical Department, Nashville, Tenn., 1893; aged 55; was shot and killed, June 16.

Albert L. Baker, Catasauqua, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1893; aged 70; died, June 4, of heart disease.

Harry Roberts Purdy ⊕ New York; Bellevue Hospital Medical College, New York, 1890; aged 64; died, June 18, following a long illness.

T. N. Burwash, Champaign, Ill.; Missouri Medical College, St. Louis, 1878; aged 78; was found dead, June 29, of accidental asphyxiation.

Anthony P. Taylor, Columbus, Ohio; Eclectic Medical Institute, Cincinnati, 1871; aged 73; died, June 9, following a long illness.

Arastus Vernon Elliott, Beresford, S. D.; Rush Medical College, Chicago, 1889; aged 58; died suddenly, June 8, of heart disease.

William A. Anderson, Atlanta, Ga.; Louisville (Ky.) Medical College, 1875; aged 73; died, June 9, of cerebral hemorrhage.

Hamlin Virgil Monnette, Santa Cruz, Calif.; Marion Sims College of Medicine, St. Louis, 1892; aged 79; died, June 6, of senility.

Alfred Edward Goldsmith, Tacoma, Wash.; Pulte Medical College, Cincinnati, 1892; aged 63; died, June 22, of heart disease.

Henry Owen, Newport, Ark.; University of Nashville (Tenn.) Medical Department, 1877; aged 67; died, June 20.

George E. Newell, Burlington, Wis.; Rush Medical College, Chicago, 1871; aged 73; died, June 22, of cerebral hemorrhage.

James V. Conover ⊕ Elmer, N. J.; Eclectic Medical Institute, Cincinnati, 1880; also a druggist; aged 68; died, June 19.

Albert Palmer Peck, Berkeley, Calif.; Rush Medical College, Chicago, 1871; aged 75; died, June 14.

George K. Hurt, Indianapolis; Medical College of Indiana, Indianapolis, 1881; aged 76; died, May 8.

Forrest F. Bell, Windsor, Ont., Canada (licensed, Ontario, 1870); aged 75; died, June 10.

Correspondence

BLOOD PRESSURE OBSERVATIONS

To the Editor:—Some of the observations which are published under the title "Some Original Blood Pressure Observations," by Dr. Virgil C. Kinney (The Journal, June 16, p. 1767), while interesting, are certainly not new. What Dr. Kinney calls "a complete reversal of the normal blood pressure reaction" was reported in 1905 by me in the *Medical News,* September 16, under the title "A Test of Condition"; further, under the title "Blood Ptosis—A Test of Vasomotor Efficiency" in the *New York Medical Journal,* Nov. 8, 1913; and again in the *American Journal of the Medical Sciences* (**160**:721 [Nov.] 1920), under the title "The Gravity Resisting Ability of the Circulation: Its Measurement and Significance (Blood Ptosis)."

Sewall, in an article on "The Clinical Significance of the Postural Changes in Blood Pressure" (*Am. J. M. Sc.* **158:** 573 [Dec.] 1919) follows my work and also uses the term "blood ptosis." E. C. Schneider has still more recently taken note of the effect of posture on blood pressure (The Journal, May 29, 1920, p. 1507). V. T. Scott followed this up (The Journal, March 12, 1921, p. 705).

Dr. Kinney entirely omitted any reference to literature on the subject. If he had read these articles he would not have considered the fall of blood pressure on standing so strange. Out of 739 of my cases taken as they run from a series of many thousands, in 85 per cent. the pressure falls, and in only 15 per cent. does it rise. These are sick persons showing the symptom blood ptosis. In ordinary office and clinic practice the percentage of blood ptosis is higher. In a hundred selected athletes it does not occur at all except as an evidence of staleness or approaching disease.

The publication of Dr. Kinney's article will be very helpful, because it will stimulate others to assume the same attitude of interested, calculating observation of circulatory phenomena.

C. Ward Crampton, M.D., New York.

KEEPING THE CHILD'S NOSE CLEAN BY ASPIRATION

To the Editor:—Dr. W. B. Mason, Washington, D. C., in The Journal, June 2, 1923, under the title of "A New Ear and Nose Syringe," gives an excellent note regarding the use of a plungerless syringe for the irrigation of the ear and the nose. There is one other very important use of this type of syringe that I feel is worthy of attention:

In children before the age of their ability and knowledge of blowing the nose properly, there are many conditions of uncleanliness and pathologic conditions poorly cared for by faulty drainage of the nose. I have used the same type of syringe for aspiration with great ease and comfort to the patient, and most satisfactory results by completely cleaning the nose in coryza. In the presence of pathologic conditions, the aspiration with this instrument will oftentimes avoid middle ear involvement. It may be used both for irrigation and for aspiration because the negative pressure secured by compressing the bulb and fitting the blunt end of the instrument securely into the nose is sufficient to draw secretions all the way from the pharynx and postsinus areas.

The syringe which I have used has a glass barrel 5 inches in length, a diameter of three-fourths inch and a curved blunt tip one-fourth inch in diameter. This syringe has all the advantages mentioned by Dr. Mason, namely, it is inexpensive, simple in construction, easy to sterilize, may be manipulated with one hand, and, above all, is most agreeable to the child at an age when procedures of this sort are distasteful to them. It has been a most satisfactory agent in my hands, and I feel that pediatricians and others caring for children will find it a very helpful thing in keeping the child's nose clean. W. D. Rowland, M.D., Boston.

"THE CHRONIC ABDOMEN"

To the Editor:—The editorial comment on "The Chronic Abdomen," June 16, in which you take up and expand on the word of Dr. Robert Hutchison, is one which points out many lessons.

Nature abhors a vacuum. And in the human mind there is a general protest against being ignored, against obscurity. The most obscure and unimportant individual at once comes to the center of the stage by invalidism. His invalidism attracts far more attention if it is surgical in character. In other words, the more dramatic the illness, the greater the attention.

Then there is the deepset feeling in the minds of some people that there must be a definite and concrete cause for disease. This need is supplied by the osteopath and chiropractor and like cults. The patient is ill, and the cultist finds the exact palpable cause and he removes it. And, alas, too many orthodox surgeons, among whom Dr. Hutchison may not be numerated, do the same thing. What could be more satisfactory? These patients really, deep down, do not desire recovery; for, if recovery occurred, they would again lapse into obscurity and no longer be seeing famous surgeons and all the other various specialists. They would no longer experience the supreme joy of being a "difficult case," baffling the most learned and skilful.

There is in human nature a feeling very widespread and not confined to the laity by any means, which is that the new is better than the old. By these people the "new" is accepted without discrimination, and that which is left behind is at once called antiquated. These people believe they are very progressive.

Your otherwise admirable editorial comment on Dr. Hutchison's article is marred or rather stultified by the last sentence of your closing paragraph, in which you say:

> The patients described by Dr. Hutchison are a prolific source of income and nourishment to the cultists, who derive their chief support from chronic invalidism. There is a vast body of patients who are not seriously ill, who are hopeful and who seem for a time to improve under any new treatment. They pass from physician to physician, from cultist to cultist, from chiropractor to osteopath, to Abramsite, to Eddyite; and they return ever, in the words of Omar Khayyam, by the same door wherein they went. The service which scientific medicine may render them is education in health and knowledge of disease, that they may not be so readily the subjects of exploitation by unprincipled cultists.

It is impossible for scientific medicine, or any other agency, to educate them in health and knowledge of disease for the simple reason that they do not wish to be so educated. How can those be educated who are unwilling to learn? Poor Richard remarks, "None are so ignorant as those who will not learn;" and, again, he says, "It is not so much shame to be ignorant as being unwilling to learn." It is depressing to contemplate the large number of subnormal and abnormal people in the world. There are faddists of all sorts; there are credulous people of all sorts. There are doubters; there are people who cannot wait and people who cannot really weigh evidence; and an enormous number of people who cannot comprehend anything that is abstract. There are emotional and supersensitive people, and it is these people who with zeal oppose vivisection and vaccination. There is also a considerable group of people who are constitutionally anti-orthodox in medicine, in religion and politics alike. What is really needed, but what I see would be utterly impossible, is police authority in the hands of such a wise surgeon as Dr. Robert Hutchison, so that he could actually direct with authority the treatment of the sort of patient he has described —a kind I know well.

The people described by Dr. Hutchison always have been in the world and always will be in the world. There always have been faddists and those who are credulous to accept the new and fantastic. We shall always have with us the ignorant and superstitious and those who are inacapable of reasoning in the abstract and of exercising self-control. We shall always have with us the supersensitive and overemotional, and those afraid or unable to meet realites of life and who hide their faces in the face of danger and reality and will not, cannot, see the truth as it exists.

Regular scientific medicine has a heavy load to carry. She is always under attack—she always will be under attack, from without and sometimes, unfortunately, from within; and we never shall arrive at a time when right ideas of hygiene, preventive medicine and curative medicine shall receive universal acceptance.

But in spite of all this, scientific medicine has made splendid advances. One of the most encouraging things of today is that scientific medicine has won the support of so many interested, intelligent laymen. For the future I believe it is most important that this sympathetic education of the intelligent laity should go on. The battle must never cease, even though we may be sure victory will never be fully won. *Hygeia,* the latest organized effort to educate the laity, deserves and should receive a widespread support of the medical profession. I trust that your editorial comments on Dr. Hutchison's admirable article will be reprinted in *Hygeia.* Theodore Diller, M.D. Pittsburgh.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

STAMMERING

To the Editor:—1 To what group of diseases does stammering belong? 2. What is its cause? 3. What means are used to cure it? 4. Why does it disappear spontaneously many times on the patient's becoming of age? Médico, Mexico.

Answer.—1. Stammering belongs to the group of nervous disorders, more specifically to the psychoneuroses.

2. The causes may vary greatly, but are usually in the nature of an emotional shock, fright or a more prolonged mental conflict; in some cases stammering is due to mimicry of other stammerers with whom the child may happen to come in contact.

3. The means used in treatment are: general hygienic measures; avoidance of conditions that cause worry, mental stress, undue responsibility and excitement; and systematic exercises in speaking, including singing and reading aloud. In addition to the exercises, help may possibly be secured by psychanalysis, though this is usually without effect.

4. Since the condition is a neurosis and is not due to an organic disease, there is no reason why it should not disappear spontaneously at any time, though this is somewhat unusual. The observation that it has disappeared when the patient came of age is probably a coincidence; it may possibly be due to a suggestion to the patient that he is likely to get well at that particular time.

Advancing Medicine.—Medicine will make its greatest advances when the clinical and every-day life observer meets over the patient with the research practitioner and expert.—G. R. Hall, *J. Trop. Med. & Hyg.* **26**:123 (April 16) 1923.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Philippine Islands: Manila, August 14. Sec., Mr. José V. Gloria, 400 Asuncion, Manila.

South Dakota: Deadwood, July 17. Dir., Dr. H. R. Kenaston, Bonsteel.

THE DEPARTMENT OF OTOLOGY IN THE UNIVERSITY SCHOOL OF MEDICINE *

GEORGE E. SHAMBAUGH, M.D.

Chicago

The department of otology in a medical school implies a department in which instruction in this specialty is provided for undergraduate medical students. In the old type medical school, this instruction for undergraduate medical students constituted the primary and only recognized function of the special department. The taking over of medical instruction by the university means something more than the transference of undergraduate instruction. The department of otology in a university school of medicine should imply a department with the same ideals and the same aspiration essential in any university department. It should imply a place in which research is recognized as one of its most important functions, and where graduate students may come for special training.

In the medical school where everything was focused on the instruction for the undergraduate student of medicine, the expansion of the special departments often led to an overemphasis in the curriculum of the teaching in these specialties. The energetic, ambitious instructor was often inclined to urge more and more work for the students in his own department. The rivalry for requiring credits was more or less general between the several departments, for the reason that their importance and their success was gaged largely by the number of credits required of the undergraduate student. In some institutions, the more aggressive heads of certain departments succeeded, as might be expected, in requiring more work than the relative importance of their subjects warranted. This tendency has brought out the criticism that undergraduate medical instruction was working toward the training of specialists, rather than the turning out of adequately prepared general practitioners. The reaction against this tendency has been inevitable. The suggestion has been seriously made of eliminating the specialist from instructing medical students, and of relegating what instruction in the special fields the undergraduate should receive to the general practitioner. This is but the natural, though rather extreme, reaction against what many have recognized as a harmful tendency, namely, the overemphasis of the specialties in the undergraduate curriculum. As a matter of fact, each particular field of medicine is now a recognized specialty to which one may restrict his work if he so desires. It requires no particular argument to show that those facts which the undergraduate should be taught, for example, regarding the heart, can best be presented by the internist who is concentrating his attention on cardiac disturbances. In exactly the same way, those facts in otology which it is essential for the student to know can best be presented by the experienced otologist, rather than by one engaged in general practice. The whole problem here is clearly one of more careful supervision of the curriculum so as to prevent an overemphasis of any particular subject.

With the broader conception necessarily implied in a department of otology in a university school of medicine, that is, a place where research is fostered and where graduate students may come for training, as well as where the instruction in otology proper for undergraduate medical students is provided, there is every reason for permitting and encouraging the expansion of the department, making of it a center for the development of research and for graduate training. A department of otology preeminent in research and as a place for graduate work would add prestige to the entire university, and its growth and success would be welcomed by every other department.

In this triple rôle, instruction for undergraduate medical students would play only a minor part. The equipment necessary for carrying on research work, the organization whereby graduate students may get proper training for taking up special practice—these are the bigger problems, and without proper attention to these needs, the department should not, strictly speaking, be called a bona fide department of a university school of medicine.

ESSENTIALS FOR A UNIVERSITY DEPARTMENT OF OTOLOGY

Let us consider now what facilities are essential in this broader conception of a university department of otology. We may overlook the matter of undergraduate instruction for medical students, as this is already adequately provided for. The chief problem here is for supervision in order to prevent too much work being required of students in any special department. Three essentials stand out as necessary for a properly organized university department of otology. The first is an adequate outpatient department, one properly equipped and properly manned. The makeshift equipment so often provided for this work is not proper equipment. Too often the physician is expected to work in the outpatient department with an equipment which he would not think of tolerating in his private practice. This is entirely wrong. As an educational center, it is important that everything about the place should be an object lesson to both patient and graduate student of how the work can best be done. No expense should be spared to make this equipment as nearly as possible an ideal, sanitary equipment.

I wish to emphasize especially the proper manning of the outpatient department, because in this is involved one of the primary essentials for providing adequate training for special practice. That the supervision of this work should be under competent, experienced men goes without saying. There is, however, a great deal of routine involved in the proper care of outpatient work that becomes in time more and more irksome, as it is unprofitable for the regular staff to care for. In order that this routine work may be properly done, it is necessary to add a staff of clinical assistants, just as the routine work in the hospital is taken care of by a staff of interns. The number of these clinical assistants which an outpatient department can properly utilize is determined exactly as is the number of interns in a hospital; that is, by the number essential to provide adequate care for the patients. These clinical assistants constitute the graduate students who find this work, in a properly equipped and properly organized outpatient department, the ideal clinical training preparatory to taking up special practice. This addition of a corps of clinical assistants renders the work of the regular staff much more interesting and profitable, since they are in this way relieved of much of the tiresome routine, and have more time to devote to the study of the more interesting, unusual cases. The work of the clinical assistants needs supervision and direction. There is, however, no particular advantage in providing didactic instruction, for these graduate students learn by their own experience how to work out their clinical problems. It is important that they be impressed with the necessity of acquiring ability for making examinations and for recognizing the proper indications for surgical treatment before they are taught the technic of operations or are permitted to work in the operating rooms.

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* President's address before the American Otological Society, Atlantic City, May 14, 1923.

A minimum of one year devoted to this work is considered essential before one should be permitted to take up independent work. No difficulty will be experienced in retaining the services of the assistant for the full period, when care is taken to reserve the training in operative work, as it should be, for the final quarter. A great deal of harm has resulted from the practice of teaching operative technic to men who have had no proper training in making examinations, and have acquired no appreciation of the proper indications for operative work. The fact should not be lost sight of that it is a much more important task and a much more difficult matter to acquire the training for making examinations and for recognizing the indications for operations than it is for acquiring the technic of operations. An important part of the work of these clinical assistants should be the training for making proper records of their findings. History taking should be as conspicuous a part of their regular work as it is for the hospital intern.

The rehabilitation of the work in the outpatient department is one of the great needs in most of our medical schools. Here is found the ideal material for the study of most of our clinical problems. To make this available, it is necessary, first of all, to provide proper equipment, and, secondly, a properly organized staff with clinical assistants composed of graduate students who fill the same rôle that interns do in hospital work. In such an outpatient department, it is possible to provide the best care for the patient, and with supervision and direction to secure the ideal clinical training for graduate students.

The second essential for a university department of otology is the control of adequate hospital facilities. Without this, it is impossible to develop properly the outpatient work. The department must have its definite apportionment of hospital facilities, for without this, there exists a constant struggle with other stronger departments, usually with general surgery, for hospital beds. It may be a surprise to some who are connected with medical schools where this principle of apportionment is recognized to learn that in other of our institutions the special departments, such as otology, have no recognized hospital facilities, and that, as a result, what they do succeed from time to time in getting is acquired only after the expenditure of effort which all but kills the work of the outpatient department. In one institution with which I am familiar, there existed for years in the outpatient clinic a strongly developed department of urology in charge of men of national reputation; but when a patient required hospital care, this patient was placed in the hospital under a general surgeon who undertook to do the operation for which the urologist was much more competent.

The third essential for a university department of otology is a laboratory. By this I mean an institution in which sustained research can be fostered. This means something more than a corner in some general laboratory, or the setting aside of a room and labeling it a laboratory. It means, in addition to adequate housing, all the equipment that may be required for carrying out research work. It means, in addition, a full-time technician, for without this it is impossible to carry out the detail work which alone can make substantial results successful. In addition, it will be necessary to have an arrangement whereby the services of an artist are available as this may be needed.

There is another essential in the equipment of every university department where research is successfully fostered. This is the establishment of fellowships. Otology must be provided with endowed fellowships to assist the research worker, for without this assistance, the man inclined to take up this work will too often be forced to devote his entire energies to the problem of securing a livelihood during just the period when he should be best able to undertake investigative work.

COMMENT

This may seem like a formidable program. If it seems formidable, it is because we are accustomed to look on the department of otology merely as an institution for teaching to undergraduate students of medicine a few elementary facts in this specialty, and have overlooked entirely the requirements essential to make of it a real department in a university school of medicine. This is, moreover, exactly the sort of a program that has been followed in other countries where research work has been successfully pursued and where graduate students have been receiving adequate training for special practice. The real difficulty in acquiring for our universities such departments as outlined above is not merely a question of finance. It is primarily a matter of education. The faculties of our medical schools, our university authorities and our public must be educated to appreciate the need for such institutions before we can hope to be given the opportunity of placing otology in this country on a par with its status in other countries.

122 South Michigan Avenue.

Minnesota January Examination

Dr. Thomas S. McDavitt, secretary, Minnesota State Board of Medical Examiners, reports the oral, written, and practical examination held at Minneapolis, Jan. 2-4, 1923. The examination covered 15 subjects and included 80 questions. An average of 75 per cent. was required to pass. Twenty-six candidates were examined, all of whom passed. Ten candidates were licensed by reciprocity. Two candidates were licensed by endorsement of credentials. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
University of Michigan	(1922)	87.6, 88
University of Minnesota Medical School	(1922)*	82.7, 84.5, 85.2, 85.5, 85.8, 86.2, 86.7, 86.9, 87.2, 87.7, 87.7, 88, 88, 88.6, 89.6, 89.8, 89.9, 90, 90.3, 91.4, 92, 92
Columbia University	(1921)	89.7
University of Toronto	(1921)	91

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
Hahnemann Med. College and Hospital of Chicago	(1915)	Iowa
Northwestern University	(1907)	Illinois
Rush Medical College	(1917) California, (1920) (1921, 2)	Illinois
State University of Iowa College of Medicine	(1920)	Iowa
University of Michigan Medical School	(1921)	Michigan
St. Louis University School of Medicine	(1911)	Missouri
Washington University	(1920)	Missouri

ENDORSEMENT OF CREDENTIALS

College	Year Grad.	Endorsement with
Rush Medical College	(1918)	N. B. M. Ex.
Johns Hopkins University	(1921)	N. B. M. Ex.

* These candidates have finished their medical course and received their M.B. degree. They will receive their M.D. degree on completion of a year's internship in a hospital.

Maine March Examination

Dr. Adam P. Leighton, Jr., secretary, Maine Board of Registration of Medicine, reports the written examination held at Portland, March 13-14, 1923. The examination covered 10 subjects and included 100 questions. An average of 75 was required to pass. Five candidates were examined, all of whom passed. One candidate was licensed by reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Harvard University	(1922)	80
Columbia University College of Phys. and Surgs.	(1891)	76
Vanderbilt University	(1917)	87.3
Laval University Faculty of Medicine	(1922)	75.4
University of Montreal	(1920)	75.3

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
University of Pennsylvania	(1891)	Dist. Colum.

Book Notices

The Practice of Surgery. By Russell Howard, C.B.E., M.S., F.R.C.S., Surgeon, London Hospital. Third edition. Cloth. Price, $7. Pp. 1280, with 550 illustrations. Philadelphia: J. B. Lippincott Company, 1922.

The difficulty of obtaining a surgical textbook ideally suited to the use of students is familiar to all men who teach surgery. This is due largely to the extensive scope of the subject, which makes it almost impossible intelligently to condense it between the covers of a single volume, and to the wide divergence of opinion on fundamental principles which one finds in the literature as well as in textbooks. It differs somewhat from other works in the order in which topics of special surgery are presented. The subject of general surgery, probably the most difficult phase of the subject for the student to master, is allotted ample space. Such introductory subjects as inflammation, wounds, ulceration and gangrene are very clearly and completely presented. In going over the book carefully, one finds that the author has written excellent chapters on such subjects as the skull and the brain, fractures, the thyroid, thoracic surgery, and surgery of the peritoneum. The material on the stomach and the intestine is unusually good for a single volume textbook. The subject matter is systematically presented, readily amenable to outline by the student, and clearly written. It is freely illustrated, and quite free, in both idea and illustration, from the obsolete.

The Schick Test, Diphtheria and Scarlet Fever. A Study in Epidemiology. By Surgeon-Commander Sheldon F. Dudley, R.N. Medical Research Council, Special Report Series, No. 75. Paper. Price, 1 shilling net. Pp. 64. London: His Majesty's Stationery Office, 1923.

This contains the results of studies of the incidence of diphtheria and scarlet fever in the Royal Naval School at Greenwich. The conditions were favorable for the study. There are resident at the school on an average about 1,000 boys, and from 100 to 120 day boys who come daily for classes. These boys attend for three or four years, and are from 11 to 16 years of age. The observations were clinical, bacteriologic and statistical, combined with the use of the Schick test. The author puts forward a principle termed "velocity of infection," which he thinks may account for the development of immunity without symptoms and explain other difficulties in practical epidemiology. This velocity is the resultant of two other velocities: (1) the velocity at which a subject receives doses of a pathogenic agent, and (2) the velocity with which the immunity mechanisms of the subject can destroy this infecting agent. The study shows "how little good physique, healthy living and sound sanitation seem to have in preventing those diseases most commonly spread by droplet or spray infection, should the latter be made easy by conditions of overcrowding, such as existed in the sleeping quarters of this school." The essay is an important contribution to the subject of which it treats, and is a distinct addition to our knowledge.

The Constitutional Factors in Dementia Praecox, with Particular Attention to the Circulatory System and to Some of the Endocrine Glands. By Nolan D. C. Lewis, M.D. Nervous and Mental Disease Monograph Series No. 35. Paper. Price, $3. Pp. 134, with illustrations. New York: Nervous and Mental Disease Publishing Company, 1923.

In this small monograph are presented the summary of the findings in 601 necropsies in cases of hebephrenic and catatonic dementia praecox at St. Elizabeth's Hospital, Washington, D. C., and detailed clinical and necropsy reports on twenty-two additional cases. Paranoid dementia praecox is separated off as a special group with peculiarities of its own which will be reported later. The striking findings are: the very large proportion of cases (75.5 per cent.) that presented a small aplastic heart and blood vessel system, which incomplete development appears to extend even to the capillary system. This proportion is greatly in excess of all other forms of mental disease and is approached only by the cases of general paralysis; marked lymphatic hyperplasia; and histopathologic changes especially in the thyroid, suprarenals and gonads. These findings are offered, not as an explanation of dementia praecox, but rather as a soil on which for some reason this type of bad mental habits flourishes, and as a possible explanation for the frequent concomitance of tuberculosis. The work is well presented with many illustrations and is thoroughly worth while, being offered simply as a statement of facts of observation that should stimulate to further investigations in these obscure diseases.

The Hope of the Variant. By John George Gehring, M.D., Sc.D. Cloth. Price, $2. Pp. 252. New York: Charles Scribner's Sons, 1923.

The keynote of this book appears to be a quotation from some noted surgeon who had been sick and who said that there ought to be " a chair devoted to teaching *how to get sick people well.*" There is no subject in greater need of sane and lucid presentation, both for physician and for patient than that here considered. The variant is the individual "whose normal differs from the average"; the sensitive, nervous, neurotic, fearful persons who make up such a large proportion of every practice, special or general. The nature of the variations and their relations to the instinctive, subconscious—a term that is here used in a simple, easily understood sense—self, are graphically told, with admirably chosen illustrations from the author's wide clinical experience and with excellent indications of the extent to which they enter into medical practice of all kinds. The importance of training and suggestion in the evolution of the child's mind, and the bearing they have on prophylaxis, are outlined with notable lucidity and force; "it does not at all matter what things the child learns . . . it only matters that it *is trained* to use the will" well illustrates the breadth of vision and grasp. The book is written primarily for the general physician and not for the specialist in neuropsychiatry. The language is not too technical, and it can be heartily recommended for this purpose. The author's method of presentation introduces no conflict with rational therapeutics, and leaves behind no impression that he is offering a panacea for ills of all kinds.

Die Experimentelle Bakteriologie und die Infektionskrankheiten mit besonderer Berücksichtigung der Imunitätslehre. Ein Lehrbuch für Studierende, Aerzte und Medizinalbeamte. Von Dr. W. Kolle, Direktor des Institutes für experimentelle Therapie, und Dr. H. Hetsch, Professor, General-oberarzt a. d. Wissenschaftl. Mitglied des Institutes für experimentelle Therapie in Frankfurt a. Main. Sixth edition. In two volumes. Paper. Pp. 1376, with 340 illustrations. Berlin: Urban & Schwarzenberg, 1922.

Kolle and Hetsch's bacteriology is a standard work. It gives a reliable, comprehensive and well arranged summary of the present knowledge and practice in its field. Naturally, the main source and basis of the presentation is the German work; but the more important contributions in other languages have not been overlooked, and there is a light sprinkling of references to the American literature. Probably the discussion of all the weightier questions is as fully abreast of the times as well can be expected under the circumstances. It is self-evident, however, that to consider adequately the advances in bacteriology and immunology, continued familiarity with the world literature is now essential. The illustrations are good; some of the colored plates, 114 in all, are of a superior quality that should be the object of emulation on the part of other publishers.

The Conquest of Constipation. By William S. Walsh, M.D. Cloth. Price, $2. Pp. 265. New York: E. P. Dutton & Co., 1923.

This is a rather sensible book that a physician might recommend to a patient suffering from functional or psychic constipation. The book starts with a brief discussion of the physiology of digestion and the results of constipation. The author is sufficiently conservative to state that "in most cases the effects are not as severe as is often alleged, nor are the symptoms of constipation always results of poisoning." He then discusses hygiene, diet and a few harmless remedial measures. He advises that physicians be consulted periodically, and that the child be instructed to look on the physician as a friend. He warns against proprietary remedies in constipation, for which, he says, $50,000,000 is spent every year in this country. The sales of one laxative for infants and children average almost $1,500,000 annually.

Miscellany

THE NEW STATISTICAL DIVISION OF THE ARMY MEDICAL LIBRARY

ARTHUR N. TASKER, M.D.
Major, Medical Corps, U. S. Army
Washington, D. C.

The Prudential Insurance Company of America has presented to the Surgeon-General's Library (now officially known as the Army Medical Library) its entire collection of books, documents and papers dealing with international vital statistics and related subjects bearing on public health, medicine, general welfare, climatology and medical anthropology. This collection is unquestionably the largest of its kind ever assembled, and represents all the public health activities of the entire civilized and semicivilized world.

The library had its origin in the needs of the company, realized thirty years ago by the late John F. Dryden, who liberally encouraged the gathering together of data on every phase of human mortality and on all the problems of disease prevention. Its nucleus was a collection of books and documents by Frederick L. Hoffman, the company's statistician. With his original collection as a foundation, the library had been developed along the lines indicated by the Index Catalogue of the Surgeon-General's Library. It includes, therefore, an immense amount of general medical information derived from widely various sources, as well as Dr. Hoffman's manuscripts of original investigations.

That portion of the library dealing with strictly medical subjects is separate and distinct from the section on public health and vital statistics. The former is alphabetically arranged, while in the latter the material is arranged under the names of states and countries in alphabetical order. By this method the practical use of the library is best subserved, and data referring to any particular geographic section are available without the use of a library index. The reports on census investigations, public health activities, mortality statistics, institutional reports, etc., are all historically complete from their inception to the present day, so far as it has been practicable to make them so. Every effort has been exerted in the past, and will continue to be in the future, to secure information on these subjects from each country and community which publishes periodical information on health and mortality. In the medical section is to be found a wide variety of material of general sociologic interest. That dealing with anthropology is particularly rich and complete in information pertaining to our native Indian and the negro populations. For the last thirty years every article printed in the newspapers or in the various periodicals bearing upon questions of interest and importance in this connection has been preserved by Dr. Hoffman and has been filed in accordance with the principles of classification followed by the Index Catalogue. This greatly facilitates both the historical and the present-day study of subjects on which information is, generally speaking, difficult of access, even for the professional student who is in touch with all special library facilities.

The section on American public health is probably 95 per cent. complete for every state and city that has periodically published reports and observations during the last fifty years. Herein are many reports of exceptional historical importance, some of them dating back to Revolutionary times. The foreign portion of the section on public health and vital statistics is a really extraordinary collection of documents from countries as to which no information whatever is ordinarily and readily obtainable in the United States. It includes many reports from the native states of India published by direction of the British resident commissioner; medical reports from colonies lately belonging to Germany, and similar reports from all the British colonies and from many of the tropical possessions of France and Holland. Likewise to be found in this section are voluminous manuscript data on such topics as the mortality of missionaries, consular officers, the Panama Canal Zone, the Madeira-Mamore Railway, the hospitals in Northern South America, and the West Indies. Some, at least, of the climatologic data of every country are available, while for the United States there is a practically complete series of reports on weather observations, together with the earlier reports of the Chief Signal Officer of the Army relating thereto. Special volumes containing thousands of articles separately bound for more convenient reference deal with medical subjects of various sorts. Those on tuberculosis and cancer are perhaps the most complete of all. Finally, the library possesses a complete and valuable collection of all the writings of Dr. Hoffman as represented by nearly seven hundred titles.

The Prudential Insurance Company has made this gift to the medical profession of America (as represented by this, its library) with no other condition than an understanding as regards proper care and possible enlargement. About 5,000 square feet of floor space has been set aside in the Surgeon-General's Library for the reception of the collection. The Prudential Company has installed steel book shelves of the most modern type, and has separated the space from the remainder of the building by a steel partition. The facilities of this statistical division will be available to the medical profession at large, to all government workers, and to the general public, though books cannot be taken from the building.

Congress has made provision for four assistants. The appropriation for their employment becomes available, July 1, 1923, and they will thereafter meet the current needs of the division as regards indexing, cataloguing and general administration.

All material in the form of books, periodicals and clippings, which deal with the subjects before enumerated will in the future be automatically forwarded to Washington as soon as received by the Prudential Company. All government agencies, both at home and abroad, furnishing such reports have been requested to mail their future publications directly to the statistical division of the Army Medical Library.

While it is impossible to state with exact precision the extent of the collection, it is safe to say that it will approximate eighty thousand volumes and bound papers, in addition to many thousands of references filed alphabetically in the subject index envelop system. It is the intention of the librarian of the Army Medical Library to enlarge and amplify this collection by the addition of all homologous material received in the ordinary course of events by him, to extend the limits of its field of usefulness to the utmost, and to furnish every available facility to those who desire to conduct research along particular lines. The assistants on duty in this division will render all possible aid in the compilation of vital statistics, not only for the United States, but also for foreign countries, in which task linguistic difficulties are those ordinarily most difficult to overcome. The assistant librarian in charge of the division, and the other assistants, will of necessity be familiar with at least four or five of the most important modern languages, in order that the most extensive use may be made of its valuable material. Requests for information may be addressed to the statistical division of the Army Medical Library with the assurance that such information will be supplied so far as the limited force of the library will permit. When extensive information is desired, that is, data beyond the capacity of the small library force to compile, the resources of the statistical division will be available to research workers.

The Prudential Insurance Company is to be felicitated on its wise judgment in the measure which it has taken to make this incalculably valuable mass of literature accessible to public health officers, vital statisticians, members of the medical profession, sociologists and to informed laymen, all of whom will find in it facilities heretofore lacking for research in many fields wherein investigation has in the past been for the most part difficult and disappointing. It is expected that the division will be ready for general use by July 1 or shortly thereafter.

Medicolegal

Place of Residence and for Registering Certificate

(Less v. State (Texas), 246 S. W. R. 382)

The Court of Criminal Appeals of Texas, in reversing a judgment of conviction of defendant Less for violating the medical practice act, punishment for which was assessed at a fine of $100 and fifteen hours' confinement in the county jail, remanded the cause to the Uvalde County Court. The court of criminal appeals says that the information contained four counts: The first and second alleged that the defendant resided in Uvalde County and practiced medicine therein without first registering with the district clerk his authority to so practice; the third and fourth counts alleged that the county of his residence was unknown, and that he practiced medicine in Uvalde County without first registering with the district clerk of the unknown county of his residence his authority to practice medicine, and further charged that in fact he had no authority so to practice in Uvalde County or any other county in Texas.

Motion was made to quash the third and fourth counts because they failed to allege the county of the defendant's residence. It was asserted that the allegation that the county of his residence was unknown, and that he failed to register his authority in such unknown county did not meet the requirements of the law. But *Rutherford* v. *State*, 79 Texas Cr. R. 605, 187 S. W. 481, is direct authority sustaining the sufficiency of the third and fourth counts. As suggested in the opinion in that case, the pleader in the instant one, after alleging the failure of the defendant to register his authority in the county of his unknown residence, went further, and also averred that he was without authority to practice medicine in Uvalde County or any other county in Texas. If the state could have proved this latter averment it would have sustained an allegation that he failed to register his authority in any county in Texas.

It was established that the defendant practiced medicine in Uvalde County, and that he had not registered with the district clerk of that county his authority for engaging in such practice. A witness testified that the defendant had a sign on his office which had on it "Dr. Less"; that the defendant told him that he had lived in Dallas, and had come from there; that while in Uvalde he had stayed for a while at a certain house, then went to another where he had rooms; that his wife and child were with him and they did light housekeeping; that he had been in Uvalde only a short time when he first treated this witness and told him that he would be there for only a short time. Another witness testified that the defendant had told him that he had some property in Dallas and an office and home there; that he would have to go back to Dallas and dispose of his property there; that if he could get sufficient practice in Uvalde he would close up his office and business in Dallas; that he had come to Uvalde for his health and rest, and would not be there longer than three or four months. He also told the witness that he had lived at Port Arthur. The state, however, made no effort to prove a failure on the part of the defendant to have his certificate registered either in Dallas County or in the county in which Port Arthur is situated, and introduced no evidence supporting the allegations in the third and fourth counts of the information to the effect that he had no authority to practice medicine in any county in the state, save as it might be inferred from the failure to register his authority in Uvalde County; and it was error for the judge to instruct the jury that the absence of the record was prima facie evidence that the defendant had no certificate of authority, as that authorized conviction under the third and fourth counts, even though the jury found he did not reside in Uvalde County. Those counts should not have been submitted to the jury, as the evidence did not warrant their submission.

The word "residence" includes the idea of more permanence than that of "sojourn," and the word "reside" as used in the statute requiring one's authority for practicing medicine to be registered in the district clerk's office of the county in which he resides, should be given its ordinary meaning. But the court does not think that the whole question of residence should turn on the intention of the practitioner, so that the defendant, if he had his home in Dallas, though he might reside in Uvalde County for a number of years, if he had the intention of returning ultimately to his home in Dallas, could not be prosecuted for failing to register in Uvalde County.

Liability for Pools Breeding Malarial Mosquitoes

(Belton v. Wateree Power Co. (S. C.), 115 S. E. R. 587)

The Supreme Court of South Carolina, in reversing a judgment for $1,000 damages obtained by the plaintiff, says that he brought this action to recover damages on account of injury alleged to have been sustained by him by the erection of a dam across the Wateree or Catawba River. The plaintiff lived about a mile and a half from the pond, and the nearest point on his land was half a mile from the pond. The case was to be considered with reference only to his allegation that the pond caused stagnant pools which bred malarial mosquitoes, causing sickness, the removal of his tenants, and consequent depreciation of the value of his land. But since the testimony for the plaintiff showed that the activities of the mosquitoes were not confined to his premises, but were prevalent in that whole community, it was demonstrated that the damage suffered by him was not peculiar to himself. It showed that the nuisance was a public one, and not a private one, and the law is well settled that a plaintiff is not entitled to damages for an injury from a public nuisance unless his injury is not only different in degree but different in kind from that suffered by the public generally, or unless the nuisance has been caused by the negligent conduct of the defendant. It has also been established beyond controversy that if the act alleged to have been noxious to the plaintiff was authorized by the legislature, it cannot be considered a public nuisance, and the plaintiff can recover damages only on the theory that the injury was caused by the negligent exercise of that legally authorized act.

The court is not sufficiently informed as to the habits of *Anopheles quadrimaculatus* or *punctipennis* (the malaria-breeding mosquitoes) to know whether or not their breeding is a necessary incident of the creation of such a pond of water as in this case. There was testimony tending to show that there is less likelihood of such an event in such a pond than in small stagnant pools. But assuming that it is incidental, the incident was authorized by the legislature and cannot be considered a public nuisance subjecting the donee of the power to indictment; and the plaintiff has no private cause of action without showing either that the authority conferred was so negligently exercised as to produce the nuisance, or that his injury has been peculiar in kind to himself.

As a matter of supreme public concern, the affirmance of this judgment, opening the floodgates of litigation, would not only bankrupt the useful institutions which mark the progress of this state, but would bar forever the development of millions of horse power in the streams that now "run wanton to the sea."

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Physiology, Baltimore

64: 405-598 (May) 1923

Monthly Variations in Muscular Efficiency in Women. L. M. Moore and J. L. Barker, Berkeley, Calif.—p. 405.
*Monthly Variations in Cardiovascular Activities and Respiratory Rate in Women. L. M. Moore and C. R. Cooper, Berkeley, Calif.—p. 416.
*Pathogenesis of Tetany: Control and Cure of Parathyroid Tetany by Diet. L. R. Dragstedt and S. C. Peacock, Chicago.—p. 424.
*Conditions of Survival of Mammalian Nerve Trunks. A. Forbes and L. H. Ray, Boston.—p. 435.
Studies of Thyroid Apparatus: Refractive Index and Water Content of Blood Serum of Male and Female Albino Rats Thyroparathyroidectomized and Parathyroidectomized at 100 Days of Age. F. S. Hammett, Philadelphia.—p. 467.
Colloid Chemistry of Protoplasm: I. General Considerations. II. Electrical Charges of Protoplasm. L. V. Heilbrunn, Ann Arbor, Mich. —p. 481.
*Influence of Parathyroidectomy on Gastric Secretion. S. C. Peacock and L. R. Dragstedt, Chicago.—p. 499.
Extirpation of Suprarenal Glands in Albino Rats. J. T. Lewis, Buenos Aires, Argentine.—p. 503.
Sensibility to Intoxication in Albino Rats After Double Adrenalectomy. J. T. Lewis, Buenos Aires, Argentine.—p. 506.
*Relative Importance to Life of Cortex and Medulla of Suprarenal Glands. B. A. Houssay and J. T. Lewis, Buenos Aires, Argentine. —p. 512.
Biologic Food Tests: I. Vitamin A in Some Citrus Fruit Products. A. F. Morgan, Berkeley, Calif.—p. 522.
*Id. II. Vitamin A in Skim Milk. A. F. Morgan, Berkeley, Calif.— p. 538.
*Influence of Sugars and Other Substances on Toxic Effects of Insulin. E. C. Noble and J. J. R. MacLeod, Toronto, Canada.—p. 547.
Visual Perception and Retinal Mosaic: 1. Retinal Mean Local Sign—Explanation of Fineness of Binocular Perception of Distance. E. E. Andersen and F. W. Weymouth, Stanford Univ. Calif.—p. 561.

Effect of Menstruation on Cardiovascular Activity and Respiratory Rate.—Daily observations made by Moore and Cooper of cardiovascular activities and respiration rate in women over periods varying from two to seven months indicate periodically recurring variations coincident with the monthly cycle. The typical variations are a low menstrual and a high intermenstrual period. The rhythm is especially marked and uniform in the pulse rate, circulatory index and respiration rate. The low records of the menstrual period are not greater than many occurring as chance variations, and therefore do not signify an extensive general lowering of the physical condition. They rather represent a phase in the rhythm accompanying the fundamental periodic changes which occur throughout the monthly cycle.

Parathyroid Tetany Due to Intoxication.—Dragstedt and Peacock believe parathyroid tetany or depression to be due to an intoxication. The responsible toxic substances come chiefly from the gastro-intestinal tract. They arise through the activity of the proteolytic group of intestinal bacteria, and are probably for the most part protein split products of the nature of amines. The function of the parathyroid glands is to prevent intoxication by these poisons. The parathyroid glands do not furnish a hormone necessary for life, and dogs may be kept alive indefinitely after their removal if treatment directed to the prevention of this toxemia of intestinal origin is carried out.

Survival of Nerve Tissue.—Of interest in connection with neuroplasty is the observation made by Forbes and Ray that a mammalian nerve carefully dissected from the body during life or immediately after death, and kept in Ringer solution or in air in a moist chamber, retains an apparently normal functional capacity for a considerable time. The time of survival is greatly influenced by temperatures below about 8 C.; function is suspended and survival, that is, capacity to manifest function when warmed again, may last as long as four days.

Influence of Parathyroidectomy on Gastric Secretion.—Peacock and Dragstedt found that complete extirpation of the thyroid and parathyroid glands in dogs has no depressant effect on gastric secretion if the development of tetany or depression be prevented by dietary control.

Importance to Life of Suprarenals.—The following facts are definitely established by Houssay and Lewis: (1) Double suprarenalectomy is fatal in most species, among them the dog. (2) Removal of all chromophil tissue contained in these glands is perfectly harmless. (3) Extirpation of the interrenal body (equivalent of cortex in *Elasmobranchs*) is followed by death. The authors therefore conclude that, (1) the cortex is indispensable to life; it maintains its vital functions without the cooperation of the medulla; (2) the chromophil tissue of the suprarenals is not necessary to life or to normal functions. This does not mean that chromophil tissue is not indispensable to life. In these experiments only a part of this tissue is removed, and it must be remembered that relatively a greater portion of medullary tissue than of cortical tissue remains in the body after suprarenalectomy. If chromophil tissue has vital functions, the extracapsular portion is sufficient to maintain them, but up to now there is no evidence that these vital functions exist.

Vitamin A in Skimmed Milk.—It is shown by Morgan, that although dried skim milk, and presumably fresh skim milk as well, is not altogether lacking in vitamin A, it is impossible to obtain normal growth over a prolonged period by the use of this substance alone. An immediate and striking improvement was noted in most of the animals given the skim milk after decline from vitamin A deficiency. This was followed at varying intervals by an equally rapid decline, ending in death if the treatment was continued. Successful growth on a diet containing both the skim milk and small amounts of butter fat indicated that the eventual failure on the skim milk diet was probably not due to the presence of toxic or inhibiting substances in the skimmed milk. Quantities as large as 5 gm. of the dried skim milk were found to be less effective than 0.25 gm. of butter fat of the same origin. The proportion of vitamin A in dried skim milk and butter fat would appear, therefore, to be less than 1 : 20, in fresh skim milk and butter fat less than 1 : 220, and average whole milk should be more than eight times more valuable as a source of vitamin A than skim milk made from it.

Influence of Sugar on Toxicity of Insulin.—The only sugar, according to Noble and MacLeod, which can definitely antidote the symptoms that accompany the hypoglycemia due to insulin is glucose. Even when the animal is moribund at the time of injection this sugar may bring about permanent recovery. Levulose, galactose and maltose may be followed by temporary slight improvement in the symptoms and they cause a marked increase in the blood sugar. Arabinose, xylose, sucrose and lactose have no apparent effect on the symptoms although there may be an increase in the reducing power of the blood (e. g., with arabinose). Sodium lactate, glycerol and alkalis have no effect on the symptoms.

American Journal of Syphilis, St. Louis

7: 209-416 (April) 1923

*Quantitative Studies in Syphilis from Clinical and Biologic Point of View: III. Arsenical Content in Scales, Blood and Urine in Arsenical and Nonarsenical Eruptions. J. A. Fordyce, I. Rosen, C. N. Myers, New York.—p. 209.
*Id. IV. Arsenic Content in Blood at Various Intervals After Intravenous Injections of Arsphenamin. J. A. Fordyce, I. Rosen, and C. N. Myers, New York.—p. 225.
*Clinical and Biochemical Study of Neurosyphilis. L. H. Cornwall and C. N. Myers, New York.—p. 287.
*Sulfarsphenamin in Treatment of Syphilis. S. Irgang, New York.— p. 318.
Paresis with Negative Spinal Fluid. J. Wynn, Indianapolis.—p. 323.
III. Mercury Inhalation Therapy of Syphilis. Shall It Be Condemned? J. Gutman, Brooklyn.—p. 326.
IV. Mercury Versus Arsphenamin in Treatment of Syphilis. J. Gutman, Brooklyn.—p. 347.
Toxicity and Trypanocidal Activity of Tartrobismuthate and Relation to Treatment of Syphilis. C. N. Myers and H. B. Corbitt, New York.—p. 352.
Syphilis Department of Inpatient Hospital: Its Personnel, Organization and Equipment. H. Goodman, New York.—p. 377.
Kahn Precipitation Reaction for Syphilis. R. L. Kahn, Lansing, Mich. —p. 389.
Case of Syphilitic Chancre on Scrotum of Patient Without Penis. F. W. Oelze, Leipzig.—p. 410.

Arsenical Content in Scales, Blood and Urine.—Fifty-one specimens of scales, blood and urine were examined by Fordyce et al.; twenty-two batches of scales were from syphilitic patients who had developed a desquamating rash after the administration of the arsenicals; twenty of these were positive in amounts varying from 0.123 to 315.9 mg.; two were arsenic free. Six batches were from nonsyphilitic cases, the quantity fluctuating from a trace to 1.63 mg.; three of these patients were known to have received arsenious acid or sodium cacodylate. The presence of small amounts in the other three patients can be accounted for by diet or drugs applied externally. Analysis of the blood and urine gave several instances in which the blood did not show determinable amounts of arsenic, while the urine contained it in considerable quantity.

Arsenic Content of Blood After Arsphenamin Injection.—Analysis of blood taken immediately after the completion of the injection showed that 60 per cent. of the arsenic injected had been localized outside the blood stream. The maximum quantity of arsenic in the blood stream based on average values is found immediately after injection. This value expressed in milligrams of metallic arsenic per hundred grams of dried specimen is 4.21. Observations at later intervals, up to one day, indicate that the arsenic equilibrium in the blood gradually becomes lower, based on average values. There was a marked increase in arsenic after a period of one day with a gradual diminution at later intervals, based on average values.

Arsenic in Spinal Fluid After Arsphenamin Injection.—From a review of results, which include the examination of 239 spinal fluids taken from 151 patients after the intravenous administration of silver arsphenamin, Cornwall and Myers infer the following facts to be proved: Arsenic passes into the spinal fluid; arsenic can be found in the spinal fluid at the end of two hours in an amount as large as 143 mg. per hundred grams of dried specimen; arsenic can be found in the spinal fluid as late as seventy-two hours in an amount as large as 192 mg. per hundred grams of dried specimen. In general, the arsenic content in the spinal fluid falls after the first two hours. It rises slightly between twenty-four and forty-eight hours, and at the end of seventy-two hours is present in greater quantity than at any time beween two and seventy-two hours.

Value of Sulpharsphenamin.—As a result of a limited experience with sulpharsphenamin, Irgang concludes that in equal dosage it compares favorably with neo-arsphenamin in causing the disappearance of cutaneous lesions. The drug can be employed to advantage in those whose veins are extremely small or too deeply situated to be of value for intravenous medication. The subcutaneous method is not a painless one, it causes considerable discomfort but much less than when used intramuscularly.

Boston Medical and Surgical Journal

188: 789-836 (May 24) 1923

*Perforated Ulcer of Stomach and Duodenum. E. C. Cutler and F. C. Newton, Boston.—p. 789.
*So-Called Gas in Stomach. F. W. Palfrey, Boston.—p. 800.
Report of 146 Cases of Skin Affections Treated with Radium. F. Bryant, Worcester, Mass.—p. 803.
Phototherapeutic Considerations in Some Dermatoses. W. J. Macdonald, Boston.—p. 809.
*Pulmonic Area of Heart as an Index of Cardiopulmonary Circulatory Disturbance. J. A. Honcij, Boston.—p. 811.

Statistics on Perforated Ulcer of Stomach and Duodenum.—A résumé of reports made by various observers gives a total of 486 cases of free perforation of gastric and duodenal ulcer in which the primary mortality figures were: for simple closure (19.4 per cent.), closure plus gastro-enterostomy (24.3 per cent.) and resection (22.8 per cent.). Cutler and Newton add five cases of acute perforated gastric and six cases of perforated duodenal ulcer. The interval from perforation to operation varied from 6 to 96 hours with an average duration of 21.5 hours. A previous history of some form of indigestion was obtained in all but two cases. There was one death, a mortality of 9 per cent. The interval from perforation to operation was 96 hours. The operative procedure was drainage only, one case; suture of perforation, two cases; suture of the perforation plus gastro-enterostomy, eight cases. In every duodenal case gastro-enterostomy was performed. The case in which drainage only was employed proved fatal. Of the two cases with simple closure of the perforation, one patient returned for gastro-enterostomy, and 6 months later, he presented vague symptoms of epigastric discomfort; roentgen-ray studies showed a beginning hourglass constriction. Of the eight gastro-enterostomy cases, five patients are unqualifiedly well, two have some epigastric discomfort if they overeat, but they are at work.

"Gas" in Stomach.—The distress attributed to "gas in the stomach" Palfrey asserts, is due to a failure of the act of belching to maintain a proper adjustment of intragastric pressure. He believes the co-existence of two factors to be responsible: an influence which elevates intragastric pressure, combined with failure of the safety-valve mechanism of the cardiac orifice. The treatment of this symptom, therefore, divides itself between measures to improve the function of the cardiac orifice, and measures to reduce the tendency to elevations of intragastric pressure. Palfrey has had the best success through the following course: First, instituting a small-bulk dry diet in six meals instead of three per day, and with liquids, except in minimal amounts, only between meals, so as to avoid at any time any great distention of the stomach. Second, avoidance in this diet of all substances capable of causing irritation, with special reference to the previous faults of the special case. Thus no food should be given which is not capable of being reduced by mastication to a liquid or a soft pulp, so as to avoid mechanical irritation, and proper mastication should be enforced. Alcohol, spices and irritant drugs (including highly flavored dyspepsia tablets) should be forbidden. In cases of hyperacidity or ulcer the diet should be further modified as indicated by other symptoms. In cases in which there may be irritant-forming fermentation or special susceptibility to certain foods the offending articles should so far as possible be identified and avoided. Third, drug treatment to allay irritations and to lessen excessive motor action. Carminatives are best avoided. Where hyperacidity is a factor, milk of magnesia, or magnesium oxid in some other form, is usually of benefit; if this does not give relief sodium bicarbonate well diluted in water is to be used. Also in hyperacidity the use of bile preparations is of advantage in diminishing the need for magnesium or sodium. In disturbed muscular action of the stomach, atropin, 1/150 to 1/100 grain, three times a day, may be of benefit. In obstinate cases, latent diseases of the appendix and gallbladder are to be thought of.

Pulmonic Area of Heart Index of Cardiac Embarrassment.—The pulmonic area of the heart, fluoroscopically seen, Honeij says, presents certain changes in outline, size and density under certain conditions affecting heart and lungs. This pulmonic sign is a reliable index of cardiac embarrassment. It varies according to the degree of disturbance of cardiopulmonary circulatory function.

California State Journal of Medicine, San Francisco

21: 145-192 (April) 1923

Etiology and Treatment of Faulty Body Mechanics in Childhood. J. C. Wilson, Los Angeles.—p. 145.
Pre-Cancerous and Early Cancerous Lesions of Genitourinary Tract. J. R. Dillon, San Francisco.—p. 148.
Group Practice of Medicine. H. A. Johnston, Anaheim.—p. 149.
*Diphtheritic Otitis Media. W. J. Mellinger, Santa Barbara.—p. 151.
Intermediate Cervical Repair Following Confinement. T. Coffey, Los Angeles.—p. 153.
Results of Radium in Gynecology. A. F. Maxwell, San Francisco.—p. 155.
Technic and Organization of Los Angeles Municipal Maternity Service. L. G. McNeile, Los Angeles.—p. 158.
Case of Yaws in California. H. E. Alderson and H. C. Coe, San Francisco.—p. 162.
Clinical and Pathologic Study of Fifty Cases of Hyperthyroidism. R. B. Hill, Los Angeles.—p. 163.
Physiotherapy Records. H. E. Furscott, San Francisco.—p. 165.
*Studies in Fat Digestion. M. M. Null, Eagle Rock.—p. 168.
Psychoses of Pregnancy and Puerperal State. H. W. Wright, San Francisco.—p. 170.
Amputations in Region of Knee Joint. H. H. Dignan.—p. 173.
*Genesis and Treatment of Insomnia. H. D. Eaton, Los Angeles.—p. 175.

Diphtheritic Otitis Media.—Mellinger cites the history of a patient who had a bilateral diphtheritic infection of the middle ear. He was given 3,000 units of antitoxin, and then transferred to the isolation ward, where there were no other diphtheria patients. The laboratory subsequently reported a nonvirulent Klebs-Loeffler bacillus infection of both ears;

nose and throat cultures were negative. Sixteen days later this patient developed a positive infection of the nose and throat. The middle ear infection had in the meantime been overcome, and negative cultures had been obtained. The nose and throat cultures, however, remained positive for twenty-one days. This history seemed to demonstrate that the infection of the middle ear with a nonvirulent Klebs-Loeffler bacillus did not give immunity toward a virulent Klebs-Loeffler bacillus. Furthermore, 3,000 units of diphtheria antitoxin were not sufficient to confer immunity. As a result of this experience, Mellinger isolates patients with nonvirulent middle ear infections, and has not allowed them to come in contact with those suffering from other forms of diphtheria. A case of a virulent Klebs-Loeffler infection of the middle ear in a child, aged 3, is also reported.

Digestibility of Fats.—Null's experiments were made with pork fat and a vegetable fat. The selection of the food and the arrangement of the diet was determined largely by choosing those things that could be subjected to high degrees of temperature in which fat was incorporated, such as fried potatoes, potato-chips, doughnuts, short-biscuits, shortcake and gray. The presence in the diet of large quantities of fat cooked into the food did not affect the digestibility of either the protein or the carbohydrates. The subjects gained in weight and the nitrogen equilibrium was maintained on a vegetable fat. There was very little if any difference in the results between animal and vegetable fats. The pork fat was relished more than the vegetable fat; consequently, more was eaten. The subjects enjoyed their food and maintained their strength without any discomfort. So far as this experiment goes, fats cooked into foods at high temperatures were easily digested by normal subjects.

Insomnia.—Eaton's experience has convinced him that the etiology of insomia is exactly the same as the etiology of functional nervous conditions in general. Physical factors play a minor rôle and the real disorders occur in consciousness; it is psychic primarily, physical secondarily. It is a disease of consciousness, a condition of mental unrest kept going by fear and apprehension in regard to the effects of sleeplessness and the efforts to sleep thus engenered. Hypotics should never be used in this type of insomnia, save temporarily, and then only when their purpose as an artificial and temporary aid in the breaking up of an established bad habit is clearly understood by the patient. It is essential to impress on the patient the true conception that sleep is nonessential—rest the essential ingredient of a normal day. Once the patient has learned to rest he will inevitably sleep because sleep is an automatic habit which will always engraft itself on rest when conditions are propitious. The results of such treatment in a series of fifteen hundred cases showed 82.4 per cent. remaining much improved or cured after two years.

Indiana State Medical Association Journal, Ft. Wayne

16: 157-188 (May) 1923

Tuberculosis of Female Generative Organs. E. E. Padgett, Indianapolis. —p. 157.
Phases of Chronic Pharyngeal Infection. W. S. Tomlin, Indianapolis. —p. 161.
The Surgical Engineer. H. R. Allen, Indianapolis.—p. 165.
System and Thoroughness in Eye Examinations and Treatment. F. S. Cuthbert, Kokomo, Ind.—p. 169.
Drains and Drainage of Abdominal Cavity. M. L. Curtner, Vincennes, Ind.—p. 173.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

21: 225-262 (May) 1923

*Intrahepatic Administration of Drugs. J. A. Waddell, Charlottesville, Va.—p. 225.
*Does Reaction to Epinephrin Obey Weber's Law? D. M. Lyon, Edinburgh.—p. 229.
*Toxicity of Carbon Tetrachlorid: In Relation to Liver Function as Tested by Phenoltetrachlorphthalein. P. D. Lamson and A. J. McLean, Baltimore.—p. 237.
*Salicylates. XIV. Liberation of Salicyl from and Excretion of Acetylsalicylic Acid. P. J. Hanzlik and E. Presho, San Francisco.—p. 247.

Intrahepatic Administration of Drugs.—Waddell has noted the effect of solutions injected under the capsule or into the parenchyma of the liver. He found that various substances administered by this route are rapidly absorbed into the blood stream and exhibit their effects almost as quickly as after intravenous injection. Their physiologic effects were elicited with greater uniformity as to dosage and time interval than could be obtained by direct application to the organ or tissue ("dropping the solution on") or by subcutaneous or gastro-intestinal administration. Among a number of other drugs, he has administered by this route particularly strychnin, caffein, pilocarpin, atropin, quinidin, and synthetic dyestuffs. The method has proved a great time saver in the study of effects on the heart, salivary glands, gastro-intestinal tract, and central nervous system. The procedure consists in exposing a portion of a lobe of the liver and injecting a solution of the drug in question subperitoneally or at a depth of 1 or 2 mm. into the parenchyma. The latter gives better results in the case of less potent agents like quinidin and caffein, while the former is equally effective with very potent ones such as strychnin and strophanthin. The solution should be reasonably concentrated so that the volume of fluid containing an effective dose need not be large. Usually this should not be more than 0.1 or 0.2 mol., though in some instances as much as 1 mol. has been injected.

Nature of Reaction to Epinephrin.—Lyon asserts that repeated doses of a uniform amount of epinephrin chlorid solution produce the same increase in blood pressure only if the resting level of the pressure immediately preceding the injection is the same in each case. When the resting levels differ, the blood pressure responses to uniform doses of epinephrin vary, the magnitude of the disturbance diminishing as the resting level rises. In other words, a much larger dose is required to produce the same effect at a higher level. When the amount of epinephrin administered is increased arithmetically, the resultant blood pressure rises do not follow suit but bear a logarithmic relationship to the stimulus, obeying the Weber-Fechner Law.

Toxicity of Carbon Tetrachlorid.—The toxic effects of carbon tetrachlorid have been studied by Lamson and McLean by means of the phenoltetrachlorphthalein liver function test. In two cases the effect on renal function has also been studied by means of the phenolsulphonephthalein test. It was found that single doses of 4 c.c. of carbon tetrachlorid per kilogram produce functional disturbance of the liver in the dog, with complete return of function to normal within ninety-six hours. Signs of intoxication in these animals could be observed by this method before any visible signs or symptoms were evident. The kidneys did not appear to be affected by this dose. Administration of 2 c.c. per kilogram produced no demonstrable disturbance in either kidney function. Finally, 4 c.c. per kilogram, given in divided doses of 2 c.c. per kilogram at forty-eight hours intervals, was found to have no toxic effect, which is contrary to the belief that divided doses are more toxic than a single massive dose.

Liberation of Salicyl from Acetylsalicylic Acid.—The liberation of salicylic acid from acetylsalicylic acid in buffer solutions at body temperature (38 C.) in vitro was found by Hanzlik and Presho to be somewhat variable though of practical significance in accounting for the fate of acetylsalicylic acid in its passage through the body. The liberation was found to be quite as great in a degree of acidity (hydrogen ion concentration) corresponding to that of gastric juice as in a degree of alkalinity corresponding to that of intestinal juices, but it was very much less in the vicinity of neutrality and of the very slight alkalinity of blood. Accordingly, liberation of free salicylic acid from acetylsalicylic acid would be expected to occur in the stomach, contrary to current conceptions of, and claims made for, the drug in this direction. Considerable unchanged acetylsalicyl circulates through the body, and presumably, therefore, explains the differences in pharmacologic action, clinical "toxic" dosage and effects of sodium salicylate and acetylsalicylic acid. Considerable absorption and urinary excretion of the unchanged acetylsalicyl group would be expected, and this was actually found to be the case in a quantitative study of the excretion. The administration of from 4 to 14.8 gm. (clinical "toxic" doses) of acetylsalicylic acid to six persons, of whom four were convalescents and two suffered with rheumatic fever, resulted in total excretions of from 8.8 to 36.6 per cent. of the acetylsalicylic acid administered. The proportion of acetylsalicyl in the total salicyl extracted from the different urines was considerable, ranging from 5.3 to 41.1 per cent. with a median value of 25.5 per cent. The excretion bore no relation to clinical condition, dosage, diuresis, total salicyl excreted and other factors. The duration of excretion was from three to six days.

Journal of Radiology, Omaha

4: 147-182 (May) 1923

Roentgenologic Signs of Cancer of Colon. R. D. Carman, Rochester, Minn.—p. 147.
Multiple Peptic Ulcers. M. M. Portis and S. A. Portis, Chicago.—p. 151.
Relation of Roentgenology to Urology. J. R. Caulk, St. Louis.—p. 153.
Roentgen Rays and Roentgen-Ray Apparatus; An Elementary Course. J. K. Robertson, Canada.—p. 157.
Auto-Electronic Roentgen-Ray Tube of Lilienfeld. I. S. Hirsch, New York.—p. 162.
Design of Potter-Bucky Diaphragm Grids. R. B. Wilsey, Rochester, N. Y.—p. 168.
Unusual Case of Tuberculosis. D. A. Stewart, Ninette, Manitoba.—p. 169.
New Holder for Radium Needles. J. R. Ranson, Denver.—p. 170.

Journal of Urology, Baltimore

9: 397-490 (May) 1923

Experimental Hydronephrosis. Failure of Diuresis to Affect Its Rate of Development. F. Hinman and A. E. Belt, San Francisco.—p. 397.
*Cases of Suppurative Pericystitis. A. L. Chute, Boston.—p. 421.
Diverticula of Bladder in Children. A. Hyman, New York.—p. 431.
Fibroids of Urinary Bladder: Report of Case. I. S. Koll, Chicago.—p. 453.
*Surgery of Bladder. J. F. McCarthy, New York.—p. 461.

Suppurative Pericystitis.—Six cases of suppurative pericystitis have been seen by Chute. They are occasionally seen following trauma to the deep urethra. The condition is made evident by the presence of a tender mass above the pubes that does not disappear on emptying the bladder; this is combined with the usual evidence of an infection. The condition should be met by opening up the perivesical space and draining the cavity by tubes brought out through the perineum as well as by tubes introduced above. It will usually be wise to combine a suprapubic cystostomy with this drainage. In the cases that present a tight stricture, a badly traumatized urethra, or suppuration of the perineum, a perineal section should be done. The patients are usually very septic and the vigorous and prolonged use of subcutaneous salt solution is of great help in combating this condition.

Surgery of Bladder.—McCarthy discusses the question of approach to and delivery of the urinary bladder in the male, as well as the better delineation of procedures such as resection, ureter recognition, implantation, etc.

Kansas Medical Society Journal, Topeka

23: 113-140 (May) 1923

Gold and Mastic Reaction. H. A. Lindsay, Topeka.—p. 113.
*Insulin Treatment of Diabetes Mellitus. R. H. Major, Rosedale.—p. 117.
Practical Value of Blood Chemistry to Clinician. R. L. Haden, Kansas City.—p. 120.
Glucose Tolerance Test. M. Law, Topeka.—p. 124.
Syphiloma of Rib: Review of Literature and Report of Case. F. C. Helwig, Halstead.—p. 127.

Value of Insulin in Treatment of Diabetes.—Whether insulin is as valuable in the treatment of diabetes mellitus as is thyroid extract in myxedema, Major says, remains to be seen. But the discovery of any substance that will clear up hyperglycemia, glycosuria and ketonuria, and rescue a patient from coma is epoch making. There is every evidence that it will rob surgical diabetes of most of its terrors. The question as to whether insulin after repeated use will raise the carbohydrate tolerance and restore the islands of Langerhans to their normal functioning state, is a pertinent one and as yet unanswered.

Laryngoscope, St. Louis

33: 329-400 (May) 1923

Determination of Line of Descending Portion of Facial Canal in Doing Mastoid Operation. F. Bridgett, Philadelphia.—p. 329.
Total Deafness Due to Trauma, with Normal Static Labyrinthine Findings. Report of Two Cases. S. J. Kopetzky and A. A. Schwartz, New York.—p. 340.
Primary Thrombosis of Mastoid Emissary Vein with Secondary Involvement of Lateral Sinus. J. Friedman and S. D. Greenfield, Brooklyn.—p. 347.
Sensibility of Pathologic Ears to Small Differences of Loudness and Pitch, Including Report on Seven Cases of Displacusis. V. O. Knudsen and G. E. Shambaugh, Chicago.—p. 353.
Case of Telangiectasis of Mucous Membranes of Nose and Lips Associated with Long Standing and Severe Epistaxis. J. W. Miller, New York.—p. 365.
New Artery Clamp for Tying Off Deep Tonsillar Vessels. A. Kahn, New York.—p. 369.
Causes of Failure in Surgery of Nasal Accessory Sinuses. W. Mithoefer, Cincinnati.—p. 371.
Recording of Functional Hearing Tests. S. Jesberg, Los Angeles.—p. 379.
Death Following Operation for Removal of Tonsils. F. W. Bailey, Cedar Rapids, Ia.—p. 384.
Case of Subglottic Edema Due to Acute Lymphatic Leukemia. L. Hubert, New York.—p. 389.

New York State Journal of Medicine

23: 183-228 (May) 1923

Recent Progress in Communicable Diseases of Childhood: Whooping Cough. C. Herrman, New York.—p. 183.
*Principles in Diagnosis and Treatment of Pulmonary Tuberculosis. J. A. Miller, New York.—p. 184.
*Perforation of Sigmoid Colon by Scybalum. K. S. Kennard and H. S. Altman, New York.—p. 191.
Chronic Intestinal Indigestion in Children. F. E. Johnson, New York.—p. 192.
Welfare Work Among School Children. J. C. Palmer, Syracuse, N. Y.—p. 195.
Open Air Care of School Children. C. A. Greenleaf, Olean, N. Y.—p. 200.
Diagnostic Significance of Intelligence Tests. S. P. Jewett and P. Blanchard, New York.—p. 202.
*Fluoroscope in Modern Cardiology. L. F. Bishop, New York.—p. 205.
Acute Ulcerative Ileocolitis. E. L. Benjamin, New York.—p. 208.
Mosquito Control in Nassau County. A. D. Jaques, Lynbrook, N. Y.—p. 209.
Hemorrhoids. R. Hood, New York.—p. 210.
Pay Clinics. E. V. Delphey, New York.—p. 211.

Campaign Against Tuberculosis.—Miller emphasizes the fact that the medical profession has been and must continue to be the backbone of the fight against tuberculosis. The death rate from tuberculosis in the United States has been cut in half in the past twenty years and the morbidity from the disease correspondingly diminished. This is undoubtedly due in large measure to the efficient organization of all classes of the community in which physicians have played the leading rôle. The outstanding feature of this campaign has been the promulgation of sound public health education. This has resulted in an aroused and enlightened sentiment among the laity concerning this and similar preventable diseases, which insistently demands from physicians better service than has all too frequently been received. In the main, it is the general practitioner who must meet this situation.

Perforation of Colon by Scybalum.—The similarity of symptoms presented in the case cited by Kennard and Altman to symptoms of surgical conditions of the abdomen, which may be relieved successfully was striking. The case is reported with the idea that it may tend to remind surgeons of the possible existence of this condition, though it offers but little aid to definite diagnosis. The patient died four hours after admission to hospital. The small intestine was much distended by gas and a general peritonitis was present. A quantity of fluid, about 500 c.c. in amount, and fecal in character, occupied the lower part of the abdominal cavity and of the pelvis. On tracing the intestine downward, a rather sharp line of constrictions occurred at the upper part of the sigmoid flexure of the colon. In the lower part of the sigmoid and on the posterior aspect of the bowel wall, there was a dark greenish area, which surrounded a perforation in the wall of the bowel, the size of the perforation being about that of a 25 cent piece. From this opening fecal matter had discharged into the pelvic and abdominal cavities. This section of the bowel was packed with feces, the fecal contents of the bowel being inspissated, much of it as round or oblong scybala, hard at the center and coated with a thin layer of softer feces. The intestinal mucosa was white in appearance, sodden in consistency and considerably swollen. But what appeared so unusual was the extent to which some of these scybala had sunken into the mucosa of the sigmoid. For a distance of 12 inches along the bowel wall internally these masses had become buried, so that the mucosa covered some completely, others but partially; on removing these masses, pockets were left in the mucosa, varying in depth from shallow erosions to deep excavations, some extending down to the peritoneal coat; one in particular had extended through the peritoneum causing rupture. No inflammation surrounded any of these depressions on the internal surface of the bowel, or was present in the mucous or muscular walls, only the peritoneum was inflamed. There was a general fatty infiltration of all the abdominal organs as well as of the bowel wall. The condition was stercoral ulceration, the scybala acting as foreign bodies, burying themselves in the bowel wall, a condition favored by prolonged constipation, the age of the subject, the general bodily impairment due to the obesity and weakening of the muscle wall of the bowel.

Value of Fluoroscopy in Heart Study.—In Bishop's opinion, fluoroscopy is particularly valuable as a routine procedure in the examination of large numbers of patients to determine which are deserving of detailed cardiologic study and which are not.

Ohio State Medical Journal, Columbus

19: 305-392 (May) 1923

Surgical Treatment of World War Veterans for Disabilities Due to or Aggravated by Military Service. D. Fisher, Danville, Ill.—p. 309.
Therapeutic Classification of Goiter. I. Bram, Philadelphia.—p. 312.
Aspiration and Pressure Treatment of Puerperal Mammary Abscesses. J. P. Gardiner, Toledo.—p. 316.
Symptomatology of Growing Fatigue Intoxication. E. H. Ochsner, Chicago.—p. 320.
Indications for Radium Treatment; Summary of Results. L. A. Pomeroy, Cleveland.—p. 324.
Diphtheria Preventive Work in Cleveland Public Schools. J. E. McClelland, Cleveland.—p. 328.
Symptoms of Eye Diseases and Their Relation to General Medicine. J. R. Echelbarger, Piqua.—p. 331.
Ultraviolet Energy in Tuberculopathies. A. J. Pacini, Chicago.—p. 334.
Clinical Evaluation of Fractional Gastric Analyses. J. Forman, Columbus.—p. 337.

Southwestern Medicine, Phoenix, Ariz.

7: 145-184 (May) 1923

Surgery of Chest. L. H. McKinnie, Colorado Springs.—p. 145.
Treatment of Carbuncle hy Excision. J. Vance, El Paso.—p. 150.
Laboratory Diagnosis of Typhoid Fever. G. Turner, El Paso.—p. 153.
Diagnosis of Mental Diseases. S. D. Swope, El Paso.—p. 155.
Asthma and Septicemia in Syphilis. R. A. Hernandez, Tucson, Ariz. —p. 159.
"Vicious Circle" of Nose. A. M. Wilkinson, Douglas, Ariz.—p. 161.
*Case of Perforation of Stomach. W. M. Randolph, Bisbee, Ariz.—p. 165.

Perforation of Stomach.—The points of interest in Randolph's case are the intermittent character of the pain with intervals of complete relief, the slight effect on the pulse and temperature, and the location of the mass. Tenderness was variable, first in the right and then in the left hypochondriac region, later in the right iliac. Pain was inconstant, no region being tender for more than a few minutes. Operation was advised but refused by the patient. A swelling just external to and opposite the umbilicus on the right side became more and more pronounced. When told after two weeks that an abscess was present, probably the result of a perforation in the appendix, and that operation must be done, the patient agreed. When the peritoneum was reached, it looked as though a cyst of some kind was present. Opening the peritoneum below the mass and packing off the cavity, adhesions were separated revealing the upper surface of the liver with the stomach and transverse colon adherent thereto. Freeing these adhesions, the abscess cavity was entered. It was bounded above by the inner portions of both the right and left liver lobes, below by the stomach and duodenum. There was a perforation in the stomach proximal to the pylorus and on the upper border.

Texas State Journal of Medicine, Ft. Worth

19: 1-58 (May) 1923

Syringomyelia. M. L. Graves, Galveston.—p. 11.
Syringomyelia and Syphilis of Central Nervous System, with Report of Case with Syringomyelia Syndrome. C. Uhler, Dallas.—p. 17.
Diagnosis and Treatment of Gallbladder Diseases. J. S. McCelvey, Temple.—p. 24.
Indications for Removal of Gallbladder. W. L. Crosthwait, Waco.—p. 27.
Focal Infections as Applied to Gynecologic Practice. F. L. Barnes, Houston.—p. 28.
Amenorrhea: Its Significance and Treatment. M. K. Robbie, San Antonio.—p. 30.
Rest Cure. E. V. Depew, San Antonio.—p. 33.
Nasal or Sphenopalatine Neurosis. M. B. Boebinger, New Orleans.—p. 35.
Bronchoscopic Removal of Forengn Bodies from Air Passages. H. T. Aynesworth, Waco.—p. 38.
*Extralaryngeal Blood Cyst in Seven Weeks Old Baby. H. B. Decherd, Dallas.—p. 41.
Typhus Fever. T. J. McCamant, El Paso.—p. 42.
Sanitary Water Supply. V. M. Ehlers, Austin.—p. 45.

Extralaryngeal Blood Cyst in Baby.—The location of the tumor in Decherd's case was slightly lower than the epiglottis, and between the larynx internally and the outer wall of the deep oropharynx externally. The child, aged 7 weeks, was suffering from dyspnea; and was in imminent danger of death. The parents would not permit an operation. The child was suspended over an associate's shoulder, with the head down, the left index finger was introduced and an attempt made to penetrate the wall of the cyst. This was extremely difficult on account of the mobility of the tumor. The tumor was then steadied from the outside, after which an attempt was made to destroy it as completely as possible, by means of a pair of sharp, curved scissors. Immediately 2 drams of dark clotted blood were evacuated. At once the child began to breath better, and when put to the breast nursed normally for the first time in several weeks.

Wisconsin Medical Journal, Milwaukee

21: 535-592 (May) 1923

*Case of Gastric Papillary Carcinoma. F. B. McMahon, Milwaukee.—p. 535.
Present Status of Infant Feeding with Butter-Flour Mixture of Czerny-Kleinschmidt. A. B. Schwartz, Milwaukee.—p. 539.
Rickets Review. H. K. Tenney, Madison.—p. 545.
*Lethargic Encephalitis in Wisconsin. W. F. Lorenz and W. J. Bleckwenn, Madison.—p. 547.
*Early Diagnosis of Chronic Cardiac Conditions. J. A. E. Eyster, Madison.—p. 549.
*Insulin Treatment of Diabetes. W. Thalhimer, Milwaukee.—p. 560.

Gastric Papillary Carcinoma.—Two fifths of the stomach was resected in McMahon's case for a tumor the size of a large orange, taking its origin on the greater curvature about two inches below the proximal line of resection, followed by an anterior gastrojejunstomy of the Polya-Balfour type. The operation was performed for the most part under local anesthesia, 0.5 per cent. procain. Microscopic examination showed a papillary carcinoma in the base of a papilloma of gastric origin.

Lethargic Encephalitis in Wisconsin.—The results of examining 1,445 spinal fluids during 1921 and 1922 and January and February, 1923, are given by Lorenz and Bleckwenn. In March and May, 1921, the number of fluids from lethargic encephalitis cases were relatively large. For 1922 the increase again occurred in February and continued through March, becoming somewhat less during April but again showing an increase in May. In June and July, 1922, the number of such fluids fell off. The increase in August, 1922, was mostly by fluids from cases of poliomyelitis and this condition continued during the succeeding four months. In January, 1923, there is again a great increase in the number of fluids from cases of lethargic encephalitis. This increase became still greater in February, 1923. From present indications it appears that there will be a larger number of lethargic encephalitis cases in Wisconsin this year than in the previous two years.

Early Diagnosis of Chronic Heart Disease.—The more essential points in early diagnosis of the more common types of chronic heart disease, Eyster says, are: first, careful evaluation of etiology and symptomatology; second, general systematic routine physical examination; third, accurate percussion; fourth, comprehensive roentgen-ray examination in doubtful cases, and fifth, the electrocardiogram. The most generally neglected of the aids to diagnosis, Eyster believes, is the roentgen ray. It is the one method which, imperfect as it is at present, gives the most accurate knowledge of the form and contour of the heart, the type of information which is of most value in leading to a correct diagnosis.

Insulin Treatment of Diabetes.—Thalhimer has treated a number of diabetics with insulin. He says the good results have been remarkable, and have occurred with mathematical precision. A given dose of insulin always produces a given result. This report is made to add confirmation to the results of Banting and Best and their collaborators, and to those being obtained in many other clinics.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

1: 841-886 (May 19) 1923

Disorders of Growth. H. Thursfield.—p. 841.
Refraction. T. H. Butler.—p. 843.
*Influence of Insulin on Acidosis and Lipemia in Diabetes. H. W. Davies, C. G. Lambie, D. M. Lyon, J. Meakins and W. Robson.—p. 847.
*Traumatic Paraplegia. O. F. Gotch.—p. 849.
Value of Symptoms in Early Diagnosis of Pulmonary Tuberculosis. D. G. M. Munro.—p. 851.
Case of Myasthenia Gravis. S. L. Heald and A. J. Wilson.—p. 852.
*Hemorrhage from Large Bowel Caused by Adherent Appendix Epiploica. R. E. Smith.—p. 853.

Influence of Insulin on Acidosis and Lipemia in Diabetes.—Davies and his associates studied this question in four cases, as it was considered advisable to make observations on cases with a moderate degree of diminished bicarbonate reserve in order to have a comparison between normal people and diabetics without any such reduction and those cases showing evidence of impending coma. The results obtained in these cases seem to indicate that insulin and carbohydrates, when given together in sufficient amounts to patients with diabetic acidosis, verging on coma, have a most beneficial and, indeed, spectacular effect. The rapid disappearance of the lipemia and ketone bodies of the blood, and the return to normal of the bicarbonate reserve, clearly indicate the means whereby this improvement is brought about. In one case, great increase in the blood sugar did not appear to have any deleterious effect—in fact, the evidence seems to show that an adequate supply of carbohydrate is most important in the treatment of such cases, and that in view of the known deficiency of glycogenic function, this supply must mainly be available in the form of sugar in the blood and tissues. It is noteworthy that the reduction of the blood sugar was not always accompanied by such an increase of the respiratory quotient as might be expected if the sugar had been burnt. Determination of respiratory metabolism in emotional subjects may not give a proper indication of the true respiratory quotient owing to irregularities of the breathing. Yet in such cases as these there is another factor to be considered. The liberation of alkali in the blood consequent on the removal of the ketone bodies would result in a compensatory retention of carbon dioxid. This might easily be sufficient in amount not only to mask any rise but even to produce a fall in the respiratory quotient.

Prognosis of Traumatic Paraplegia.—Fifty-six cases were studied by Gotch. All the patient when first seen had been wounded for three years, and some for five or six years. Of the fifty-six cases, thirty-nine were of the complete lesion type at the level of the fourth to the tenth segments; seventeen of the incomplete lesion type, ranging from the eighth dorsal to the lower lumbar segments. The incomplete cases with recovered bladder function show a gradual tendency to improve. Daily massage, systematic walking exercises, encouragement in self-confidence, all help this improvement. Such patients may with confidence be told that they will lead useful if restricted lives, and that no relapse need be feared. The completely paralyzed patient, however, is in a different class. His progress cannot be other than gradually downward. Treatment, therefore, should be directed toward the retardation of that process as much as possible. Expert nursing, massage and suprapubic drainage of the bladder are the essentials of treatment. There appears to be no doubt that as far as the patients' general condition is concerned, suprapubic drainage has a great advantage over a closed automatically acting bladder. The bladder is washed out twice daily and the tubing changed. A solution of 1 : 8,000 or 1 : 10,000 potassium permanganate is the most effectual irrigating lotion. The best type of rubber drainage tube is an esophageal tube. In cases without suprapubic drainage a retained catheter is used if there is a tendency to spasmodic retention. Massage of the lower extremities, back musculature, and abdomen is absolutely essential in all cases of paraplegia, whether complete or incomplete. Without it the patient very quickly develops contractures, and bed sores on the feet appear; his general condition deteriorates, and he becomes very much weaker, so that he will be unable to sit up if he is a completely paralyzed patient of a high level type. Massage should be given daily. It does not appear to influence the acute pains in the lower limbs. The importance of nursing in these cases cannot be overestimated.

Intestinal Hemorrhage Caused by Adherent Appendix Epiploica.—In two cases reported by Smith, the symptoms resembled subacute strangulation of a hernia, recurring at intervals, followed by the passage, after each attack, of a quantity of bright blood by the rectum. At operation in each case it was noted that an appendix epiploica of the pelvic colon was fastened to the fundus of the hernial sac; the neck of the sac was not unduly wide. Evidently, the fixation of the appendix epiploica from time to time dragged a part of the pelvic colon into the sac, causing a partial strangulation of this viscus after the manner of Richter's hernia, giving rise to hemorrhage from that part of the bowel, after its escape, by rupture of some of the congested vessels consequent on the reaction of the bowel. Radical cure of the hernia with removal of the offending appendices epiploicae entirely removed the repeated attacks of partial strangulation and the loss of blood from the lower bowel.

Canadian Medical Association Journal, Toronto

13: 301-378 (May) 1923

Surgical Possibilities in Traumatic Rupture of Intestine. A. L. Lockwood.—p. 311.
Rupture of Bladder. A. Groves.—p. 319.
Empyema and Abscess of Lung. F. B. Mowbray.—p. 320.
Surgical Treatment of Cerebral Conditions Causing Intracranial Pressure. H. A. Bruce.—p. 323.
Some Cerebral Manifestations of General Infection. N. B. Gwyn.—p. 326.
Anesthesia and Anesthetics. C. H. Bastin.—p. 329.
Postoperative Tetanus. W. D. Patton.—p. 332.
Quinidin Sulphate in Auricular Fibrillation. J. A. Oille and R. A. Jamieson.—p. 339.
Diagnostic Value of Age Incidence of Certain Diseases in Children. F. F. Tisdall.—p. 346.
Postwar Health Program, Halifax, Nova Scotia. B. F. Royer.—p. 349.
Primary Carcinoma of Prostate, with Extensive Glandular Enlargement, and Pain Along Course of Sciatic Nerve. J. F. Hazard.—p. 353.

Edinburgh Medical Journal

30: 189-232 (May) 1923

Some Factors Which Influence Dosage. D. M. Lyon.—p. 189.
Etiology of Acute Pancreatitis. W. Q. Wood.—p. 201.

Journal of State Medicine, London

31: 201-250 (May) 1923

Laboratory Methods in Investigation of Tuberculosis. A. L. Punch.—p. 201.
Public Health Aspects of Pulmonary Tuberculosis. A. H. Gosse.—p. 213.
Hydrogen Ion Concentration of Natural Waters in Relation to Disease. W. R. G. Atkins.—p. 223.
New Responsibilities of Maternity Hospital. J. W. Ballantyne.—p. 227.

Journal of Tropical Medicine and Hygiene, London

26: 135-150 (May 1) 1923

Dientameba Fragilis, Jepps and Dobell, 1917. Case of Human Infection in England. J. G. Thomson and A. Robertson.—p. 135.
Education in Its Relation to Physical and Mental Development of European Children of School Age in Kenya. M. MacKinnon.—p. 136.

Kitasato Archives of Experimental Medicine, Tokyo

5: 1-84 (Feb.) 1923

Immune Bodies Which React Against Alcoholic Organ Extract. K. Taoka.—p. 1.
*Experimental Study of Pathogenesis of Intestinal Infectious Ulcers. S. Yanagisawa.—p. 33.
*Local Effect of Vaccination on Follicular Ulcers in Intestine of Experimental Animals. S. Yanagisawa.—p. 55.
*Trombicula Deliensis, Probably Carrier of Pseudotyphus and Other Trombicula Species of Deli. E. Walch.—p. 63.

Pathogenesis of Intestinal Infections.—The development of infectious intestinal ulcers was studied experimentally by Yanagisawa on guinea-pigs and field mice. By feeding the cultures of a strain isolated from accidental epidemic intestinal ulcers of the mouse, experimental intestinal ulcers were successfully produced. The microscopic findings lead him to believe that the infection is enterogenic in origin, the preerred portal of the infection being the neck of the crypts in the neighborhood of the follicle. Having penetrated the epithelium, the bacteria first settle in the subepithelial layer, then through lymph spaces reach into the perifollicular tissue and involve the follicle itself, thus producing an abscess which involves even this defensive apparatus. As a matter of fact, the pathologic changes in the neighborhood of the follicle in this stage are more striking than those in the lesion of the epithelial cover. There were found distinct stages observed during the study of experimental infectious ulcer, namely: (*a*) the stage of hyperemia and epithelial erosions; (*b*) the suppurative and ulcerative stage; (*c*) the stage of cicatrization (in guinea-pigs); (*d*) the stage of perforation (in the field mice).

Local Effect of Vaccination on Intestinal Ulcers.—Yanagisawa found that *Bacillus typhi-murium*, strain Yanagisawa, fed to guinea-pigs could be recovered from the intestinal contents of these animals after a short time from feeding (between twenty-four and forty-eight hours). Following this initial stage of intestinal infection the bacteria disappear from the contents and overcoming the resistance of the body multiply gradually in the tissues (the latent stage). No evidence could be gathered from these experiments to support the theory that the portal of infection in intestinal infectious ulcerative diseases is to be sought in the tonsils. Preventive vaccination protects guinea-pigs completely against subsequent infection per os. Preventive vaccination increases the existing natural resistance so high that the bacilli which have even penetrated into the subepithelial layer of the intestine, cannot multiply and soon disappear from the body and from the intestinal contents. Yanagisawa's experiments supply no evidence whatsoever that immunized persons are apt to become carriers.

Trombicula Deliensis as Disease Carriers.—In Deli there have been found up to the present seven species of *Trombiculae*. Six of them are new; the seventh, Walch says, is probably a variety of the Formosan *T. pseudoakamushi* (non Tanaka) Hatori. Three of them attack man. Walch thinks that one species, *T. deliensis*, n. sp., is most probably the carrier of the pseudotyphus, a variety of Japanese river fever: (1) It belongs morphologically to Nagayo's tsutsugamushi group, and within this group it resembles closely *Trombicula akamushi* (Brumpt). (3) There are some suspicions founded on the geographic distribution. (3) It is the only human species which was captured also on rats, which rodents play such a large part in the epidemiology in Japan. (4) Out of approximately 400 *T. schuffneri* (the other possible carrier) captured on human beings, none have caused sickness. On rats have been detected, besides *T. deliensis*, three other species of *Trombiculae*. Of the Delian species there are three that bear club-shaped sensorial hairs; of all of them the nymphae have been cultivated, in this way proving them to belong to the genus *Trombicula*.

Lancet, London

1: 989-1038 (May 19) 1923

*Physiology of Insulin. H. H. Dale.—p. 989.
Life and Problems in Medical Utopia. J. Walter.—p. 993.
*Case of Periarteritis Nodosa. E. R. Carling and J. A. B. Hicks.—p. 1001.
Three Cases of Paraplegia Following Influenza. H. W. Gardner.—p. 1003.
Case of Intussusception Starting in Large Meckel's Diverticulum. N. L. Hood.—p. 1004.
*Case of Intestinal Obstruction. S. S. Rao.—p. 1004.
Treatment of Chronic Ulceration of Lower Extremities. R. K. Ford.—p. 1005.

Physiology of Insulin.—Dale believes that there is every indication that insulin will prove to have an importance for physiology and medical science far beyond that of its use in the treatment of diabetes. There are doubtless cases in which the natural function has been so completely lost, the islets so hopelessly degenerated, that not even a partial recovery can be anticipated. In such, insulin can prolong life and make it more tolerable, but only at the cost of daily injections which can never be remitted or reduced. All the experience which had accumulated before the introduction of insulin pointed to the possibility of restoring to many diabetics a reasonable measure of normal function by giving their overworked remnant of islet tissue as complete a rest as possible. In many cases this was only achieved by a restriction of diet which was almost unbearable, though still compatible with life. If insulin is now used simply to enable such patients to eat a large quantity of food so long as they can tolerate daily injections, they will get no permanent benefit, and insulin will be wasted. On the other hand, if it is used as an aid to the regimen of dietary rest, to enable these patients to obtain some recovery of normal function without such cruel reduction of their diet; if it is used to bring into this class, for which some measure of restoration is possible, others in whom, without insulin, no diet sufficient for life would keep the blood sugar down and give the overstrained islets a chance of recovery; then, indeed, it will be used to the real advantage of the patients, and be worthy of all the extraordinary enthusiasm which its discovery has aroused.

Periarteritis Nodosa.—Carling and Hicks assert that theirs is apparently the fifth case to be recognized during life, and the only patient who has so far recovered as to be able to return to work.

Intestinal Obstruction.—In Rao's case the obstruction was due to the formation of a complete adventitious sac by a process of chronic adhesive peritonitis.

Practitioner, London

110: 341-408 (May) 1923

Aortic Regurgitant Disease of Heart; Insurance Cases. R. D. Powell—p. 341.
Nasal Accessory Sinus Disease and Systemic Infection. W. S. Syme.—p. 353.
Value of Modern Methods in Medicine. G. E. Beaumont.—p. 363.
Hemoglobinometers. H. C. Lucey.—p. 373.
*Spontaneous Reduction of Intussusception. A. Fullerton.—p. 381.
Cortical Epilepsy, Excited on a Damaged Cortex by Peripheral Trauma. G. Robertson.—p. 383.
*Ductless Gland Therapy: Corpus Luteum. J. L. Masterman-Wood.—p. 387.
Etiology of Cancer, from Clinical Point of View. O. P. Turner.—p. 395.

Spontaneous Reduction of Intussusception.—Fullerton reports the case of a child, aged 3 months, that was taken suddenly ill. A sausage-shaped tumor could be felt in the right lumbar and umbilical regions. With the right index finger high up in the rectum, and the left hand on the abdomen, a bimanual examination was made. While this was being done, the tumor was felt to get smaller, and finally disappear. Almost immediately after withdrawal of the finger a loose blood stained motion was passed. Intussusception was diagnosed, and the patient was immediately transferred to the hospital. It was thought safer to operate, notwithstanding that the child's condition had improved in the hour that had elapsed since examination. On opening the abdomen, it was evident that an ileocecal intussusception had been present, and had become reduced. The cecum, which had a mesentery, was edematous and stiff, with a shallow cup-shaped depression on the caput ceci. The distal half of the appendix was deeply ecchymosed. The terminal 2 inches of the small intestine were edematous and ecchymosed. The contents of this segment were dark colored (blood stained) as seen through the walls of the bowel. Recovery was uneventful.

Use of Corpus Luteum Extract.—Experience in the exhibition of corpus luteum extract therapeutically has led Wood to rely on its use in cases of simple vomiting of pregnancy, dysmenorrhea, when this is neither obstructive nor membranous in type; mammary development at or after puberty, when menstrual life is fitful and sexual development is retarded, and in certain cases at the menopause when menstruation has not ceased.

Bulletins de la Société Médicale des Hôpitaux, Paris

47: 323-364 (March 2) 1923

*Serotherapy of Whooping Cough. Lesné and Petot.—p. 323.
Epidemic Encephalitis with Pains, Myoclonia and Hemorrhages. E. Donzelot and Krebs.—p. 325.
*Gigantism. A. Léri and Leconte.—p. 327.
*Lumbalization of the First Sacral Vertebra. Léri and Luton.—p. 331.
*Artificial Pneumothorax in Children. Armand-Delille et al.—p. 333.

Bismuth Treatment in Case of Early Malignant Syphilis. J. Huber and J. de Massary.—p. 348.
Case of Echolalia with Echokinesia. Guillain et al.—p. 353.
Spontaneous Luxation of Both Shoulders. Renaud and Rolland.—p. 358.
*Paradoxes of Pleural Symphysis. Rispal et al.—p. 361.
Hemolytic Action of Sodium Citrate. Valassopoulo.—p. 363.

Serotherapy of Whooping Cough.—Even as many as ten or twelve injections of convalescents' serum failed to modify the number and intensity of the paroxysms of coughing. But marked improvement was evident in the general condition, and in bronchopulmonary complications.

Early Gigantism.—The girl presents the aspect of a normal child, aged 12, except that the breasts are unusually well developed, but the child is only 6. The epiphyseal cartilages, the teeth and mentality correspond to the age of 6. The growth is actual gigantism for the age. The growth will probably stop six or seven years earlier than in the normal.

Painful Deformity of First Segment of Sacrum.—The young woman had been treated with extension for five months and immobilization in plaster for a year, but the pains were as severe afterward as before. The roentgen rays then disclosed excessive growth of bone on the left side of the first segment of the sacrum, articulating with the fifth lumbar vertebra. The pains seemed to be from the compression of bone and cartilage.

Artificial Pneumothorax in Tuberculous Children.—Armand-Delille and his co-workers analyze their experiences in twenty-three cases in which artificial pneumothorax seemed to be indicated among a total of 230 tuberculous children. It proved feasible in seventeen. The indications are the same as in adults. Hemoptysis seems to be more common in children; it was definitely arrested in three cases by the pneumothorax. It is impossible to determine beforehand whether the pleura will allow pneumothorax. The mediastinum and diaphragm are exceptionably depressible in children, and the pressure should be moderate, watching that the child breathes freely. No sound is heard when the trocar pierces the pleura—as in adults—and the manometer is the only index that the pleural cavity has been entered.

The Paradoxes of the Pleura.—Two more cases are described to add to the list of those in which artificial pneumothorax proved impossible although everything seemed favorable, or everything seemed unfavorable and yet the pneumothorax was easily realized. Nothing but the actual attempt at insufflation will decide the question.

47: 365-402 (March 9) 1923

Bismuth in Treatment of Inherited Syphilis. J. Huber.—p. 366.
*Arsphenamin by the Mouth. A. Renault.—p. 367.
*Protein Therapy of Hemorrhagic Conditions. R. Bénard.—p. 369.
*Roentgenography of the Lungs. P. Ameuille and L. Gally.—p. 378.
*Syphilis Simulating Encephalitis. Guillain and Alajouanine.—p. 380.
Heart, Eye, Vessel, Pupil and Respiratory Phenomena from Compression of Testis. D. Danielopolu and Radovici.—p. 382.
Oculovascular Reflex. Danielopolu et al.—p. 386.
*Phenolsuphonephthalein Test in Uremia. Sérane.—p. 392.
*Tension Arrhythmia. Rimbaud and Boulet.—p. 398.
*Hippocratic Fingers. J. Hatzieganu.—p. 399.

Arsphenamin by the Mouth.—Renault gave 0.4 or 0.5 gm. by the mouth every two, three or four days, to a total of 2 to 6 gm., but found this treatment unreliable. Sézary admits that the drug is less effective by this route, but adds that it may be worth a trial in keratin coated pills, under certain limited circumstances.

Protein Therapy in Hemorrhagic Conditions.—Bénard applied autoserotherapy in a case of purpura of seven years' standing, with hemophilic features. The general condition improved but the coagulation time lengthened until at times the blood ceased to clot at all, and the treatment was suspended. Blood coagulation proceeded irregularly in this case at the time and later. It teaches that the arrest of hemorrhage is not such a simple matter as generally assumed.

Radioscopy of Lungs.—Ameuille and Gally urge that only a stereoscopic roentgenogram reveals the true conditions in a healing tuberculous focus in a lung.

Syphilis Simulating Epidemic Encephalitis.—The man had severe pains in the right shoulder and arm for a month after an attack of supposed epidemic encephalitis. He was somnolent, with a tendency to ptosis, but the lumbar puncture fluid responded to tests for syphilis. The benzoin test is never positive in epidemic encephalitis alone. Under specific treatment the symptoms are improving.

Phenolsulphonephthalein Test in Uremia.—Sérane concludes from his 212 cases that, with defective elimination of the stain, the urea content of the blood should be examined frequently, as the prognosis is so grave with high and permanent uremia. Vallery Radot asserts that when this test gives normal findings, the urea in the blood and the Ambard constant may be expected to be normal likewise. If less than 50 per cent. of the stain is eliminated, the urea in the blood is probably above the normal range.

Tension Arrhythmia.—Rimbaud and Boulet apply this term to the dropping out of certain beats during auscultation of the pulse. The heart beat is regular, but the heart is too weak to contract enough to make the contraction audible. Hence the effect is that of arrhythmia although the rhythm may be normal.

Hippocratic Fingers with Chronic Endocarditis.—Hatzieganu comments on his eight cases of endocarditis lenta or recurring acute endocarditis, all of them acquired affections involving the left heart, and accompanied by curving of the nails over the ends of the fingers.

Archivio de Patologia e Clinica Medica, Bologna

2: 1-115 (March) 1923

Clinical Medicine the Science of the Individual. G. Viola.—p. 1.
*Production of Specific Hemo-agglutinins. A. Dalla Volta.—p. 21.
P Wave of Electrocardiograms. P. Sisto.—p. 33
*Diazo Test for Bilirubin in Blood. E. De Micheli and E. Greppi.— p. 58.
Clinical Diagnosis and Necropsy Findings. C. Barinetti.—p. 68.
*Diabetes Insipidus and Epidemic Encephalitis. E. Signorelli.—p. 89.
*Complement Content of Serum in Tuberculosis. F. Durand.—p. 101.
*Complement Fixation in Syphilis. L. Beretvàs.—p. 109.

Production of Specific Hemo-Agglutinins in Man by Parenteral Injection of Heterogenous Serums and Serum Sickness.—Volta found that therapeutic injections of large amounts of horse serum in man always produce agglutinins for horse blood corpuscles. They appear after six days and increase till the twelfth day. After four months the human serum had still the same titer. The intensity of formation of these agglutinins corresponds with the severity of serum sickness in the subjects. The antibodies formed may falsify the results of the Wassermann reaction and other reactions based on complement fixation.

Diazo Test for Bilirubin in Blood.—Micheli and Greppi confirm the value of van den Bergh's test and the difficulties caused by a different color of the standard solution and by the adsorption of bilirubin to proteins. They find, however, that the modifications proposed by different authors to overcome these drawbacks, are of no practical value.

Diabetes Insipidus as Sequela of Epidemic Encephalitis.—Signorelli reports a case of diabetes insipidus, which occurred in a boy, aged 16, after epidemic encephalitis. Pituitary extracts were without much effect. Morphin and especially lumbar puncture (Herrick) diminished the polyuria.

Complement Content of Serum in Tuberculosis.—Durand tested the complement content in healthy and tuberculous persons after injections of different vaccines. He finds that his test gives an index of the margin of reactivity of the organism. In tuberculous patients the response is in inverse proportion to the severity of the disease. The curve of alexin rises and falls quicker in tuberculous than in normal persons.

Philippson's and Kaup's Methods of Complement Fixation in Syphilis.—Beretvàs recommends both Kaup's and Philippson's methods for examining the anticomplementary action of the serum in order to avoid false positive results.

Riforma Medica, Naples

39: 313-336 (April 2) 1923

*Hyphomycetes in Stools. L. Scalas.—p. 313.
Fusiform Aneurysm of the Femoral Artery. E. B issalay.—p. 315.
Arteriovenous Aneurysm of Right Subclavian. E. Curti.—p. 318.

Significance of Hyphomycetes in the Stools.—Scalas investigated the feces from 50 patients, including 15 with respiratory affections, 11 with disease of the digestive tract, and 24 with various other affections, and found hyphomycetes present in 40 per cent. The oidium was cultivated from 17, the aspergillus from 2, and the two combined from 2. The oidium was found in 7 of the 11 cases of disease of the digestive apparatus. The positive findings were only in old chronic cases. Cultivation of the feces is always useful, he says, but it may be indispensable in the diagnosis of certain pneumomycoses in children. In certain affections of the lungs in adults, examination of sputum and stools for hyphomycetes may first clear up the diagnosis. As the spores resist the digestive juices, examination of feces alone may give the clue. In one child, aged 8, with symptoms suggesting pulmonary tuberculosis, the sputum was swallowed and none was available but typical colonies of *Aspergillus fumigatus* developed from the stools.

39: 337-360 (April 9) 1923

*Threshold of Resistance of Erythrocytes. V. Ariola.—p. 337.
Acute Leukemia with Small Spleen. Dazzi and Vercellana.—p. 338.
Necrosis of Thumb Complicating Measles. G. Martini.—p. 342.
Emphysema Complicating Measles. G. Martini.—p. 342.
Allergy and Anergy in Reactions to Tuberculin. Rondoni.—p. 343.
Present Status of Roentgen Rays in Internal Medicine. C. Guarini.—p. 344.

Threshold of Resistance of Blood Corpuscles.—Ariola has been studying on dogs, horses and sheep the lowering of the resisting power of the red corpuscles to hypotonic solutions after intravenous transfusion or subcutaneous injection of homogenous hemoglobin. It is probably, he explains, a phenomenon of colloid chemistry.

Brazil-Medico, Rio de Janeiro

1: 109-124 (March 3) 1923

*Public Health Service in Brazil. S. Libanio.—p. 109.
*Standardization of Scorpion Venom Antitoxin. R. Kraus and Rocha Botelho.—p. 120.

Public Health Service in Brazil.—This profusely illustrated article tells of the work in the state of Minas Geraes, the hospitals, the regional and isolation hospitals, the mobile hospitals (railroad cars and launches that are equipped for diagnosis and treatment and can be sent to the remotest hamlets), the draining of malarial marshes, installing of modern privies, and other measures of offensive and defensive hygiene. Libanio presented this report at the recent Conference on Hygiene at Montevideo, and stated that the immense progress realized is due mainly to the initiative and efforts of Dr. Arthur Bernardes during his four year term as governor.

Standardization of Snake Venom Antitoxins.—Kraus and Rocha Botelho report research on scorpion poison and its antitoxin which proves that the power of an antiserum to neutralize toxin in the test tube is no index of its curative power. They have now an effectual antitoxin for scorpion stings; snake venom antitoxin has no curative action on scorpion stings although it neutralizes the toxin in the test tube.

1: 173-186 (March 31) 1923

Dengue in Town Near Rio de Janeiro. A. Pedro.—p. 173.
*Polyvalent Snake Venom Antitoxins. R. Kraus.—p. 177.

Polyvalent Snake Venom Antitoxins.—Kraus reports experiences with antitoxins made from the venom of a number of different species of snakes, and emphasizes the necessity for standardization of snake antitoxins. He urges the appointment of a commission to study titration of such antitoxins and their efficacy against the bites of different species of snakes. The antivenins made by Calmette from Indian snakes do not protect against the bites of Brazilian snakes.

1: 201-214 (April 14) 1923

Teaching of Hygiene in the Schools. O. Clark.—p. 201.
Epizootic Lymphangitis. J. M. Gomes.—p. 203.
The Public Health Service in State of Para. Castro Araujo.—p. 204.

1: 215-232 (April 21) 1923

"Bacillary Dysentery in Rio." A. Lins.—p. 215.
Committee Report on Reform of University Administration and Medical Curriculum.—p. 217.

Gaceta Médica de Caracas

30: 1-16 (Jan. 15) 1923

*Case of Chorio-Epithelioma. A. Yanes, J. M. Romero Sierra and P. A. Gutiérrez Alfaro.—p. 1.
*Intraspinal Anesthesia. L. Razetti.—p. 7.
Intestinal Amebiasis. G. Trigueros.—p. 10.

Chorio-Epithelioma.—In the case described, the diagnosis wavered between retention of a fetus, a neoplasm and a mole. The mass extracted from the uterus weighed 137 gm. and proved to be a chorio-epithelioma. The general condition was so grave that hysterectomy was inadvisable, and the woman has been in good health for seven months since.

Intraspinal Anesthesia.—Razetti published last year a study of intraspinal anesthesia and in this belated *Gaceta* he publishes the comments on it by eleven different American surgeons to whom he had given reprints. Meeker of the Mayo Clinic states that there has been one death attributed to intraspinal anesthesia in 400 cases, and A. J. Ochsner relates that he has had only one mishap although he has been using the method for several years in cases in which ether seemed to be contraindicated. W. W. Keen disputes Jonnesco's statement—quoted by Razetti—that he had no deaths in 1,005 cases. Most of the others speak from only limited experience and an impression that the method is more dangerous than ether. Elliott Cutler says that he has used the method quite often, not only for abdominal operations, but also for the legs. He had one fatal case from the drug invading the medulla, and thinks that all patients run this danger. Daniel F. Jones states that he applies intraspinal anesthesia in cases in which he considers it less dangerous than ether—in diabetes, senile gangrene, and for operations on the rectum in much debilitated persons or those with respiratory affections, and in the second phase of the two-stage operation for rectal cancer. In two cases the loss of blood was so extensive that the extreme Trendelenburg position was required to save life. In a large proportion of the cases the fall in blood pressure was alarming. He writes "Perhaps from timidity, perhaps from lack of skill, perhaps from defective drugs, we get bad results, and shrink from using the method much," but he adds that it has and will have an important place in surgery. In conclusion, Razetti remarks that his statement that intraspinal anesthesia does not modify the blood pressure was based on Le Filliatre's method of preliminary injection of strychnin and use of the Trendelenburg position.

Semana Médica, Buenos Aires

1: 385-428 (March 1) 1923

Mercury Cyanid in Treatment of Syphilis in Children J. C. Navarro and E. A. Beretervide.—p. 385.
Training of Public Health Officials. G. Aráoz Alfaro.—p. 388.
*Aspergillosis of the Lung. F. Gardey.—p. 390.
Significance of Potassium Ions for Muscle Tone. S. M. Neuschlosz—p. 392.
Arsenicals in Treatment of Cardiac Edema. E. Troise.—p. 394.
*Cancer of Lip. R. Rodríguez Villegas.—p. 398.
Derodidymus Monster. R. Mestre.—p. 403.
The Army Manual Training School. C. Trejo.—p. 414.
*South-American Conference on Hygiene.—p. 416.

Aspergillosis of the Lung.—Gardey's patient, a boy, aged 15, had been presenting symptoms for two and a half months which seemed to indicate a progressive tuberculous lesion in the lung: cough, night sweats, fever, physical findings and blood stained sputum, pains and loss of flesh. The microscope revealed *Aspergillus fumigatus* in the sputum, and under potassium iodid and heliotherapy, the fever disappeared in two weeks. By the end of the second month, recovery was complete, with a gain of 12 pounds in weight.

Cancer of the Lip.—Fifty cases are analyzed with the ultimate outcome after removal of the growth. The influence of smoking was evident in the majority, including the one woman in the list. The cancer was on the upper lip in only one case. Enlarged glands were palpable in all but sixteen; these were mostly of the sclerosis type. A number of the patients have been free from recurrence for eight to nine years, and the plastic operations proved so successful that there is very little disfigurement. Recurrence is known in nine cases, local or in the glands, with return of the lesion again after excision of the recurrence. The technic is described.

The Conference on Hygiene.—The program and the resolutions adopted are reproduced with other data from the Third South American Conference on Hygiene, Microbiology and Pathology, and the First Reunion on Medical Pedagogics, held at Montevideo, Jan. 28, 1923.

1: 621-672 (April 5) 1923

*Autogenous Vaccines in Chronic Bronchitis and Asthma. R. A. Bullrich, A. Emánuel, G. Pérez Wright and A. L. Digiorgio.—p. 621.
*Convulsions in Children. J. Orrico.—p. 624.
*Madura Foot or Mycetoma. C. Pasquini López.—p. 629.
*Argentine School of Urology. J. Nin Posadas.—p. 633.

Autogenous Vaccines in Treatment of Chronic Bronchitis and Asthma.—Bullrich and his co-workers state that their experience with eight cases treated systematically with autovaccines testifies that each exacerbation of the affection requires a special autogenous vaccine, as the different flare-ups may be due to different bacteria or to symbiosis. This illustrates the difficulty of the method in chronic cases. Only three patients showed appreciable improvement.

Convulsions in Children.—Orrico is convinced that the convulsions occurring in young infants without appreciable cause must be credited to the spasmophilic diathesis. It may have been latent until some slight gastro-intestinal derangement upsets the precarious balance. Convulsions from acetonemia are not uncommon and the prognosis is grave. He encountered three such cases recently, with fatal outcome, in very young children. Articles on toxic convulsions seldom mention acetonemia as a cause, but Marfan and Pacchioni cite a few instances.

Mycetoma of the Foot.—Pasquini López describes a case in which every known method of treatment was systematically applied with no result except exaggeration of the lesion. Amputation proved necessary.

History of Urology in Argentina.—Nin Posadas asserts that so much has been published on genito-urinary subjects in Argentina as to justify the assumption of an Argentine school of urology. He lists 261 theses in this line, and other works, bringing the total to 749. Llobet leads with 29 articles; A. Castaño follows with 16; Texo with 13; Nin Posadas with 12; E. Castaño with 11; Ortiz 8, and Dasso 4. Thirty pages are devoted to this bibliography which is classified by author and subject.

Siglo Médico, Madrid

71: 277-304 (March 24) 1923

Cancer and Sarcoma. A. Morales.—p. 277. Cont'd.
Streptococcus Polyarthritis. G. R. Gonzalo.—p. 279.
Rheumatism of Dental Origin. A. Pulido Martin.—p. 280. Idem. L. Subirana.—p. 282.
Neurotropism. S. J. Tello and Ramón y Cajal.—p. 285. Conc'n.

71: 353-380 (April 14) 1923

History of Vaccination. Nicasio Mariscal.—p. 353.
Ocular Disturbances as First Manifestation of Epidemic Encephalitis. M. Marin Amat.—p. 356.
Treatment of Pulmonary Tuberculosis with Partial Antigen. A. Navarro Blasco.—p. 357.

71: 405-428 (April 28) 1923

Tribute to Jenner. J. F. Tello.—p. 405.
Suspended Roentgen Ray Apparatus. J. and S. Ratera.—p. 409.
Modern Cardiology. G. R. Gonzalo.—p. 410.
*Blood Count in Ovarian Insufficiency. Izquierdo.—p. 411.
Leprosy in Colombia. P. García Medina.—p. 415.

Blood Count in Ovarian Insufficiency.—Izquierdo relates that he has encountered only three cases of chlorosis in the last five years, and Naegeli only twenty-six in 50,000 patients at the Tübingen policlinic. Izquierdo gives the blood count in his three cases, and comments on the prompt improvement under iron, arsenic and ovarian treatment. Similar improvement was apparent likewise in girls at puberty with menstrual disturbances and other features indicating a chlorotic tendency, without actual chlorosis. The ovarian treatment alone answered the purpose in some of these cases. In others the blood and general condition improved but the menstrual irregularities persisted. In older women, the thyroid seemed to influence the blood picture more than the ovaries in the cases cited. He found the blood count in the physiologic menopause usually within normal range.

71: 429-452 (May 5) 1923

Jenner and Modern Vaccination. G. Marañón.—p. 429.
*Atypical Form of Epidemic Meningitis. G. R. Lafora.—p. 431.
*Ionization Treatment of Otitis Media. J. M. Barajas and de Vilches.—p. 432.
Vacuum Extraction of Cataract. L. Koeppe.—p. 436. Cont'd.
*Amaurosis from Quinin. M. Marin Amat.—p. 439.

Atypical Epidemic Meningitis.—Lafora reports a rapidly fatal case in a man aged 40 with a history of inadequately treated syphilis. The meningitis developed suddenly with headache and a convulsion, followed by aphasia, right hemiparesis and semiunconsciousness. The limbs on the paralyzed side presented choreiform movements, and meningococci were found in the lumbar puncture fluid. There was no rigidity of the neck, no Kernig, no herpes at first; death occurred the second day.

Ionization Treatment of Otitis Media.—Barajas irrigates the ear with a hot solution of zinc sulphate, 3.75 gm. in 60 gm. of glycerin, and water to 2 liters. Then he leaves 2 or 3 c.c. of the tepid solution in the ear and introduces a zinc wire electrode, the patient holding the negative electrode in his hand. He gives the details of six cases of chronic suppurating otitis media treated in this way with a 2 milliampere current for ten to thirteen minutes. In some cases the ear dried up completely in two days; in others the sitting had to be repeated. He followed Friel's technic, and regards it as an advance in treatment of rebellious otitis media.

Quinin Amaurosis.—Amaurosis in one eye and amblyopia in the other followed quinin treatment in the young man. He had taken 1 gm. a day for five days for recently acquired malaria. Vision gradually improved, but was only 1:2 in both eyes three months afterward, and both papillae were still somewhat blanched. This case warns of the need to suspend quinin at the slightest sign of visual disturbances, and to give nitrites and other vasodilators, with digitalis and strychnin to stimulate the vitality of the optic nerve fibers.

Archiv für klinische Chirurgie, Berlin

124: 199-386 (April 30) 1923

*Atrophy of Optic Nerve with Steeple Skull. O. Hildebrand.—p. 199.
*Gunshot Wounds of the Heart. H. Klose.—p. 210.
*Gastric Tumors of Nonmalignant Nature. Hünermann.—p. 258.
*The Parathyroids. K. Grasmann.—p. 276.
*Postoperative Jejunal Ulcers. Koennecke and Jungermann.—p. 316.
*Hyperplasia of the Thyroid in Children. Klose and Hellwig.—p. 347.
Surgical Anatomy of Axillary Artery. Gesellevitsch.—p. 362.

Operation for Atrophy of Optic Nerve with Steeple Skull.—Hildebrand has applied the operation he describes, five times on three children, and says that no harm of any kind resulted, no functional disturbance, while the scar is hidden in the eyebrow. Atrophy was arrested and improvement in vision followed; this was quite evident in one case. It answers the same purpose as Schloffer's operation but without the disfigurement entailed by the latter. The aim is to enlarge the optic foramen and thus release the optic nerve from pressure. He reached the foramen by separating the periosteum from the roof of the orbit, and chiseling a groove in the roof of the orbit back to the optic foramen. The upper margin of the foramen was then gouged away. Neither the eyeball nor the dura was injured. He gives the details of the cases and the technic of the operation.

Gunshot Wounds of the Heart.—This is Klose's second article on surgery of the heart and pericardium. He reviews the experiences on record with tamponing of the heart, the clinical symptoms of gunshot wounds of the heart, the prognosis and treatment. Pulling out the heart or bending it has sometimes arrested threatening hemorrhage from it, but this has to be done very cautiously. Silk is the only material to use for suture, he says. In eight cases on record a projectile lodged in the heart wall was removed on account of disturbances later. In 56 cases of gunshot wounds he has compiled, the mortality was 31.3 per cent. in the cases involving the left heart, and 38 per cent. in the right heart cases. Of the 32 patients given operative treatment, 31.3 per cent. died and 37.5 per cent. of the 24 treated conservatively. He concludes this forty-eight page article by reiterating that operative measures are always called for, except possibly when the wound is in the right heart. But even then, careful technic may reduce the grave prognosis which such injuries now offer.

Noncancerous Gastric Tumors.—Between 1902 and 1922, 1,125 tumors of the stomach were encountered at Eiselsberg's clinic; this included 745 cases of cancer, 7 of primary lymphosarcoma and 4 of myoma. The myomas were causing severe disturbance and the prompt removal restored complete health.

The prognosis is good also in the lymphosarcoma cases when removed early. Extirpation should be the rule also for a gastric polyp. One case of the kind is reported. The patient now, three and a half years later, complains of occasional pain in the stomach with diarrhea, but this may be attributable to the chronic pulmonary tuberculosis.

The Parathyroids.—Grasmann sifts the literature on the anatomy and surgery of the parathyroids, and reports his findings in seventeen male and thirty-three female cadavers, from the newly born to the age of 84. In thirty-two cases the thyroid was normal or only slightly enlarged; in eighteen there was a large goiter. The superior parathyroids were found in place in 90.6 per cent. of the subjects; in 86.2 per cent. they were in their normal position, in 6.9 per cent. higher and in 6.9 per cent. lower. The inferior parathyroids were found in only 84.3 per cent.; in 57.5 they corresponded to the lower pole of the thyroid, in 24 per cent. they were on a higher and in 18.5 per cent. on a lower level than this. In two cases the parathyroid showed pronounced fibrosis and in one case metastasis of a mammary cancer with metastasis in the spine; a hemangioma was found in some other cases. The extremely profuse blood supply to the parathyroids in most of the cases and the proximity to the largest branch of the inferior thyroid arteries suggests the importance of the internal secretion and the necessity for an unhampered blood supply for the parathyroids. In two cases there was only one parathyroid on one side and three on the other. With goiter, the parathyroids were rather smaller than usual. He concludes by insisting that there is no excuse for injuring the superior parathyroids in operations on the thyroid, but it is impossible to avoid injury of the lower parathyroids in all cases.

Postoperative Jejunal Ulcer.—In 1916 Lieblein could find only 124 instances of postoperative peptic ulcer on record, but the number had increased to 309 in Denk's compilation in 1921, and the last year added a surprisingly large number. At the Göttingen clinic, there have been 22 cases in a total of more than 520 operations on the stomach in the last ten years. In 2 cases the peptic ulcer recurred, so that two operations were required. All were men but 2, and the recurring ulcers were in men. Two of the patients succumbed after the operation. The interval before the peptic ulcer developed was very short in the majority, two weeks to two years, but in 3 the interval was three to nine years. The Göttingen experiences confirm that exclusion of the pylorus seems to invite peptic ulcer, especially Eiselsberg's technic, and when the gastric secretion has at least normal digestive potency. On the other hand, resection of the pylorus seems to ward off peptic ulcer. The pyloric portion of the stomach is not only the motor apparatus of the stomach but a regulating center for gastric chemistry. The gastro-enterostomy is liable to upset this delicate regulating mechanism and lead to secretion of a gastric juice of a peptic power out of all proportion for the work it has to do. This explains the postoperative ulcers.

Hyperplasia of the Thyroid in Children.—As most research on structure as connected with function of the thyroid has been done on adults, Klose and Hellwig offer the results of research in this line on fifteen children, aged from 8 to 16. The tabulated findings are so contradictory that the paradoxic behavior of the thyroid can be explained only by the general biologic law that gentle stimuli promote function and strong stimuli check it. This was evident in the two children with myxedema with abnormally large amounts of thyroid hormone in the blood stream. The goiter structure was of the colloidal type in all, with superposed exophthalmic goiter features in six of the total fifteen. Tachycardia was manifest in nine. The work issues from Schmieden's service at Frankfort.

Deutsches Archiv für klinische Medizin, Leipzig

142: 1-144 (March 30) 1923

*Thyroid and Motility of Intestines. G. Deusch.—p. 1.
*Excretion of Congo Red. H. Bennhold.—p. 32.
*Vasomotor Changes in Insufficiency of Heart. Müller.—p. 47.
*Genesis of Vesicular Breathing. A. Fleisch.—p. 62.
*Hemolytic Icterus. H. Curschmann.—p. 79.
*Bilirubinemia and Urobilinogenuria. Meyer and Heinelt.—p. 94.
*Eosinophilia. C. Klieneberger.—p. 110.
*Arteriosclerosis of Pulmonary Vessels. Mobitz.—p. 115.
"Volume Bolometry." S. Hediger.—p. 129.

Thyroid and Motility of Intestines.—Deusch emphasizes the almost constant obstipation in cases of hypothyroidism. The slower action seems to be localized in the colon. One of his patients suffered from three periods of obesity with constipation, recurring in winter. Thyroid treatment ameliorated both conditions. He experimented with different preparations from the thyroid (no thyroxin) on pieces of guinea-pig and rabbit intestine, on living rabbits with Katsch's "abdominal window," and by means of roentgen rays on men. He found that the thyroid preparations increased the tonus of the intestinal muscles and lowered the threshold for stimulation of peristalsis.

Excretion of Intravenously Injected Congo Red in Different Diseases, Especially Amyloidosis.—Bennhold injected 10 c.c. of a 1 per cent. solution of congo red intravenously, and determined the concentration of the dye in the serum four and sixty minutes after the injection. Healthy persons and patients with chronic nephritis and nephrosclerosis lose on the average about 20 per cent. in this hour. Patients with extensive amyloidosis lost over 40 per cent., usually over 60 per cent. In syphilitic nephrosis, and some other degenerative affections of the kidneys the loss was also considerable (over 40 per cent.), but the urine contained much congo red. On the contrary, in extensive amyloidosis the urine was almost free from congo red, which was bound, as necropsies showed, for a long time to the amyloid. It can also be used to stain selectively microscopic sections. In diseases of the liver, the elimination was frequently slowed down, but the results were not in proportion to the severity of the disease. One case of albuminuria is quoted in which the loss of dye in the serum was over 50 per cent., without great increase in the urinary elimination. Yet very probably no amyloid was present.

Vasomotor Changes in Chronic Insufficiency of the Heart.—Müller found that the characteristic lowering of blood pressure during sleep does not occur during decompensation. He believes that this is due to an increased vasomotor stability caused by a reflex from the heart as an attempt at compensation.

Genesis of Vesicular Breathing.—Fleisch believes that vesicular breath sounds are due to formation of whirls of the air streaming from the smallest bronchioli into the broader alveoli.

Symptomatology of Hemolytic Icterus: Familial Spastic Spinal Paralysis; Endocrine Symptoms. — Curschmann describes hemolytic icterus and spinal paralysis in a patient whose father has spinal paralysis. The patient presents certain eunuchoid symptoms. Curschmann, among eight cases of hemolytic icterus, saw four with more or less pronounced signs of endocrine disturbances.

Influence of Bile Secretion and Eating on Bilirubinemia and Urobilinogenuria.—Meyer and Heinelt found that healthy subjects have a slightly increased bilirubinemia and decreased urobilinogenuria during fasting and during the extraction of bile by the duodenal tube. Patients with affections of the liver and pernicious anemia behave contrary to this. Eating increases bilirubinemia in these cases.

Eosinophilia. — Klieneberger found eosinophilia in some affections in which a loss of eosinophils is the rule (especially in one case of lobar pneumonia).

Insufficiency of Heart Due to Arteriosclerosis of Pulmonary Vessels.—Mobitz diagnoses primary sclerosis of pulmonary arteries if the heart sounds are clear, or if there is a diastolic murmur in the pulmonalis, with marked hypertrophy and insufficiency of the right heart and cyanosis in comparatively young persons. Roentgen examination is necessary.

Deutsche medizinische Wochenschrift, Berlin

49: 433-466 (April 6) 1923

Pathology and Treatment of Affections of Kidneys. III. F. Umber.—p. 433.
Treatment of Sterility of Women. Nürnberger.—p. 436. Conc'n.
Case of Severe Anemia in Pregnancy. E. Rumpf.—p. 438.
*Aneurysms of Cerebral Arteries. Loewenhardt.—p. 439.
*Dengue. T. Kaku.—p. 441.

Hypnotic Treatment. Haupt.—p. 442.
*Wassermann Reaction in Endocarditis. W. Kaldewey.—p. 443.
Recurring Mercury Exanthemas. H. Sieben.—p. 444.
Germ-Free Lymph for Vaccination. F. Kirstein.—p. 444.
*Germ-Free Lymph Against Smallpox. E. Illert.—p. 446.
Catheterization of Eustachian Tubes. H. Haike.—p. 446.
Sterile Pocket Apparatus for Injections. Wietfeldt.—p. 447.
Taking and Sending Blood for Leukocyte Count. P. Schwarz.—p. 449.
*Roentgen Diagnosis of Chronic Appendicitis. F. Ehrlich.—p. 449.
Fundaments of a History of Development of Medicine Since Foundation of Cell Theory. P. Diepgen.—p. 450.
New Medical Curriculum. Schieck.—p. 452.

Clinic of Aneurysms of Cerebral Arteries.—Loewenhardt considers the presence of blood in cerebrospinal fluid as a decisive sign of ruptured aneurysm of cerebral vessels, if an arteriosclerotic bleeding is excluded. Septic emboli are frequent causes.

Dengue.—Kaku considers as pathognomonic signs of dengue the pains in the joints, which stop very quickly, and a sensory paralysis of the skin on the extremities. The association of the exanthem with herpes and the free V-shaped zone between the scapulae are very characteristic.

Wassermann Reaction in Endocarditis.—Kaldewey publishes a case of chronic endocarditis without clinical or anatomic signs of syphilis. Yet the Wassermann reaction was once 2 plus and once 3 plus with different antigens.

Germ-Free Smallpox Lymph.—Illert found large individual differences in rabbits tested with vaccine. Tests on man are necessary if the value of lymph is to be determined.

Roentgen Diagnosis of So-Called Chronic Appendicitis.—Ehrlich diagnoses chronic appendicitis, if the ascending colon is not empty six hours after the contrast test meal. He orders, however, the patient to take an ordinary meal one and one-half hours after the test meal.

Klinische Wochenschrift, Berlin

2: 621-668 (April 2) 1923

Development of Surgery of Chest in the Last Twenty-Five Years. O. Kleinschmidt.—p. 621.
*Hereditary Constitutional Affections. K. H. Bauer.—p. 624.
*Operation for Exophthalmic Goiter. Klose and Hellwig.—p. 627.
*Influence of Cholelithiasis on Gastro-Intestinal Tract. Rohde.—p. 631.
Primary Suture in Operations for Gallstones. Heller.—p. 632.
Fernet's Reagent in Surgical Tuberculosis. A. Kohler.—p. 635.
*Syphilitic Spondylitis. M. Jessner.—p. 638.
"Radical Operation of Hernias in Children." Gohrbandt.—p. 640.
*Herpes-Encephalitis of Rabbits. Jahnel and Illert.—p. 640.
*Precipitating Meiostagmin Reaction. G. Izar.—p. 641.
Intestinal Fistula from Oxyuriasis. W. Fischer.—p. 642.
Treatment of Poliomyelitis in American Hospitals. H. Bucholz.—p. 644.
Treatment of Cholelithiasis. Enderlen and Hotz.—p. 648.
Rabies in Germany Since the War. J. Koch.—p. 650.

Hereditary Constitutional Systemic Affections and the Mesenchyma.—Bauer found that the pathologic changes in osteogenesis imperfecta are not limited to the bones, but affect many other tissues, like cartilage, connective tissue, vessels, hemopoietic organs and the dentine, but not the enamel of teeth. All the mesenchymal tissue is affected, but all ectodermal and entodermal escapes. The intercellular substance of the mesoderm is the diseased part, and the phylogenetically youngest tissues are more affected than the older ones. A similar systemic affection of the derivatives of mesoderm (fragile bones, weak muscles, hypoplasia of vessels) characterizes the asthenia, except that the main fibers (for instance of muscles) are affected instead of the intercellular substance. Chondrodystrophy and the progressive muscular dystrophies are other examples of affections limited to mesodermal structures. Shaffer, independently of Bauer, found analogous affections of the ectoderm in amaurotic idiocy and hereditary spinal spastic paralysis. All these phenomena can be explained as mutations. Since mutations allow us to conclude as to the previous presence of a corresponding normal hereditary factor in normal organisms, we may assume the existence of gens which have a definite correlation with tissues derived from one or the other embryonic layer.

Is Resection of the Cervical Sympathetic a Rational Operation for Exophthalmic Goiter?—Klose and Hellwig believe that the only rational surgical treatment consists in resection of the thyroid. Resection of the sympathetic may be used only in severe exophthalmos.

Mutual Influence of Cholelithiasis and Gastro-Intestinal Tract.—Rohde points out that cholelithiasis may cause an excessive increase in motility of the stomach. In 75 per cent. of cases of cholelithiasis, the acidity of the stomach juice is lowered or absent.

Syphilitic Spondylitis.—Jessner reports three cases of syphilitic spondylitis. It may occur in the first years after the infection. The diagnosis between tuberculous and syphilitic spondylitis is made chiefly by complement fixation and by the success of specific treatment.

Cerebrospinal Fluid in Experimental Herpes-Encephalitis of Rabbits.—Jahnel and Illert were able to demonstrate latent herpetic encephalitis in rabbits by examining the cerebrospinal fluid for pleocytosis.

Precipitating Meiostagmin Reaction.—Izar gives the technic of a flocculation reaction with ricinic acid in malignant tumors.

Medizinische Klinik, Berlin

19: 451-486 (April 8) 1923

Treatment of Goiter. E. Roos.—p. 451.
Spasm of Vessels in Intermittent Clandication. E. Zak.—p. 454.
Ulcer of Duodenum. R. Schmidt.—p. 455. Conc'n.
Treatment of Ulcers of Stomach and Duodenum with Silver Salts. P. Saxl and R. Strisower.—p. 457.
Roentgen Treatment of Polyglobulia. J. Schütze.—p. 458.
Strangulation Ileus in Acute Appendicitis. B. Hein.—p. 460.
Tuberculosis and Pregnancy. W. Neumann.—p. 461. Conc'n.
Sensitization in a Case of Formaldehyd and Procain Eczema. E. Rosenbaum.—p. 462.
*Etiology of Goiter. A. Soucek.—p. 463.
Klapp's Use of Broad Tricot Tube in Extension of Lower Extremity. Esau.—p. 464.
*Blood Pressure and Pulse in Splanchnic Anesthesia. T. Schmidt.—p. 465.
Simple "Two Drop Method" for Determination of Blood Sugar. H. Boruttau.—p. 466.
Alleged Severe Injury of Spine. H. Engel.—p. 467.
Atropin, Strychnin and Epinephrin. C. Bachem.—p. 468.
Uterine Hemorrhages. E. Runge.—p. 469.
Survey of Research in Tuberculosis. H. Gerhartz.—p. 471.

Etiology of Goiter.—Soucek reports two cases of goiter in children. In one it was probably conditioned by the habit of extreme dorsal extension of the neck; the other child used to recite with a loud voice. These cases confirm the popular belief that a goiter may form from "blowing up" the neck. It is possible that compression of the vessels may cause it, especially if the gland has the pubertal tendency to increase in size.

Blood Pressure and Pulse in Splanchnic Anesthesia.—Schmidt did not find any constant action of splanchnic anesthesia on the blood pressure or pulse rate. The psychic alteration seems to interfere with the results. He mentions Hoffmann's method of infusing 50 c.c. of a 0.5 per cent. solution of procain, with addition of epinephrin, into the field of operation in the abdomen. Since he used this solution, with addition of potassium sulphate, he has never observed abdominal shock after laparotomies.

Münchener medizinische Wochenschrift, Munich

70: 415-450 (April 6) 1923

*Psychoses and Infectious Disease. M. Rosenfeld.—p. 415.
*Urinary Elimination on Different Diets. K. Beckmann.—p. 417.
*Undernutrition and Diseases. A. Bittorf.—p. 419.
*Gastroscopic Investigation of Ulcers. Schindler.—p. 421.
Reappearance of Epidemic Encephalitis. W. Scholz.—p. 423.
Neo-Arsphenamin Injuries, Especially Encephalitis. Maerz.—p. 424.
Poliomyelitis of Children and Its Treatment in the Acute and the Reparative Stage. F. Hahn.—p. 425.
*Infectious Etiology of Ozena. B. Busson.—p. 426.
Verrucous Endocarditis. Reye.—p. 427.
Treatment of Syphilis with Melting Rods Containing Mercury. P. Mulzer.—p. 428.
*Repeated Primary Syphilitic Affections. F. Wirz.—p. 429.
*Urobilinogen Reaction as Warning Sign. E. Kahn.—p. 431.
Deep Thermometry in Diathermy. F. Kraus.—p. 431.
Treatment of Enuresis. K. Ochsenius.—p. 432.
Preparation of Goldsol Solution. Custer.—p. 432.
Electrode with Changeable Surface for Diathermy. H. Lewin.—p. 433.
"Portable Apparatus for Artificial Pneumothorax." E. Dorn.—p. 433.
Case History in Diagnosis of Heart Disturbances. Grassmann.—p. 434.
Choice of Children Suitable for Balneotherapy with Salt Water. Hess.—p. 435.
Liebreich's Method of Demonstrating Erythrophagocytosis, Eosinophilia in Vitro and Charcot-Leyden's Crystals from Human Blood. A. Neumann.—p. 437.

Relations Between Psychoses and Infectious Diseases.—Rosenfeld finds that the number of reliable observations on the curative effect of infectious diseases on psychoses is very small, if we consider the large number of patients who become infected during treatment in asylums. He observed a favorable influence of typhoid fever in some patients with affective disturbances of recent (two to three months') origin. Severe epilepsy and catatonic schizophrenia of long standing were not influenced.

Urinary Elimination of Acid and Alkali in Health and Nephritis on Different Diets.—Beckmann confirms the observation that the diet influences the hydrogen ion concentration in the urine. In some renal affections the variability of the hydrogen ion concentration was diminished.

Undernutrition and Diseases, Especially Atypical Forms of Pernicious Anemia.—Bittorf finds that carbohydrates are innocuous in pernicious anemia. Proteins and fat should be restricted, and their digestion aided by pancreatic preparations.

Gastroscopic Investigations on the Healing of Ulcers.—Schindler does not advise gastroscopy in pyloric ulcers, because it is extremely difficult. Other gastric ulcers may be observed easily. They may heal under strict Leube's treatment in five and one-half weeks.

Infectious Etiology of Ozena.—Busson reports on Shiga's investigations, which confirm Perez' findings of *Coccobacillus fetidus ozaenae*.

Three Times Repeated Primary Syphilitic Affections.—Wirz had occasion to treat a young girl three times for a syphilitic infection, which had all the characters of primary induration.

Urobilinogen Reaction as Warning Sign in Arsphenamin Injuries.—Since the increase of urobilinogen in the urine is a sign of probable injury to the liver, Kahn recommends this simple test.

Wiener klinische Wochenschrift, Vienna

36: 249-286 (April 9) 1923

Art and Medicine. K. F. Wenckebach.—p. 249.
*Relation of Iodin Treatment to Arteriosclerosis. J. Wiesel.—p. 252.
Anaphylactoid Rheumatism. J. Bauer.—p. 256.
*Familial Pernicious Anemia. A. Decastello.—p. 258.
*Dilatation of Left Auricle. Elias and Hitzenberger.—p. 260.
Heart Sounds and Murmurs. R. Fleckseder.—p. 261.
*Pathogenesis of Arteriosclerosis. Hess and Weiner.—p. 263.
Treatment of Goiters with Iodin. Jagic and Spengler.—p. 264.
Different Forms of Hypertension. H. Kahler.—p. 265.
*Venous Blood in Intermittent Claudication. P. Neuda.—p. 268.
*Chronic Syphilis and Streptothricosis of Lungs. Neumann.—p. 268.
*Etiology and Pathogenesis of Gastric Ulcer. J. Pal.—p. 270.
General Treatment in Chronic Arthritis. C. Reitter.—p. 270.
*Substances with Hyperpyretic Action. P. Saxl.—p. 272.
Endocrine Glands and Digestive System. G. Singer.—p. 273.
Osmotic Factor in Osmotherapy and Protein Treatment. Stejskal.—p. 276.
Parkinsonianism and Suicide. G. Stiefler.—p. 277.
A Letter by J. Skoda. H. Schroetter.—p. 278.

Relation of Iodin Treatment of Arteriosclerosis to Its Clinic and Pathology.—Wiesel finds that the diagnosis "arteriosclerosis" is made far too frequently. Many patients have simply symptoms of beginning old age, with disturbances of the endocrine glands (sexual, thyroid). One part is of hypothyroid, the other of hyperthyroid type. Even isolated spasms of vessels—including coronaries—do not warrant a diagnosis of arteriosclerosis. Iodids ameliorate the subjective symptoms in only a part of the cases. Many symptoms supposed to be arteriosclerotic, like loss in weight and disturbances of the heart, are probably due to the treatment with iodids.

Familial Pernicious Anemia.—Decastello publishes the clinical histories of three sisters and their uncle (brother of mother) with two necropsies. All of them suffered from progressive pernicious anemia with a very rapid course.

Diagnosis of Dilatation of Left Atrium.—Elias and Hitzenberger with moderate percussion in patients with dilatation of the left auricle find paravertebral dulness near the third and fifth thoracic vertebrae. Its shape is oval and it measures about four or five fingerbreadths. The unexpectedly high position of the dulness is explained by dislocation of the left bronchus and the beginning part of the descending aorta.

Pathogenesis of Arteriosclerosis. — Hess and Weiner put one foot of very young dogs alternately into very cold and warm water. After a period of a hundred days they found changes in the elastic fibers of the media.

Oxygen Content of Venous Blood in Intermittent Claudication.—Neuda found in four cases of intermittent claudication a light color of the venous blood of the affected extremities. According to the present theory, one should expect a highly deoxidized blood instead.

Clinic and Treatment of Chronic Infiltrating Syphilis and Streptothricosis of Lungs.—Neumann demonstrates by two cases the importance of carefully weighing the absence of Koch bacilli in apparent tuberculosis. A woman who for one and one-half years had had an extensive dulness, râles and blood stained sputum had a positive Wassermann reaction and recovered after antisyphilitic treatment. A cachectic boy with high temperature, hemoptysis and purulent sputum was treated without results with artificial pneumothorax. The sputum contained micro-organisms resembling actinomyces or cladothrix. He recovered after treatment with sodium iodid and roentgen irradiation. Neumann quotes the first patient, who noticed that all the physicians wondered why she had no bacilli. Yet nobody drew the correct deduction.

Etiology and Pathogenesis of Gastric Ulcer.—Pal points to the fact that gastric ulcers are rare in Egypt. Yet it is known that abuse of coffee and tobacco is great there. Other alleged traumatic factors, like indigestible food and hasty eating, are also quite common. The only certain pathogenic agent so far is lesion of vessels, especially emboli. Degeneration of nerve fibers in the pneumogastric nerve is so frequent in necropsies that it cannot be considered as an explanation of the etiology of ulcers.

Influence of Substances with Hyperpyretic Action on Fever.—Saxl finds that a chill, provoked especially by an intravenous injection of certain substances (proteins and nonproteins), can stop at any time the fever. Intramuscular injections do not cause such a strong chill, and act therefore more slowly.

Zeitschrift für Kinderheilkunde, Berlin

35: 127-206 (April 16) 1923

*Nutrition of Tuberculous Infants. R. Wagner.—p. 127.
*Nutrition of Tuberculous Infants. W. M. Happ and R. Wagner.—p. 152.
Stomach Function Tests in Healthy Infants. F. Demuth.—p. 176.
Roentgenometric Studies on Growth of Healthy and Rachitic Infants. H. Wimberger.—p. 182.
*Clinical Hematology of Infants. E. Stransky.—p. 195.
*Fate of Tuberculin in the Organism. K. Peyrer.—p. 202.

Nutrition of Tuberculous Infants.—Wagner in nine tuberculous infants found that the use of milk free from fat diminished the expected increase in body weight.

Nutrition of Tuberculous Infants.—Experimenting on the nine tuberculous infants mentioned above, Happ and Wagner found that fat-free diet favored the development of tuberculosis (lack of vitamin A) while addition of cream opposed it.

Clinical Hematology of Infants.—Stransky found many normoblasts in a child, aged 12 months, with pulmonary stenosis and polyglobulia.

Fate of Tuberculin in the Organism.—Peyrer was not able to demonstrate the presence of injected tuberculin after twenty-four hours in healthy and tuberculous animals. It does not occur in the urine.

Zeitschrift für Urologie, Leipzig

17: 129-192, 1923

*Nontuberculous Strictures of Urethra. G. Praetorius.—p. 129.
Isolated Tuberculosis of Bladder. R. Hottinger.—p. 146.
Four Cases of Foreign Bodies in Male Bladder. J. P. zum Busch.—p. 150.
"Diagnosis and Treatment of Suppuration of Kidneys." E. Pflaumer.—p. 152. Reply. K. Scheele.—p. 153.
Milking Function of the Renal Calices. Ringleb.—p. 154. Comment. Wendriner.—p. 155.
Roentgenologic Diagnosis in Urology. Immelmann.—p. 156.
Contrast Methods in Urologic Roentgen Diagnosis. Mosenthal.—p. 163.

Value of Pyelography. Von Lichtenberg.—p. 169.
Multiple Abscesses in Chronic Gonorrhea. Siedner.—p. 176.
*Pneumoradiography. P. Rosenstein.—p. 177.
Indications and Contraindications of Pyelography. Casper.—p. 182.

Nontuberculous Strictures of Prostatic Part of Urethra.—Praetorius finds that nongonorrheal strictures of the prostatic part of the urethra are not infrequent. Though they always allowed a comparatively large catheter to pass, they may cause severe subjective distress and retention of urine. The nearer a stricture is to the bladder, the more disturbance it causes.

Pneumoradiography.—Rosenstein reports three instances of untoward effects of oxygen insufflation among his 300 instances of pneumoradiography. One of them was a hysteric blindness (before the oxygen had been insufflated) and two others were certainly embolism of oxygen in the brain. The three patients all recovered. Yet he does not believe any more that the method is suitable for ambulatory examination.

Zentralblatt für Chirurgie, Leipzig

50: 49-80 (Jan. 13) 1923

*Treatment of Trigeminal Neuralgia. Kulenkampff.—p. 50.
A Stab Wound of the Brain. S. Keszly.—p. 54.
Various Modifications of Bier's Operation for Gastroptosis. D. Maluschew.—p. 55.
A Simple Maneuver to Make Gastroscopy Less Dangerous. W. Sternberg.—p. 57.
Horizontal Inferior Luxation of the Patella. A. Henrichsen.—p. 62.

Treatment of Trigeminal Neuralgia with Injections of Alcohol.—Kulenkampff recommends that injections of alcohol by the Schlösser basal method be abandoned in trigeminal neuralgia on account of the severe injuries caused thereby. Instead, he advocates various forms of injections into the gasserian ganglion, the seat of the true neuralgia. If the passage through the foramen ovale is obstructed, the route through the foramen rotundum should be chosen. Disturbances are avoided by cautious injection of small doses and exact observation of the more remote symptoms.

50: 697-744 (May 5) 1923

*Ossification Disturbances of the Calcaneum. E. Haim.—p. 698.
Case of Lingual Goiter. K. Urban.—p. 701.
*Treatment of General Peritonitis. Béla v. Lükö.—p. 703.
Large Irreducible Inguinal Hernia. J. Becker.—p. 705.
Management of Tuberculous Stump of Ureter. G. Praetorius.—p. 707.
Retrovesical Internal Hernia. W. Wolf.—p. 709.
Device to Support the Trunk During Application of Fixation Bandages. F. Loeffler.—p. 711.
"Window Drainage." Comment. M. zur Verth.—p. 712.
Management of the Stump After Cholecystectomy. E. Seitz.—p. 713.

Ossification Disturbances of the Calcaneum as a Morbid Entity.—Haim admits that the pathogenesis of ossification disturbances of the calcaneum is not understood. They doubtless belong to the same class of affection as Perthes', Schlatter's and Köhler's disease. Trauma, tuberculosis, syphilis and rickets have nothing to do with the disease process. It is probably a developmental disturbance, occasioned possibly by a disturbance of internal secretion. Diagnosis with roentgen rays is not difficult. Prognosis is good when a firm bandage is applied; operative intervention is not indicated.

Treatment of General Peritonitis.—Béla von Lükö for a time used camphorated oil in the treatment of general peritonitis, and reduced the mortality rate somewhat, but in several instances abscesses developed in Douglas' pouch. Then, for a number of years, he used ether in place of camphorated oil. In every case of perforation peritonitis he injected from 80 to 100 gm. of ether into the abdominal cavity. In 200 cases no harmful effects were observed and the mortality was reduced over 50 per cent. (now 28-30 per cent.). Of late he has been trying a mixture of camphor and ether, but cannot state as yet whether this will effect a further reduction of the mortality. The effect of ether is often instantaneous. The facial expression of the patient changes; the color improves and the pulse grows stronger.

Zentralblatt für innere Medizin, Leipzig

44: 17-32 (Jan. 13) 1923

*Vitamins and Treatment of Obesity. G. Rosenfeld.—p. 18.

Vitamins and Treatment of Obesity.—Rosenfeld finds that therapeutic diets may cause untoward effects, if they do not contain some vitamins. He observed depressed moods in some patients treated for obesity with his fat-free diet. Addition of butter would have increased too much the caloric value of the food. An extract of carrots, which contains vitamin A, was substituted.

Casopis lekaruv ceskych, Prague

62: 137-164 (Feb. 10) 1923

Suicidal Stab and Cut Wounds of Neck. F. Hajek.—p. 137.
*Phagocytosis in Tuberculosis. A. Doskocil.—p. 141.
Surgical Treatment of Affections of Stomach. E. Haim.—p. 144.
Preparations of Silicium in Treatment of Tuberculosis and Arteriosclerosis. Mladejovsky.—p. 147.

Phagocytosis in Tuberculosis.—Doskocil confirms Bergel's observation on phagocytosis and the loss of the acid-fast property of tubercle bacilli in the mononuclear cells of the peritoneal exudate. He never saw them included in small lymphocytes.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

1: 1501-1612 (April 14) 1923

*Immunity to Tuberculosis. C. H. H. Spronck.—p. 1505.
*Neuroses. I. Zeehandelaar.—p. 1517.
The Onset of Puberty. L. Bolk.—p. 1526.
Experiences with Abortion in Country Practice. A. Molema.—p. 1534.
Occupational Hazards of Photoengravers. W. R. H. Kranenburg.—p. 1563.
The Fight Against Tuberculosis. C. Metzlar.—p. 1567.

Experimental Research on Immunity to Tuberculosis.—Spronck reports five important facts from his experiments. He admits that, even at the best, immunity against tuberculosis, however achieved, is weak and partial. But to this the majority of us owe our health. He has found that subcutaneous injection of an extract of tuberculous tissue from one guinea-pig will confer the specific allergy on another, so that the healthy guinea-pig then responds to tuberculin tests as if it were tuberculous. The tissue extract contains something—which he calls tuberculan—with the properties of an antigen. This substance is lacking in all tuberculins; it is probably the same product to which McJunkin called attention in 1921. Spronck reports further that injection of less than 5 c.c. of blood or serum from a tuberculous guinea-pig caused healthy animals to respond positively to tuberculin tests. We have thus an actively sensitizing vaccine and a passively sensitizing serum at our disposal. "It is almost incredible that so little attention has been paid to that something in extracts of tuberculous tissues which renders them so much more violently toxic than extracts of healthy tissues when injected into sound animals." Spronck found that this toxic action was lost by standing, and he assumed that this was due to the binding of the tuberculan by an antituberculan. When injected at once, the tuberculan exerts a toxic action while the antituberculan allergizes. On standing, the two combine, and the extract displays no toxic action when injected. Addition of tuberculin to the fresh extract also annuls its toxic action; the tuberculin binds the tuberculan. The same effect is realized by addition of serum containing antituberculan. He found further that by addition of 5 or 10 per cent. tuberculin to the fresh extract, the antituberculan was bound by it, leaving the tuberculan in its pristine potency, and this was not modified by further standing. Tuberculan seems to be a product or element of tubercle bacilli, developed in tuberculous tissue, which stimulates the production of an antibody. By infusion of serum containing this antituberculan, we can confer on a normal animal all the advantages of the sensitized animal as is evident by its positive response to tuberculin tests. The tuberculan in tuberculous animal tissues is mixed with animal proteins which interfere with the clinical application of an actively sensitizing vaccine, but research, prophylaxis and treatment along this line are logical and promising.

Treatment of Neuroses.—Zeehandelaar contends that the question is not whether the affection is organic or functional, but, how much of it is organic or how much functional. The mercury lamp, oxygen and other physical measures, are often valuable adjuvants, far better than drugs. As the hemoglobin percentage increases, the nervous asthma or other neurosis subsides more promptly under psychotherapy.

Acta Medica Scandinavica, Stockholm

58: 1-108 (April 10) 1923

*Medical Treatment of Gastric and Duodenal Ulcer. Nielsen.—p. 1.
Two Cases of Recurring Spontaneous Pneumothorax. Dahlstedt and Haeger.—p. 43.
Average Erythrocyte Count in School Children. E. Als.—p. 63.
*Danger of Leakage After Lumbar Puncture. Ingvar.—p. 67.
*Idem: Treatment. Jacobæus and Frumerie.—p. 102.

Results of Medical Treatment of Gastric and Duodenal Ulcer.—Nielsen estimates the percentage of complete recoveries as 60 per cent. of the patients who had symptoms for less than half a year. In chronic cases (three to five years) the chance is only about 20 per cent. For ulcers of longer standing, the chances of successful internal treatment are very small. He does not believe that there is any danger of "cancerous degeneration," and points out how rare perforations or fatal hemorrhages are in well diagnosed cases. (In English.)

Danger of Leakage of Cerebrospinal Fluid After Lumbar Puncture.—Ingvar publishes the histories of two patients with brain tumors and one with hydrocephalus. The patients died between eight and forty-six hours after lumbar puncture. In the case of hydrocephalus, the medulla oblongata was impacted in the occipital foramen. He believes that lumbar puncture is contraindicated in brain tumors, and that a ventricular puncture is to be preferred in hydrocephalus. As he attributes the disagreeable after-effects of lumbar punctures to a leakage of the fluid into epidural spaces, he advises making as few punctures as possible, using thin needles. The patient should be kept in bed for two days. If bulbar symptoms appear, hypertonic salt solution should be given intravenously or by mouth. (In English.)

Leakage of Spinal Fluid After Lumbar Puncture and Its Treatment.—Jacobæus and Frumerie observed in two patients with severe symptoms after lumbar punctures, that the pressure of the cerebrospinal fluid on the second puncture was almost zero. Intraspinal injection of normal saline (35 to 90 c.c.) was followed by immediate recovery. (In English.)

Finska Läkaresällskapets Handlingar, Helsingfors

65: 151-295 (March-April) 1923

History of the Eye Clinic in Helsingfors. V. Grönholm.—p. 151.
*Refraction of the Eye in the Population of Finland. O. Heinonen.—p. 172.
Papilloma and Carcinoma in the Bladder. F. Stenius.—p. 193.
Emetin in Treatment of the Balantidium Coli. E. Qvarnström.—p. 220.
Treatment of Acute Pleural Empyema. A. v. Bonsdorff.—p. 237.
New Tendencies in Theories of Diabetes. A. Johnsson.—p. 245.

Research on Refraction in Finland.—Heinonen has made a study of the comparative refraction of the eye in the Swedish and Finnish population, covering 5,496 individuals, the age ranging from 10 to 70, of whom 2,808 were Finnish, 1,199 Swedish, and 1,490 of uncertain nationality. Individuals with trachoma, mostly Finnish, lesions from a foreign body in the eye, or with disease preventing easy determination of refraction, were excluded, which left 3,020 cases for study. He found myopia and astigmatism much more frequent in the Swedish than in the Finnish population, and attributes the phenomenon to cultural rather than to racial differences.

Hospitalstidende, Copenhagen

66: 225-248 (March 21) 1923

*Ileus from Gallstone. J. Henrichsen.—p. 225.
*Test for Neutrality Regulation. G. E. Schrøder.—p. 231.
Involvement of Mucous Membranes in Boeck's Sarcoid. C. Hvidt.—p. 240.

Gallstone Ileus.—Henrichsen adds another case to the thirty-one published in Denmark in the last thirty-one years in which bowel functioning was interrupted by gallstones. His patient recovered after the calculus had been removed from the ileum. It measured 4.1 by 3 cm. and weighed 20 gm. The mortality in the total thirty-one cases was 74 per cent. The surgeon often is not called in until too late.

Disturbance in Regulation of Neutrality.—Schrøder gives the details of the Hasselbalch-Bisgaard dysregulation test, and compares the findings in the urine of epileptics and the normal. He thinks neurologists and psychiatrists will find this method of research instructive.

Hygiea, Stockholm

85: 289-352 (April 30) 1923

*The Capillary Blood Pressure. E. Kylin.—p. 289.
*Frequency of Paralytic Dementia in Sweden. F. Wiesel.—p. 309.

Clinical Estimation of the Pressure in Capillaries.—Kylin published his method for measuring the capillary pressure three years ago; since that time it has been improved and used in various clinics. He says the normal capillary pressure lies between 80 and 200 mm. of water. The capillary pressure is normal in the so-called essential hypertonia, while in acute diffuse glomerulonephritis it is increased up to 750 mm. water. This supports the theory that so-called glomerulonephritis is a diffuse capillary disease.

Frequency of General Paralysis in Sweden.—Wiesel has records of 359 general paralysis patients at the four hospitals for the insane in Stockholm during the period 1911-1920. He says the total number of patients affected by this disease in Stockholm increased 58.3 per cent. during the years 1916 to 1920 over that of the preceding five-year period, the increase in male patients being 63.4 per cent. and in female 44.7 per cent. The increase was greatest during the years 1916-1918, the so-called "crisis years," and he attributes the phenomenon to the hard times. A comparison of statistics for the whole country shows that on an average six times as many persons with general paralysis died in Sweden during the years 1911-1920 as during the period 1861-1880.

Norsk Magazin for Lægevidenskaben, Christiania

84: 273-448 (April) 1923

*Cirrhosis of the Liver. S. Laache.—p. 273.
*Mode of Action of Diuretics. A. Looft.—p. 404.
*Herpes Zoster with Motor Disturbances. K. Zeiner-Henriksen.—p. 411.
Case of Stokes-Adams' Syndrome Cured by Atropin. Arnesen.—p. 416.
*Causes of Epidemics. A. Magelssen.—p. 421.
Antivaccination. F. Lindeman.—p. 436.

Cirrhosis of the Liver.—Laache gives detailed descriptions of each of the 44 cases, 30 male and 14 female, found among 16,000 patients at the Rikshospital in Norway during the last thirty-two years, with necropsy in 34. The list included 26 cases of common atrophic cirrhosis, 4 of syphilitic origin, and 5 with hypertrophy. The course averaged from one to two years, and the most common immediate causes of death appeared to be cholemia, hemorrhage, acute pancreatic necrosis or general anemia. He thinks alcohol is a specific cirrhogenic toxin, acting directly on the liver without the intermediation of dyspeptic ferments, and that dyspepsia in cirrhosis patients is a symptom rather than a cause. The fact that the etiology was unknown in half the cases, and attributable to alcohol in only 14 males (no females) indicates a contributing predisposition, some kind of degeneration, or inferior size of organs, together with a small atrophic liver.

Clinical Research on Mode of Action of Diuretic Drugs.—Looft's method of studying the renal and extrarenal factors in treatment of edema by diuretics included examination of the blood concentration before and after its administration, in the edematous with and without kidney disease, and in normal individuals. In edema patients with sound kidneys, he constantly found increased blood concentration, never hydremia, after application of diuretics. In one case it showed great influence on urine secretion, which, together with increased blood concentration, indicates a direct influence of diuretics on the kidneys. Diuretics caused no increase in urine, and hydremia followed their ingestion in two out of three edematous patients with kidney disease, indicating also an extrarenal point of attack. This may be either a dilation of blood vessels, a specific action on the endothelium of blood and lymph capillaries, or a direct action on the tissues. This action results in the entrance of the edematous fluid into the blood vessels. The extrarenal effect appeared only when the action on the diuresis was weak or absent, and not in patients with sound kidneys in whom there was a strong diuretic action.

Herpes Zoster with Motor Disturbances in the Shoulder Muscles.—Zeiner-Henriksen reports a case of herpes zoster in a man, aged 63, with pains around the left ear and in the left arm and shoulder, reduction of the motor function of the deltoid, and atrophy of the infraspinatus muscle, with arthritic changes, pains and reduced mobility of the scapula. As both the circumflex and suprascapular nerves connect with the cord in the fifth and sixth cervical segments, he assumed there was an infectious affection of the spinal ganglia of this region, spreading to the spinal motor cells corresponding to these muscles.

Vasomotor Insufficiency as Cause of Epidemics.—Magelssen has studied the relation of epidemics to weather conditions in Europe during the last 200 years, based on the monthly temperature statistics of Berlin. In all, there have been eleven great epidemics of influenza in Europe during this period. Yearly and half-yearly averages were discarded and the study is based on months, showing the extremes of hot and cold and their combined effects. Very cold or very hot seasons alone do not account for the epidemics. He found that the epidemics accompanied cycles of three years of violent weather changes with the epidemic breaking out at the beginning of the third year of the cycle. His theory is that the body, which has been subjected to extreme cold one year and extreme heat the next year loses its normal sensitiveness to relatively insignificant changes. These changes in the vasomotor system cause changes in cell nutrition and cell activity in mucous membranes, in the composition of the blood and other fluids of the body, and in their bactericidal power.

Ugeskrift for Læger, Copenhagen

85: 231-246 (April 5) 1923

*Rupture of the Symphysis in Childbirth. P. Zachariae.—p. 231.
*Turpentine Treatment of Adnexa Inflammation. P. Morville.—p. 235.
*Diagnosis of Pregnancy by Phlorizin. L. Tarp.—p. 238.

Rupture of the Symphysis in Forceps Delivery.—Zachariae heard and felt the breaking while handling forceps in a recent delivery of a living child, the mother dying four hours later. Examination revealed a bleeding tear in the clitoris region, with the bladder and uterus, both intact, at the bottom, a tear in the vagina, and rupture of the pubic symphysis, but no external hemorrhage. In all, only ten cases of this kind—two in normal delivery—are on record in Denmark. Three of the women recovered and one gave birth to another child two years later. He attributes the rupture to malformation of the pelvis, fragility of bones and the handling of forceps, rather than to increase of the synovia during pregnancy; none of the cases on record gave symptoms of excessive synovia. The articulation itself is seldom opened but the cartilage is torn from the bones, and he believes, with Spiegelberg, that the rupture must be accompanied by lesions of one or both of the sacro-iliac articulations. Danger of carrying infection into the bones prevents immediate suture, and the structure must be held in place by bandages.

Treatment of Adnexitis by Turpentine Injection.—Morville tried turpentine injections on thirty-five patients, of whom two discontinued the treatment after the first injection. Of the others only 50 per cent. became free from symptoms by the end of six or seven weeks. This result contradicts the favorable experience of Klingmüller, published in 1917.

Early Diagnosis of Pregnancy by Phlorizin Injection.—Tarp's experience with early diagnosis of pregnancy by phlorizin injections differs from those of Joseph and Kamnitzer. He injected 108 nonpregnant women: five gave positive and the others no reactions. Of eight pregnant women, five responded positively and three gave no response.

85: 263-278 (April 19) 1923

*Relation of Blood Sugar to Diet. K. M. Hansen.—p. 263.
Bread for Diabetics. M. Lauritzen.—p. 268.
Hormone Resembling Insulin from Plants. C. Lundsgaard.—p. 269.

Research on Blood Sugar in Man.—Hansen reports experiments made at the National Hospital of Copenhagen to determine the relation to diabetes of the national dish "sødsuppe" (1 l. water, 60 gm. barley meal, 6 prunes and 100 gm. fruit juice, prepared with 500 gm. cane sugar per liter) after glycosuria had been noticed in some patients on the day after serving this dish. What she calls "sweet soup glycosuria" was found in 38 per cent. of healthy individuals after ingesting half liter portions. The sugar content of the blood rose from 0.08 to 0.26 per cent. in a patient, aged 30, with spastic paraparesis, and in a healthy woman, aged 46, from 0.09 to 0.25 per cent. after the soup had been eaten as customary in daily life. The increase was less when ingested on an empty stomach. Glycosuria did not always accompany the high sugar content of the blood, its appearance being attributed to subnormal carbohydrate metabolism. The effect of this soup is ascribed to influence on the metabolism rather than directly to its sugar content. As a greater number of subjects with diabetic tendencies showed "sweet soup glycosuria," she concludes that diabetics come mostly from those affected. She says it is a question whether alimentary glycosuria in the healthy is a negligible phenomenon.

85: 279-300 (April 26) 1923

*Rupture of Achilles Tendon. H. Abrahamsen.—p. 279.
*Iron Piston Forced into Orbit. V. Reimke.—p. 284.
*Leiomyoma on Small Intestine. S. Pontoppidan.—p. 285.
Production of Gynandromorphism in Fowls. A. Pézard et al.—p. 268.
*Importance of Hydrochloric Acid for Pepsin Proteolysis. P. Liebmann.—p. 288.
Two New Specific Trypanocides. E. Warburg.—p. 294.
Old Age Pension Law. J. Kuhn.—p. 296.

Rupture of Achilles Tendon.—Abrahamsen sees no reason for the general hesitation of physicians to operate on occult rupture of the Achilles tendon. He had seven cases and operated on three with results so satisfactory that he advises the treatment even in ruptures of long standing.

Three Cases of Injury to the Eye from Toy Gun.—Riemke reports three cases, in nine months, all with similar injuries to the right eye. In each case the 12 cm. long and 12 mm. in diameter, cylindrical spring of the toy gun had, with the force of the explosion, been driven backward into the eye taking aim. It lodged in the orbit, slanting toward the temple, the large end of the piston projecting. In one boy, aged 14, the spring had entered for 4.5 cm. through the lower lid and orbit, and was impacted in the inferior orbital fissure. Examination showed irregular iris with coloboma in the upper edge, and hematoma, but the eyeball was only grazed. The wound was cleansed, sutured, treated with atropin and bandaged. Nine months later the patient could distinguish only the largest letters at a distance of 25 cm., but the field of vision had been greatly reduced, and the pupil was constantly dilated. The left eye was normal. In a man, aged 21, the eyeball had to be removed, and in a youth, aged 16, there was no indication of light perception; the assumption being that the optic nerve had been injured.

Leiomyoma in the Intestine.—Pontoppidan reports a case of a kidney-shaped myoma, the size of an ostrich egg, on the musculature of the antimesenteric side of the small intestine, 120 cm. from the duodenojejunal juncture, with a 4 cm. pedicle.

Importance of Hydrochloric Acid for Pepsin Proteolysis.—Liebmann investigated the requirements of a method for measuring the enzymatic power of pepsin solution, and the relation between the protein and the acid alone, outside the enzyme proteolysis. Testing the reaction between certain protein substances and hydrochloric acid, he found that the hydrochloric acid in some concentrations has a proteolytic effect, while in others it has an opposite effect, in that the protein is precipitated instead of agglutinated. The enzymatic action may be considered a continuation of the dispersion started by the acid alone. By adding sodium chlorid to the hydrochloric acid the agglutination fields were widened at the expense of the lytic zones.

85: 325-348 (May 10) 1923

Differential Diagnosis Between Gallstones and Intestinal Disease. E. Meulengracht.—p. 325.
Attempts at Suicide with Mercuric Chlorid Tablets. L. Nielsen.—p. 336.
*Anaphylaxis and Treatment of Vasomotor Rhinitis. J. Kragh.—p. 339.
Physostigmin Intoxication. O. Olsen.—p. 342.
Salaries of Physicians at Hospitals for the Insane. E. Thomsen.—p. 343.

Importance of Anaphylaxis in Treatment of Vasomotor Rhinitis.—Kragh used peptone injections in three cases and, though the results were not stable, he believes that vasomotor rhinitis can be influenced by a treatment which aims at counteracting the anaphylactic condition.

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METHODS OF DEMONSTRATING THE CIRCULATION IN GENERAL

AS APPLIED TO A STUDY OF THE RENAL CIRCULATION IN PARTICULAR *

FRANK HINMAN, M.D.
DUNCAN M. MORISON, M.D., F.R.C.S.E.
AND
R. K. LEE-BROWN, M.B., Ch.M., (Sydney)
SAN FRANCISCO

I. INTRODUCTION: SUPERIORITY OF METHODS THAT GIVE EXACT DUPLICATION OF STRUCTURAL RELATIONS AND ARE SUSCEPTIBLE OF PHOTOGRAPHIC ILLUSTRATION

By Frank Hinman, M.D.

For demonstration of anatomic structure, the method giving exact duplication is superior to one of approximate reproduction, and the ability to present proof of this is an invaluable asset. For this reason, photographic illustration of specimens is superior to the most beautiful drawing and, now that we have color photography, the most life-like painting. Diagrammatic portraiture is often essential to clear presentation, but for proof of a fact falls short of a true likeness of the original, if the original itself is not available.

As long ago as 1842, Bowman made the clear-cut statement: "All the blood of the renal artery (with the exception of a small quantity distributed to the capsule, surrounding fat and the coats of the larger vessels) enters the capillary tufts of the malpighian bodies; thence it passes into the capillary plexus surrounding the uriniferous tubes and it finally leaves the organ through the branches of the renal vein." But this fact, now well established, was based on personal observations, and a marked difference of views concerning its minute arrangement arose and has existed up to the present. In 1893, for instance, three views of the origin of the arteriolae rectae were found current by Golebew;[1] and he himself, after meritorious and original investigation, recognized and illustrated arteriolae rectae verae and spuriae.[2] Huber,[3] in 1907, by improved modifications of celloidin injection methods, discovered the error of observation on the part of Golebew, for which the silver nitrate method used was responsible, because by it straight venules were injected as well as arterioles. Huber was unable to demonstrate true arteriolae rectae, and yet most textbooks picture them. Even the pretentious Encyclopédie française d'urologie[4] describes them as an established fact, citing, for authority, Virchow, in 1857, and the discredited Golebew, although Huber's work is familiar to them, as his denial of the existence of "artères droites vraies" is mentioned. Brödel[5] has pictured several arteriolae rectae verae (the nomenclature of which is attacked[6]). This illustration, while wonderful from a diagrammatic standpoint, and a work of art, gives a vague conception of anatomic structure compared to the accurate duplication of injection methods which demonstrate differently the numerous parallel branches of straight vessels of uniform caliber arranged almost like the tufts of bristles of a brush (Fig. 1). Even Huber's[7] illustrations are inadequate, and disappoint in actual reproduction.

The merit of an exhibit of a study of the renal circulation by the injection methods to be described, presented at St. Louis in 1922, lay not in discovery or originality so much as in the manner of presentation, by which actual duplication of structure was demonstrated with original specimens and photographic illustrations. Truthful representation established a scientific value otherwise wanting. The findings will be presented elsewhere. They confirm those of Huber. The object of the present papers is a presentation in some detail of the methods. They can be applied fruitfully to the study of other anatomic parts. Marshall[8] has published the results obtained in a study of the circulation of the teeth. Terry[9] and Delemere investigated the thyroid, and others of our associates are obtaining excellent results with them in the study of the brain. Their general application to anatomic teaching would be invaluable. Numerous inquiries since the St. Louis Exhibit indicate general interest, and this constitutes the justification for the publication of dry technical details.

The celloidin injection method has certain advantages over all others for exact duplication of gross detail, but is inferior for minute capillary reproduction to the dye injection method. Dr. Morison is responsible for the perfection of details in the use of the former and Dr. Lee-Brown of the latter, and each method, therefore, is presented separately by them. The barium sulphate roentgenographic study of circulatory arrangement and changes is ideal when preservation of the pathologic or anatomic specimen and subsequent histologic study is desired. Certain details of preparation of specimens for injection and the particularly useful methods of mounting and preservation of specimens afterward, which are essential to full success by any one of the three methods, are outlined for all in the section on celloidin method, and the dye injection and roentgenographic stereopticon methods, with only brief reference to these important details, jointly presented in the last section. The reciprocal value of all three methods is obvious, but their practical correlation belongs to the presentation of the study as a whole.

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* From the Department of Urology and Hooper Foundation for Medical Research, University of California Medical School.

[1] Golehew: Sur les vaisseaux sanguins du rein des mammifères et de l'homme, Internat. Monatschr. f. Anat. u. Physiol. **10**, 1893.

[2] The arteriolae rectae verae are the straight vessels supplying medullary areas arising, supposedly, directly from arcuate or interlobar branches; the arteriolae rectae spuriae are straight vessels to the same areas arising from the efferent branch of glomeruli at or near the corticomedullary zone.

[3] Huber, G. C.: The Arteriolae Rectae of the Mammalian Kidney, Am. J. Anat. **6**: 391-406, 1906-1907.

[4] Encyclopédie française d'urologie **1**: 455, 456, 1914.

[5] Brödel, Max, in Kelly and Burnam: Diseases of the Kidneys, Ureters and Bladder, Figure 101, New York, D. Appleton & Co., 1914.

[6] Kelly and Burnam's textbook, p. 162.

[7] Huber: Am. J. Anat. **6**: 400, 401, 403, 1906-1907, Figures 2, 3 and 4.

[8] Marshall, J. A.: Method for Preparing Blue Celluloid Injection Material, J. A. M. A. **80**: 181 (Jan. 20) 1923.

[9] Terry, W. I.: Radium Emanations in Exophthalmic Goiter—Blood Vessels of Adenomas of Thyroid, J. A. M. A. **79**: 1 (July 1) 1922.

It may be said that, in a study of the circulation, the choice of method is worthy of care and attention. The one giving duplication of structure is superior to one requiring interpretation, and the correlation and confirmation of the three standard methods which have been used permits of demonstration of gross and minute structure with original photographic duplicates unequaled by approximate or diagrammatic reproduction. Accurate and permanent mounting of specimens enhances their value, preserves the record and promotes teaching. The methods are applicable to a study of circulation in any part of the body, and are particularly adaptable to teaching. For these reasons the following details as applied to the kidney are presented.

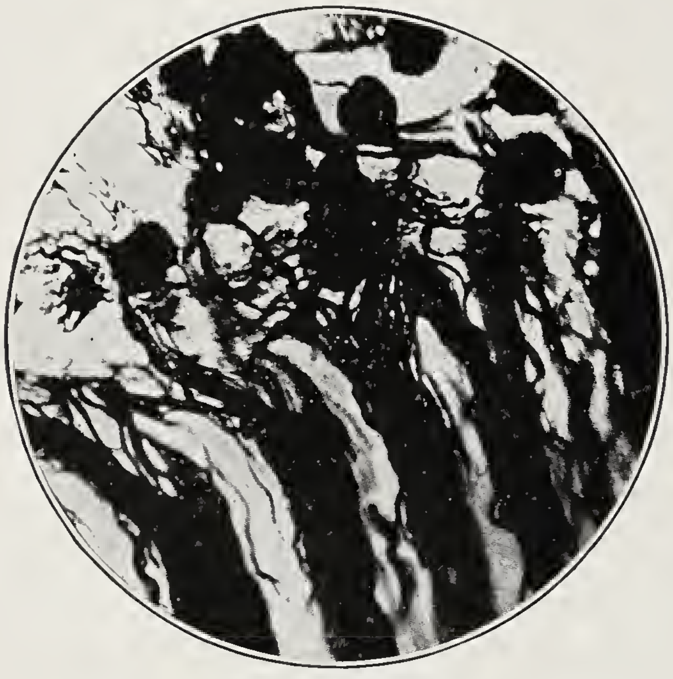

Fig. 1.—Demonstration of arteriolae rectae by dye injection: Such preparations are thick, so that when studied with a binocular microscope, which brings out three dimensions, exact relationship of vessels to each other is seen, and this fact may be permanently recorded by stereopticon photography.

II. TECHNICAL DETAILS AND DIFFICULTIES OF CELLOIDIN INJECTION METHOD, WITH A DISCUSSION OF THE MOUNTING AND PRESERVATION OF SPECIMENS

By Duncan M. Morison, M.D.

Celluloid corrosion and allied methods have long been employed for the demonstration of vascular architecture. In 1882, Schiefferdecker[10] described an injection mass of celloidin in ether colored by asphaltum, with which he was able to demonstrate the coarse as well as the finest arterial distribution. Hochstetter,[11] in 1886, put forward a modification of this mass by adding kaolin to prevent shrinkage of the cast. As coloring agents, cobalt blue, chrome yellow and cinnabar are mentioned. The mass is suited for the preparation of specimens showing gross relationships. Flint[12] subsequently added Prussian blue as a coloring agent in fine injections, and Victoria blue for coarse preparations, which could then be kept dry without shrinking.

In 1904, Krassuskaja[13] introduced a corrosion mass consisting of photoxylin or celloidin and camphor in acetone. As dyes he employed cinnabar for red, Berlin blue for blue, chrome yellow for yellow, and asphalt for black. Huber has since slightly altered Krassuskaja's method and substituted alkanin—a resin dye. The celluloid corrosion method here described was based on that of Krassuskaja and Huber. During the course of our work, various modifications were added which tend to simplify the technic of injection and promote a wider application of the method. In virtue of possible assistance to others, a somewhat detailed description of the method is submitted.

The injection mass consists of a solution of celluloid in acetone. As acetone readily combines with water, the celluloid is rapidly precipitated out of solution whenever water is encountered. Thus, by injecting the celluloid solution into cavities or the lumen of blood vessels where moisture is present, one soon obtains a deposition of celluloid, forming a cast. When the parenchyma of an organ whose cavity or blood vessels have been so injected is macerated, the celluloid cast is revealed.

MATERIALS FOR INJECTION MASS

As recommended by Huber, who modified the technic described by Krassuskaja, a stock solution was at first employed consisting of chemically pure acetone, 600 c.c.; celloidin, 30 gm., and camphor, 20 gm. Later, thinner solutions of celluloid were used with success, when the injection of capillaries was sought. The minimum effective dilution arrived at was 3 parts of celluloid in 100 parts of acetone.

For the preparation of specimens showing gross structure, heavier solutions were used, i. e., 10-part and 20-part solutions.

As celloidin (Schering) or bioloid (Bausch & Lomb) or parlodion (DuPont) are somewhat expensive and not always readily obtained, old roentgen-ray films were experimentally substituted in the same proportions and gave just as good results in the preparation of coarser specimens. For fine injections, however, the solutions of roentgen-ray films were not satisfactory.

PREPARATION OF THE INJECTION SOLUTIONS

It is advisable to make up solutions of varying strength in bulk. Those that have proved the most useful are:

For fine injections, i. e., to show detailed structure, as (*a*) glomeruli or (*b*) capillaries:

A. Acetone, 100 c.c.; celloidin, 3 gm.; camphor, 2 gm.
B. Acetone, 100 c.c.; celloidin, 4 gm.; camphor, 3 gm.

For coarse injections, i. e., to show gross structure, as (*a*) main vascular trunks, or (*b*) renal pelvis and ureter:

C. Acetone, 100 c.c.; roentgen-ray films, 10 gm.; camphor, 8 gm.
D. Acetone, 100 c.c.; roentgen-ray films, 20 gm.; camphor, 15 gm.

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[10] Schiefferdecker: Ueber die Verwendung des celloidins in der anatomischen Technik, 2, Als Injectionsmasse, Arch. f. Anat. und Phys., 1882, p. 201.

[11] Hochstetter, F.: Ueber eine Modifikation der Schiefferdeckerschen Celloidin Korrosionsmasse, Anat. Anz., 1886, pp. 51-52.

[12] Flint, J. M.: The Ducts of the Human Submaxillary Gland, Am. J. Anat. **1**: 269-295, 1901-1902.

[13] Krassuskaja, A., as reviewed by Stieda: Ergebn. d. Anat. u. Entwcklngsgesch. **13**: 521, 1903.

The roentgen-ray films are thoroughly washed to remove emulsion, cut into suitable strips, and dried. The celloidin, as supplied in bottles, should also be thoroughly dried before use.

To the acetone, chemically pure, the celloidin or roentgen-ray films are added, and the container is placed in a mechanical shaker till completely dissolved. The celloidin in the 3-part and 4-part solutions dissolves in about three hours. The roentgen-ray films do not completely go into solution for twelve hours or so. At the conclusion of this stage, the camphor is added. Camphor makes the celloidin less brittle and somewhat more translucent. To insure more complete penetration of the thinner solutions, it is advisable to filter these. A suction filter may be employed, and hastens the process. During filtration, the solutions should be protected from evaporation.

APPARATUS

From the stock containers, the solutions are transferred as required to pressure bottles of 250 c.c. capacity (Fig. 2). The bottles have wide mouths with rubber stoppers, through which two glass tubes pass, one reaching only through the thickness of the stopper, the other well down almost to the bottom of the bottle. The glass tubes are bent for convenience to the horizontal just after emerging from the stopper, and on each is slipped a short length of rubber tubing carrying a connecting glass tube. The application of small screw clamps on these two portions of rubber tubing renders the bottle air tight. To insure against "blowouts" at high pressures, it is necessary to have the rubber stoppers of the bottles thoroughly fixed down by string or wire.

It is advisable to have a number of these bottles filled, ready for use. If care is taken in their preparation, each bottle will comprise an air tight unit when the clamps are closed, and the contained solution remains good for many months.

Coloring Agents.—The pigments employed to color the injection mass are given in the accompanying table:

Coloring Agents Employed

Pigment	Color	Preparations for Which Suited
Cobalt blue	Blue	Gross
Chrome yellow	Yellow	Gross
Cinnabar	Red	Gross
Victoria blue	Blue	Gross (specimen may be preserved dry)
Berlin blue	Blue	Gross and fine
Prussian blue	Blue	Gross and fine
Asphalt	Black	Gross and fine
Alkanin *	Red	Gross and fine
Crystal violet brilliant green	Blue	Gross and fine

*Fettlosliches Roth, Grueber, also written "Alcanin."

With the exception of the last three, the pigments are not soluble in the injection mass, and, being held in suspension, tend to make the resultant specimen friable. As recommended by Huber, alkanin is probably the best coloring agent to employ when a capillary injection is sought. It is a resin dye soluble in acetone and unaffected by strong hydrochloric acid. A small portion of the material is ground up in a mortar, and acetone is added. About 50 c.c. of this concentrated coloring solution is sufficient to color a large quantity of the injection mass, the amount of dye added depending on the depth of color required. For the differential demonstration of fine structures when a thin solution of celluloid is used, a relatively larger quantity of dye is required than when the heavier injection mass is employed. It will be found more convenient to add the dye solution directly to the celluloid solution in the 250 c.c. pressure bottles. Depth of color can thus be more easily regulated to immediate requirements. Marshall has obtained pleasing results from crystal violet-brilliant green, using a 5 per cent. solution of each in acetone.

Cannulas.—A stock of glass cannulas of all sizes and also of connecting tubes is essential.

Power for Injections.—This was obtained from a supply of compressed air, pressure being regulated by a mercury manometer attached to a Woulfe bottle (Fig. 2).

Pressures Employed.—These were:

A. For preparation of specimens to show gross structure:
  1. Arterial, from 200 to 300 mm. of mercury.
  2. Venous, from 80 to 100 mm. of mercury.
  3. Renal pelvis, from 50 to 80 mm. of mercury.

B. For preparation of specimens to show fine structure:
  1. Arterial, from 350 to 600 mm. of mercury.
  2. Venous, from 100 to 200 mm. of mercury.

Material for Injection.—The organ or specimen to be injected should be fresh, though a stay of from twelve to forty-eight hours in the icechest does not materially influence the production of a gross preparation. Experimentation demonstrated the advisability of a thorough irrigation of the specimen with physiologic sodium chlorid solution before proceeding to injection. The irrigation is carried out through the arterial side, and is considered sufficient when the outflow from the vein comes clear. A pressure bottle fitted up in the same manner as already described, but of larger size, may conveniently be used for the salt solution.

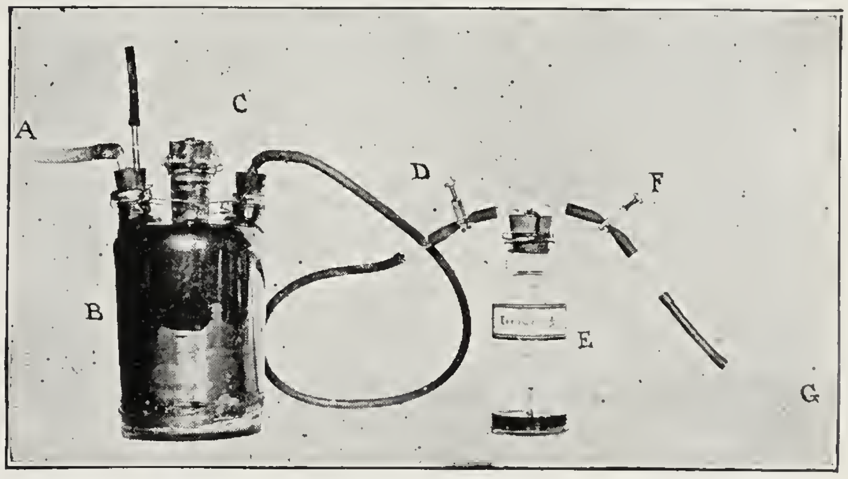


Fig. 2.—Injection apparatus: Woulfe bottle (*B*) with mercury manometer (*C*) connected by rubber tubing to pressure bottle (*E*). (To facilitate demonstration, only a small amount of celluloid solution colored with alkanin has been left in the pressure bottle.) The pressure bottle as pictured is air tight, and constitutes a convenient unit for temporary storage or immediate use. Air pressure enters by tube *A*; *D*, proximal screw clamp; *F*, distal screw clamp; *G*, cannula.

The benefits of this preliminary procedure are that:

1. It removes blood clot.

2. It promotes more rapid precipitation of the celluloid out of the acetone solution.

3. Better casts are obtained. The larger vessels in the corrosion specimens show more cylindric trunks.

4. Torn or divided collateral vessels can be easily detected by leakage of the fluid and ligated, thus establishing a closed circuit.

Two important factors may here be emphasized which are essential in the production of good corrosion specimens: (*a*) The system being injected should present a closed circuit. (*b*) No air should gain entrance into the system during injection. As just stated, one should take the opportunity afforded by the saline irrigation to tie off any leaks or places of doubtful oozing before proceeding to employ the injection solution. Entrance of air is best avoided by inserting the selected cannula into the outflow tube of the pressure bottle and then connecting up to the air pressure system. Raising the air pressure and removing the proximal screw clamp sets up a definite positive pressure within the bottle. The distal clamp is then sufficiently released to allow all air to escape, and closed down again when pure contents reach the tip of the cannula. The injection system is now free of air, and the cannula is ready for insertion. A single knot of the ligature is usually adequate to maintain the cannula in place, and facilitates more rapid change when solutions of different densities are used, as a thick following a thin. Pressure should be run up to the required height before the distal clamp is released and injection begun. Better results are obtained when the full pressure to be used is thrown into the organ as quickly as possible (Huber).

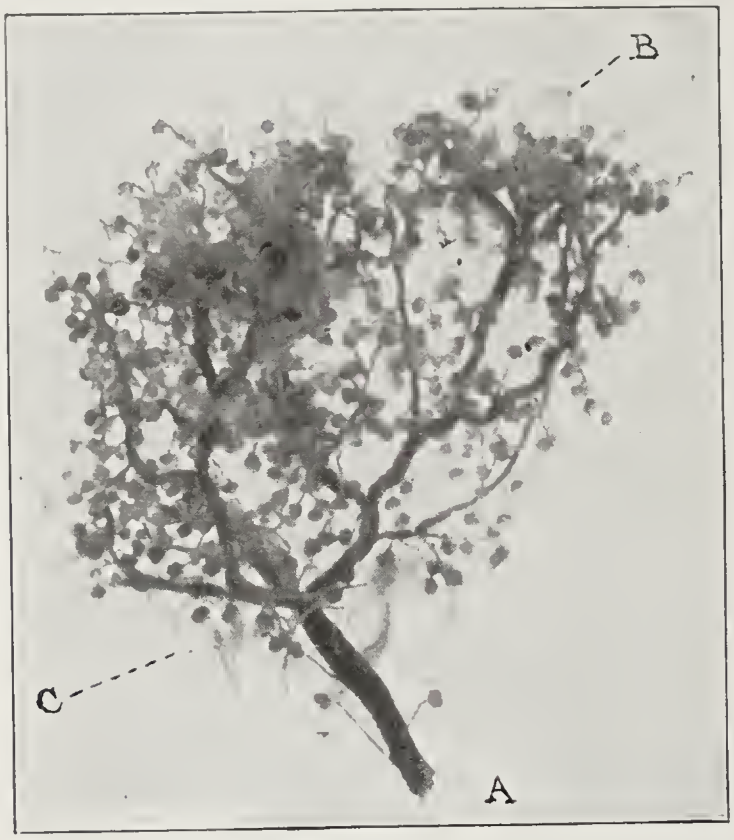


Fig. 3.—Glomeruli with their efferent capillaries, as shown in a fine celluloid injection: Terminal portion of an arcuate artery (*A*) breaking up into interlobular branches bearing clusters of glomeruli. The efferent glomerular capillaries of subcapsular type (*B*) as well as those of medullary type (arteriolae rectae) are clearly demonstrated.

To obtain specimens of fine distributions, such as capillaries (Fig. 3), full pressure should be maintained for at least ten or fifteen minutes, and then the proximal screw clamp closed off. A positive pressure is thus kept up within the pressure bottle, and it may now be disconnected from the air pressure system, and removed along with the specimen to a convenient place where the process of injection and setting may continue to completion. In the case of gross preparations (Fig. 4), full pressure should be maintained for thirty minutes and longer whenever possible, and then the positive pressure for from twelve to twenty-four hours.

"DOUBLE INJECTION"

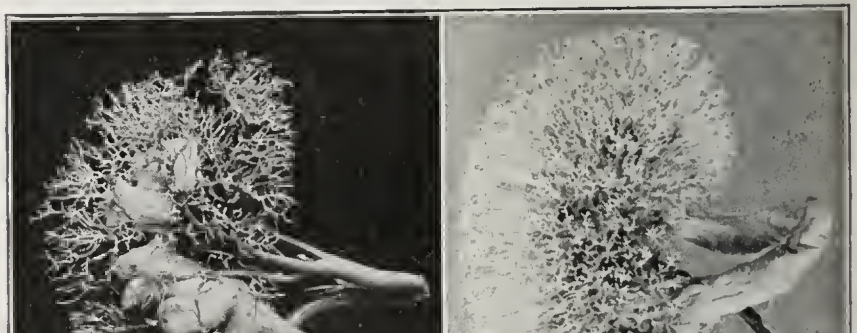
When it is desired to demonstrate large vascular trunks together with their fine ramifications, two solutions are necessary, a thin (4 part celloidin) solution followed by a heavy (10 or 20 part roentgen-ray) solution. The 4-part solution is run in for about five minutes, and injects the finer branches. The cannula is then withdrawn and attached to an injection bottle containing 10 or 20 part solution. On reinserting the cannula into the same vessel, one should gently express, from the main branches of the specimen, all excess of the 4-part solution before tightening the ligature around the neck of the cannula. This allows the heavier solution to penetrate farther, and at the same time minimizes the possibility of air entry during the double injection. As this procedure combines gross structure with fine, the pressures employed are as tabulated for the respective types. When color is desired, the thin solution should be the much more deeply tinted. Fine ramifications, in the finished specimen, will then assume greater contrast.

For the combination of gross and fine structure, the foregoing double injection method insures a celluloid preparation which is resilient and strong, capable of maintaining the original configuration of the specimen and consequently more instructive than those usually evolved by single injection (Fig. 5).

"Setting."—The time required for this varies. When a fine injection has been made in order to study the capillaries, only one hour or so need be allowed before proceeding with corrosion; but with coarser preparations, a delay of from twelve to twenty-four hours is necessary. During this period of "setting," it is advantageous to submerge the injected specimen in water.

CORROSION OR DIGESTION

The tissues may be removed from an injected specimen by pepsin hydrochloric digestion fluid or hydrochloric acid; the latter is the more rapid method; 1:3,000 pepsin (Sharp and Dohme) dissolved in from 0.3 to 0.5 per cent. hydrochloric acid constitutes the digesting fluid, and the process is complete in three or four days. A 75 per cent. solution of hydrochloric acid is advocated by many, and no disadvantage has been encountered in using the concentrated acid. The commercial article acts equally well.



A B

Fig. 4.—Coarse celluloid preparations: The specimens are from kidneys of the pig. The ureters were injected at the same time, and show that the renal pelvis of the pig somewhat resembles the human type. *A*, arterial distribution (solution colored); *B*, venous distribution (solution uncolored). The injection solution employed for *B* was a trifle thinner than for *A*; hence the better filling of the finer venous radicles and consequent obscuring in this specimen of the renal pelvis (colored).

Specimens after injection and setting should be totally immersed in the acid. Subsequent study (microscopic) of finely injected preparations is facilitated if free hand sections of the organ are made and these placed in the macerating fluid.

Specimens are kept in the acid from twelve to twenty-eight hours. It is necessary to have complete digestion by the acid; otherwise, thorough removal of all parenchymatous débris from the finer structures is not easy, and any persistent attempt to do so endangers the integrity of the specimen. Prolonged immersion in acid tends to render the celluloid more friable, and should be avoided.

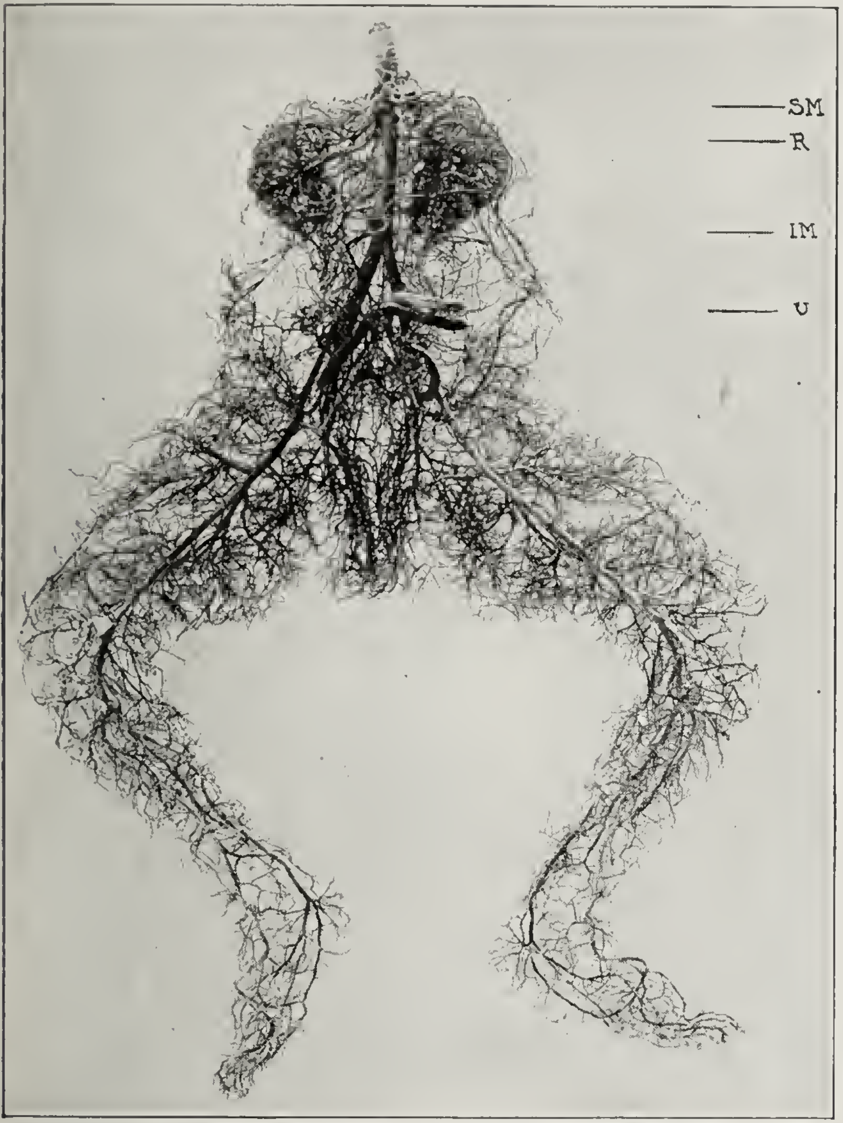


Fig. 5.—The complete arterial circulation of a 6½ month human fetus (female) from the level of the diaphragm downward. The superior mesenteric artery was tied off. The preparation was obtained by employing the "double injection" technic: *SM*, superior mesenteric artery (origin); *R*, main renal arteries with their subdivisions as far as the interlobular branches; *IM*, inferior mesenteric artery; *U*, umbilical trunks. The vessels of the pelvic contents are unfortunately somewhat obscured, but those of the lower extremities can be identified even to the small interdigital branches. The introduction of relatively more dye into the thin injection solution causes the finer ramifications to stand out in contrast to the main trunks.

"WASHING OUT"

Removal of the macerated tissue from the celluloid cast is easily accomplished by a stream of water. In the finer preparations, the "washing" has been carried out under observation (binocular microscope). A fine drawn out cannula, attached by a convenient length of rubber tubing to a pressure bottle containing water, is allowed to play with a gentle intermittent drop flow on the specimen as it lies in a watch glass or Petri dish covered by water. By this means it is easy to detect and prevent any breaking up or mutilation of the details of a specimen during removal of the digested parenchyma.

PRESERVATION OF SPECIMENS

Corrosion preparations are best preserved in fluid. Drying tends to wither them and remove that pleasing semitranslucent appearance. This is particularly noticeable with preparations having differential color.

A solution that has proved satisfactory consists of distilled water, 100 c.c.; formaldehyd solution, 2 c.c.; glycerin, 20 c.c. To insure a clear, air-free mounting solution, the water and glycerin should be boiled for ten or fifteen minutes, and the formaldehyd added as the solution cools. The solution is then filtered till clear, and used only when thoroughly chilled. Specimens may be mounted in ordinary rectangular glass jars, but look extremely well under large watch glasses. The technic of the watch glass method of mounting has been described in detail by Day.[14] It is a comparatively simple procedure, and seems particularly suited for the exhibition of celluloid corrosion preparations. When one is employing this method, it is essential to have the mounting solution prepared as above and free of air; otherwise, small air bubbles are very prone to appear from twelve to twenty-four hours after an apparently perfect mount has been effected, and call for a complete remounting of the specimen. Another contributing factor to delayed air entry is insufficient grinding down of the edges of the watch glasses. It is better to employ two grades of carborundum powder: first, a coarse; then, a fine. The process of grinding should continue till the entire thickness of the watch glass is involved. This insures a broader and more perfect apposition of the watch glass to the surface of the plate glass. If plate glass squares with beveled edges are used, and the prescribed final cardboard framing of the mount (Day) is omitted, the process is materially abbreviated, and appearances are enhanced. Old photographic glass plates can easily be utilized for this purpose (Fig. 6). To cement the watch glasses to the plate glass, we have employed turpentine black asphaltum, and also filtered Canada balsam. The latter is better suited for small mounts. The turpentine asphalt can be readily applied with a small paint brush.

The small microscopic preparations may be preserved in gelatin, in specially constructed containers, as devised by Shore.[15] The results are most attractive, but, unfortunately, absorb much time in the making, and gelatin sooner or later tends to vacuolate. A quicker, almost more efficient way is to combine these two methods and use small sized watch glasses on 2 by 3-inch slides, with the foregoing preserving fluid and, when necessary, just sufficient gelatin to maintain the specimen in place.

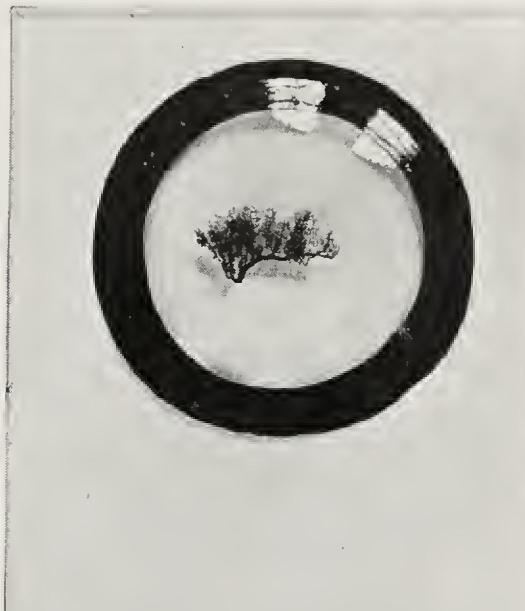


Fig. 6.—Preservation of small preparations by the watch glass method: Portion of arcuate artery (human) prepared by celluloid corrosion mounted under a watch glass on 4 by 3¼ inch glass plate (old lantern slide). The edges of the plate have been smoothed and beveled by carborundum powder. The preserving fluid is that which is recommended in the text. The watch glass is "ringed" in place by turpentine black asphaltum. Preparations so mounted can be conveniently studied under the binocular microscope.

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[14] Day, L. E.: An Improved Method of Mounting Museum Specimens, Tr. Chicago Path. Soc. **9**: 106-111.

[15] Shore, T. H. G.: A Method of Mounting Flat Pathological and Other Specimens in Gelatin, J. Path. & Bacteriol. **24**: 140-144 (April) 1921.

CONCLUSIONS

As an injection method, celluloid corrosion possesses these advantages:

1. The gross architecture as well as the minutest ramification of the vascular tree can be demonstrated.
2. Differentiation of structure can be clearly shown by the introduction of a dye.
3. The specimens prepared to show gross structure are not brittle or easily distorted. They are permanent, light and resilient, and can be handled; they are excellent, therefore, for demonstration purposes.

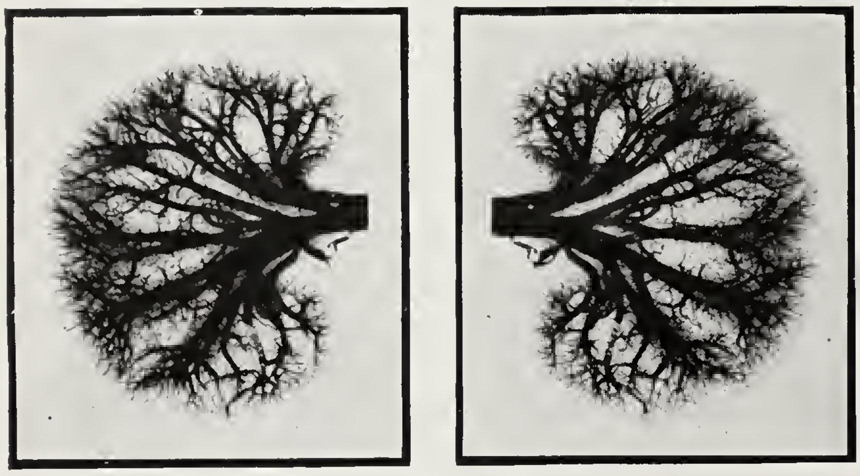

Fig. 7.—Roentgenogram of the arterial distribution in a sheep's kidney, made with a sodium bromid suspension of barium sulphate.

4. The ramifications of vessels, no matter how tortuous or numerous, can be easily traced throughout to their ultimate distributions.

III TECHNIC OF BARIUM SULPHATE AND INTRAVASCULAR DYE INJECTION METHODS

By R. K. Lee-Brown, M.B.

In this description will be set forth the technic of the intravascular employment of substances impervious to roentgen rays for the demonstration of the macroscopic structure of the circulation, and of dyes in aqueous solutions for the microscopic detail, together with a discussion of their respective advantages.

It is essential that all specimens prior to injection be subjected to a preparatory treatment, which, with the addition of a few minor points, is identical with that already described for the celloidin method. In cases in which a very fine degree of injection is desired, much better results are invariably obtained if the specimen during the preliminary irrigation and injection is kept at body temperature in a water bath. This procedure is rendered absolutely necessary when gelatin is employed as a suspending agent in the injection mass. After complete irrigation, the saline solution is replaced by the solution to be injected, during which procedure it is essential that all air bubbles be eliminated.

The completeness of injection will be governed by several factors, such as the viscosity of the solution, the nature of the specimen and the pressure employed. With human kidneys and an aqueous Berlin blue solution, a pressure of from 250 to 300 mm. of mercury will give a complete glomerular injection. The pressure may be increased beyond this, but within limitations, as a too high one will drive the solution through the arterial system and result in an associated venous injection.

Barium sulphate suspensions generally require slightly higher pressures, depending on their viscosity. When a simple venous injection is desired, much lower pressures are employed than on the arterial side; for instance, 100 mm. of mercury will be found ample for this purpose.

A. THE ROENTGEN-RAY STEREOPTICON

For the demonstration of specific vascular systems, numerous substances impermeable to roentgen rays have been employed as injection masses; of these substances, mercury, bismuth subnitrate and barium sulphate seem to have been most generally favored. Stiles,[16] in 1897, and Liek,[17] at a later date, both used a direct injection of metallic mercury. The substances most employed, however, were suspensions of barium sulphate or bismuth subnitrate. Beck [18] used a suspension of bismuth subnitrate in petrolatum, which produces a very viscid mixture necessitating the employment of a syringe for injection. This feature is rather undesirable, as it is preferable for comparative purposes to have the injections made under a standard regulated pressure which should be as low as possible. Katzenstein,[19] Liek and Sampson [20] used bismuth gelatin masses. The latter used bismuth subnitrate for demonstrating the circulation of the uterus. He recommends the employment of some substance impervious to roentgen rays, suspended in a 15 per cent. gelatin solution.

Gross [21] used barium sulphate in place of bismuth, as the former is in a finer state of subdivision. He soaks 100 gm. of gelatin in 500 c.c. of distilled water for two hours, filters, and adds 500 c.c. of a heavy suspension of barium sulphate, together with a crystal of thymol, and then allows the mixture to cool.

During our investigations, bismuth subnitrate and barium sulphate were employed in various forms of suspension. Barium sulphate is to be preferred for reasons already pointed out by Gross. In cases in which only a fine degree of injection is desired and immediate roentgenography is possible, an aqueous suspension of barium sulphate was found satisfactory, as by this procedure the technic is considerably simplified, less pressure is required, and the chance of the mass "setting" before injection is eliminated. If, however, a considerable

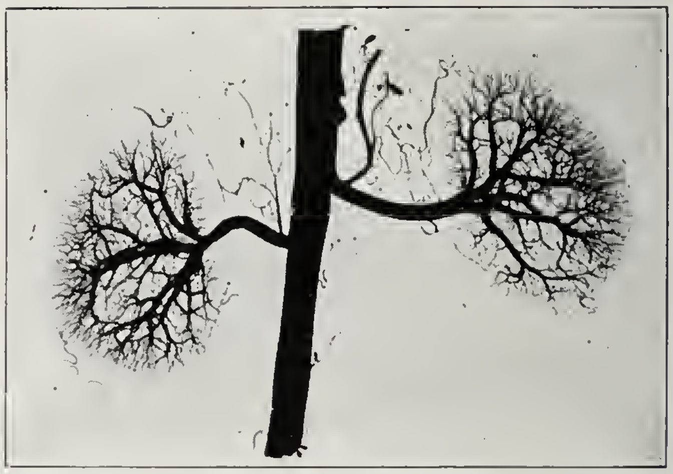

Fig. 8.—Roentgenogram of the arterial distribution in the kidneys of a monkey, made through the aorta by means of a barium sulphate gelatin mass.

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[16] Stiles, H. J.: Skiagraphy After Injection of the Blood Vessels with Mercury, J. Anat. Phys. **32**: 83-91, 1897.

[17] Liek: Ein weiterer experimenteller Beitrag zur Frage des arteriellen Collateralkreislauf der Niere, Arch. f. klin. Chir. **106**: 435, 1915.

[18] Beck: The Stereoscopic Radiograph as an Aid to the Surgeon, Surg., Gynec. & Obst. **12**, 1911.

[19] Katzenstein: Ueber die Möglichkeit der Ausbildung eines arteriellen Collateralkreislaufs der Niere, Berl. klin. Wchnschr., 1911, No. 36.

[20] Sampson: The Blood Supply of Uterine Myomata, Surg., Gynec. & Obst. **14**, 1912.

[21] Gross: Studies on the Circulation of the Kidney in Relation to Architecture and Function of the Organ in Health and Disease, J. M. Res. **36**: 327-335 (July) 1917.

interval must elapse before roentgenography is possible, or if there are vessels of large caliber being injected, barium sulphate in aqueous solution will deposit after a time, thereby spoiling the injection for accurate roentgenography. In order to overcome this objection, a mass was devised, which, while retaining the same simplicity of technic, was found on trial to give eminently satisfactory results. This mass consists of a thin suspension of barium sulphate in a 50 per cent. aqueous solution of sodium bromid. Barium sulphate, while not necessary so far as the roentgenography is concerned, is added for two reasons:

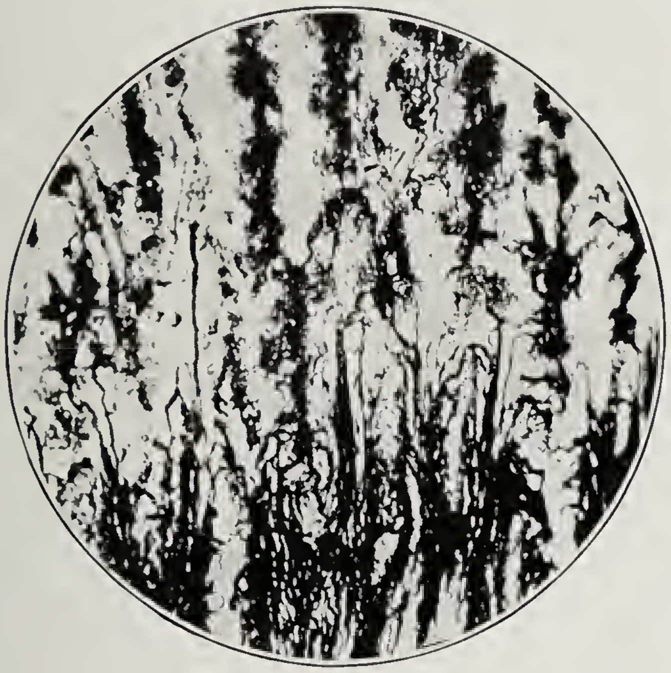

Fig. 9.—Low power photomicrograph of the renal venous system, demonstrating the venae rectae. Injection made with an aqueous solution of Berlin blue. (Compare with Figure 1, arteriolae rectae.)

1. The degree of capillary injection can be controlled by increasing or decreasing the amount in suspension. Pure solution of sodium bromid passes over too readily into the venous system.

2. By its addition, the progress of the injection can be followed (white suspension), and any leaks in the system at the time of injection readily detected.

As in the case of gross gelatin injection, the barium sulphate after injection is not kept long in uniform suspension, but this is of no consequence as the sodium bromid solution casts the required even shadow. Figure 7 is the reproduction of a roentgenographic picture of the arterial distribution in a sheep's kidney obtained by this method.

If repeated roentgenograms of a given specimen are required over a long period of time, however, better results are obtained by a gelatin suspension of barium sulphate; and the following, while simply a modification of many methods described by others, has proved itself very satisfactory.

1. A good quality sheet gelatin is cut into strips and dissolved in distilled water to make a 10 per cent. solution.

2. A quantity of barium sulphate is taken and thoroughly pulverized with a pestle and mortar, after which water is added till a suspension is formed having a consistency equal to that of thick cream. Equal parts of 1 and 2 are now taken, well mixed and used as such.

For the preservation of these gelatin preparations for emergency use, numerous substances have been added and a stock material kept in an icechest. By this means, some success may be obtained; but, for the best results, it is preferable to prepare the mass immediately before its employment. In all cases in which any suspension in gelatin is being used, both the apparatus and the tissue being injected must be kept in a water bath at a temperature just bearable to the hand. If the temperature is allowed to fall much below this, great difficulty will be experienced in getting a complete penetration of the vascular system. Following injection, the vessels are tied off and the specimen chilled as quickly as possible, thereby preventing any noticeable depositing of the barium sulphate, after which it may be placed in 10 per cent. solution of formaldehyd, which will tend further to set the gelatin and preserve the tissue indefinitely.

There is much to be said in favor of the results obtained by this method, and Figure 8 is a good example showing the macroscopic arterial distribution in the kidneys of a monkey. More detailed information may be obtained by taking stereoscopic roentgenograms of such a preparation. The relationship of the individual vessels may then be readily seen in three dimensions (Fig. 8). When photographic reproduction of a coarse vascular distribution is desired, the results obtained by this technic are probably clearer than those produced by any other method.

The advantages of the roentgen-ray stereopticon injection method may be thus summed up:

1. The technic is simple.
2. The results are clear.
3. Stereoscopic study demonstrates clearly the vascular relationships, both deep and superficial.
4. The specimen, after injection, may be preserved as a museum specimen or a portion sectioned for subsequent histologic study.

The sodium bromid suspension has a distinct advantage here in that the entire mass may be worked out of the vascular system after roentgenography, if desired, leaving an unimpaired specimen.

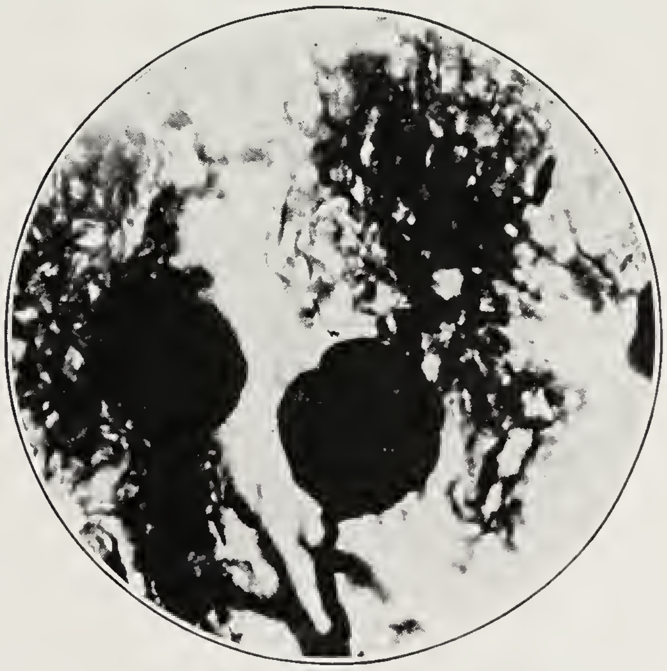

Fig. 10.—High power photomicrograph of a glomerulus, showing afferent and efferent vessels. The minuteness of capillary injection and complete absence of any diffusion may be readily seen. Detailed relationship may be obtained on viewing such sections under the binocular stereoscopic microscope. Injection made with an aqueous solution of Berlin blue.

B. INTRAVASCULAR INJECTION OF DYES IN AQUEOUS SOLUTIONS AND GELATIN MASSES

For the demonstration of the capillary distribution, various dyes have been used in both aqueous and gelatin solutions. After an experimental trial, dyes in aqueous solutions have been found superior to those in gelatin masses, as the technic with the former is greatly simplified and the results obtained are better. A mass differing from these has been suggested by Müller,[22] who recommends a mixture of 1 part glue with a not too concentrated solution of Berlin blue.

The three dyes found to be the most efficacious for injection purposes were silver nitrate, carmin and Berlin or Prussian blue.

Silver nitrate may be employed in strengths varying from 0.25 to 1 per cent. in distilled water. The injection has to be made quickly if much pressure is used, as the silver nitrate has a coagulating action on the proteins of the vessel walls, causing a loss of elasticity and a consequent liability to rupture. Following injection, which is maintained for two minutes, the silver nitrate is washed out of the lumen of the vessels with 10 per cent. solution of formaldehyd, and the specimen put in a similar solution for twenty-four hours. Sections are then cut and exposed to strong sunlight till the silver in the vessel walls is reduced, after which they are cleared and viewed in the usual manner. This method, while strongly recommending itself from the point of view of simplicity, has two serious defects: (*a*) the coagulating action on proteins, and (*b*) slight diffusibility through the smaller vessels.

Carmin, while recommended in the literature as being practically the equal of Berlin blue, failed to substantiate this claim in our hands. It may be used in aqueous, glycerin or gelatin solutions,[23] but whichever way is selected, its preliminary preparation is comparatively complicated, and much time and material may be wasted before a satisfactory result is obtained. In addition to this, there is always a tendency for a slight diffusion to occur in the capillaries, which is enough to spoil a clear cut definition of these vessels, which may be so readily and beautifully obtained by Berlin blue.

Berlin blue, like carmin, may be employed in various suspensions; but, for the demonstration of the capillary circulation, the aqueous suspension is the one *par excellence*. This may be prepared by simply making a 2 per cent. solution of soluble Berlin blue (or soluble Prussian blue, chemically pure) in distilled water. The solution may be injected without any further preparation, and will be found perfectly satisfactory.

The specimen, after injection, is:

(*a*) Immersed in 10 per cent. solution of formaldehyd for twenty-four hours.
(*b*) Dehydrated in increasing grades of alcohol to acetone.
(*c*) Cleaned in xylene.
(*d*) Embedded in paraffin.
(*e*) Sectioned.
(*f*) Cleared of paraffin in xylene.
(*g*) Mounted in Canada balsam.

Figures 9 and 10 illustrate low and high power photomicrographs of the completeness of injection readily obtained by this method.

The following advantages are presented by this particular solution:

1. Complete injection of a vascular system to the finest capillaries may be obtained without the slightest diffusion.
2. Its preparation is the simplest possible.
3. The pressure required for complete injection is a minimum.
4. It is chemically inert, having no action on the tissue, such as the coagulation produced by silver nitrate.
5. It is not affected by any of the reagents subsequently employed.
6. Splendid contrast stain may be obtained when employed together with carmin or silver nitrate.
7. The likelihood of distortion, which occasionally occurs with the celloidin method, is eliminated.

MULTIPLE TUBERCULOUS BONE LESIONS COMPLICATING CHRONIC PULMONARY TUBERCULOSIS

JOSEPH ROSENBLATT, M.D.
WALLUM LAKE, R. I.

My object in this paper is to place on record a rather unusual case of chronic pulmonary tuberculosis in an adult, with metastatic involvement of most of the ribs, the left clavicle, the frontal bone and the thyroid cartilage. While tuberculous involvement of the bones and joints as a complication of pulmonary tuberculosis is not so uncommon as some writers assert, it is extremely unusual to find such widespread involvement of the bones, especially in an adult. A search of the recent literature available did not disclose any record of a similar case.

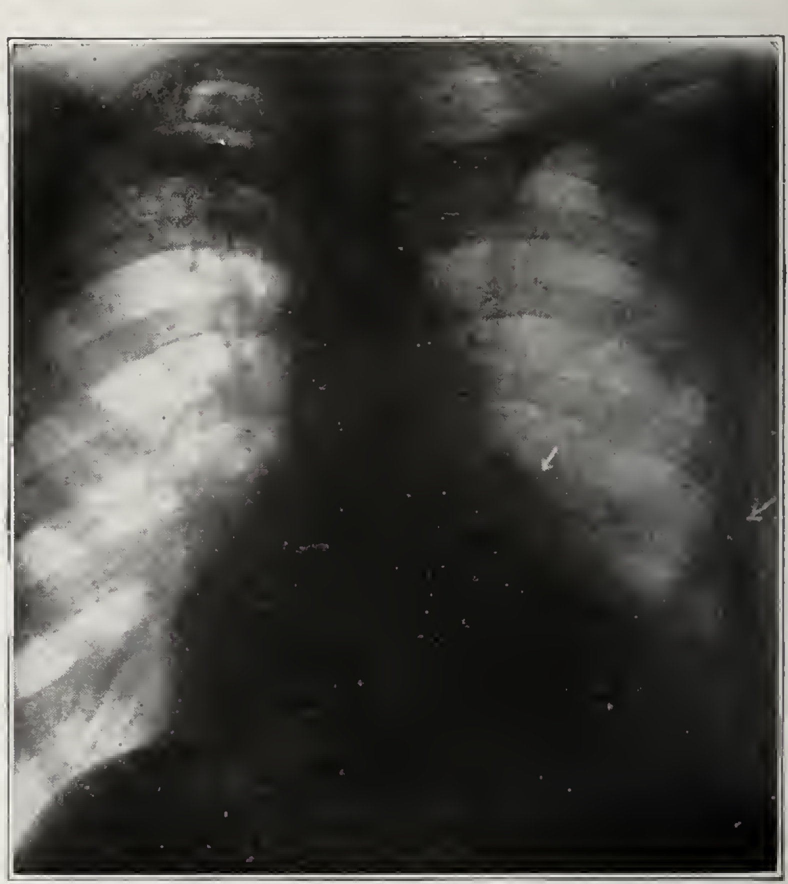

Fig. 1.—Appearance of chest with tuberculosis of both upper lobes; the shadows indicated by arrows proved, at necropsy, to be collections of pus in the mediastinum and between the parietal pleura and the chest wall.

REPORT OF CASE

History.—J. H. C., a man, aged 28, a jeweler, admitted to the Rhode Island State Sanatorium, July 28, 1922, complained of slight cough and expectoration, moderate loss of weight and strength, and three painful swellings, one on the forehead, one in the lower part of the right midaxillary region, and one in the left interscapular region.

The patient's family history as well as his previous personal history has no bearing on the case.

His present illness began, about four months prior to his admission to the sanatorium, with general weakness and slight cough. About the same time he developed a small swelling in the lower part of the right chest. The swelling was quite

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22. Müller, W.: Injectionsmassen von Thiersch und N. Müller, Archiv. f. mik. Anat., 1865, p. 150.

23. Lee, A. B.: The Microtomist's Vade-Mecum, Ed. 7, 1913, pp. 258-261.

painful and grew gradually until it reached the size of a hen's egg. A few weeks later, he developed a similar swelling in the left interscapular region, and about the same time another swelling appeared in the upper part of the forehead. The patient never had hemoptysis or pleurisy, but he lost about 10 pounds (4 kg.) and had occasional fever and night sweats for about two months.

Examination.—The patient was ambulant, and appeared poorly nourished and somewhat anemic. A tender, fluctuating swelling about the size of a walnut was noted on the upper part of the forehead. There was another swelling about the size of an orange in the right midaxillary line over the fifth and sixth ribs. The ribs near the swelling were extremely tender. There was a third swelling in the left interscapular line on a level with the sixth and seventh dorsal vertebrae. There was no tenderness over the spines of the vertebrae, and no kyphos or any other evidence of Pott's disease, but there was marked tenderness of the ribs in the neighborhood of the abscess and in the region of the lateral processes of the sixth and seventh vertebrae. Examination of the lungs showed dulness over both apexes and at the right base. There were no definite changes in breathing and no râles at the first examination. Subsequent examinations, several weeks later, showed a moderate number of moist râles over both upper lobes. The heart, abdomen and extremities were negative. The sputum was repeatedly negative for tubercle bacilli. The Wassermann test of the blood was negative.

Course.—Exploratory puncture of the various swellings disclosed pus, proving them to be cold abscesses. A specimen of pus from each abscess was injected into guinea-pigs, and all the animals developed typical tuberculosis. When the abscess over the frontal bone was evacuated, a very tender circular erosion of the bone about 1½ inches in diameter could be palpated. The abscess on the back caused the patient so much pain that it finally had to be incised and drained. The other two abscesses ruptured spontaneously after several aspirations, and discharged a considerable amount of pus and cheesy matter.

August 18, three weeks after his admission to the sanatorium, the patient developed an acute pain in the left chest, high fever, and marked dyspnea. Examination of the chest showed typical signs of pleural effusion at the left base, while at the same time the cold abscess that was previously noticed in the left interscapular region had practically disappeared. It was evident that the abscess must have ruptured into the pleural cavity. Exploratory puncture of the left pleural cavity revealed turbid fluid. A guinea-pig inoculated with this fluid developed tuberculosis. In about a week the abscess reappeared.

During the month of January, 1923, the patient developed a swelling, on the right side of the thyroid, about the size of a walnut. It had the appearance of an enlarged lobe of the thyroid gland, but aspiration revealed pus. On microscopic examination of the pus, tubercle bacilli were found on direct smear. This abscess was also treated by repeated aspirations. About the same time, the patient also developed pain and a cold abscess in the outer part of the left clavicular region. Motion of the left arm was restricted and painful. Aspiration also revealed pus. A guinea-pig inoculated with the pus developed tuberculosis. When the pus was evacuated, crepitus and abnormal mobility could be made out at about the junction of the outer and middle third of the clavicle, indicating a spontaneous fracture, as there was no history of trauma.

The patient had considerable fever during the entire period of his stay, was growing gradually weaker, and had frequent attacks of marked dyspnea and cough. Though he developed no more cold abscesses on the chest, practically all the ribs were gradually growing extremely tender, and he could not rest in any other but the semirecumbent position. He died from asthenia, May 9, 1923.

Roentgenologic Examinations.—Stereoscopic films of the chest taken, Aug. 2, 1922 (Fig. 1) showed mottling in the upper halves of both lungs, the appearance being typical of pulmonary tuberculosis. On a level with the fifth to the seventh ribs in the right midaxillary line there was a well-defined homogeneous shadow about the size of a hen's egg that could be seen in the stereoscope projecting from the inner surface of the chest wall into the thorax. A similar shadow, about the size of a hazelnut, was seen on a level with the first rib, on the right side. The cardiac shadow seemed to be considerably enlarged to the right; but, instead of having the normal convex appearance of the right heart border, this shadow had a lobulated appearance. There was also a homogeneous shadow at the base from the sixth space down, merging with the heart shadow. These peculiar shadows proved afterward to be due to a collection of pus in the mediastinum, and between the parietal pleura and the chest wall. Another film, August 21, showed, in addition to these findings, a dense homogeneous shadow at the left base, reaching to about the fourth interspace, and having the typical appearance of a pleuritic effusion. A roentgenogram of the skull, October 10, (Fig. 2) showed an area of rarefaction about 1½ inches in diameter in the upper part of the frontal bone, indicating bone destruction. November 3, the ribs were roentgenographed with the idea of locating the probable lesions of the rib, but no such lesions could be demonstrated. A roentgenogram of the clavicle (Fig. 3), April 4, 1923, showed a fracture at about the junction of the outer and middle thirds of the clavicle, and both fragments were considerably rarefied near the fractured point.

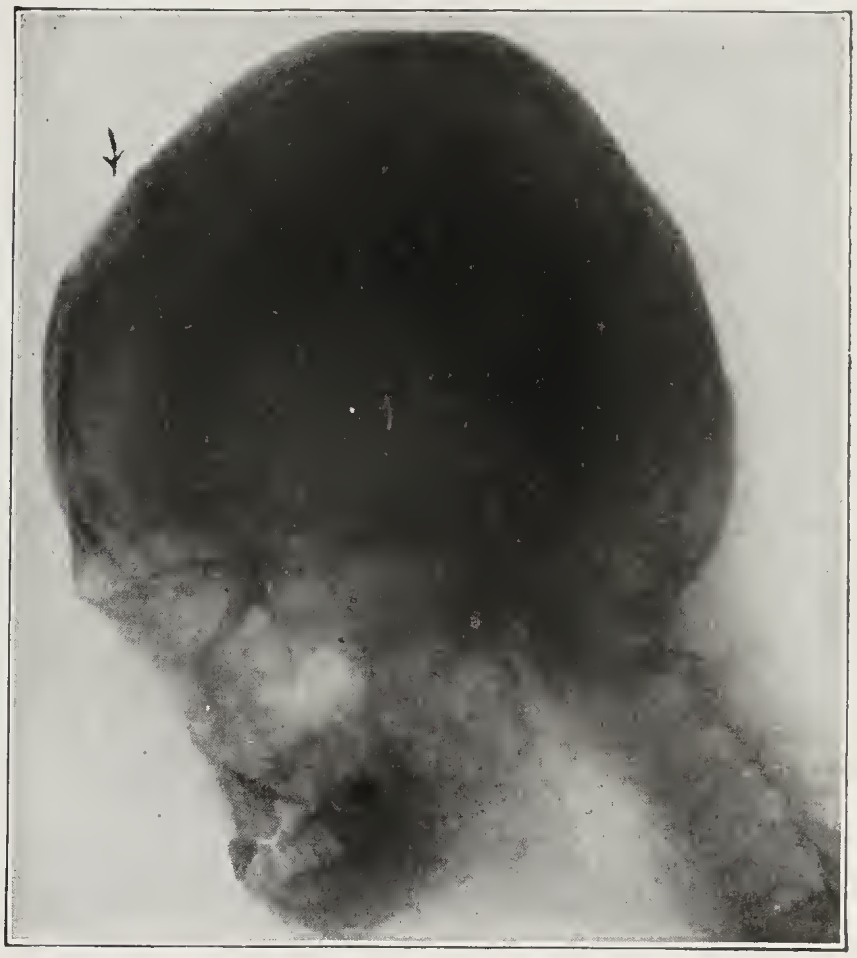

Fig. 2.—Bone destruction in frontal bone.

Necropsy Findings.—Removal of the sternum in the usual manner revealed a considerable amount of caseous and purulent matter in the mediastinum along the right heart border, and between the right lower lobe and the anterior part of the diaphragm, compressing the right lower lobe backward and upward. There were marked adhesions at the right base anteriorly and at the mediastinum, and it was therefore impossible to be certain whether these collections of caseous material were encapsulated between the layers of the diaphragmatic and mediastinal pleura, or between the pleura and the chest wall. It seemed probable, however, that the abscess did not break through the parietal pleura. The right lung was adherent at the upper third, but the rest of the pleural cavity was comparatively free, and could be inspected. When the right lung was removed, several swellings could be seen projecting from the interior surface of the chest wall into the thorax. The largest was in the posterior mediastinum, extending from about the first to the sixth rib, and was about 2 inches wide. Several other swellings, ranging from the size of an orange to the size of a hazelnut, were scattered in the various parts of the chest. Incision of these swellings revealed collections of cheesy matter between the parietal pleura and the chest wall. After evacuation of the abscesses, the ribs could be seen eroded, spongy and brittle. Practically every rib above the eighth rib was involved, most of them near the vertebral articulations, though there were also some that were involved near the costochondral junctions. On the left side, there were marked adhesions from the apex to the base. In an attempt to detach the lung at the base, a considerable amount of sanguineous and purulent fluid was evacuated, but no pleural surfaces could be seen. The parietal pleura at the lower posterior part of the left chest was apparently destroyed, and this collection of fluid was evidently in contact with the internal surface of the chest wall. When the left lung was removed, marked erosion and rarefaction of the fifth to the eighth ribs were seen. The lateral processes of the spines of the corresponding vertebrae were also eroded. Examination of the lungs showed extensive tuberculosis of both upper lobes, with considerable fibrosis. No definite cavities were seen, but both apexes were honeycombed. At the right side of the neck, a collection of pus was found just above the thyroid gland. On evacuation of the pus, the outer surface of the thyroid cartilage was found to be eroded. The head and abdomen were not examined.

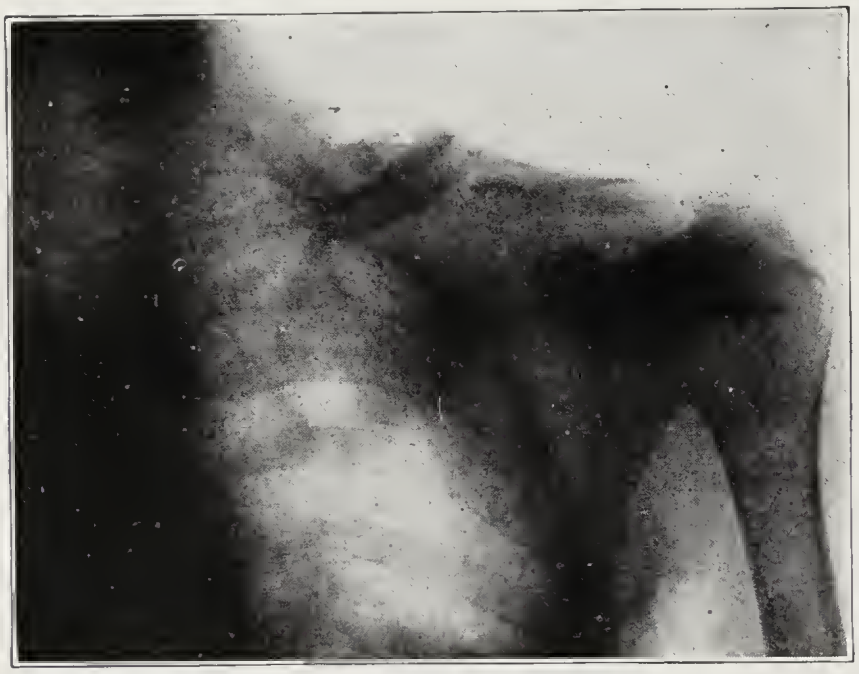

Fig. 3.—Fracture of clavicle and rarefaction of bone.

COMMENT

It is evident that in this case the various bone lesions were secondary to the pulmonary disease. The appearance of the lung and the clinical symptoms were those of a chronic tuberculous process of long duration, while some of the lesions in the bones developed right under our own observation.

The extensive involvement of the ribs might suggest the possibility of direct extension of the disease through the lungs and pleura, but careful examination shows that this was not the case. It will be remembered that the right pleural cavity was comparatively free. The parietal pleura, though moderately thickened, did not show any evidence of active tuberculous involvement, while many pus pockets were found between the pleura and the chest wall in connection with diseased ribs. On the left side there was a direct connection between the involved ribs and the pleura and lungs, a considerable part of the parietal pleura being diseased. It will be recalled, however, that when the patient was admitted to the institution, physical and roentgen-ray examinations did not show any pathologic changes in the left pleural cavity. It was only some time later that one of the abscesses evidently ruptured into the pleural cavity. It is obvious, therefore, that the lesions in the ribs, as well as those of the clavicle, thyroid cartilage and skull were of metastatic origin.

It seems rather strange that, in spite of the extensive disease of the ribs, the lesions could not be demonstrated on the roentgenograms, though several films were taken for that purpose. This seems to be due to the fact that the diseased portions of the ribs were uniformly eroded and rarefied; but there was not enough localized bone destruction or new bone formation to change the contours of the ribs to such an extent as to give positive roentgenographic evidence of a lesion.

One of the most unusual features of this case is the spontaneous fracture of the clavicle. Tuberculosis is hardly ever mentioned as a cause of spontaneous fractures. In the majority of tuberculous bone lesions, new bone formation goes hand in hand with bone destruction. Spontaneous fractures are therefore very unlikely to occur. In this case, however, the involved bones were rarefied and brittle without any gross evidence of new bone formation. It is not surprising, therefore, that the weight of the arm and muscular action were sufficient to break the diseased clavicle.

THE STANDARDIZATION OF DIGITALIS BY ITS ACTION ON THE HUMAN HEART *

PRELIMINARY REPORT

HAROLD E. B. PARDEE, M.D.

NEW YORK

While tests were being made of the absorption of digitalis from the gastro-intestinal tract, it was discovered that effects on the electrocardiogram were sometimes observable as early as two hours after the oral administration of the tincture in a dose of 1 minim per pound of the patient's body weight.[1] This earliest effect was a diminution in the height of the T wave and this diminution was observed to increase in amount to a maximum at some time between six and ten hours after the dose was given. The maximum change in the T wave was considered to record the maximum effect from this dose. Changes in the heart rate also occurred, beginning at about the same time and reaching a maximum at about the same time.

These effects on the electrocardiogram and the heart rate were considered to indicate the rate of absorption of the drug. It seemed reasonable to assume that when enough of the drug was absorbed to act on the heart, the first change set in, and that the change increased as more and more of the drug entered the circulation. It then occurred to me that the amount of the drug necessary to produce a minimal change might be used as a measure of the potency of a digitalis preparation, a small amount of a potent preparation serving to produce the same result as a larger

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* From the second medical division of the New York Hospital and the Cornell University Medical School.

* The beginning of this work was made possible by a grant from the Committee on Therapeutic Research of the American Medical Association. The funds for its continuation have been supplied by the New York Hospital and by Cornell University.

[1] Pardee, H. E. B.: The Rate of Absorption of Digitalis from the Gastro-Intestinal Tract, J. A. M. A. **75**: 1258 (Nov. 6) 1920.

amount of a less potent one. This method of testing digitalis takes into account not only the potency of the preparation in question, but also its absorbability, so that it should be a particularly good test for a preparation to be given by mouth, as is usually the case with digitalis.

It was soon found, as was anticipated from previous results with digitalis, that there was considerable variation in the susceptibility of different patients to the same preparation. It seemed to be true that the majority of patients were about equally susceptible, but certain individuals were remarkably resistant, so that they failed to show the typical changes even after a dose equal to 1 minim of the tincture per pound of body weight. It was necessary, therefore, to test a given preparation on several patients before a definite indication of its activity could be obtained, for there would always be a certain number of patients who would not show a digitalis effect from a dose which in another patient would give a plain effect.

We are really testing the patient's susceptibility as well as the strength of the drug, so that our final conclusion will be in regard to the action of the drug on the majority of patients, not on the exceptionally resistant ones.

THE METHOD OF PROCEDURE

1. A control electrocardiogram was taken between 4 and 5 p. m.
2. The test dose was given by mouth in about 2 ounces of water at 7 a. m. of the day following.
3. A record was taken between 4 and 5 p. m. of this day to see whether or not the test dose had produced an effect.
4. A larger dose was given by mouth at 7 a. m. of the next day, of sufficient size to bring the total up to 1 minim per pound of the patient's weight, plus another 20 minims, which was to make up for the twenty-four hours' excretion of the drug.
5. A third record was taken between 4 and 5 p. m. of this day to ascertain whether this large dose had affected the electrocardiogram, for only if it had done so could we feel that the patient was normally susceptible to the drug.
6. Later doses and later records were used to follow the course of digitalization, especially in resistant patients who showed no effect after the large dose. This phase of the subject will be reported on later.

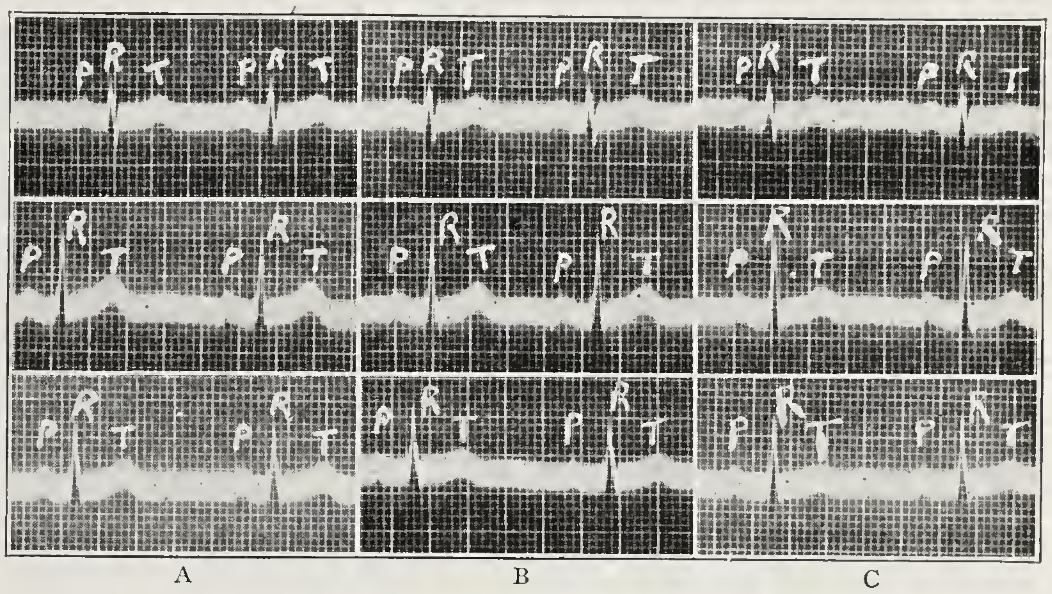
The test dose was varied in size according to the patient's weight, the number of minims being one half, one third, or one quarter of the number of pounds to the patient's weight. The patients chosen were such as were available in the medical wards of the New York Hospital. It was necessary to use patients who had not had digitalis previously, so those with heart disease were only rarely available. Likewise, patients with abnormalities of the ventricular waves other than a simple right or left ventricular prominence were excluded. The diagnoses were, for the most part, such things as chronic gastric ulcer, subacute rheumatic fever, convalescent bronchitis, and pleurisy with effusion; but it appeared to make no difference to the test whether or not the patient had heart disease.

All records were taken with the patient in bed, and having rested for at least twenty or thirty minutes after any physical activity, so as to avoid the possibility of a disturbance of the electrocardiogram from this source. The instrument was carefully standardized before each lead, and all records included a test of the deflection produced by introducing a potential difference of 1 millivolt in the circuit of the patient and the galvanometer. From this deflection could be noted the exactness of the standardization and, even more important, the presence of the overshooting of the deflection which comes from a high resistance of the patient to the passage of an electric current.[2]

Many experiments had to be discarded because of the unexpected finding of overshooting in this test deflection.

The accompanying electrocardiogram gives the records of a typical experiment, *A* being the control, *B* the record after the test dose of 26 minims of the tincture to a patient of 106 pounds (one-fourth the body weight in pounds), and *C* the record after the large dose, in this case 100 minims (106 + 20 — 26).

Table 1 gives the measurements of the height of the T waves in these three records, the measurement for each lead being taken to be the average of several of its T waves. This record shows a positive effect on the T wave from a dose of 26 minims, which was one fourth of the patient's body weight. A negative result would have been recorded if the T waves of Record B had been of the same height as those of the control, while those of Record C showed a diminution as a result of the larger dose.



Three records of Patient 16: *A*, control taken before digitalis was given; *B*, taken after 26 minims of the tincture was given by mouth; *C*, taken after 100 minims more had been given on the next day. The waves marked P are the auricular waves; R and T are the ventricular waves. Note the diminished size of the T wave after digitalis, without change in the other waves. The vertical lines represent time, each division being 0.04 second. The horizontal lines represent the strength of the current: each ten divisions represent 1 millivolt.

By this method, we have tested four different tinctures of digitalis. One, A, from an American grown leaf; two others, B and C, from a good English leaf; and one, D, from an unknown source, but put out by a reliable drug house. Tincture A was very active clinically, and produced prompt digitalis effects. Tinctures

Table 1.—*Average Height of T Waves* *

T Wave	A, Control, Mm.	B, Record after 26 Minims of Tincture B, Mm.	C, Record after 100 Minims of Tincture B, Mm.
Lead 1	1.0	1	0.8
Lead 2	2.5	2	1.8
Lead 3	1.5	1	0.7

* The measurements are of the T waves in the three leads of the records of the accompanying electrocardiogram, and show a slight change in height with the small dose and a greater change with the larger dose.

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[2] Pardee, H. E. B.: An Error in the Electrocardiogram Arising in the Application of the Electrodes, Arch. Int. Med. **20**: 161 (Aug.) 1917.

B and C were used in the wards of the New York Hospital at different times, and Tincture B was noted to be an especially potent preparation, while the other was not found so potent, though good enough. Tincture D had been used under my observation at the Lying-In Hospital, and impressed me as being a weak preparation.

RESULTS OF TESTS

The results of the tests are summarized in Table 2, and follow more or less closely the impressions as to their relative potency received by the clinical use of the different tinctures.

Table 2.—*Results of Testing Forty-One Patients with Four Different Tinctures of Digitalis* *

Tincture A					Tincture B				
Patient	Weight, Lbs.	Dose in Minims	Result	Percentage of Dose to Body Weight	Patient	Weight, Lbs.	Dose in Minims	Result	Percentage of Dose to Body Weight
1	107	21	—	20	14	132	25	—	19
2	102	20	—	20	15	123	25	—	20
3	125	25	—	20	16	106	26	+	24
4	130	26	—	20	17	114	28	—	24
5	140	28	+	20	18	96	24	+	25
6	124	25	—	20	19	122	30	+	25
7	108	27	+	25	20†	115	29	?	26
8	130	32	+	25	21	110	28	+	25
9	108	27	+	25	22	120	39	+	33
10†	117	29	?	25	23†	122	40	—	32
11	132	33	+	25	24‡	133	44	?	33
12†	174	58	—	33	25	128	43	+	33
13	110	37	+	33					
Tincture C					Tincture D				
26	110	15	—	13	36	140	35	—	25
27	128	20	?	15	37	170	45	—	28
28	158	30	—	19	38	130	33	—	25
29	114	25	—	22	39	120	30	—	25
30	170	50	—	30	40	100	30	+	30
31	127	38	+	30	41	120	40	+	33
32†	130	36	—	28					
33	179	63	+	35					
34	123	49	+	40					
35	114	47	+	41					

* The patient's weight in pounds, the size of the test dose in minims and the result, positive (+), negative (—), and doubtful (?) are shown; also the percentage relation of the figure for the dose to the figure for body weight.

† These patients were usually resistant to the action of digitalis, as shown by a failure of the large dose to affect the T wave.

‡ The Q-R-S group of this patient changed after the test dose of digitalis; therefore it was not felt that the T wave change must be ascribed to the drug.

Tincture A (Upsher Smith, October, 1922; cat unit, 0.65 c.c.) was by this test a very potent preparation, giving a positive reaction quite constantly with a dose equal in number of minims to 25 per cent. of the patient's weight in pounds, and in one instance giving a positive reaction to a number of minims 20 per cent. of the patient's weight in pounds. Tincture B (New York Hospital, December, 1921-February, 1922; cat unit, 0.65 c.c.) tested as of good potency, giving a positive reaction in the 25 per cent. dose with but one exception. Tincture C (New York Hospital, November, 1920-February, 1921; cat unit, 0.65 c.c.) did not show nearly as good potency as Tincture B. It is unfortunate that overshooting destroyed the value of all the testings with a 25 per cent. dose, but of the three testings with a 30 per cent. dose, one was on a resistant patient, one was positive and the other was negative. Three tests with still larger doses were positive. Tincture D (Mulford fluidextract of digitalis diluted to form a tincture; cat unit, unknown) was negative to three 25 per cent. doses and one 28 per cent. dose. It was positive to two 30 per cent. doses. This would suggest a potency less than that of Tinctures A and B, which was in agreement with the clinical observations on this tincture.

COMMENT

The theoretical advantages of this method of testing the potency of digitalis preparations by their action on the human heart seem to me to be considerable. In the first place, we are giving the drug to the human animal, the one on which we intend to use it therapeutically. In the second place, since it is given by mouth, the question of absorption of the preparation from the gastro-intestinal tract is also covered by the test. Both of these features of digitalis tests have long been moot points between the pharmacologists and the physicians, the latter often claiming that the results of the laboratory tests on such animals as the frog or cat or dog could not be properly applied to the human patient.

This change in the T wave of the electrocardiogram comes on after small amounts of digitalis have been given by mouth, and increases steadily in degree as more of the drug is given. It certainly represents one of the actions of the drug, and if, as seems the case, this action is coincident with that stimulation of the heart muscle which is our therapeutic aim, then we may use the one as a measure of the other.

It will always remain true that the final test of the value of a drug is its therapeutic effect on the patient, but the therapeutic testing of different preparations of a drug is a difficult and time consuming task. It is, therefore, not a practical method of standardization. The observation of the change in the T wave of the electrocardiogram does afford a practical method. The test gives a measure of the *minimal effective dose* of a given digitalis preparation. This is, in all likelihood, a more or less definite fraction of the therapeutically effective dose, and preliminary observations suggest that it is one sixth or one eighth of the therapeutic dose.

This test for the potency of digitalis preparations must be tried more extensively than I have yet been able to try it, before a final judgment of its value can be obtained. It has, however, such a sound, theoretical basis, and the results with these four tinctures were so well in accord with the observed clinical activity of the different preparations, that I feel the method should be made public so that more extensive trials at the hands of others may prove its true value.

74 West Forty-Eighth Street.

Infant Welfare in Ecuador.—While infant and child mortality in Ecuador is still high, a satisfactory improvement is noticeable of late, according to a recent report by Prof. J. M. Estrada Coello, of the Guayquil Medical School. This progress is more marked in Guayaquil where infant welfare work is better developed. While in 1915, there was an infant death rate (children under 1 year) of 31.4 per 100 births, in 1921 this had decreased to 22.6. A similar decrease was observed in the death rate for children under 12 years and naturally in the general mortality figures. At Quito, the infant death rate per hundred births was 20.4 in 1921 and at Cuenca 26. Dr. Estrada's report, which was submitted to the Child Welfare Congress held at Rio de Janeiro, is profusely illustrated with reproductions of the different institutions (nurseries, hospitals, homes, schools) devoted to child welfare in Ecuador. The first child welfare association was organized in Guayaquil in 1905. Since then, 80,000 children have been treated in its dispensaries. A number of popular pamphlets have also been distributed.

JUVENILE DEFORMING METATARSOPHALANGEAL OSTEOCHONDRITIS

FREIBERG'S INFRACTION OF THE METATARSAL HEAD *

PHILIP LEWIN, M.D.
Attending Orthopedic Surgeon, Cook County Hospital; Junior Attending Orthopedic Surgeon, St. Luke's Hospital; Associate in Orthopedic Surgery, Northwestern University Medical School
CHICAGO

A description of juvenile deforming metatarsophalangeal osteochondritis has not yet found its way into even the very latest textbooks. The literature on the subject is not voluminous. It was first described by Freiberg of Cincinnati in 1913, in a paper read before the Southern Surgical and Gynecological Association. He saw his first case in 1903, but his paper [1] reporting six cases did not appear until August, 1914. Since then, he has seen four or five cases. Köhler [2] of Wiesbaden described the condition in 1915, and in 1920 he [3] reported five cases. The number of cases reported to date is sixty-three. The two cases reported here bring the total number to sixty-five.

Cases Reported

Author	Number of Cases
Freiberg	10
Köhler	5
Skillern	1
Painter	3
Campbell	4
Fromme	1
Weil	2
Crysopathes	1
Fischer	9
Unger	1
Liek	1
Alberti	6
Axhausen	2
Panner	13
Hibbs	2
Speed	1
Valenti	1
Lewin	2
Total	65

This condition is erroneously known as Köhler's metatarsophalangeal syndrome. Freiberg called it infraction of the metatarsal head. Skillern [4] prefers the term impacted fracture to that of infraction. He calls it an "egg-shell" fracture. On the assumption that it is analogous to similar conditions in other regions, especially in the hip, I wish to add the term metatarsal epiphysitis, metatarsal "flat-head" or osteochondritis deformans metatarsojuvenilis. A more descriptive term is juvenile deforming metatarsophalangeal osteochondritis.

The etiology of the condition is unknown. It is in the same stage that Legg-Calvé-Perthes disease was in a decade ago. It is my belief that metatarsal osteochondritis has an etiology similar to that of the previously named hip condition, of Osgood-Schlatter's disease, Köhler's disease of the tarsal scaphoid, calcaneal apophysitis and Scheuermann's vertebral epiphysitis. When trauma affects bone and cartilage during a period of unusual growth, the foregoing conditions may result. The important factors are: (1) trauma; (2) circulation, and (3) infection.

Freiberg believes that trauma is the cause, and states the mechanism of the injury as follows: Under normal circumstances, the second metatarsal bone is slightly longer than the first. In the presence of a diminished power of toe flexion and especially of the great toe, it is apparent that forcible impact of the ball of the foot against the ground, not sufficiently guarded by the flexor power of the toes, will cause the distal end of the second metatarsal to bear the brunt of the blow. All of his six reported cases were due to trauma, especially that caused by tennis. Campbell [5] offers the explanation that sudden jumping on the ball of the foot with the toes dorsiflexed throws the heads of the metatarsals downward. He thinks that basketball, tennis and running upstairs are the chief causes. Two of Painter's [6] cases resulted from baseball injuries. Skillern's patient, a woman of 40, merely stubbed her toe.

Fischer [7] believes that a moderate trauma strikes the foot in front, acts on the farthest projecting second toe, and presses the head of the metatarsal backward.

Alberti [8] believes in the traumatic etiology, and offers the following explanation: The second toe is longer than the others, and the head of the second metarsal is the chief support of the foot; therefore it is subject to greater trauma. He is of the opinion that the condition is first an osteochondritis, and then a chronic arthritis.

In 1909, Legg offered the hypothesis of trauma as the primary cause of disturbance in the circulatory relationship between the epiphysis and the neck of the femur, the immediate result being atrophy in the former through a diminished blood supply, and hypertrophy in the latter. He believed that the hypertrophy was related to the hyperemia not only induced temporarily by the traumatic congestion, but also maintained for a considerable length of time by a proportionately increased blood supply where the blocking of the epiphyseal channels distributed a heavier circulation to the diaphyseal vessels. Adding to this disturbance the factors of pressure and growth also through a definite period of time, he concludes, as to the ultimate result, that pressure on the epiphysis, atrophied by diminished blood supply, produced flattening: that growth, as especially stimulated in the hyperemic upper diaphysis, produced thickening in the neck and modification in shape.

Axhausen [9] is opposed to the theory of a traumatic origin, and believes that the lesion is due to an embolic obstruction of the corresponding epiphyseal end-artery by tuberculous fragments or fragments with weakly virulent pyogenic cocci. The distal thickening of the shaft is explained by simultaneous emboli in the metaphyseal arterial branches, as a result of which a serous inflammation of the bone develops. The local process with secondary arthritis deformans is similar to the formation of free osteocartilaginous bodies with secondary arthritis deformans in the other joints in which the traumatic etiology has been established.

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* Read before the Chicago Orthopedic Club, April 13, 1923.

[1] Freiberg: Infraction of the Metatarsal Head, Surg., Gynec. & Obst., August, 1914, p. 191.

[2] Köhler, A.: Grenzen des normalen und Anfange des pathologischen im Röntgenbilde, Ed. 3, Hamburg, Lucas Grafe, 1915.

[3] Köhler, A.: Eine typische Erkrankung des 2. Metatarsophalangealgelenkes, München. med. Wchnschr., 1920, No. 45, p. 1289.

[4] Skillern: Ann. Surg. **70**: 371, 1915.

[5] Campbell, W. C.: Infraction of Metatarsal Bones, Am. J. Orthop. Surg. **15**: 721 (Oct.) 1917.

[6] Painter, C. F.: Infraction of the Second Metatarsal Head, Boston M. & S. J. **184**: 533 (May 26) 1921.

[7] Fischer: Die von A. Köhler bescriebende Erkrankung des 2. Metatarsuskopfchens: eine traumatische Deformität, Fortschr. a. d. Geb. d. Röntgenstrahlen **28**: 462 (Nov.) 1921.

[8] Alberti, O.: La sindrome scafoidea del Köhler, Radiol. Med. **9**, Part 6 (June) 1922.

[9] Axhausen, G.: The Etiology of Köhler's Disease of the Heads of the Metatarsal Bones, Beitr. z. klin. Chir. **126**: 451, 1922.

It is a condition occurring especially during adolescence. Union of the metatarsal diaphysis and epiphysis occurs between the eighteenth and twentieth years, and of the phalangeal structures, about the eighteenth year (Gray). Of the thirteen patients in Panner's[10] report, ten were between 10 and 14 years, and three were adults. It is possible that in the adult patients, the condition was present but unrecognized earlier. In Fischer's nine patients, the ages were 10, 15, 16, 16, 21, 24, 25, 35 and 45. Two of Panner's patients were adults. Four of Freiberg's patients were under 18 years of age, and two were below middle age. Painter's patients were 17, 13 and 60 years of age.

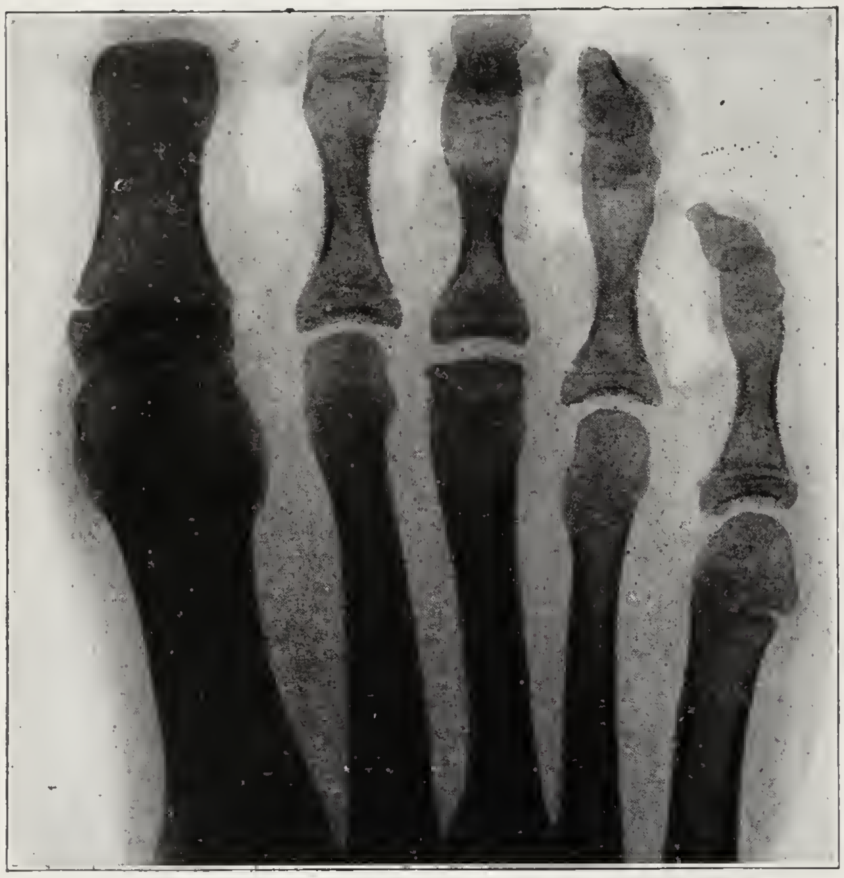

Fig. 1 (Case 1).—Appearance of left foot, Dec. 16, 1920: third metatarsal head flattened; neck and head broad; joint space increased, and triangular shaped area of epiphysis suggestive of infection.

Freiberg's first six patients were females. Eleven of Panner's patients were females; two were males. Two of Painter's patients were boys. Campbell's four patients were girls.

In three of Fischer's patients the left foot was affected; in five, the right. All of Freiberg's cases were unilateral. One of Fischer's cases was bilateral. One of Campbell's cases was bilateral, affecting the third toe of the left, and the second toe of the right foot.

All of Freiberg's six cases were of the second metatarsal. One of Campbell's cases was a third metatarsal affection.

PATHOLOGY, EMBRYOLOGY AND ANATOMY

The metatarsal bones are each ossified from two centers: one for the body and one for the head, of the second, third, fourth and fifth metatarsals. The first metatarsal has one center for the body and one for its base. Ossification begins in the center of the body about the ninth week, and extends toward each extremity. The center for the base of the first metatarsal appears about the third year; the centers for the heads of the other bones between the fifth and eighth years. They join the bodies between the eighteenth and twentieth years. The phalanges are each ossified from two centers; one for the body and one for the base. The center for the body appears about the tenth week; that for the base between the fourth and tenth years. It joins the body about the eighteenth year (Gray).

The circulation of the metatarsophalangeal region is supplied by the dorsal and plantar metatarsal arteries.

The gross pathologic changes consist of flattening of the metatarsal head, with broadening of the neck and distal portion of the shaft and irregularity of the epiphyseal line. Widening of the metatarsophalangeal joint space and diminished cupping of the articular surface of the proximal phalanx, with occasionally loose bodies or a line of incomplete fracture without displacement, constitute the known gross pathologic changes. In three of Freiberg's six cases there were loose bodies.

In view of the fact that no operation was performed in either of the cases comprising this report, the microscopic pathologic observations are quoted from other papers. Axhausen found, on histologic study of two resected specimens, an epiphyseal wedge-shaped necrosis with corresponding reparative processes. Under local anesthesia, Unger[11] resected the metatarsal head in one case. He found the head split, the joint capsule dense, the epiphysis soft and the marrow reddish gray. Valentin's[12] case showed microscopically that the cartilage and, in some places, the perichondrium were rich in cells. There were no marked signs of inflammation. In the metatarsal head that Campbell resected, no degenerative changes were found.

SYMPTOMS AND ROENTGEN-RAY FINDINGS

The symptomatology is very brief. There is a uniform complaint of pain referred to the region of the affected metatarsal head. Swelling is usually present. It is due to exudate. No marked increase of joint tension is demonstrable. There is very marked, sharply circumscribed sensitiveness to pressure over the metatarsal head and the metatarsophalangeal joint. Abnormal local temperature is unusual. Definite limitation of

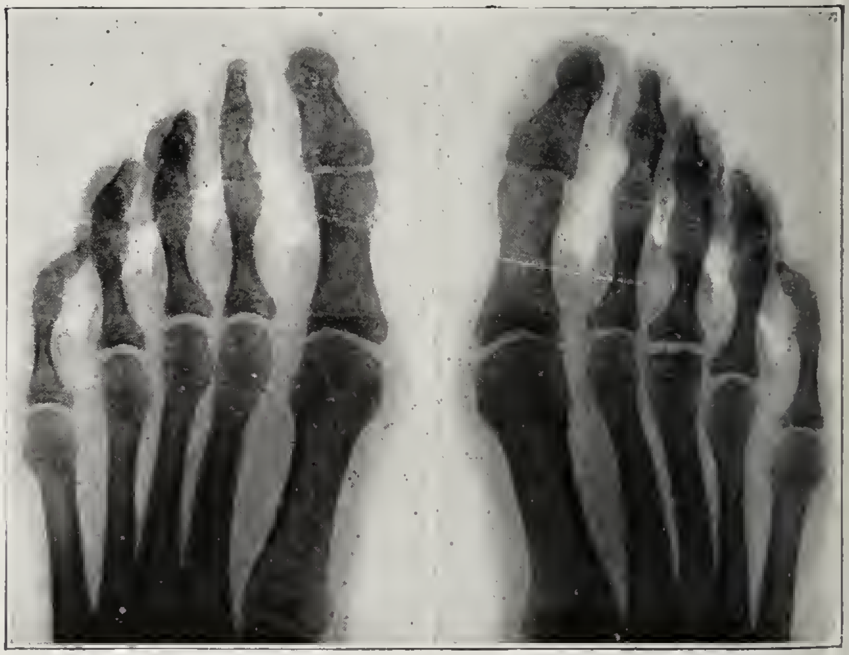

Fig. 2 (Case 1).—Appearance, April 23, 1921: third metatarsal head flattened; neck and head broad; epiphysis irregular; joint space increased, and cupping of articular surface of proximal phalanx diminished.

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[10] Panner: A Peculiar Characteristic Metatarsal Disease, Acta radiol. **1**, No. 3, 1922.

[11] Unger: Typical Pathologic Condition of the Second Metatarsophalangeal Joint, München. med. Wchnschr. **68**: 614 (May 20) 1921.

[12] Valentin: Beitrag zur Köhlerschen Erkrankung des II Metatarsophalangealgelenkes, Fortschr. a. d. Geb. d. Roentgenstrahlen **29**: 173 (April 22) 1922.

motion with muscle spasm is present. Abscess formation has not occurred in the cases reported.

To the roentgen ray must go the credit of recognition of this condition. It is here that a most interesting chapter is found. The findings are characteristic. They are: (1) flattening of the metatarsal head; (2) broadening of the neck and distal portion of the shaft; (3) irregularity of the epiphyseal line; (4) widening of the metatarsophalangeal joint space; (5) diminished cupping of articular surface of proximal phalanx, and (6) occasional line of incomplete fracture without displacement. Valentin, Axhausen and Liek[13] found areas of sequestration similar to those observed in both cases of this report.

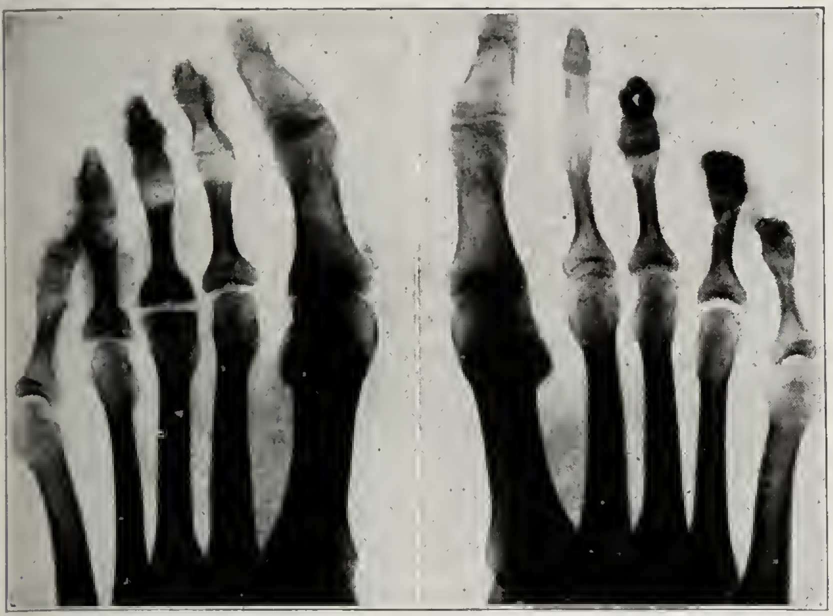

Fig. 3 (Case 1).—Appearance, March 16, 1923: all epiphyses prematurely united; patient is 16 years old.

In view of the fact that metatarsalgia is relatively uncommon in childhood, it is advisable to have roentgenograms made of both feet of every child who has a persistent metatarsalgia. It is possible that the first film will be negative and that the examination should be repeated. Occasional roentgenograms should be made of proved cases in order to check up on the progress of the condition.

DIAGNOSIS AND COURSE

The direct diagnosis is made on the history, local examination and roentgenograms. The differential diagnosis rests between Morton's metatarsalgia, Deutschlander's metatarsal periostitis, fracture, dislocation, syphilis and arthritis of childhood, viz., Poncet's or Still's disease. In the condition described by Deutschlander, there is local tenderness at the junction of the middle and distal thirds of the metatarsal shaft, and roentgen-ray examination reveals evidence of periostitis. It is a subacute inflammatory periostitis.

If recognized early, and if proper treatment as outlined below is instituted, the prognosis is excellent.

The course is short, lasting a few weeks. Abscesses have not been reported. Recurrences have occurred after nonoperative treatment, and all the cases in which operation has been performed are reported as cured.

TREATMENT

The treatment consists of absolute relief of the affected foot from weight-bearing by means of crutches and a block under the heel and sole of the shoe of the opposite foot. The foot should be immobilized in a plaster cast with a small, beveled felt pad applied just back of the metatarsal heads. As the cast sets, pressure is applied laterally and upward to build up the metatarsal arch. Phosphorized cod liver oil internally is of value. Fresh air, good hygiene and food hasten recovery.

When all symptoms have disappeared, a proper shoe is prescribed. This should be a straight last, round toe, medium shank shoe into which is inserted a felt pad for the transverse arch. This may be applied by means of a resinous glue and tacks directly into the shoe, or sewed to the bottom of a leather insole. A metatarsal bar or anterior heel may be used, and the entire leather heel should be removed and a low rubber heel applied. A duralumin, or other metal plate made over a corrected plaster cast may be used temporarily. Physiotherapy, heliotherapy, hyperemia and hydrotherapy are indicated after the cast is removed. Baking, gentle massage and passive and active movements with contrast baths hasten recovery. Special exercises for the metatarsal arch are performed over a round door stop screwed to a board. The patient sits, and with the door stop exerting pressure back of the metatarsal heads, the toes are forcibly flexed and extended. Picking up various sized marbles from a rug, using the bare toes, and pulling objects on the floor with the toes are auxiliary exercises. Freiberg recommended a felt pad to support the metatarsal head, and the insertion in the sole of the shoe of a steel plate to prevent motion at the metatarsophalangeal joints. In cases in which the roentgenogram shows loose bodies, "corpora libera," he advises arthrotomy.

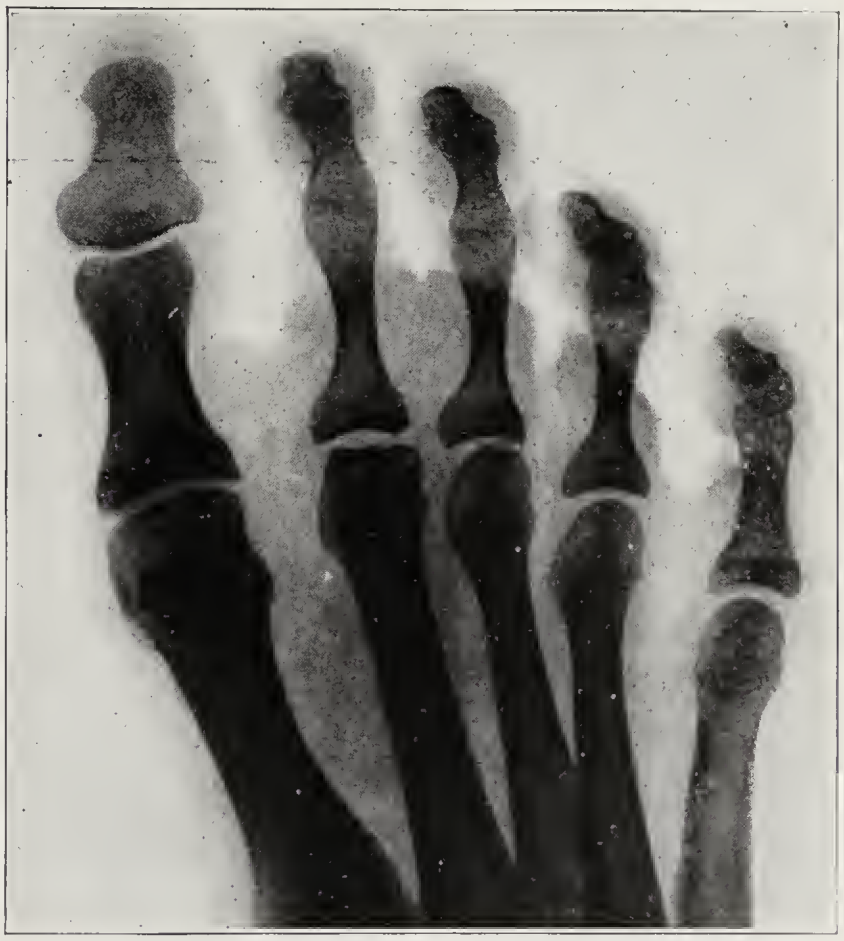

Fig. 4 (Case 2).—Appearance, May 8, 1922. Patient of Dr. R. P. Potter of Marshfield, Wis.

REPORT OF CASES

Case 1.—*History.*—I. C., a white girl, aged 14 years, a private patient of Dr. John L. Porter, referred by Dr. A. K. Sutch, first seen Jan. 10, 1921, complained of pain in the left foot in the region of the third metatarsophalangeal joint. There was no swelling. The duration of the pain was six months, with no evidence of injury or other cause. The patient spoke of a tired feeling in the afternoon. One afternoon her temperature was 100. Her general health had been below par lately. Tuberculosis of the third metatarsal bone had been diagnosed. Operation was advised, but her mother refused.

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[13] Liek, E.: Pathologic Conditions in Metatarsophalangeal Joints, Deutsch. Ztschr. f. Chir. **166**: 126 (Sept.) 1921.

Examination.—The examination revealed no visible abnormalities. There were no palpable abnormalities except marked sensitiveness, definitely localized over the head of the third metatarsal bone and the adjacent joint of the left foot. A roentgenogram, made Dec. 16, 1920, showed the characteristic findings enumerated above (Fig. 1). The corresponding region of the right foot was normal. The treatment instituted was immobilization by means of a metal splint for the third toe, crutches, and a block under the right shoe. At the end of five weeks, all symptoms had ceased. The patient has since had a simple metatarsalgia of the great toe of the same foot, which was easily controlled by a felt pad support.

She was seen, March 24, 1923, and no further symptoms were noticed. The head of the third metatarsal felt thick. The height of the patient was 5 feet 8 inches (173 cm.), and her weight, 120 pounds (54.5 kg.).

Case 2.—*History.*—J. B., a white girl, aged 12, a private patient of Drs. E. W. Ryerson, Hollis E. Potter and R. P. Potter, complained of pain and tenderness in the ball of the right foot. In May, 1922, she consulted her family physician, complaining of pain in the right foot which had been noticed for about two weeks. On examination, there was tenderness on pressure over the distal head of the second metatarsal. Roentgen-ray examination at this time revealed what appeared to be an extensive bone lesion of the epiphysis of the second metatarsal. The urine was found negative. The blood examination showed: red blood cells, 5,000,000; white blood corpuscles, 10,900, and hemoglobin, 95. The differential count showed: neutrophils, 52; small mononuclears, 26, and large mononuclears, 20.

Treatment.—The patient was allowed to be up and about as usual, but cautioned to avoid injuring the foot. Under R. P. Potter's direction a series of twenty-one treatments was given, using a deep therapy lamp and Alpine light. The foot and leg were given exposures of fifteen to twenty minutes' duration with a deep therapy lamp followed by alpine light to both dorsal and plantar surfaces of the foot, beginning with three minutes and increasing up to thirty minutes each. The treatments extended from May 16 to July 19, 1922. The pain and tenderness in the foot had disappeared before treatment was discontinued. Roentgen examinations, made June 6 and July 8, showed very little change in the lesion. A roentgenogram, made April 3, 1923, showed the lesion entirely healed.

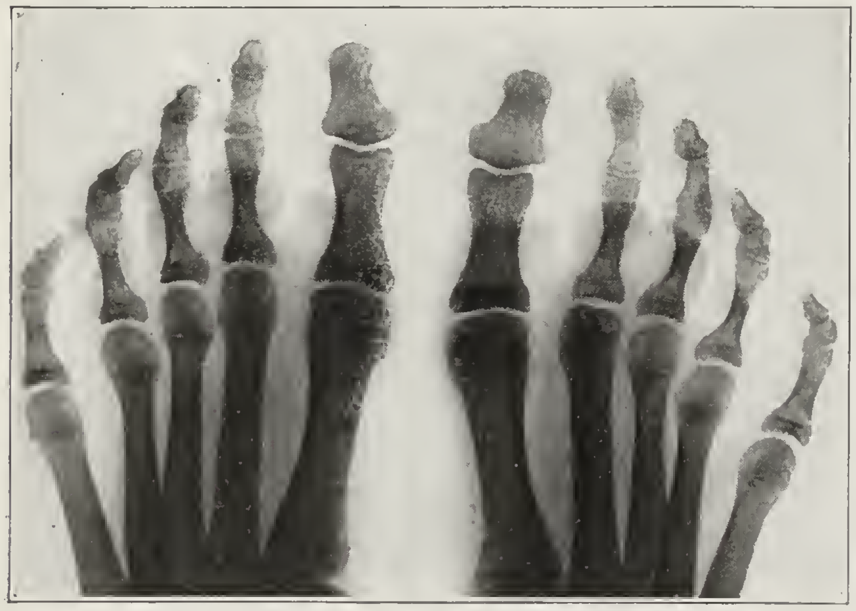

Fig. 5 (Case 2).—Appearance, July 8, 1922.

SUMMARY AND CONCLUSIONS

We have here a condition occurring more commonly in growing girls. The complaint is metatarsalgia, and the roentgenogram reveals deformity of the metatarsophalangeal joint and its component bones. The cause is bound up with three factors: trauma, circulation and infection. It is my belief that the etiology is trauma affecting the bone and cartilage during a period of unusual growth. The condition is analogous to Legg-Calvé-Perthes disease, Osgood-Schlatter's disease, Köhler's tarsal epiphysitis, calcaneal apophysitis and Scheuermann's vertebral epiphysitis. The prognosis is very good, and the treatment consists of relief from weight-bearing.

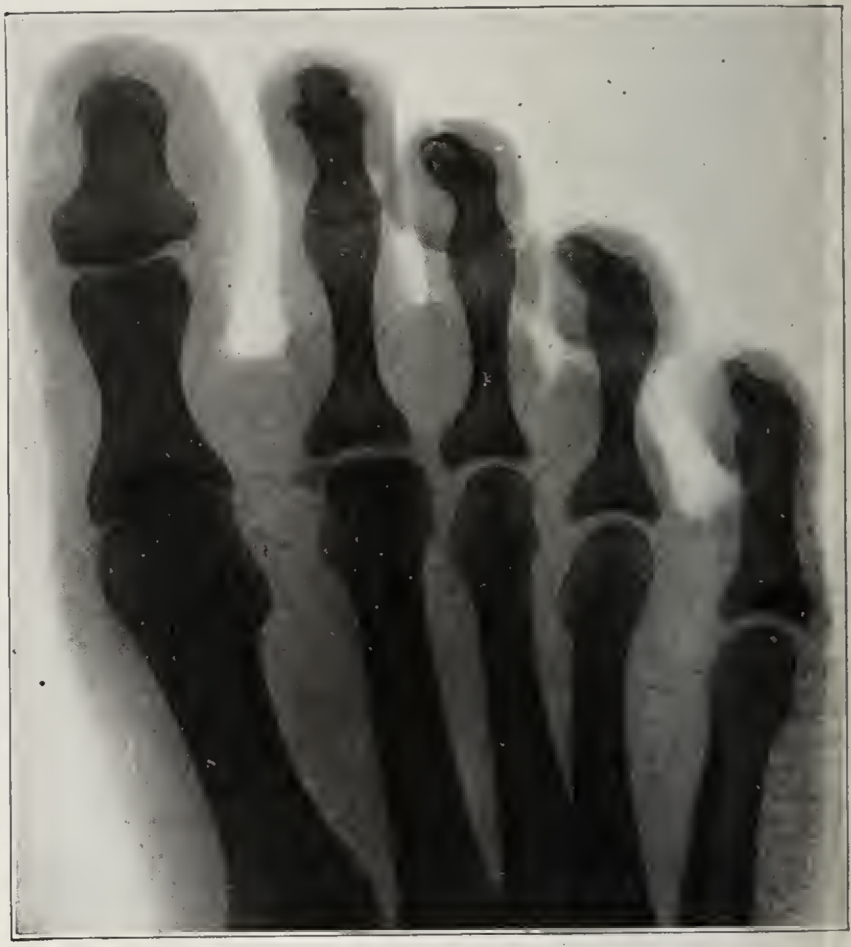

Fig. 6 (Case 2).—Appearance, April 3, 1923.

7 West Madison Street.

Juxta-Articular Nodes.—Since 1916 when this condition was first reported in Brazil, there have been eighteen cases reported in that country, says Dr. F. I. da Silva in his recent illustrated monograph, which adds six to the twelve cases previously reported. A Brazilian scientist, Dr. A. Lutz, first reported this form of tumor from Honolulu in 1891. The second group of cases was that reported by Jeanselme in 1904 from Indo-China. The nodes appear subcutaneously about some joint, most frequently the elbow, are rounded, either monolobular or polilobular, fibroid, painless, mobile and usually symmetrical. The size varies from a grain of corn to a lemon. They have been described under different names from several tropical countries. Brazil apparently is the only American country affected by the disease. No race is immune Both sexes are attacked, although preferably the male sex The growths generally appear in middle age. There is no contagiousness. While their causation is unknown, syphilis has been blamed as the underlying factor, their ready subsidence to antisyphilitic remedies being advanced in support of this view. Prognosis is favorable. The medical treatment may prove successful with arsenicals, iodids or mercurials When the nodes reach a certain size, it may be necessary to resort to surgery. Dr. da Silva believes that a case reported by Dr. Howard Fox of New York in a negress as fibroid syphiloma of elbows and knees belongs to this type of tumors

A STUDY OF THIRTY-FOUR CASES OF ABSCESS OF THE LUNG *

J. J. SINGER, M.D.
AND
EVARTS A. GRAHAM, M.D.
ST. LOUIS

The recent literature on lung abscess reveals two very important facts: (1) the increasing recognition of the importance of tonsillectomy as a causative factor in the production of lung abscess, and (2) the apparently marked increase in the general incidence of the condition. The operation of tonsillectomy seems to be most likely to be followed by lung abscess when it is performed under general anesthesia. Lockwood,[1] for example, in a recent study of fifty-four cases of abscess of the lung seen at the Mayo Clinic, considered that sixteen were due to tonsillectomy, in all but one of which operation had been performed under general anesthesia. Pottenger [2] reports having seen twenty cases following tonsillectomy within a year and a half. Whittemore [3] states that in 1921 he saw thirty-two cases of lung abscess, of which seventeen followed tonsillectomy. Other literature on this subject is quoted by Lockwood. Pritchard [4] reports thirty-two cases of lung abscesses; ten out of the thirty-two followed tonsillectomy.

The apparently marked increase in the general incidence of the condition cannot be explained entirely by the relationship to the operation of tonsillectomy. It is probably also due in part to the fact that many more cases are recognized now than formerly. The roentgen ray is largely responsible for this increased recognition. There are still, however, far too many cases, particularly of chronic lung abscess, which are confused with tuberculosis. It has been a common experience to find patients with chronic lung abscesses and bronchiectasis who have been treated for tuberculosis for months, and even for years, with no definite evidence of having tuberculosis. A chronic productive cough with occasionally recurring pulmonary hemorrhages is too often considered to be tuberculosis, when often it is merely an expression of a chronic suppurative process of the lung.

In this paper, a study is made of thirty-four cases of lung abscess seen in the Barnes Hospital and elsewhere. The various tables present the chief points of interest. It is worthy of special comment, however, that in our series, eight cases, or 24 per cent., followed tonsillectomy. None of these tonsillectomies had been performed in the Barnes Hospital, and all of them had been done under ether anesthesia. Dr. Sluder states that after more than 20,000 operations for tonsillectomy performed by himself and his staff with nitrous oxid analgesia, there have been no cases of lung abscess. Lockwood states that in 100,000 tonsillectomies at the Mayo Clinic, there have been no cases of lung abscess.

It is probable that the operation of tonsillectomy is responsible for this high percentage of cases. Whether the abscess occurs as a result of aspiration of infected material or embolism is not discussed.

Abscesses may be found in any part of the lung, more frequently in the lower part than in the upper part, and usually close to the pleura. But when there are multiple abscesses throughout the lung, there are only a few that are situated near the pleura.

Abscesses of the lung offer a great variety of symptoms, and no definite characteristic signs. But certain symptoms are very common. In most cases, there is a septic temperature and night sweats. The sputum in the beginning is very scant, and the cough very severe. The sputum is mucopurulent, and then becomes purulent. Chills are very common, and there is a considerable loss of weight and strength, and a decided anemia. Occasionally, a large amount of sputum is brought up at one time and may relieve the patient. Severe hemorrhages occur occasionally, similar to tuberculous hemorrhages. Pulmonary abscess, when ruptured in the pleura, will produce empyema. It is not uncommon for the abscesses to rupture into a bronchus, but the opening is not large enough, and there will be recurrent attacks of paroxysm at cough, with the expectoration of a large amount of pus. The odor of the sputum is usually very foul, and elastic tissue is frequently seen. It has been noticed that the sputum is nearly always negative for tubercle bacilli. Clubbing of the fingers is frequently noticed. Rarely, however, does one get the typical cough that one hears in tuberculosis.

Physical signs depend on the location and the size of the abscess. There are patches of consolidation with bronchial breathing, râles and increased whisper, such as are present in tuberculosis.

Roentgen-ray findings are usually typical, provided the abscess is large. Dense (homogeneous) shadows are seen with fairly good lung tissue around the lesion. The borders are not so sharply demarcated as in tumor of the lung. The costophrenic angles are usually clear, unless there is an associated pleural effusion. The apexes are also usually clear. In the fluoroscopic examination, one can usually see a dense shadow around the hilum toward the periphery. If the patient is examined tangentially, the lung abscess shows a more definite shadow. Plates of the patient should be taken serially. Occasionally, a fluid level is seen in the shadow. This is a pathognomonic sign of cavity, when found.

The treatments used are medical postural drainage, bronchoscopy, pneumothorax, thoracotomy and lobectomy.

It has become our custom not to puncture the lung for diagnostic purposes until it has been definitely determined that there are adhesions around the site of the abscess by doing a diagnostic pneumothorax. The method of procedure is to cocainize the skin around the site 3 or 4 inches away from the suspected abscess, and introduce a small amount of air into the pleural cavity at the first operation. After forty-eight hours, a little more air is injected, and the nonadherent lung is compressed; this shows definitely whether adhesions are present. At the site of adhesions of the lung, an exploratory thoracotomy is done. A portion of the rib directly above the site of the greatest dulness and densest shadow seen in the roentgenogram is removed; aspiration is then done in various sites of the lung until the abscess is found. If the adhesions are not very dense, and if, inadvertently, the pleura is opened, the lung and pleura are sewed to the thoracotomy wound, which is then packed with iodoform

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* From the Departments of Internal Medicine and Surgery, Washington University Medical School.

[1] Lockwood, A. L.: Abscess of the Lung, Surg. Gynec. & Obst. **35**: 461 (Oct.) 1922.

[2] Pottenger, quoted by Lockwood (Footnote 1).

[3] Whittemore, W.: Lung Abscess, S. Clin. N. Am. **1**: 765 (June) 1921.

[4] Pritchard, J. S.: Value of Rest in Empyema and Lung Abscess, J. A. M. A. **79**: 2208 (Dec. 30) 1922.

gauze, and the skin is closed tightly. In several days an aspiration needle is introduced. With the needle in place, the abscess is opened either with the cautery or by blunt dissection, and a large, soft rubber tube is introduced for drainage.

It has been the custom to give the patients the benefit of bronchoscopy, postural drainage and pneumothorax before any operative procedure is done. The medical treatment is, of course, tried first. Some men, skilled in the use of bronchoscopy, are able to aspirate the contents of the abscess with good results. Unfortunately, there are not many places in which this method can be used favorably. A large number of patients do not present themselves for examination until a year or so after the beginning of symptoms; thus, multilocular abscesses are formed, and the drainage of one abscess helps very little.

Results of Observations

ETIOLOGIC FACTORS

	Number	Per Cent.
Causes unknown	3	9
Tonsillectomy	8	24
Other operations	3	9
Gallstones	1	
Leg amputation	1	
Hernia	1	
Pneumonia	3	9
Influenza	2	6
Bronchiectasis	2	6
Various other causes	13	37
Carcinomas	2	
Tooth extractions	2	
Staphylococcus septicemia	2	
Esophagus fistulas	2	
Metastatic lat. sinus abscess	1	
Respiratory infections	2	
Infarction	1	
Diabetes mellitus	1	
Total number of operations	11	32
Abscesses following ether anesthetic	11	100

LOCATION

	Number	Per Cent.
Right lung	29	85
Upper lobe	9	
Lower lobe	14	
Mid lobe	2	
Multiple	4	
Left lung	5	15
Lower lobe	1	
Upper lobe	2	
Multiple	2	

INCIDENCE OF LOCATION

	Number	Per Cent.
Upper lobes, right and left	11	32
Lower lobes, right and left	15	44.5
Mid lobes, right	2	6
Multiple, right and left	6	17.5

KINDS

	Number	Per Cent.
Single abscesses	28	82.5
Multiple abscesses	6	17.5

RESULT OF TREATMENT WITH PNEUMOTHORAX

	Number	Per Cent.
Pneumothorax	9	26
Successful	2	22
Unsuccessful	7	78

OPERATIONS

	Number	Per Cent.
Operations	13	36
Improved	6	46
Unimproved	1	8
Deaths	6	46

CASES IN WHICH OPERATION WAS NOT PERFORMED

Nonoperative	21	62
Improved	4	19
Unimproved	8	38
Uncertain	1	5
Deaths	8	38

SEX INCIDENCE

	Number	Per Cent.
Males	23	67.5
Females	11	32.5

The table shows definitely that a large percentage of abscesses of the lung follow tonsillectomy. It is sometimes impossible to recognize the cause of abscess, but with a more careful analysis, it is probable that the cause will be found. In two cases of carcinoma of the lung, the abscess followed massive roentgen-ray treatment; it is not known whether this was coincidental.

It is very evident, that the large number of abscesses are in the right lung, especially in the lower lobe. This may be due to the more direct connection between the outside world by virtue of the relative vertical path that the right bronchus takes.

The upper lobe abscesses are not as frequent as the lower.

The single abscess is much more frequent than the multiple. It must be noted that most of the single abscesses are usually of a longer duration. Cases 12 and 14 are both recent cases.

Pneumothorax is done mostly for diagnostic purposes, but in two cases recovery followed. Many authors, such as Rich,[5] Goldberg and Biesenthal,[6] and Forlanini,[7] report that many cases have been treated by pneumothorax successfully. It will be noted in the text that pneumothorax was performed in order to determine the presence of adhesions rather than to collapse the lung.

Of the thirteen patients submitting to operation, six died, a mortality of 46 per cent. This mortality seems very high, and actually it is higher than the usual reported mortality. For example, Lockwood states in his article that in reports of 1,117 cases of lung abscess in the medical literature, the average mortality with surgical treatment was 34.6 per cent. In Lockwood's own series, however, in fifty-four cases, there was surgical mortality of 41 per cent. In a series of nine cases in which operation was performed by Dr. Evarts Graham at the Barnes Hospital, there were two surgical deaths, a mortality of 22 per cent., but both showed multiple abscesses at the necropsy, and were therefore, cases in which death could hardly be ascribed to the operation.[8]

A third patient operated on by one of us (E. A. G.) died several months later with extensive carcinomatous metastases. A patient, with a similar condition, operated on by Dr. Max Meyer, died several months later, and at necropsy an extensive carcinoma of the lung was found at the site of the abscess. Dr. Major Seelig operated on one patient who died later, also of symptoms of general carcinomatosis.

CONCLUSIONS

Abscess of the lungs is being recognized more today than heretofore. The large number of tonsillectomies done is one factor which is responsible for what is apparently a greater number of abscesses than formerly. Early recognition and operation before the abscess has become chronic frequently prevents the failure of treatment, although many patients will recover with nonsurgical treatment. Careful history taking, physical signs, use of the roentgen ray and diagnostic pneumothorax make early recognition possible. Patients who do not recover in two or three months need surgical treatment.

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[5] Rich: Am. J. M. Sc. 32: 510-516, 1922.

[6] Goldberg, B., and Biesenthal, M.: The Treatment of Acute Lung Abscess by Artificial Pneumothorax, Am. Rev. Tuberc. 3: 169 (May) 1919.

[7] Forlanini: München. med. Wchnschr. 57: 124, 1910.

[8] Many writers consider that patients with multiple abscesses should not be subjected to operation. We are inclined to support this view. In the cases mentioned above, however, there was no possible way of recognizing by clinical means the fact that the abscesses were multiple. Since the preparation of this article, one of us (E. A. G.) has devised and carried out successfully on two patients a method which may bring some cases of multiple lung abscess within the scope of justifiable and relatively safe surgical treatment.

LOBAR PNEUMONIA COMPLICATING INDUCED PNEUMOTHORAX

CLOUGH TURRILL BURNETT, M.D.
DENVER

In spite of the comparatively large number of patients who have undergone therapeutic pneumothorax, a lobar pneumonia occurring in the course of this treatment is a rarity. Such an experience in my practice recently led me to make some inquiries from colleagues who have had an experience in this field over a much greater number of years. Dr. Walter G. Holden states that in his twenty years' experience at the Agnes Memorial Sanatorium he has never seen a patient with this dual condition. None of the other medical men to whom inquiry was directed reported having seen or having known of this complication. This led to a search of the literature.

Weiss,[1] in 1912, described a case that was fatal. The patient had carried a left-sided artificial pneumothorax for eight months. A specific right-sided pneumonia began in the middle lobe, extending to the upper and lower lobes.

Gray [2] reports a fatal case of bronchopneumonia of the sound lung in a case of artificial pneumothorax of four years' standing.

Peters [3] describes a right pneumothorax case in which influenza was contracted, and in which there was a typical bronchopneumonia in the left base.

Mayer [4] reports four pneumothorax cases in which pneumonia followed influenza ("grippe pneumonie"), the involvement in each case being on the sound side. Only one of these, however, was of the lobar type. This author states that "aside from the grippe, pneumonia upon the sound side in pneumothorax cases seems to appear seldom," and that he was unable to find a case in the literature.

A personal search of the literature since 1909 has so far furnished only two cases of lobar pneumonia involving the uncollapsed lung in the course of a therapeutic pneumothorax, and only five cases of bronchopneumonia.

REPORT OF CASE

History.—J. S., a man, aged 31, an American, a civil engineer, seen, March 12, 1921, complained of a severe hacking cough and a large amount of foul sputum, though with a very little impairment of health. The family history was unimportant. When he was 11 years old he had had pneumonia. He was ill for three weeks, but made a good recovery. From 1910 to 1915 the patient had frequent colds and considerable bronchial trouble. In 1913, large amounts of sputum were raised throughout the day. In 1915 a medical consultant reported the heart dilated somewhat to the left, the pulse 108, with soft blowing murmur at the apex. The patient at this time showed slight enlargement of the heart to the left, increased density of the hila and both descending bronchi, somewhat more marked on the right.

Examination.—The patient was fairly well developed and fairly well nourished. The fingers were clubbed, and the breath was very foul. The nose and throat were normal. Breath sounds were diminished at the bases on both sides. Fine, dry bronchial râles were heard all over the chest and back, but disappeared when the patient coughed. There was diminished resonance above the second rib on the right, with hyperresonance elsewhere. Examination of the heart revealed: left border and apex beat, 9.5 cm. from the midsternal line; there were no murmurs.

Roentgenograms had been taken by Dr. W. W. Wasson in January, 1920. These were repeated, March 14, 1921. A comparison of these showed a marked peribronchial thickening scattered throughout both lungs, which was more marked on the right. There was increased density in the right apex. Old pulmonary tuberculosis was now quiescent, with evidence of a mixed infection along the right lower main bronchus. This was definitely dilated.

The diagnosis was emphysema and bronchiectasis. Postural and hygienic treatment, with brief attempts at autogenous vaccine therapy, was of practically no avail. Physical findings remained about the same. Roentgen-ray examination, June 8, 1922, showed the left basal bronchi remaining practically uninvolved in the dilatation process.

Treatment and Course.—It is well known that pneumothorax does not offer great advantages in the treatment of bronchiectasis. Rist [5] has reported one case cured by artificial pneumothorax. After a year of attempts at postural and other methods of treatment, the patient remained unimproved. The odor of the breath was so foul that he felt that he would prefer to take some chances in order to overcome this condition. Because the process seemed to be entirely, or at least mainly, unilateral, a pneumothorax was determined on with the idea that if successful the patient might at a later time undergo thoracoplastic surgery.

The first pneumothorax was done, June 10, and by June 28 the right lung was collapsed so that it occupied about one fifth of the right thorax, with breath sounds entirely absent and no râles heard at any time; the sputum and breath were odorless, with a marked reduction in the amount of sputum. This treatment was continued at intervals of from two to three weeks. A point of interest in this connection is that at no time was it necessary to employ a high positive pressure to keep the dilated bronchi collapsed.

The patient made steady improvement with increase in weight until the intercurrent illness which forms the basis of this report. Oct. 15, 1922, the patient had a severe chill, followed by a rise in temperature. He was not seen until the following day, when examination failed to disclose the cause of this sudden temperature elevation. October 17, he entered Mercy Hospital, at which time a change in the hyperresonance, which had existed over the left lung since the institution of the pneumothorax, was noted over the left lower lobe, and over the upper portion posteriorly of this lobe there was a marked increase in vocal reasonance and fine inspiratory râles. The temperature now ranged between 101 and 102. The respiration was 28, and the pulse ranged from 120 to 140. October 18, the local signs were more definite, and established the diagnosis of lobar pneumonia. On this day, the patient raised some rusty sputum, which was injected into a mouse for typing purposes, and, October 19, this test showed a Type I pneumococcus infection. The temperature, October 19, at 11 a. m. was 103.4; the pulse was 130, and respiration, 30. The leukocyte count was 28,000. At 4:30 p. m., the patient received intravenously 50 c.c. of Type I antipneumococcus serum. This was followed by a steady drop in temperature, which reached 97.8 at 7 a. m. the following morning. The subsequent temperature, pulse and respiration observations are shown in the accompanying chart. A second dose of 50 c.c. of antipneumococcus serum, administered nineteen hours after the inital dose, was followed by a brief elevation in temperature. Two days later, the temperature reached 99. From this point, the recovery was uneventful, with the exception of a typical anaphylactic serum disease, which occurred on the tenth day after the first serum injection. For one day only the temperature rose to 101, the pulse to 120, and respiration to 24, accompanied by a widespread urticaria, all of which entirely disappeared in twenty-four hours.

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[1] Weiss, August: Ueber Komplikationen bei Behandlung mit künstlichen Pneumothorax, Beitr. z. Klin. d. Tuberk. **24**: 333, 1912.

[2] Gray, E. A.: Case of Artificial Pneumothorax of Four Years' Standing, Broncho-Pneumonia, Autopsy, Illinois M. J. **35**: 188 (April) 1919.

[3] Peters, LeR. S.: Odds and Ends in Artificial Pneumothorax, Tr. Nat. Tuberc. A. **15**: 132, 1919.

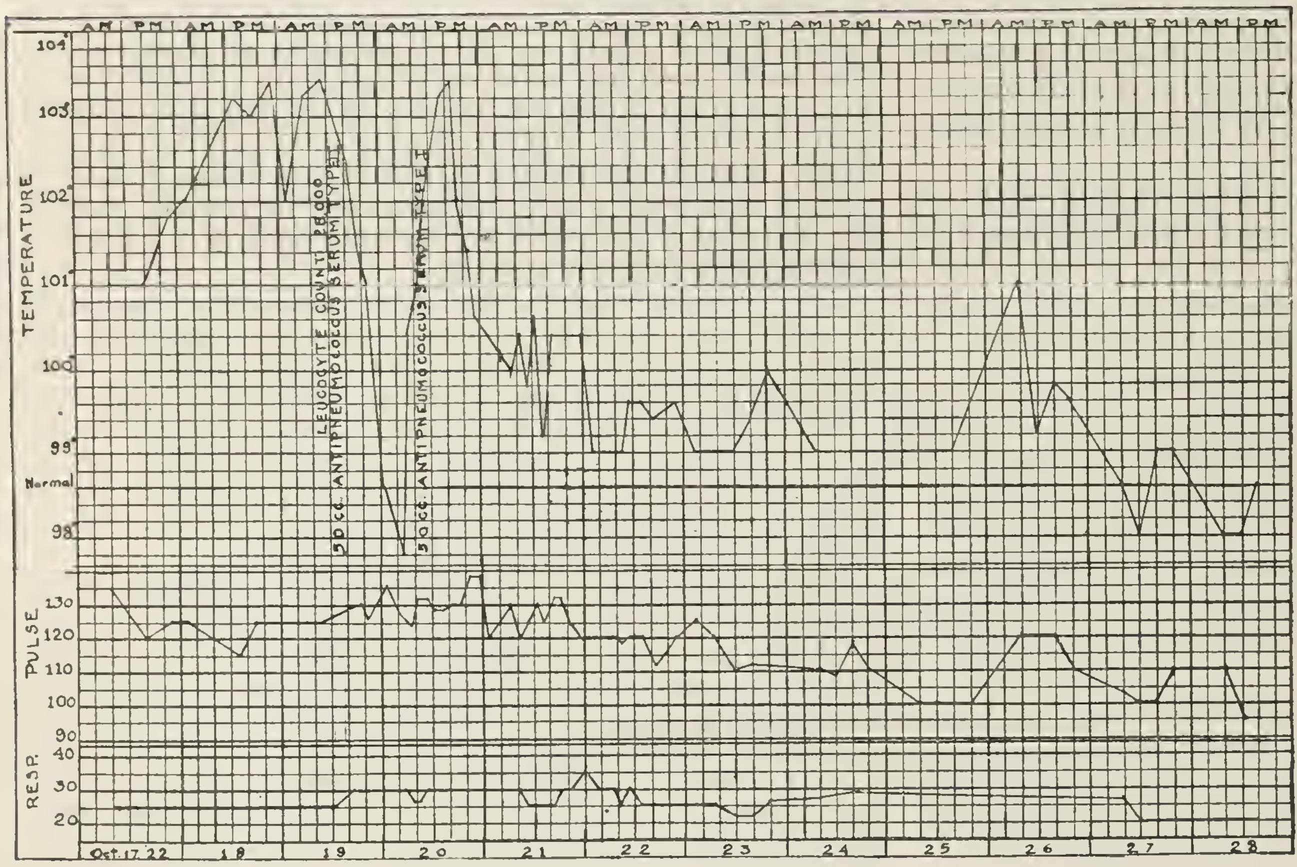
[4] Mayer, A. E.: Grippe Pneumonie bei Ausschaltung der andern Lunge, Schweiz. med. Wchnschr. **50**: 1042 (Nov. 11) 1920.

[5] Rist, Emil: Un cas de bronchiectasie guérie par le pneumothorax artificiel, Bull. et mém. Soc. méd. d. hôp. de Paris **43**: 652 (July 4) 1919.

Fluoroscopic examination, November 16, which was three weeks after the last temperature elevation, excepting that due to the serum reaction, showed the right lung about two-thirds collapsed, and in the left lung, between the seventh and eighth ribs posteriorly, a few fine râles were heard after cough. Subsequently, complete resolution took place.

This case is reported because the handling of lobar pneumonia in the presence of artificial collapse on the other side always offers some difficulty and is attended with very great danger.

In Peters'[3] case of bronchopneumonia, aspiration was not performed, and the patient recovered. In Weiss'[1] case of lobar pneumonia, aspiration was performed twice because of severe dyspnea, one time with apparent improvement, the second time with collapse and death. In two of Mayer's[4] cases, aspiration was performed on the eighth day, because of air hunger and failing pulse, with almost immediate results. It remains a question, however, whether a normal crisis happened at this time. The withdrawal of the air from the collapsed side during the course of the pneumonia is not without danger, for the sudden withdrawal of such a large amount favors mediastinal displacement and attendant cardiac strain. This is especially objectionable in pneumonia. Fortunately, in this case the infection was a pneumococcus Type I, and an antiserum was available.



Temperature, pulse and respiration.

A further point of interest is the effect of this intercurrent infection on the bronchiectasis. Prior to the pneumonia, the patient was free from foul sputum as long as the lung was maintained in complete collapse; but if it was allowed to reexpand even slightly, the odor was again apparent. This disappeared again with complete collapse. While the treatment was of necessity discontinued for a time, the long interval being forty-seven days during the pneumonia as compared to an average of two weeks before, we found that, following the pneumonia, while sputum appeared in increasing amounts immediately following the pneumothorax operations, the foul odor has at no time been noted. The patient has entirely recovered from the recent infection, and is continuing the pneumothorax in the hope of obtaining at least a partial relief from the bronchiectasis.

517 Imperial Building.

A Pioneer.—The pioneer of experimental physiology in France was François Magendie (1783-1855), who employed both physical and chemical procedure in his investigations, and was the modern founder of experimental pharmacology. —Garrison's History of Medicine.

THE PATIENT'S MIND

SHALL IT BE CONSIDERED IN TREATING HIM ?*

WILLIAM HOUSE, M.D.
PORTLAND, ORE.

Probably every physician thinks he is treating or at least considering his patient's mind. But, as a matter of fact, a vast majority receive no attention, a considerable minority receive some attention, and a very limited minority receive attention to the mind commensurate with its importance in influencing, for better or worse, the physical ailment for which the physician is consulted. If all patients had their minds ministered to, it is practically certain that spiritualists, both the domestic and the foreign brands, would find it difficult to fill even small halls for their lectures, whereas now they fill vast auditoriums with the curious and with those who are ill at ease in mind and seek relief from mental travail. Organized groups that use the name of Christ to designate their philosophy at the same time that they make Him second in importance to a self-created and self-apotheosized leader would be unable by an adroit combination of a pseudoreligion with an even more pseudoscience to fill great churches and, through them, commercially operated consulting rooms all over the land. More orthodox religious bodies would refuse to place the stamp of approval on paranoidal invididuals who, by the aid of incantations and the laying on of hands, claim to be able to place the sick on the high road to health. Well meaning foreigners would fail to set a large part of the nation to dancing a kind of mental syncopation in trying to delude itself either that it is not sick and cannot be sick, or, if sick, that it can readily be restored to health by iteration and reiteration of a Mother Goose rhyme. If there were no need for mental ministrations, it is probable that a majority of the cults—mechanistic, religious, psychologic, and, one might add, with certain reservations, psychanalytic—would never have emerged from the innocuous desuetude to which Grover Cleveland consigned those who were obnoxious to him, and which may serve as a realm from which evil forces may be invoked. If the mind did not play an important part in disease, it is improbable that great masses of the public would be seeking relief from entirely illusory vertebral displacements and other nonexistent malformations from which, either directly or reflexly, physical disorders, utterly remote from the alleged lesions, are supposed to have sprung. To bring the matter up to date, medical mountebanks would find it impossible to delude the sick, and oftentimes the dying, into the belief that, by the use of a mechanical vibratory apparatus and a few drops of the patient's blood, all diseases can be correctly diagnosed, and many of those regarded by scientists as incurable completely cured.

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* Read before the Southern Oregon Medical Society at Ashland, Ore., May 8, 1923.

The mind is a tremendously important factor in the production of symptoms. Excluding the psychoses, consideration of which is not to be undertaken in these remarks, it enters little into the production of organic disease, but it causes symptoms, or the simulation of symptoms, which are often indistinguishable from those resulting from organic disease processes. The mind as an etiologic factor is more of an aggravating than a producing force, and it is from this point of view that it will be discussed at this time.

FEAR

There are two phases of activity that stand out in the minds of patients. The first is *fear* and the second is *desire for attention* of a tangible and understandable nature. Fear dominates the minds of a majority of sick persons—fear of the unknown; of the consequences of the disease; that the physician has not made a correct diagnosis or does not understand the trouble for which he is giving treatment; that the medicine will not act as it should act; that it will not successfully combat the developing disorder; of untoward results, of chronicity, of disabling effects, and that death is impending.

Those who depend for their results on religious and psychologic services do all that they can to eliminate fear. They deny the existence of disease or they keep ever present before the patient's eyes the "starry banner of hope," or both. Promises of a glowingly optimistic nature are made, regardless of the truth. The main stock and reliance of mental healers is the promise of recovery, and such explanations as are made of the nature and character of disease, if disease be admitted at all, invariably discount pathologic activities and tend to continuous reassurances of restoration to perfect health.

DESIRE FOR ATTENTION

The desire of the patient for tangible attention is probably the largest factor in the success of the mechanotherapeutists, whatever the name under which they disguise their treatments. Many patients are not satisfied with the customary oldtime medical examination, especially examination that consists principally of inquiries into the nature of symptoms, past or present. It is not infrequent for a patient to complain that he was never examined, notwithstanding the records may show that a prolonged and painstaking history—the most important part of the examination in a vast majority of cases—was taken. This rarely satisfies him. What he wants is a "thorough examination," to use a phrase that is quoted again and again in the consulting room. By "thorough," he means a physical examination. He means tests such as percussion and auscultation, counting his pulse rate, inspection of his tongue, and the use of the blood pressure apparatus, of the ophthalmoscope, and of the multitudinous other diagnostic agencies. He likes to have his heart charted on his chest wall, the outlines of his liver marked with blue or red crayon, his spleen located by the same means and, indeed, all of his viscera mapped out.

To such examinations, though they may be unnecessary, he attaches vast importance. If they are supplemented by roentgenograms, blood tests, repeated urinalyses and examinations of the stomach contents and feces, if he is examined in such a way that naught is left to his imagination, he feels that he is receiving service. Here and there a patient is found who considers such tests as buncombe; but the vast majority like to have them made. A patient may rebel when he is charged for the time spent and the skill used in performing these tests; but when they are made with sufficient detail and at sufficient length, he is convinced that he has had a complete examination, and he tells his friends about it and sends them to the physician who has done this work for him.

Again, he likes the kind of medical visitor who examines him at each visit. He is not satisfied with the physician who looks in hastily, glances over his chart, gives a few orders and departs. He is sick. He is important to himself if to no one else. His mind is beset with doubt and fear and anxiety. He wants to be fussed over, and he welcomes the kind of attention of which this is considered a necessary part. The physician who reexamines him at every visit, who personally counts his pulse instead of determining what it is from the nurses' chart, who daily looks at his tongue, listens to his heart, and percusses his abdomen, is the one who pleases him. Now, every physician realizes that such services are many times worthless. Often he is enabled to determine the patient's condition at a glance, especially if that glance is supplemented by another at the chart; and there is at all times a tendency to perform services in this way.

Contrast the average medical visit with a visit to the mechanotherapeutist, who, each time, strips his patient, pinches him, hammers him, twists his neck, punches his spine, manipulates him, all with a vigor that creates an impression that he is getting service. If the manipulations are sufficiently vigorous, he is not only convinced that something is being done, but he is delighted when the treatment is over. Five or ten minutes of vigorous manipulation will seem as if he has received a half hour or an hour's attention. The latest fad requires that the patient shall be connected with an electrical device, that his body shall be painted with colored substances, and that he shall remain in a certain position, receiving the inflow of healing currents for anywhere from half an hour to three or four hours; and the waiting rooms of those who use it are crowded.

One may see the good effect of personal attention in the offices of nose and throat specialists in which patients receive legitimate and well directed treatments of half a dozen kinds, beginning with an application of an analgesic, and followed by washing out of the nasal cavities with antiseptic solutions, and an application of stimulants and finally of soothing oily substances. Those who receive such treatments, however ill they may be on entering the office, leave it feeling that a definite procedure has been completed from which it is logical to expect a definite result. To carry the argument further, patients rarely complain very much of surgical operations through which they have passed. A patient may dread an operation in anticipation, but after it is over he is usually proud of the ordeal through which he has passed. He likes to tell of the pain he endured in the operation or the dressings, and in many instances he is most pleased who has had the most dressings. The wound which, having been made with perfect skill, heals rapidly and without complication, often does not begin to give the satisfaction of the wound that does rather badly; and, to a certain extent, a poor surgical result is compensated for by the pleasurable sensation of martyrdom or heroism which a bad result often entails.

Every irregular practitioner knows the value of attention and, wittingly or otherwise, takes advantage of it in his ministrations. He makes constant appeals to the mind of his patient by performing services that are tangible and satisfying. Thus he creates a market for his own errors.

In part based on registration,[1] it is estimated that there are in the United States about 5,030 osteopaths, 7,000 chiropractors, 500 naturopaths, 8,000 Christian science practitioners and more than 7,274 unclassified healers, a total of 27,804 cultists as compared with 145,354 registered doctors of medicine. If to these cultists is added 2,000 physicians who have engaged in quackery, it will be seen that there are approximately one fifth as many irregular healers as there are qualified physicians. The number of irregular healers is relatively greater than their importance, yet they would not exist if they did not fill a kind of need.

WHY CULTISTS SEEM TO SUCCEED

Every one having practical experience in medicine must admit that irregular healers *seem* to cure many patients with whom physicians have failed. The probable reasons are three in number: Either the diseases with which they succeed are imaginary, or self limited, or they do not actually cure patients, but make them believe themselves cured. All three reasons are found among those whom they have treated. Probably the first is the commonest. It is notable that few persons who are acutely ill call irregular healers, and that such healers are not anxious to treat patients who are in dangerous condition, the principal exceptions occurring among the religious healers. It is also true that few surgical patients who are acutely ill seek the ministrations of cultists, though many with chronic or incurable disorders, such as cancer, are to be found among their followers. A small number of surgically sick persons, through fear of "the knife," seek other healing measures, usually from some renegade physician.

The patient who is acutely ill remains under medical care in part because he receives continuous ministrations. He is confined to his bed, his temperature is frequently taken, nurses, professional or amateur, dance attendance on him, his diet is regulated, medicine is given him, and he receives many forms of service, all of which keep his mind occupied and, of equal importance, keep occupied the minds of his relatives and friends. Let the attending physician become inactive and resort to a policy of watchful waiting, and dissatisfaction develops. As convalescence begins and activities lessen about the sick bed, the battle is on. Especially if the case is prolonged, the relatives are besieged by those who can either themselves restore the patient to health or know of some one else who possesses magic by which this desirable result can be accomplished. Many convalescent patients desert those who have cared for them during the acute and dangerous stages of illness, and new thought, Christian science, prayers, and cultism receive the credit for having performed the cure.

The purpose of these remarks is not to tell how to build or maintain a practice. Their intent is to treat the subject as a scientific and not a commercial problem, and this leads to the second inquiry.

SCIENTIFIC PSYCHOTHERAPY

How may the physician meet the situation here presented and fill the apparent need for something that seems to have been missing from his work? He cannot be expected to resort to subterfuge or evasion. He cannot be expected to lie in the interests either of science or of success. He has a reputation to sustain, and, whereas the cultists come and go, here one day and there another, willing to prostitute truth and science for temporary gain, the physician has but one standard and cannot violate it. That standard is the truth; but it is difficult always to apply truth, naked and unashamed, and the attempt to do so often results in his patients seeking other means of restoration to health.

The first consideration should be adequate examination by every known means to determine beyond cavil the nature of the illness, and this examination should include the ordinary good history plus necessary inquiries as to the patient's state of mind. There is no need, except perhaps in the rarest of cases, to secure this information by psychanalysis or any other form of mental legerdemain. An inquiry that does not hesitate to include every phase of the patient's life will fulfil all needs. After the history has been taken and a diagnosis made, every therapeutic agent of value should be used. It is exceptional to find a complaint that too much is being done. When all this has been attended to, the patient's state of mind should be considered. Patients often need, not a physician, but a divorce, a bank account, a steady and lucrative position, relief from harassing home or business environment, a vacation, or the turning of the mind into new paths. Explanation as to the nature and character of the illness is of prime importance. He who is not convinced that his physician knows what is wrong is never a satisfactory patient. If he has not faith, it is better that he shall be allowed to go elsewhere. On the other hand, the patient who is convinced that the physician knows what is wrong and what should be done is a satisfied and satisfactory patient. Physicians frequently err in discussing before a patient doubts as to diagnosis. Contrariwise, honesty may require that a physician shall tell his patient plainly that he is in doubt, that only time, patience and a certain amount of research will permit of accurate diagnosis. One of the commonest inquiries that patients make is concerning the cause of a given disorder or why a given disorder has appeared. Patients are unable to understand why certain diseases develop in a family which has heretofore been free from them, and the idea of heredity is so firmly fixed in the minds of many laymen as to convince them that such diseases are impossible in their families because they have never been there before.

Among faulty practices is the discussion in the sickroom of the patient's condition either with consultants, nurses or members of the family, and this is particularly true with patients who are supposedly unconscious or semiconscious. No little harm has resulted from this practice, and one is occasionally astounded to hear from a convalescent patient that a remark made weeks before, when he was presumably unconscious, was heard and produced serious mental perturbation and otherwise disturbing results.

A large factor in disease is the misinterpretation the patient places on his own symptoms. Palpitation of the heart mistaken for incurable disease is as serious as would be myocarditis or endocarditis. Unfortunately, the physician also frequently misinterprets the significance of functional disorders, and tells the patient that he has an organic disease. Nowhere else can be found disastrous effects excelling those resulting from erroneous diagnosis in connection with the heart. The spine shares with it a place in the limelight. The patient with a functional spinal disorder incorrectly diagnosed, let us say, as tuberculosis, an error that was not uncommon in war injury cases, will become anxious, sleepless and worried and will suffer from loss of weight, tremors and physical changes difficult to differentiate from the effects of organic disease. Symptoms soon lessen after he has been examined and convinced of the unreality of the alleged organic changes. Part of the stock in trade of mechanotherapeutists is the diagnosis of an organic change, usually a displacement which they remove. Doubtless here the good results come from the assurance of the operator that he has found a displacement and removed it. Occasionally, the opposite result follows; for if symptoms persist after alleged reduction, the patient has added a new terror in the presence of an incurable disorder. This terror can many times be made to disappear by sympathetic explanation of the impossibility of such a lesion.

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[1] These figures were furnished, on request, by the Secretary of the Council on Medical Education and Hospitals of the American Medical Association. He explains carefully that they are estimates only, as exact figures are unobtainable. I believe that they approximate closely the real numbers of healers.

There can be no doubt that the benefits of the recent pandemic of tooth extractions were in large part due to the appealing novelty of the proposition. The newness of the thought, the dogmatic assurance of the diagnosticians, the more or less dramatic operation, contributed greatly to the result, and it is not surprising that patients with cancer, syphilis, tuberculosis and epilepsy were relieved by exodontia, and for a time convinced that their ills were the results of infection. They were temporarily relieved of worry, their pains disappeared and their bodies gained in weight from the removal, as if by magic, of the supposed cause, theretofore unknown, of their disorders. One need not discount the real and by no means infrequent benefits to recognize the absurdity of some of the seemingly good results that temporarily follow extraction, just as such good results follow visits to the quack or, indeed, any other purveyor of optimism which takes no account of pathology and of truth.

One of the greatest aids in curing sick persons is to relieve their minds of anxiety, particularly that which is misdirected. If a patient has an incurable disease, it is usually advisable so to inform his relatives; but as long as he can be relieved by medical aid, he is entitled to that aid.

It must never be forgotten that, though the machinery for physical activities is organic, and though the physical part of the body is made up of many marvelous structures, they will not function unless correlated. The great force for correlation is the mind. Life might be defined as the manifestations of the coordination and interrelation of body and mind. Just as the test tube and the laboratory are not the only agents of value in diagnosis, so those things that are strictly scientific are not necessarily most valuable in therapy. Whoever neglects the often intangible but ever present influence of the mind loses one of the greatest of therapeutic opportunities.

CONCLUSIONS

The sick body is always accompanied by a sick mind.

Many sick persons have no organic disorder, but suffer from the effects of suggestion either from within or from without. If suggestion produces disease, it can also cure disease.

Recovery of both mind and body is retarded by fear, worry and misinterpretation of symptoms, and is hastened by their removal.

Much of the success of the cultists is due to their ability to inspire hope. All that they do can be better done by trained physicians.

There is nothing mysterious in scientific psychotherapy. Every physician consciously or unconsciously uses it in his practice. It consists in finding out what is going on in the patient's mind and relieving it by rational explanation and encouragement based on accurate diagnosis.

Psychotherapy should supplement and not displace other recognized forms of treatment. Scientific minds will respond to scientific methods, but child minds can be reached only by methods suited to their limitations.

Selling Building.

A NEW AND SIMPLE METHOD OF DETECTING FEIGNED UNILATERAL DEAFNESS

WALTER A. WELLS, M.D.
WASHINGTON, D. C.

Simulation of deafness is one of the commonest forms of malingering encountered in civil as well as in military life, and this, no doubt, for the reason that it is generally regarded as a form of disability very easy to assume and very difficult to detect.

The difficulty lies in the circumstance that deafness is a purely subjective phenomenon, which, though associated in a certain large class of cases (those of sound conducting apparatus) with demonstrable structural alterations, in another class (those of sound perceiving apparatus), in which we may have deafness of the gravest type, it is impossible by any method of examination at our command to discover objective changes to account for it.

In the latter circumstance, recourse must be had to the so-called functional tests, and since information derived therefrom depends on the good faith of the subject examined, we must, when this is under suspicion, employ artifice to discover the deception.

Evidence of the fraud is obtained, for the most part, by the demonstration of discrepancies or inconsistencies in the responses of the subject, and the real success of simulation tests depends on the ability of the examiner to keep the subject ignorant of the procedure, or, still better, to mislead him into believing that he is being tested in a particular different from what is actually the case (confusion test).

The fatal weakness of most, if not all, of the various tests of simulation lies in the fact that a previous knowledge of them enables a clever individual to anticipate one's design and to avoid the pitfall which has been prepared for him.

The auditory malingerer may affect: (1) complete deafness in both ears; (2) complete deafness in one ear with partial deafness in the other; (3) complete deafness in one ear with normal hearing in the other; (4) partial deafness in one ear with the other normal, or (5) partial deafness in both ears—and the word partial may apply to deafness of different degree, which, to be more exact, we might designate as slight, considerable or severe.

Of all the types, the one most frequently assumed is the pretense of absolute deafness in one ear, the other being normal. This assumption entails the least inconvenience and is least difficult to maintain. It is perfectly consistent with the subject's apparent good hearing for all ordinary purposes. Furthermore, as it happens, it is quite consistent with the conditions of actual practice, for a complete labyrinthine deafness of one side from an explosion or other cause is not infrequently found, with the ear of the other side unaffected.

For the unmasking of simulated unilateral deafness, a number of tests have been devised, but they are for the most part too tedious and too complicated for practical use. We find generally described in the textbooks and relied on for those engaged in this kind of work only the stethoscope test, Chimani test, Ehrhardt test, and voice-raising test. Each has a certain value, especially when it turns out positively; but in case of negative results, we are left in doubt. There is not one of them that can be relied on if it happens that the subject has previously informed himself of the principles on which it rests.

I think, therefore, that there attaches to the test which I shall describe a peculiar value in that it is not invalidated by a previous knowledge, no matter how accurate, of its manner of working. It is based on a well established acoustic principle, viz., that when the two ears are simultaneously exposed to sounds of identical pitch and quality, but of different intensity, the sound is invariably referred to the side of greater intensity.

The paraphernalia used for the test is very simple: a piece of rubber tubing of one-fourth inch caliber, from 20 to 30 inches in length, and of a firmness to insure good conduction of sound. In one end of the tube is an ear-piece that fits well into the auditory meatus, while in the other end we insert the stem of a long sounding fork of low pitch (about 126 vibrations a second) and of good amplitude. When the apparatus is used on a person with normal hearing, should one end of the tube be placed, for example, in the right ear, and then the fork caused to vibrate within the usual hearing distance of the left ear, there will be no conscious perception of sound in the latter situation. In accordance with the acoustic principle enunciated above, it is all referred to the right side because of the greater intensity due to direct conduction of the sound waves through the tube to the meatus.

One may easily verify these facts by making alternate compression and relaxation of the tube. If the sound to the right ear is shut off, one will hear the fork perfectly on the left side; on releasing the compression, one will instantly find that the whole sound is referred again to the right.

Applied to the case of the malingerer, the value of the test lies in the fact that with the intensified sound in the alleged deaf ear one is deprived of the power of recognizing the weaker sound in the good ear, which is not true in the case of real deafness, and is therefore a proof of simulation.

The best way to proceed in suspected simulation is to begin by holding the vibrating fork alternately before each ear; in the alleged deaf ear no hearing will be admitted; on the other side, one has only to note the greatest distance the fork is distinctly heard. One then tests the sound of the fork as heard through the tube, with the ear-piece applied first to one ear and then to the other. The subject will probably conclude that a sort of trumpet is being used to magnify the sound, and the malingerer, consistent with his determination to maintain deafness, will answer that he hears nothing in the alleged deaf ear.

He is now blindfolded, and the procedures are repeated while the person who is making the tests stands behind him. Then while the ear-piece is in the supposed deaf ear, the vibrating fork is conducted stealthily to the meatus of the opposite ear, not too near, but to a point at which it has been previously ascertained that he could distinctly hear it. The really deaf person will now, of course, hear the fork the instant it comes within the range of hearing of his good ear. The malingerer, unconscious of any hearing in his good ear because of the lateralization of the sound to the alleged deaf ear, the side of greater intensity, continues to report no hearing, and thus gives incontestable proof of wilful simulation.

The reason that a preknowledge of this test does not nullify its usefulness is that even though the malingerer understands its principles and may realize that one is about to test the good ear, while pretending to test the alleged deaf one, it is impossible for him to know precisely at what stage this is being done. If he guesses too soon, one convicts him of hearing in his alleged deaf ear; if not soon enough, of failing to hear in his admitted good ear.

The only weakness in the test may be that in case of considerable real deafness in the alleged deaf ear, it is difficult to assure the necessary preponderance of sound intensity to get lateralization. In moderate deafness, this is easily overcome by a strongly vibrating fork, a good conducting tube, and care not to place the vibrating fork too near the good ear. In case, however, of only slightly impaired or practically normal hearing, it will give an unerring verdict, which can in no way be evaded.

The Rochambeau.

THE OPERATION OF A BREAST MILK DAIRY *

HENRY DWIGHT CHAPIN, M.D.
NEW YORK

In spite of all advances in the preparation of substitute feeding, the tendency in recent years has been to stress the great desirability of utilizing the breast. It has been estimated that about 80 per cent. of babies dying before the completion of the first year are bottle fed. Hence the most feasible and practical way of reducing infant mortality during the first year will lie in encouraging maternal feeding.

The possibilities of the human breast under proper control have been emphasized by the work of the lamented Sedgwick and his colleagues. With suitable care and manipulation, results can often be obtained that are little short of marvelous.

One of the most remarkable anomalies in vital statistics consists in the fact that in New York City the infant death rate is lowest in some of the poorest and most densely populated districts. Thus, in the twenty-sixth district, with a density of 650 persons to the acre, the infant death rate in 1921 was only 45 per thousand. This district is on the lower East Side, with great poverty, ignorance and unhygienic surroundings, as well as overcrowding; but the mothers—Austrian, Hungarian, and Russian Jews—invariably nurse their babies.

In comparison, there is a large area on the upper West Side adjoining Central Park. Here seven districts have only 204 to the acre, the population consist-

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* Read before the American Pediatric Society, French Lick Springs, Ind., May 3, 1923.

ing principally of well-to-do people, largely native white with a small proportion of foreign white. As is well known, maternal nursing is comparatively rare among this class. In spite of very favorable hygienic surroundings, the infant mortality for 1921 was 66.9 per thousand. These comparisons, which could be reduplicated several times, would seem to indicate that maternal nursing is the great outstanding factor in the reduction of infant mortality. If only the breast can be conserved, many otherwise unfavorable hygienic conditions may exist and be tolerated as far as the infant is concerned.

Heretofore the only practical way of furnishing breast milk for a baby needing and deprived of it has been to procure a wetnurse. As is too well known, the difficulty of this problem is manifold. It is hard to get the nursing woman, hard to manage her when she has been secured, and often hard to settle the problem of her own baby.

In recent years, and with increased knowledge of how best to manage the human breast, the plan of removing the milk and furnishing it apart from the mother has offered a promising solution of this question. It has likewise been found that in many cases a little breast milk, in addition to the bottle, will have a most favorable effect. Human milk, or a combination of this milk and cow's milk, will prove especially beneficial in premature babies, in those born at term, during the first few weeks of life, and in cases of marasmus. When we consider that the heaviest infant mortality occurs during the first month, and that heretofore all efforts to reduce this mortality have materially failed, although fairly successful after the first month, the great importance of breast milk during the early weeks becomes apparent.

In 1910, Dr. Talbot started an experiment in collecting and supplying breast milk in Boston. Ten years ago, Dr. Hoobler, acting on this idea, began furnishing breast milk with the cooperation of the social service department of Bellevue Hospital.[1] He there demonstrated that mothers can be found perfectly willing to sell their milk; that certain mothers can spare a portion of their milk without detriment to their own babies; that human milk can be thus furnished at a reasonable price, and that the collection can be made by existing agencies.

The best method of handling this work is to have it linked up with a maternity hospital. In Detroit, the Woman's Hospital and Infant's Home, under Dr. Hoobler's direction, has successfully accomplished this endeavor. In the absence of such an undertaking in New York, the directors of the Children's Welfare Federation started an experiment in 1921 aiming to procure and distribute a certain amount of breast milk to aid critical cases.

The health stations of the department of health are utilized in procuring the milk. It is here attempted to secure, for a nominal price from a given number of mothers, a quantity of breast milk that may be employed in supplying hospitals and private homes caring for premature or weak babies. A matron is employed by the federation to work in close touch with physician and nurse in the health station. At first each mother was visited daily and the milk taken in her own home. It was found that there was a tendency among the mothers to have the milk ready when the matron arrived, giving one excuse or another, and finally one mother was found to be watering her milk. This mother had been expressing her milk prior to the arrival of the collector, the reason given being that it was difficult for the nurse to reach the household just at the time the mother was ready to express her milk. It became more and more difficult to insist on our regulations that only milk expressed in the presence of our worker could be used. Each time our collector visited a home and found it necessary to refuse the milk because the regulations were not observed, another visit was necessary to secure the normal supply on which the hospitals and individuals were relying.

It was therefore decided to change our method of collection by insisting that each mother willing to sell her milk should come into the health station, only a few blocks from her home, where our matron was installed. The time is left optional with the mother. No milk is now taken unless it is expressed in the station. This at first cut down the supply, but one mother who at first utterly refused to come to the station is now regularly making two visits a day, and in time we shall be able to reach twice as many mothers by this method. Our matron is at the station from early morning until all the mothers have come and the orders have been filled. She is busy instructing and supervising the mothers, sterilizing the bottles, keeping records, and filling the orders. In the later afternoon she goes out to visit new mothers in order to work up her clientele. As it did not seem possible to secure a sufficient number of mothers from any one health station, arrangements were made to secure the cooperation of nurses in neighboring stations.

Only mothers who have more milk than needed by their own babies are used. The baby has to be under the care of a physician and a nurse in the health station and the case recommended by them. A mother may come in once or twice a day and if she lives at a distance carfare is paid if she can give 10 or more ounces (300 c.c.). A record book is kept and each mother sees an entry made recording the amount of milk she has given. The mother uses a small measuring glass when expressing her milk. Finally, all the milk is pooled and put in large bottles on ice.

The supply is fluctuating, as it is affected by many different factors, such as sickness of the mother or her baby, company at home, bad weather, and visits to relatives. We have had as many as ten mothers at a time, but the average has been only five or six a day. During the last year, thirty-two mothers have sold their milk to us. One mother gave as much as 40 ounces (1,183 c.c.) a day and supplied us with milk for eleven months. It has been found that lactation may be prolonged for fifteen or eighteen months and that the composition of the milk between the ninth and eighteenth month varies very little from that produced between the sixth and the ninth month.[2]

Every one buying maternal milk of the Children's Welfare Federation is required to pasteurize the milk before use, as no Wassermann test has been made on the mothers. Dr. Parks, director of the laboratory of the department of health, rendered the decision that any possible danger would be eliminated if this precaution was taken.

Assays of the pooled milk have been made at intervals of a few months at the Babies' Hospital. The specific gravity of four different mixed specimens was: 1.029, 1.030, 1.038 and 1.024. As to fat, five examinations gave percentages of 4.25, 3.4, 3.9, 3.8 and 4. For protein, four examinations gave 1, 1.2, 1.49 and 1.48 per cent. In three examinations, the probable sugar reached 5.7, 7.09 and 6.7 per cent.

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[1] Hoobler: Arch. Pediat. **31**: 171 (March) 1914.

[2] Holt, L. E.; Courtney, Angelia M., and Fales, Helen L.: A Chemical Study of Woman's Milk, Especially Its Inorganic Constituents, Am. J. Dis. Child. **10**: 229 (Oct.) 1915.

From 3:30 to 5:00 p. m., the hospitals and private purchasers send to the station for their orders. As arrangements have already been made through the central office of the federation and telephoned to the nurse, the milk is bottled and tagged. The hospitals and others are required to return the bottles each day, but there is a sufficient supply on hand to have all the sterilizing done early in the morning before the day's orders are filled.

From October, 1921, to April 1, 1923, a period of eighteen months, we have collected and sold at cost 36,266 ounces. In the Detroit experiment, 80,975 ounces of mother's milk was distributed during 1921[3] and 55,849 ounces in 1922.[4]

The milk costs us 13 cents an ounce, 10 cents being paid to the mother and overhead charges being 3 cents. It is sold for from 15 to 20 cents an ounce, according to the financial status of the purchaser in private cases, and to hospitals for 10 cents an ounce. It will be possible to collect twice the amount of milk at the same expense when the work is better known and more mothers are secured. We have sold the milk to thirteen institutions and forty-three private persons referred to us by hospitals and physicians. The service can be improved and developed as soon as we are able to give the experiment more publicity and to secure the cooperation of maternity hospitals and district nurses, who often come in contact with mothers having an oversupply of breast milk.

The mothers are paid by check each week and the extra money thus secured has been used for rent and other essentials. One healthy young Italian mother earned $987.98 during 1922 and $73 early in 1923. When we began to take her milk her own baby was not thriving, from being overfed. It at once improved after the mother was relieved of some of her surplus milk. It is hard to find mothers who have an extra supply of milk and often hard to persuade them that their own baby will be protected. The husband's disapproval is sometimes another obstacle, as well as the time taken from home duties.

It is difficult to estimate the number of babies who have been benefited, as the hospitals receiving from 30 to 50 ounces a day have used the milk for a number of different cases. Taking the average amount used in private cases as a basis, I can fairly say that the milk has been given to at least a hundred babies during twelve consecutive months on an investment of $10 for each baby to save its life. Our supply has been so limited that I can safely say it has been used only in emergency cases. Typical cases in which the milk was used were a 2-pound (946 gm.) baby, twins weighing less than 3 pounds each (1,419 gm.), and a 2-year-old baby weighing 12 pounds (5.4 kg.).

Every locality having a maternity hospital or a community health center should inaugurate a similar undertaking. It has been found that human milk, if procurable, can be as advantageously fed from a bottle as directly from the breast, and that any period of lactation can usually fit a baby at any age. It is especially during the first month or two that infant mortality may be materially reduced by this kind of effort.

51 West Fifty-First Street.

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[3] Annual Report, Woman's Hospital and Infant's Home, 1922.

[4] Personal communication to the author.

RESUSCITATION BY INTRACARDIAC INJECTION OF EPINEPHRIN CHLORID

PAUL B. CHAMPLIN, B.S., M.D.
Resident Physician, St. John's Hospital
ST. LOUIS

Intracardiac injection of heart stimulants in acute cardiac failure had been tried many times without promising results until Dennis Crile[1] of Chicago reported the use of massive doses of epinephrin chlorid. He introduced this both by direct puncture into the ventricle and by the intravenous route, showing beneficial results in all five cases reported, with recovery in two of them. Bodon[2] has since reported ninety cases from the literature with permanent results in twenty-four, including one case of his own. In this series, a variety of stimulants were used, with no special emphasis on any single one. In Bodon's case, a patient with syphilitic coronary arteritis with acute cardiac failure, he used 1 c.c. of a 1:1,000 epinephrin chlorid solution as a last resort after cessation of heart and respiration. A few seconds after this had been given by direct puncture into the ventricle, the heart began to beat and the patient soon began to breathe. The patient made a full recovery, and under antisyphilitic treatment had no recurrence.

REPORT OF CASE

A man, aged 69, entered St. John's Hospital in the service of Dr. Bransford Lewis, complaining of urinary retention. Examination revealed hypertrophy of the prostate gland. After suitable preoperative treatment, a first stage suprapubic prostatectomy was performed under local anesthesia. At this time the patient received one-sixth grain (11 mg.) of morphin sulphate with three doses of one-one hundred and thirtieth grain (0.5 mg.) of scopolamin, hydrobromid, thirty minutes apart, with a local anesthesia of 0.5 per cent. procain. The patient withstood the operation well, returning to bed in good condition. His general condition improved after suprapubic drainage, and on the fourteenth day after operation, the second stage was attempted with a caudal anesthesia of 0.5 per cent. procain. The patient received a preoperative narcotic of one-sixth grain (11 mg.) of morphin sulphate and one-one hundred and thirtieth grain (0.5 mg.) of scopolamin, hydrobromid thirty minutes before operation. After conclusion of the caudal injection, the patient was placed in a suitable position for operation, but it was noticed that he had stopped breathing and was very pallid. An unsuccessful attempt was made at resuscitation with artificial respiration, oxygen, camphorated oil and atropin sulphate. The radial pulse was imperceptible, and no cardiac sounds could be elicited over the precordium. The patient's arms were slightly spastic and the pupils were contracted. A long spinal puncture needle with a 10 c.c. syringe was procured, and an injection of 10 c.c. of a 1:1,000 epinephrin chlorid solution was given directly into the left ventricle of the heart through a puncture about 5 cm. to the left of the sternal margin in the fifth intercostal space. This was done about five minutes after the patient had collapsed. The result was almost instantaneous. The heart began beating so vigorously that the pulsation of the abdominal aorta was seen through the abdominal wall within thirty seconds following the injection. Examination revealed a strong, rapid radial pulse with feeble respiration at first, later becoming full and strong. The blood pressure taken about five minutes after injection, was 200 systolic and 110 diastolic, the same as on entrance to the hospital, but the systolic pressure was 40 mm. higher than it was just preceding the operation. The patient had returned to consciousness at this time, and his face was slightly flushed. Operation was postponed and he was returned to bed. About thirty minutes later, the pulse became slightly intermittent but soon returned to normal. The patient showed no ill effects of the procedure, except for a single instantaneous sharp shooting pain over the precordium late the following day. The operation was completed about one week later, under caudal anesthesia, with a preoperative narcotic of one-eighth grain (8 mg.) of morphin and one-one hundred and thirtieth grain (0.5 mg.) of scopolamin hydrobromid. The patient withstood the operation well and returned to bed in good condition. On physical examination, the prostate was found to have a malignant growth, which on roentgen-ray examination, showed metastasis to the lungs. The patient was discharged twenty-five days after the second stage operation, with symptoms of lung metastasis, but able to be up and around.

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[1] Crile, Dennis: Resuscitation with Intracardiac Injections, Surg., Gynec. & Obst. 35:772 (Dec.) 1922.

[2] Bodon, Carl: Intracardiac Injection of Adrenalin, Lancet 1:586 (March 24) 1923.

Bodon believed it dangerous to give more than 1 c.c. of a 1 : 1,000 solution of epinephrin, but as Dennis Crile used as high as 20 c.c. in one case with 10 c.c. in the other four, and I used 10 c.c. in the foregoing case without harmful results, I believe that this type of patient can stand far more epinephrin than the normal individual.

G. W. Crile of Cleveland in his work on anemia and resuscitation in dogs has shown that resuscitation is impossible in dogs when the cerebral centers are anemic for more than ten minutes. I believe that this is true also in human beings, considering the temporary results obtained in three of the cases reported by Dennis Crile. In these instances, the epinephrin was given from fifteen to twenty-five minutes after cardiac failure. The heart started to beat again in all cases, with feeble spontaneous respiratory movements, but the patient did not return to consciousness and soon died. This shows that the time limit in human beings for the use of this method is from ten to fifteen minutes after cardiac failure. Thus, to use this method to the best advantage, it must be done as quickly after failure as possible. We now hold in readiness in the operating room the proper equipment for the use of this method, so that we shall be prepared for any emergency, should it arise.

The limitations of this method have not as yet been determined, but we feel that it is a procedure with which all should become familiar, so that it can be given a thorough trial in the future.

Water Glass as a Mounting Medium.—The use of the common water glass or egg preserver as a mounting medium for microscopic objects has not been reported to my knowledge. Very recently I have had occasion to use it with such apparently successful results that I am forwarding this note in the hope that others who possibly have tried it successfully or otherwise will give us the benefit of their experiences. It is used in the same manner as one would employ Canada balsam, but has the added advantage that dehydration is not necessary. The medium at the periphery of the cover glass quickly hardens to the consistency of glass itself, thus sealing in the liquid center in which the specimen is held. The liquid condition of the medium surrounding the specimen, while viscous enough to prevent movement, allows hairs, scales and bristles to maintain a natural position. It is not satisfactory for mounting alcoholic specimens, but those previously cleared in KOH may be mounted with the same ease that is experienced with fresh or water preparations. It also makes a very satisfactory substitute for shellac in mounting insects on points, as it is colorless, unaffected by heat and holds the insect securely in many cases where the shellac mounted insect is apt to snap off.—Dean T. Burk, University of California, *Science,* July 6, 1923.

THE PRECIPITATION TEST FOR SYPHILIS OF CONCENTRATED ARACHNOID FLUID AND SERUM *

RUSSELL D. HERROLD, M.D.
CHICAGO

I have already described the application of a ring or contact method of precipitation test for syphilis.[1] Moody [2] has confirmed the results and, in a series of 1,500 tests, he obtained a close similarity in the results with the Wassermann and the precipitation tests.

Briefly, the ring method requires the clear, activated or inactivated serum and the 0.4 per cent. cholesterolized antigen first described by Neymann and Gager,[3] and later applied in a flocculation test by Kahn.[4] The antigen is an alcoholic extract of pig or beef heart that has been freed of ether extractives; cholesterol is then added to make a 0.4 per cent. solution. The antigen is diluted rapidly to 1 : 10 with physiologic sodium chlorid solution and placed, by means of a small capillary pipet, into small precipitin tubes approximately 5 mm. in diameter. The serum is placed at the bottom of the tube with a small pipet, thus securing perfect contact with the antigen. If the tip of the pipet containing the serum has a protruding drop, it should be wiped off before passing it through the antigen; the capillary end of the pipet should be small enough so that the serum runs out slowly. A clear serum is desirable, and can usually be obtained by bleeding the patient three or four hours after meals, as is generally advised for the Wassermann test. If blood is taken with this precaution, and the tube slanted and left one hour at room temperature before being placed in the icebox, turbid serums are rarely obtained. They ought to occur, as a rule, much less frequently than 14 per cent., as found by Moon [5] in his series. The false clouding with turbid serums, as emphasized by Moon, can usually be interpreted with the aid of physiologic sodium chlorid solution controls. The tube with serum and salt solution gives a similar reaction to that of serum and antigen in negative turbid serums, while positive turbid serums give a heavier and more definite ring with the antigen than with the salt solution. This contrast may be intensified by dilution of the serum with one or two parts of physiologic sodium chlorid solution before making the test. The occasional highly lipoidal serum which may still remain doubtful can be absolutely controlled by the method of concentration described in this paper, in which the fraction containing the turbid element can be removed without any appreciable loss of antibody. There is a marked contrast between this method and that of Kahn, since he advises mixing by violent agitation for two or three minutes to obtain the best results, while in the ring method, the optimum results are obtained by contact without mixing. The ring test reaches its maximum reaction within one hour at room temperature, and the Kahn method only after several hours.

It was found during the earlier observations that some of the Wassermann positive arachnoid fluids gave a positive reaction by the method as used with blood serum, but the percentage of negative results was too large to give the test any practical value. This, no doubt, is due to the smaller amount of syphilitic antibody ("reagin") per volume in arachnoid fluid than in blood serum. This is indicated by the results of the Wassermann test, the general rule being to use larger quantities of arachnoid fluid than of serum, and in most instances at least one tube is used with 1 c.c. of undiluted arachnoid fluid.

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*From the John McCormick Institute for Infectious Diseases.

[1] Herrold, R. D.: A Ring or Contact Precipitation Test for Syphilis, J. A. M. A. **79:** 957-958 (Sept. 16) 1922.

[2] Moody, W. B.: Observations on the Precipitin Reaction for Syphilis, J. A. M. A. **80:** 383 (Feb. 10) 1923.

[3] Neymann, C. A., and Gager, L. T.: A New Method for Making Wassermann Antigen from Normal Heart Tissue, J. Immunol. **2:** 573 (Oct.) 1917.

[4] Kahn, R. L.: A Simple Quantitative Precipitation Test for Syphilis, Arch. Dermat. & Syph. **5:** 570 (May) 1922.

[5] Moon, V. H.: The Precipitin Test in the Diagnosis of Syphilis, J. A. M. A. **80:** 1502 (May 26) 1923.

TABLE 1.—*Titration of Positive Arachnoid Fluid (++++) Mixed with Varying Amounts of Saturated Ammonium Sulphate*

Arachnoid Fluid 3 C.c. Mixed with Amounts Given Below of Saturated Solution of Ammonium Sulphate; the Precipitate in Each Case Dissolved in 0.3 C.c. of Physiologic Sodium Chlorid Solution, C.c.	Results of Precipitation Test with Each Dilution of Cholesterolized Antigen					Results of Wassermann Test with 0.1 C.c. of Each Concentrated Solution
	10	20	40	80	160	
1	0	0	0	0	0	0
1.5	+	+	+	0	0	+++
2	+	+	+	+	0	++++
2.5	+	+	+	+	0	++++
3	+	+	+	+	0	Anticomplementary
3.5	+	+	+	Doubtful	0	Anticomplementary

It occurred to me that if the elements containing the syphilitic "reagin" were thrown down, by means of a certain percentage of saturation with ammonium sulphate, the precipitate might be redissolved in a much smaller quantity of physiologic sodium chlorid solution than the original amount of fluid, so that the reacting substance would be concentrated enough to give consistent results with the precipitation test.

As the first step, strongly Wassermann positive, pooled arachnoid fluids were used, which gave a positive precipitation test undiluted. Varying quantities of saturated ammonium sulphate were added to constant amounts of arachnoid fluid, so that the resulting saturations ranged from 25 to 100 per cent. The centrifugated precipitate of each fraction was redissolved in an amount of physiologic sodium chlorid solution equal to one tenth the original quantity of arachnoid fluid. Comparative quantitative precipitation and Wassermann tests were then made, and, as may be seen in Table 1, the maximum reaction was reached at 40 per cent. saturation. As will be seen later, this reaction point is slightly higher than that of the serum, and may be explained, perhaps, by the higher water content of spinal fluid per volume, thus requiring a slightly greater percentage to throw down all the euglobulins than is necessary with blood serum. This was indicated also by adding increasing quantities of ammonium sulphate to the supernatant fluid of each preceding precipitation when it was found that the higher fractions of pseudoglobulin and protein contained no "reagin" and could be eliminated, thus permitting a high concentration with loss of but a trace of the active substance in the waste.

TABLE 2.—*Comparison of Wassermann and Precipitation Reactions on Arachnoid*

Number of Arachnoid Fluids	Wassermann Test of Arachnoid Fluid	Precipitation Test by Ring Method of Concentrated Fluid
Forty-six	++++	Positive
Sixty-seven	0	0
Three	+++	Positive
Two	++	Positive
Three	+	Positive
One	+	0
Two meningococcal	0	0
Two streptococcal	0	0
One tuberculous	0	0
One normal with addition of gonococcus pus	0	0

The tests in Table 2 represent the results of using 40 per cent. saturation by mixing 3 c.c. of serum and 2 c.c. of saturated ammonium sulphate, and redissolving the sediment in from 0.2 to 0.3 c.c. of salt solution. This need not be absolutely accurate as given, because the centrifugated sediment may be dissolved completely by addition of the salt solution drop by drop, thus securing a maximum concentration which would be of particular value in the case of weakly positive fluids, since the quantity of sediment varies directly in proportion to the strength of the reaction of syphilitic arachnoid fluid. The mixtures of meningococcal, streptococcal and tuberculous arachnoid fluids, however, give a heavy precipitate, but negative precipitation tests after solution. The arachnoid fluid and saturated ammonium sulphate, mixed in the ordinary test tube and left standing from fifteen minutes to one hour, are centrifugated at high speed. The fluids with a small amount of "reagin" require somewhat longer to precipitate; hence it is better that all mixtures with a fine precipitate or no evident precipitate, as is the rule with absolutely negative fluid, should be left standing one hour before centrifugation. The supernatant fluid is poured off, and the tube is inverted and flamed to precipitate the ammonium sulphate and spinal fluid on the side of the tube, thereby minimizing the amount of ammonium sulphate which would be mixed with the salt solution of the precipitate when the tube is placed upright. The results of a series of 128 tests are given in Table 2. Analysis shows a close correspondence between the results of Wassermann tests of whole spinal fluid and the results of the ring tests of concentrated spinal fluid. Control tests of meningococcal, streptococcal, tuberculous and normal arachnoid fluids, as well as with normal fluid mixed with the pus of gonococcal arthritis, all gave negative results.

TABLE 3.—*Titration by Precipitation of a Fractioned Syphilitic Serum (Positive ++++)*

Fractions of Serum; Precipitate Dissolved in Same Amount of Physiologic Sodium Chlorid Solution as Original Serum	Results of Precipitation with Each Dilution of Cholesterolized Antigen							Physiologic Sodium Chlorid Solution Control
	10	20	40	80	160	320	640	
A. Two parts serum and one part saturated solution of ammonium sulphate	+	+	+	+	+	+	0	0
B. Supernatant fluid of Mixture A plus ammonium sulphate to 50 per cent. saturation	+	+	+	+	0	0	0	0
C. Supernatant fluid of Mixture B plus ammonium sulphate to 66 per cent. saturation	0	0	0	0	0	0	0	0
D. Supernatant fluid of Mixture C plus ammonium sulphate to 100 per cent saturation	0	0	0	0	0	0	0	0
Original whole serum	+	+	+	+	+	Doubtful	0	0

The next step was to apply the method to serum in order to work out a test that may be applicable to weakly positive blood serum and to the Wassermann negative serum of the treated case. The concentration here cannot be made to such a degree as in the case of spinal fluid, the maximum concentration being usually n four to eight times that of the original serum. e first series of tests was made with a strongly posi- serum, and the fractions were brought up to the ginal quantity of serum with physiologic sodium rid solution when quantitative precipitation tests e made of each fraction and of the original serum. litional ammonum sulphate was added to the super- ant fluid of each fractional precipitation. The lts in Table 3 show that most of the syphilitic anti- y or "reagin" is thrown down with the 33 per cent. ction, but a distinct reaction was obtained in the er antigen dilutions of the 33 to 50 per cent. frac- n. Above 50 per cent., the precipitation tests were ative.

n the series in Table 4, a constant quantity of posi- serum was used in parallel tubes with a varying ntity of saturated ammonium sulphate. Quantita- precipitation tests were made of the whole serum and ach fraction; Wassermann tests were made of 0.1 c.c. he whole serum and of 0.1 c.c. of a 1:10 dilution of h fraction. Because of anticomplementary reac- s with the Wassermann test of the fractions with nonium sulphate, particularly of the higher frac- s when concentrated, the precipitation test becomes only method in this case for quantitative titration. e maximum precipitation was reached at the 33 per t., or euglobulin fraction, and there is apparently advantage in retaining the precipitates except per- s just within the borderline above.

ABLE 4.—*Titration of Various Fractions of a Syphilitic Serum by Addition of Varying Quantities of Ammonium Sulphate*

.9 C.c. of Serum and aturated Solution of mmonium Sulphate as w; Precipitates in 0.9 C.c. f Physiologic Sodium hlorid Solution, C.c.	Results of Precipitation with Varying Dilutions of Cholesterolized Antigen								Results of Wassermann Test with 0.1 C.c. of 1:10 Dilution
	10	20	30	40	60	80	120	160	
.28	+	+	0	0	0	0	0	0	+++
.3	+	+	+	+	+	0	0	0	+++
.4	+	+	+	+	+	+	Doubtful	0	++++
.45	+	+	+	+	+	+	+	0	++++
.5	+	+	+	+	+	+	+	0	++++
.6	+	+	+	+	+	+	+	0	++++
.9	+	+	+	+	+	+	+	0	Anticomplementary
.2	+	+	+	+	+	+	Doubtful	0	Anticomplementary
Whole serum	+	+	+	+	+	+	Doubtful	0	+++

t was noticed that there was some opacity in the tion of the euglobulin fraction, which sometimes rfered with the reading of the precipitation test and prevented as clear a solution as desired for con- tration. To obtain the most practical solutions, eriments were made, using 1 c.c. of serum, and ting with that amount of saturated ammonium sul- te which just threw down a definite precipitate. s was found to be approximately 0.35 c.c. of rated ammonium sulphate for each cubic centimeter erum. To the supernatant fluid of the mixture and each succeeding mixture, 0.15 c.c. of saturated nonium sulphate solution was added, and the pre- tate redissolved in 0.2 c.c. of physiologic sodium rid solution, which is one fifth the original quantity serum.

able 5 illustrates that the maximum results were ined with solution of the precipitate from the addi- of 0.15 c.c. of ammonium sulphate to the first ernatant fluid. It was noted, which is of great ortance for practical work, that the solution of the first precipitate retains all of the opacity, but very little of the "reagin," while the second solution is perfectly clear. The method chosen for a series of tests was to add 0.35 c.c. of a saturated solution of ammonium sulphate to 1 c.c. of serum. The mixture was centrifugated for a few minutes at high speed, and 0.15 c.c. of saturated solution of ammonium sulphate was then added to the supernatant fluid. The centrifugated precipitate of the second mixture was dissolved in 0.2 c.c. of salt solution, and the ring test was made with 1:10 dilution of cholesterolized antigen. No doubt the precipitate would frequently have dissolved in smaller amounts of salt solution, which could be added drop by drop until solution resulted. A series of 100 serums were then tested by this method. The majority of the serums were weakly positive or negative in the Wassermann tests, and were from syphilitic patients who had received or were receiving treatment. The results are given in Table 6, and indicate that a more sensitive reaction may be secured by this method than by the Wassermann or precipitation test of whole serum, since in several treated cases with negative Wassermann reactions, positive precipitation results were obtained. In one instance, with a positive dark field, the serum which gave negative Wassermann and precipitation reactions in the usual way gave positive reactions when concentrated.

TABLE 5.—*Fractioning of 1 c.c. of Positive Serum to Determine Most Practical Fraction for Routine Tests by Concentration Method*

Serum—Saturated Ammonium Sulphate Mixture: Precipitate Dissolved in 0.2 C.c. Physiologic Sodium Chlorid Solution	Results of Precipitation with Each Dilution of Cholesterolized Antigen					
	10	20	40	80	160	320
A. 1 c.c. serum and 0.35 c.c. saturated solution of ammonium sulphate	+	Doubtful	0	0	0	0
B. Supernatant fluid of Mixture A plus 0.15 c.c. saturated solution of ammonium sulphate	+	+	+	+	+	0
C. Supernatant fluid of Mixture B plus 0.15 c.c. saturated solution of ammonium sulphate	+	+	+	0	0	0
D. Supernatant fluid of Mixture C plus 0.15 c.c. saturated solution of ammonium sulphate	+	0	0	0	0	0
E. Supernatant fluid of Mixture D plus 0.15 c.c. saturated solution of ammonium sulphate	0	0	0	0	0	0
Whole serum	+	+	+	0	0	0

At the completion of the work, a recent article by Harold[6] was encountered, in which he states that the syphilitic antibodies are found entirely in the euglobulin fraction as determined by the ammonium sulphate and acetic acid method of precipitation. He made Wassermann tests of the solution of the fractional precipitate. Ruppel,[7] a little later, also found that the euglobulin

TABLE 6.—*Results of Ring Precipitation Tests of Concentrated Serums*

Number of Cases	Results of Wassermann Tests	Results of Precipitation Tests of Serums of Treated Patients		Results of Precipitation Tests of Serums of Untreated Patients	
		Number Positive	Number Negative	Number Positive	Number Negative
12	++++	2	0	10	0
9	+++	4	0	5	0
18	++	16	0	2	0
13	+	9	1	2	1
58	0	14	19	1	14

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[6] Harold, C. H. H.: The Euglobulin Group and Its Relationship to the Wassermann Reaction, J. Roy. Army M. Corps **39**: 83-97 (Aug.) 1922.

[7] Ruppel: Lyophile und Lyophobe Eiweisskörper, Deutsch. med. Wchnschr. **49**: 46 (Jan. 12) 1923.

contains the syphilitic antibodies. Mackie[8] divided the serum into three fractions by a carbonic acid method of precipitation, and designated them as: "A, carbonic acid insoluble globulin; B, carbonic acid soluble pseudoglobulin, and C, albumin." He states that the property of giving positive Sachs-Georgi reactions is retained by fraction B, while A is inactive, but on mixing A and B, the reaction is inhibited. He also found that the more active element for the Wassermann test was in fraction A, although B gave a weak reaction, and he concludes that the "reagins" responsible for the Wassermann and Sachs-Georgi reaction are independent. In my work, the results with the euglobulin fraction obtained by 33 per cent. saturation of serum show clearly that most of the syphilitic antibody or "reagin" is precipitated at this point, but some is usually found in the fractions immediately higher. Harold based his conclusion more on the precipitation by acetic acid, and it is possible that with the ammonium sulphate method the euglobulin is not completely thrown down at 33 per cent., and that the remaining euglobulin, which is precipitated at the greater saturation, is sufficient to give the degree of reaction obtained. It seems evident that, for purposes of practical application, the fraction above 33 per cent. can be discarded, and certainly that above 40 per cent. of saturation. Further experiments may determine a more optimum fracfion for concentration, but the results so far indicate that future development of increased sensitiveness of tests for the diagnosis of syphilis will be more fruitful if attempts are made at the point of concentration of the antibody or "reagin" in a solution that is as nearly free as possible of protein and other elements which are not essential to the reaction.

It seems fair to assure that results of value may be obtained by carefully following the treatment of patients with precipitation tests of concentrated serum or arachnoid fluid.

CONCLUSIONS

The ring or contact precipitation test for the diagnosis of syphilis has been successfully applied to the arachnoid fluid by means of a single and practical method of concentration. This is accomplished by adding a saturated solution of ammonium sulphate to the fluid, and redissolving the precipitate in physiologic sodium chlorid solution in a quantity equal to a fractional amount of the original fluid.

The euglobulin fraction has been found to contain almost all of the syphilitic antibody or "reagin" in serum, as indicated by the precipitation and Wassermann tests of solutions of fractional precipitates obtained by the ammonium sulphate method.

The precipitated fraction containing the "reagin" in serum may be dissolved in physiologic sodium chlorid solution in amounts much less than the original quantity of whole serum, and, thus concentrated, it gives a more sensitive test than the whole serum. A practical method for routine use has been described and applied to a series of 100 cases, the majority being in patients treated for syphilis in most of whom the serum was either weakly positive or negative on Wassermann test of the whole serum; and the results in this series indicate that the method of concentration and ring precipitation gives a more sensitive test than reactions with whole serum. The method outlined may prove a valuable aid in the control of treatment.

THE PREVENTION OF CERTAIN FORM OF CHRONIC CARDIAC VALVULAR DISEASE *

WARREN COLEMAN, M.D.
NEW YORK

Until recently, perhaps few persons, even physicia of long experience in large general hospitals, ha realized the magnitude of the "cardiac problem," fro whatever standpoint it is approached. Heart disea has become, in this country at least, the most importa of the causes of death. According to the estimate Knight,[1] some 180,000 persons in continental Unit States and Canada died last year of heart disease.

Tables and estimates of mortality, however, give b incomplete evidence of the prevalence of heart disea because many deaths recorded as from pneumonia a other infections, for example, probably would not ha occurred except for coexisting disease of the heart. has been estimated that 200,000 children of school a in the United States have heart disease.

Facts such as these make it apparent that hea disease is perhaps the most pressing public health pro lem confronting the medical profession today. A because of the magnitude of the problem, any co tribution to its solution is to be welcomed.

The conception that endocarditis might heal witho crippling the heart first presented itself to me[2] in 18 when I had under my care a patient with endocardi who recovered and whose heart was found to be norn two and one-half years afterward. An obvious cor lary from this conception is that, if any means can found of hastening the healing of the valves, it mig be possible to prevent the development of chro valvular disease in at least some cases. Since 18 these questions have engaged my attention.

Before proceeding further, it will be advisable define the limits of the discussion and the significa of some of the terms that will be employed. T discussion is based entirely on clinical observations a while I am aware of the frequency with which myocardium becomes involved along with the valves endocarditis, it is to the valves especially that I wo direct attention.

The forms of heart disease here referred to those occurring for the most part in children, adol cents and young adults, which are infective in natu and which, for lack of more precise knowledge, may classified broadly as rheumatic. The term endocard will be restricted to an existing inflammation of endocardium. The term chronic valvular disease denote permanent deformity of a valve or valves wh interferes with their proper functioning.

All previous attempts to prevent these forms of he disease have been limited, so far as a careful sea of the literature reveals, to the removal of foci fr which infections of the endocardium are believed arise, and to the closing of supposed atria of infecti Such attempts at prevention are of great importa but years of trial will be required to test their ef tiveness.

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[8] Mackie, T. J.: Serum Constituents Responsible for Wassermann and Sachs-Georgi Reactions, J. Path. & Bacteriol. **26**: 120 (Jan.) 1923.

* Read before the Association of American Physicians, Atlantic N. J., May 1, 1923.

* From the Department of Medicine, University and Bellevue pital Medical College.

[1] Knight: Life Waste in 1922—Its Warning and Its Lesson, Sixteenth Annual Meeting, Association of Life Insurance Presid New York, 1922, p. 25.

[2] Coleman, Warren: Acute Infective Endocarditis Following cination: Recovery, Philadelphia M. J. **6**: 1193, 1900.

The plan to which I wish to direct attention relates rather to the management of cases after infection of the valve has occurred, and is based on the assumption that inflamed cardiac valves are susceptible of successful repair.

HEALING OF THE INFLAMED ENDOCARDIUM

Clinical observation long ago led to the belief that the inflamed endocardium is susceptible of healing; the demonstration postmortem of the process of repair, partial or complete, removes all doubt concerning the question.

The frequency with which the endocardium heals, however, seems scarcely to be realized. My own belief is that healing occurs in the great majority of cases of rheumatic endocarditis; exceptions to be mentioned are the cases cut short by accidents, such as embolism, and by unusual myocardial involvement. There is also the possibility that in some cases a low-grade inflammatory process becomes established and persists perhaps for years. Unless the inflamed valves in the rheumatic forms of endocarditis heal, it would be difficult to explain the large number of cases of chronic valvular disease in adults, the beginnings of which may be traced to childhood. In fact, the very deformities of the valves may be adduced as evidence that the valves have healed, even though the result is failure from the physiologic standpoint.

HEALING OF THE VALVES WITHOUT DEFORMITY

In endocarditis, the normal functioning of the valves may be impaired in at least two ways: by (1) vegetations so situated that they prevent perfect approximation of the cusps or leaflets, and by (2) swelling and distortion of the segments. In either case a murmur would probably develop, in both cases it is conceivable that the murmurs might disappear when the valves heal; that is, after the shrinking of vegetations, the subsidence of the swelling, and the return of flexibility to the leaflets, the competence of the valve may be completely restored. On no other hypothesis can one explain the disappearance of obstructive murmurs (mitral presystolic and aortic systolic), which develop during an attack of rheumatic fever, weeks or perhaps months after the attack has subsided.

When valves heal without sufficient deformity to produce a murmur, there may remain no clinical evidence of previous disease unless such evidence results from coincident involvement of the myocardium. Case 1, which is typical, illustrates this fact:

Case 1.—A boy, aged 13 years, in 1909 developed acute endocarditis with slight fever (from 99 to 100 F.) and moderate anemia. At various times during his illness, three cardiac murmurs appeared (mitral presystolic, mitral systolic and aortic systolic) which were not constantly present.

Although the disease persisted for nearly two years, the boy made a complete recovery and has remained well. He entered the army as a private, in July, 1918, and was put through the usual routine, suffered from a severe attack of influenza during his service, and was discharged as "fit," in January, 1919. In February, I found the left border of his heart 1.5 cm. within the nipple-line, with normal rhythm and no murmurs. The left border of the heart was still well within the nipple line, April 26, 1923, there were no murmurs, and the exercise reaction was normal. In this patient's history is to be found the only clue to the previous attack of endocarditis.

There is a type of case, however, following endocarditis, which is directly referable to the temporary incompetence of the valves, although possibly in part to coincident myocarditis. I refer to cases of cardiac enlargement (hypertrophy or dilatation, or both) in early life, without murmurs, for which none of the commonly accepted causes of enlargement may be found. Case 2 is a typical example:

Case 2.—A boy, aged 5 years, during an attack of chorea, developed aortic systolic, mitral presystolic and mitral systolic murmurs, with hypertrophy and dilatation. The left border of the heart extended well beyond the nipple line. A year later all the murmurs had disappeared, though the hypertrophy and dilatation persisted.

At the last examination, two years later, enlargement was the only remaining evidence of previous disease of the heart.

In cases such as this, the hypertrophy remains after the valves have healed and the murmurs have disappeared. How long such hypertrophy may persist must be left, for the present, an open question, though I am disposed to think it may be permanent. Case 3 lends support to this opinion:

Case 3.—A boy, aged 10 years, with infected tonsils and enlarged adenoids, developed endocarditis with murmurs. Exercise was restricted until he was 21. At present, in his twenty-eighth year, no murmurs are present but the heart is markedly hypertrophied, measuring 3.5 cm. to the right and 11.5 cm. to the left of the midline (3.5 cm. outside the nipple line).

I believe that cases of hypertrophy originating during the course of endocarditis which heals without deformity of the valves are relatively common. At least, since my attention has been directed to this form of hypertrophy, I have seen an increasing number of cases which could be most easily explained on such an hypothesis. This type of case also has a direct bearing on the question of the so-called athlete's heart, but it would lead too far to discuss the matter at this time.

PERMANENT DEFORMITY

When permanent deformity of a cardiac valve is not due to destruction of a portion of the valve, it is attributable directly to the process of repair. Vegetations are organized (and possibly calcified), adjacent segments (or chordae) fuse, and leaflets are thickened and distorted by scar tissue.

It is probable that, in the process of repair in the endocardium, the amount of new connective tissue formed is proportional to the extent of the original injury and to the duration of the inflammatory process. After the lighter grades of endocarditis the function of the valve may be completely restored, as has been pointed out; when the injury is more severe, or the inflammation more prolonged, the valve may be distorted to such a degree that it is rendered permanently incompetent—and the slow contraction of the scar tissue serves only to increase the deformity.

There is still another way, in this group of cases, in which the cardiac valves may become permanently deformed; that is, through recurrent attacks of endocarditis. As is well known from clinical and pathologic observations, damaged valves readily become reinfected, and each succeeding attack of endocarditis leaves behind its increment of scar tissue to cause, or to increase an existing, deformity. Statistics are not yet available to indicate what proportion of cases of healed endocarditis become reinfected, but it is probably large.

For the purpose of bringing out information concerning the etiologic relationship of recurrent attacks of endocarditis to chronic valvular disease, several years ago I requested Dr. Douglas Symmers to bear the question in mind in necropsies on patients dying of, or with, these diseases. He states that:

> It is a matter of not infrequent observation at necropsy that the heart valves, particularly those on the left side, exhibit sclerotic or even calcific changes without anatomic indications or a clinical history of functional disturbances. This, I think, is due to the fact that all of the heart valves are larger than is actually necessary in order to meet the demands made on them; that is to say, that, above the line of closure, there is a quantity of valve tissue which must be dispensed with before regurgitation can occur, and, on the other hand, that sclerotic heart valves commonly offer no stenosis to the normal passage of blood. Sclerosis of the heart valve in these circumstances represents the end-stage of the process of healing. That sclerotic heart valves may be reinfected is shown by the not infrequent discovery at necropsy of vegetations on them in different stages of repair. By this I mean to say that there is anatomic evidence which indicates that an individual may recover from an attack of valvulitis, sustaining sclerosis of the valve, but without impairment of its function; secondly, that a sclerotic valve may become reinfected on one or more occasions and that, ultimately, function is impaired as a result of retraction on the one hand or stenosis on the other.

From my clinical experience I am inclined to believe that recurrent attacks of endocarditis play a not inconspicuous rôle in the development of chronic valvular disease. The sequence of events was clearly illustrated in Case 4:

Case 4.—A boy, aged 11 years, whose tonsils had been removed in his fifth year and adenoids in his eighth year, developed an attack of rheumatic fever in April, 1919. The mitral and aortic valves were affected during this attack, and aortic obstructive and double mitral murmurs appeared.

By June, 1920, the murmurs had disappeared; the heart was of normal size and the exercise reaction was normal. Again in December, 1920, the heart was found to be normal in every respect.

In January, 1921, at boarding school, the boy was put to bed for a "cold." While in bed, he developed severe pains in the muscles of the thighs which lasted for four days. After being up and about for a few days, his heart suddenly dilated and his condition caused great alarm. At the Easter vacation (when I saw him) there were a systolic and a diastolic murmur at the aortic orifice, with mitral regurgitation and marked enlargement of the heart.

Both aortic murmurs were present in December, 1922, and the enlargement of the heart persisted.

Clearly, then, in this case, the first attack of endocarditis healed with complete restoration of the function of the aortic and mitral valves. Though the valves undoubtedly bore scars from the recent inflammation, their repair had been successful from the physiologic point of view. The second attack of endocarditis, however, has caused what, so far, appears to be permanent deformity. Whether the aortic valve may again become competent, only the future will determine—just a little more than a year has elapsed since the second attack of endocarditis.

DIAGNOSIS

Based, as my suggestions are, on the conviction that inflamed cardiac valves possess the power of healing, that their healing may be promoted and that the tendency to recurrent attacks of inflammation may be lessened, it is obvious that success in the treatment of endocarditis stands in close relationship to the early recognition of the condition.

In the absence of murmurs, the existence of endocarditis may only be suspected; but, as is well known, not all cardiac murmurs have a pathologic basis: the organic must be differentiated from functional murmurs. I shall not attempt at this time to evaluate the various criteria which have been put forward as characteristic, respectively, of functional and of organic murmurs. I shall say only that I feel far less confident than formerly of being able to distinguish them.

The early diagnosis of endocarditis does not rest on examination of the heart alone. Evidences of a constitutional reaction must be sought, and they may appear insignificant. Approaching the diagnosis from this direction, if a child or adolescent is reported to be out of sorts, or is anemic, or exhibits a low-grade continuous or recurring fever (say from 99 to 100 F.) for which no obvious cause can be found, careful attention should be given to the possible existence of endocarditis. Such patients should not be dismissed with the diagnosis of an "ailment of childhood" and the comforting advice to the parents that "he will outgrow it." The history of the patient may furnish important clues to a correct diagnosis, and such information as may be obtained from the blood picture or blood cultures should be utilized.

The diagnosis of recurrent attacks of endocarditis rests on essentially similar considerations.

No less important than the early recognition of endocarditis is the determination of the approximate time at which the inflammation subsides. The difficulties that stand in the way are obvious. The persistence of murmurs cannot be interpreted to mean that inflammation is still present. On the contrary, however, the persistence of constitutional symptoms undoubtedly signifies that the inflammatory process is still active. The prolongation of apparent convalescence will always bear most careful investigation. Yet, after all has been said, the question, "Have the valves healed?" must not infrequently remain unanswered. And treatment should not permanently be interrupted until this question may be answered with reasonable assurance in the affirmative.

TREATMENT

There are two main objectives in the treatment of endocarditis: (1) the reduction of the work of the heart to a minimum, and (2) the protection of the patient from all influences which may lower resistance, especially exposure.

These objectives may be reached only by keeping the patient in bed. Rest in bed usually reduces the rate of the heart, often as many as twenty or more beats a minute, and lessens the injury to the valves which is incident to their closure. The dire consequences of exposure, to patients recently recovered from acute articular rheumatism, furnish a strong argument in favor of maintaining the body of a patient with rheumatic endocarditis at an equable temperature. Other analogies may readily be called to mind.

The mere recommendation of rest in bed for patients with endocarditis, of course, presents nothing new. In cases of endocarditis with active fever, or with serious involvement of the myocardium, or in cases which develop in the course of rheumatic fever, the necessity of putting the patient to bed is obvious. But it is not primarily such cases that I have in mind; it is rather those in which there are murmurs which, on superficial examination, might be interpreted as functional, and in which the constitutional reaction will escape attention unless seemingly insignificant symptoms are given their true perspective. If the patient is not put to bed and kept there, the cardiac valves are not given the fullest opportunity to heal, the inflammatory process is prolonged, and recurrent attacks of endocarditis are invited. The progressive course of many cases of mitral stenosis, for example, seems scarcely due to the injury wrought by a single attack of endocarditis of even relatively long duration.

The length of time which patients with rheumatic endocarditis should be kept in bed varies with each case. The only general recommendation which is applicable to all is that no patient should be allowed to get up until after the disappearance of the constitutional symptoms. At times a slight relative increase in the polymorphonuclear cells may be the only evidence that the constitutional reaction has not subsided.

In my own experience, the duration of the confinement to bed has varied from several months to two years. When the longer periods of rest are necessary, one of the most difficult problems is to gain the cooperation of the parents. The decision to permit a patient to get up must always be tentative. At first the same close supervision as when the patient was in bed is necessary, and at the return of any unfavorable symptoms the bed-treatment must be resumed. Healing valves readily become reinfected, and ample time should be allowed for their recovery.

In Case 1, the constitutional symptoms persisted for nearly eighteen months. The patient was then allowed to get up. The symptoms quickly returned, however, and he was put back to bed for six months more. When at last he was out of bed he was unable to stand, but with massage and carefully regulated exercises the power of the muscles soon returned. For the next six years the boy's activities were carefully supervised, that is, until 1917. Since then there have been no restrictions whatever on him.

If justification for such a plan of treatment is required, the answer is that the spending of two years of one's childhood or youth in bed is not an excessive price to pay for a normal heart.

All patients who have had acute or recurrent attacks of endocarditis, especially children and adolescents, should be kept under observation for years. Nor should they be dismissed even after thorough examination of the heart until the next periodic examination of the heart.

Examinations of the blood and careful readings of the body temperature extending over several weeks should be made at intervals and be submitted to the physician. Only in this way may the earliest stages of recurrent attacks be detected, and recurrences should be treated in the same manner as first attacks.

CONCLUSIONS

1. In rheumatic endocarditis, the tendency of the inflamed valves is to heal; they may heal without deformity and there may remain no clinical evidence of previous disease, or the heart may remain enlarged as a result of the temporary incompetence of the valves.

2. The permanent deformity of the cardiac valves in many cases of chronic valvular disease is probably due to recurrent attacks of endocarditis.

3. Healing of the valves is promoted by keeping the patient in bed; this treatment should be maintained until after the disappearance of all constitutional symptoms.

58 West Fifty-Fifth Street.

Clinical Notes, Suggestions, and New Instruments

A CASE OF MYXEDEMA IN WHICH THE BASAL METABOLIC RATE WAS MINUS FIFTY-SIX PER CENT.*

K. M. BOWMAN, M.D., AND G. P. GRABFIELD, M.D., BOSTON

This case is presented because of the low basal metabolism: minus 56 per cent. This is, as far as we can determine, the lowest reading that has been recorded.[1]

REPORT OF CASE

A single woman, aged 44, was admitted to the Boston Psychopathic Hospital, Nov. 5, 1922, apparently somewhat confused and disoriented. The family history was negative for endocrine disorders or mental disease, most of the ancestors having died of cardiac or arteriosclerotic conditions.

The patient was born in Massachusetts, Aug. 23, 1878. The birth had been normal; she had been a full-term baby, weighing 8½ pounds (3.8 kg.). She had been a healthy, bottle-fed infant. Dentition had been normal. She had walked at 20 months. She had had the usual infectious diseases of childhood, including pneumonia at 12 and scarlet fever at 15. There was no history of convulsions, chorea, sleep walking, nail biting or tantrums. She was not regarded as a neurotic, high strung child, or as being abnormally placid.

The patient had attended school from her fifth to her seventeenth year, and was said to have been a bright girl but always worried over her school work. She did not graduate from high school because she failed in chemistry and one other subject.

The menses were established at the age of 17. They were never regular, being usually from six to eight weeks apart and occasionally very profuse. For example, in March, 1922, her period lasted five weeks. In June or July she had a menstrual period of from six to seven weeks and lost much blood. At times she had had dysmenorrhea.

The patient had worked for a dressmaker for a year or two when she was about 20 years of age. Then she went to a business college for nine months. After this she obtained a clerical position in a store and remained there for two years. Next she came to Boston and continued work in a clerical capacity. She was secretary of one company for a time and held a very responsible position. She is said to have been quite proficient, and her work had always been satisfactory. She continued to work until September, 1922.

Of her habits, it was said that she had never used alcohol or drugs and had had no love affairs. She was quite devoted to her brother, and was much upset when he married about four years previously and left her.

Concerning the patient's personality, there were conflicting data. According to the mother, the patient was a very mild, placid child; every one was fond of her, and she was sociable. On the other hand, there was some outside information that she had an ugly disposition and had always been erratic and peculiar.

The patient's first nervous symptoms appeared twelve years previously, after the death of a favorite aunt. Following this the patient complained of loss of strength. She found it hard to walk upstairs. She is said to have had plenty of ambition, however, but simply lacked physical stamina. She kept on at work. After about five or six years, she obtained a six months' leave of absence because her head would get tired, her legs would feel weak and she seemed unable to carry on ordinary work. She is said to have had a "nervous breakdown" in March, 1921, following the death of her father. She talked continually about fearing that she would die and of having heart trouble. She became very weak and could not be induced to eat, saying that food did not taste good and imagining that everything she ate would hurt her. She was in bed for about three weeks, but gradually recovered, and by June seemed quite herself again mentally but was still easily fatigued. In September she started to work, but gave it up after three weeks because she had contracted a slight cold and complained of "weakness." In the latter part of October, 1922, about a week before admission, she told the neighbors that her mother was deranged and that she did not wish to be left alone with her. She would try to telephone her friends or to go out and see the neighbors to tell them that her mother was crazy. Two days before admission she began to shriek and scream. She wanted all the neighbors called in, and said that her mother was trying to give her too much bromid to quiet her. She told the physician that her mother was going to die. He administered morphin and scopolamin to quiet her.

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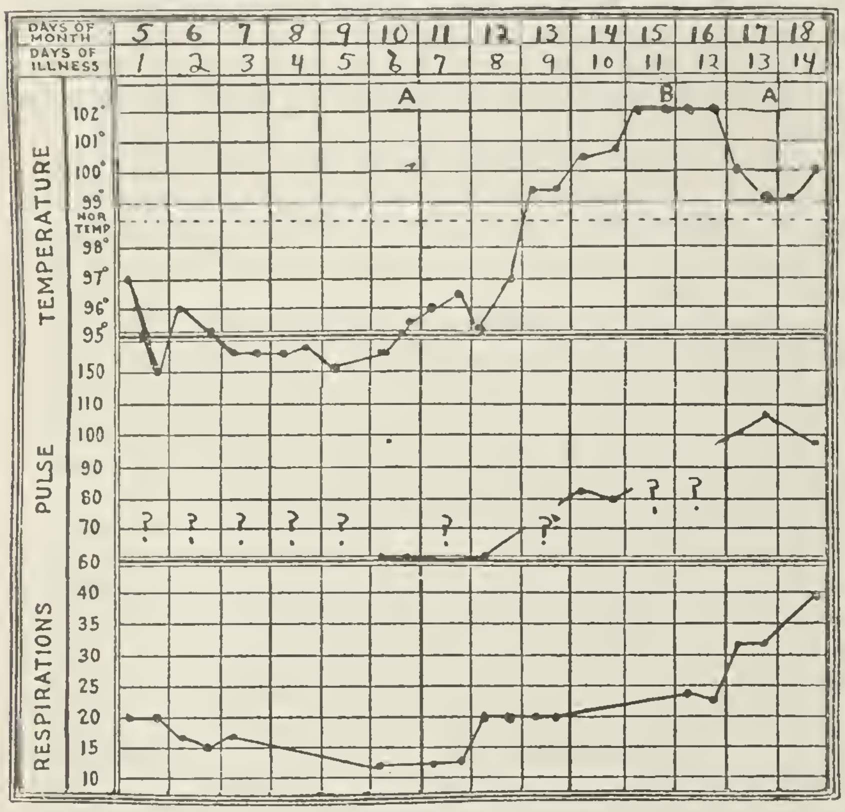
* From the Boston Psychopathic Hospital.

[1] Personal communications from Drs. J. H. Means, C. C. Sturgis and Walter M. Boothby state that the lowest basal metabolic rate recorded at the Massachusetts General Hospital, the Peter Bent Brigham Hospital and the Mayo Clinic is minus 49 per cent.

The family had noticed that for the last twelve or fifteen years she had puffiness of her face and swollen lids. This had been especially noticeable when she was nervous. The skin had had a yellow hue for possibly ten years, and her voice had been thick for the last year.

On admission to the hospital the patient was in a stuporous condition. She could not speak intelligibly but uttered thick incomprehensible sounds; she could not open her eyes without assistance, and she was unable to raise her right arm any distance from her side and could not grasp with her right hand. She understood and obeyed simple commands, such as to protrude her tongue. When asked if she was happy, she consistently nodded in the affirmative, and when asked if she was unhappy, she would shake her head.



Record of temperature, pulse and respiration in a case of myxedema: *A, A*, thyroid treatment started; *B*, thyroid discontinued.

The patient was short and heavy-set, with a sparse growth of coarse, black hair on her head. The skin was of a lemon-yellow hue and was dry, harsh and desquamating, but only moderately thickened. There was scant pubic hair and no axillary hair. The patient could not stand without aid. There was questionable weakness of the right side of the face and the right arm. The pupils were equal and reacted sluggishly to light; the left was very slightly irregular. Ophthalmoscopic examination showed the right disk to be pale, and the left disk less definitely so. There was some weakness of the right external rectus muscle. The abdominal reflexes were not elicited, but other reflexes were normal. The tongue was large, red, shiny and smooth. The thyroid was not palpable. The heart was essentially normal, the rate being 60. The blood pressure on admission was 158 systolic and 120 diastolic. The next day it was 115 systolic and 80 diastolic. The radial pulses were consistently so faint that the pulse rate could not be estimated. The urine had a specific gravity of 1.014, was acid, and showed a very slight trace of albumin and many hyaline casts. No sugar or bile was present. The albumin and casts disappeared during the first week. Blood examination revealed: hemoglobin, 80 per cent. (Sahli); red blood cells, 4,160,000; white blood cells, 13,400; polymorphonuclears, 88 per cent.; lymphocytes, 8 per cent.; large mononuclears, 2 per cent.; eosinophils, 2 per cent. The red blood cells appeared normal. The phenolsulphonephthalein test gave 50 per cent. excretion in 85 c.c. of urine in two hours and ten minutes. The basal metabolism determination, November 8, showed a reading of minus 56 per cent. (figured according to the Aub-Du Bois standards). This is the average of two determinations checking within 5 per cent., made with the Benedict portable apparatus. The blood sugar curve was as follows: The blood, fasting, contained 134 mg. of dextrose. One hour after sugar was taken, it was 144 mg.; two hours, 160 mg.; three hours, 170 mg. The nonprotein nitrogen of the blood was 44.1 mg. for each hundred cubic centimeters.

The patient showed very little change for the first five days in the hospital. She was dull, listless and apathetic, lay quietly in bed with her eyes closed, and apparently understood some of the things said to her. It was necessary to catheterize her. She was put on a milk diet. November 10, the administration of thyroid, 2 grains (0.1 gm.) five times daily was begun. November 11, she seemed a little brighter; she voided urine without the aid of a catheter. She continued to improve for the next two days. Her temperature rose from between 94 and 95 F., where it had been up to this time, to about 96 or 97. A basal metabolism estimation, November 12, was minus 46 per cent. On the morning of November 13, it was noted that she seemed much brighter; she opened her eyes, waved her left hand and smiled. She tried to write for the nurses and made some effort to speak. She could not read communications written for her. That evening she vomited. Her temperature had risen to 99.4 F. The next day, November 14, she continued to be nauseated and vomited. The thyroid was discontinued after the first dose that day. She was given sodium phosphate and an enema. At times she moaned as if in pain. November 15, her temperature was 102 F. She took no nourishment and had to be tube-fed. Her condition continued unchanged throughout the 16th, but the temperature returned to normal on the 17th. At that time the pulse rate was 108; respirations, 32. The lungs were examined carefully, but no evidence of any involvement was found, nor was any other cause for the pyrexia. The white blood cell count was 19,000. Thyroid, 2 grains (0.1 gm.), was given three times during the 18th, and her condition seemed unchanged. On the morning of the 19th, the stupor gradually deepened, respirations increased, and the patient died. Permission for a necropsy was refused.

COMMENT

1. The condition of hypothyroidism remained undiagnosed for twelve years and was discovered only because the patient presented mental symptoms sufficient to demand hospitalization.

2. The patient probably had a "complete myxedema" with the lowest basal metabolic rate as yet recorded as far as we can ascertain.

3. In spite of the long duration and completeness of the myxedema, renal function was little impaired, although there was evidence of renal damage.

Suicide Statistics.—An investigation by John Rice Miner, associate in biometry and vital statistics in the Johns Hopkins School of Hygiene and Public Health, showed that May and June are the most popular months for committing suicide, and December and January the least favored. Other outstanding features of the report of the investigation show that fewer married persons commit suicide than single or widowed persons, and fewer parents commit suicide than persons without children. Urban rates are higher than rural, the rate among farmers and others employed in steady manual labor in the open air being very low. High suicide rates are found among persons engaged in the professions (except clergy and teachers).

A CASE OF IRITIS AND ONE OF CORNEAL ULCER CURED BY TONSILLECTOMY

Richard M. Nelson, M.D., Atlanta, Ga.
Visiting Ophthalmologist, Georgia Baptist Hospital

Mrs. M. D. S., aged 20, housewife, consulted me, June 8, 1922, for a corneal ulcer of the right eye complicated by severe iritis. Physical examination was negative except for the eye trouble and a bad chronic tonsillitis. The Wassermann blood tests and urinalysis were negative. In December, 1920, I had advised tonsillectomy for the chronic tonsillitis found then. At that time I also noted some faint corneal scars in the right eye, and learned that four years previously this patient had been many weeks under treatment for corneal ulcer. For three weeks the usual methods of treatment were tried, with little real improvement. Believing the tonsillitis to be the cause of the eye inflammation, I again urged operation. The tonsils, on removal, showed many crypts filled with cheesy and purulent material. Within twenty-four hours the pain, the photophobia and the ciliary congestion were all greatly lessened, and within a week, practically all evidence of both corneal ulcer and iritis was gone.

E. H., a boy, aged 15, a bank employee, came to me, Feb. 2, 1923, for treatment of an unusually severe acute iritis of the right eye. There was no history of previous eye disease or defect, but there was a definite history of repeated attacks of acute tonsillitis followed by "rheumatism" every year for the last three years. Several internists had advised tonsillectomy to cure the chronic tonsillitis, and as a probable cure of the "rheumatism." Physical examination was negative except for the eye and throat conditions. The Wassermann blood tests and urinalysis were negative. A thorough trial of the usual methods of treatment of iritis gave only slight improvement by February 9, when I removed the badly diseased tonsils and adenoids. By the next day all the eye symptoms had vanished. All local eye treatment and internal medication had been stopped the night before the operation and were never resumed.

From all reports received, both these patients have enjoyed excellent health in every way to the present time, June 6, 1923.

828 Candler Building.

A NEW BITE BLOCK FOR PERORAL PROCEDURES IN CHILDREN*

William Frederic Moore, M.D., Philadelphia
Assistant, Bronchoscopic Clinic, Jefferson Hospital

The importance of a mouth gag that can be securely held by the same assistant who holds the head is realized by laryngologists, who all, at times, must work in the throat of unanesthetized children for various purposes, such as palpation for retropharyngeal abscess, palpation for adenoids, intubation and bronchoscopy. Self-retaining mouth gags, useful in anesthetized patients, are not satisfactory for this purpose.

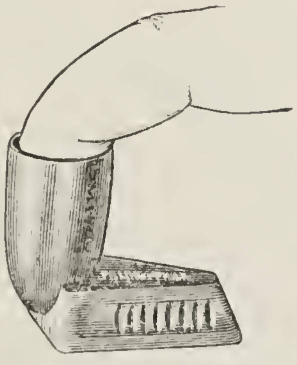


Fig. 1.—New bite block.

The thimble idea, original with Dr. John W. Boyce, presents many advantages, but the thimbles so far devised are not easily kept in position by most men without encroaching so much on the relatively small oral cavity of children as to interfere with the operator.

The instrument is made of brass, the lines of the old bite block being followed as far as the alveolar wedge is concerned, but in the child's size the width is decreased so that the block encroaches less on the oral cavity. The main departure is in the finger hold. The insertion, instead of being placed in the body of the block and coming in at the top, is superimposed at the base of the wedge, and runs at a right angle. A ridge of metal has been placed in the finger hold in order to aid in retention.

The thimble shown in Figure 1 has been thoroughly tested in the Bronchoscopic Clinic and has been found absolutely ideal by both assistants and operators.

As will be seen in Figure 2, the angle at which the interdental part is placed on the digital part obviates the uncomfortable and, for some men, impossible extreme flexion of the finger, and yet the interdental part does not intrude within the inner line of the alveolar arches, nor does it unduly drag the oral orifice sidewise.

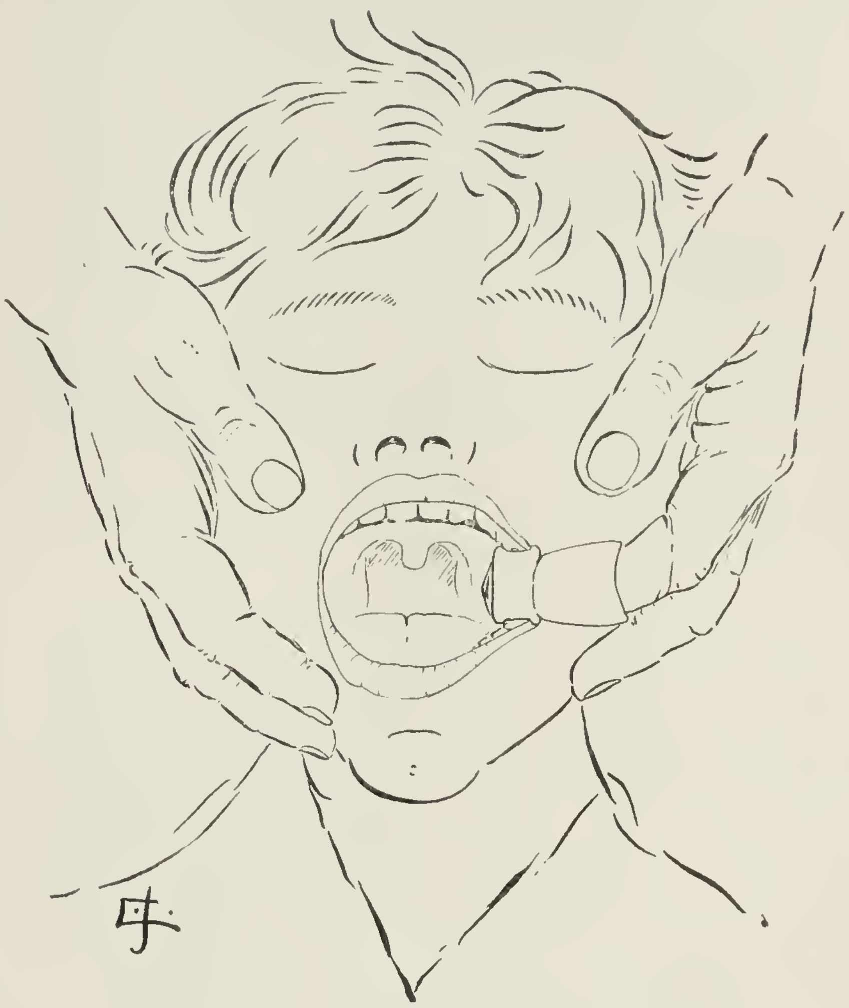


Fig. 2.—Bite block in position for intubating.

The bite block is also made in an adult size, which is especially useful in bronchoscopy and esophagoscopy. In this block, the same general idea is carried out as in the children's block—the base of the wedge is practically of the same width as the old bite block, but the serrations on the biting faces are much deeper and are run at an angle, which insures apposition on the teeth at a right angle. The serrated face of the block slopes in straight lines to the apex of the wedge, which is rounded, to prevent trauma.

The bite blocks formerly used were of aluminum. Lightness, however, is not an important factor in this work, as it will be found that the heavier instrument of brass, when inserted, stays in place much better, without tiring the finger or causing inconvenience to the patient. Furthermore, aluminum is roughened and corroded by boiling.

When treating suppurative conditions of the lungs bronchoscopically, it will be found that the assistant can maintain the correct position of the head much easier, and, at the same time, he can increase the distance between himself and the patient.

The Boyce position, which requires a raised, extended position of the head, lessens the space between the occiput and the heavy shoulder muscles. With the old bite block, this space was taken up rather fully by the thickest part of the forearm. With a right-angled bite block, the assistant is enabled to settle the patient's neck nearer the wrist, thus getting easier and more complete extension.

In children with unerupted teeth, the block will stay in place, since the alveolar face is grooved wide enough to hold the gingival margin.

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* From the Bronchoscopic Clinic, Jefferson Hospital.

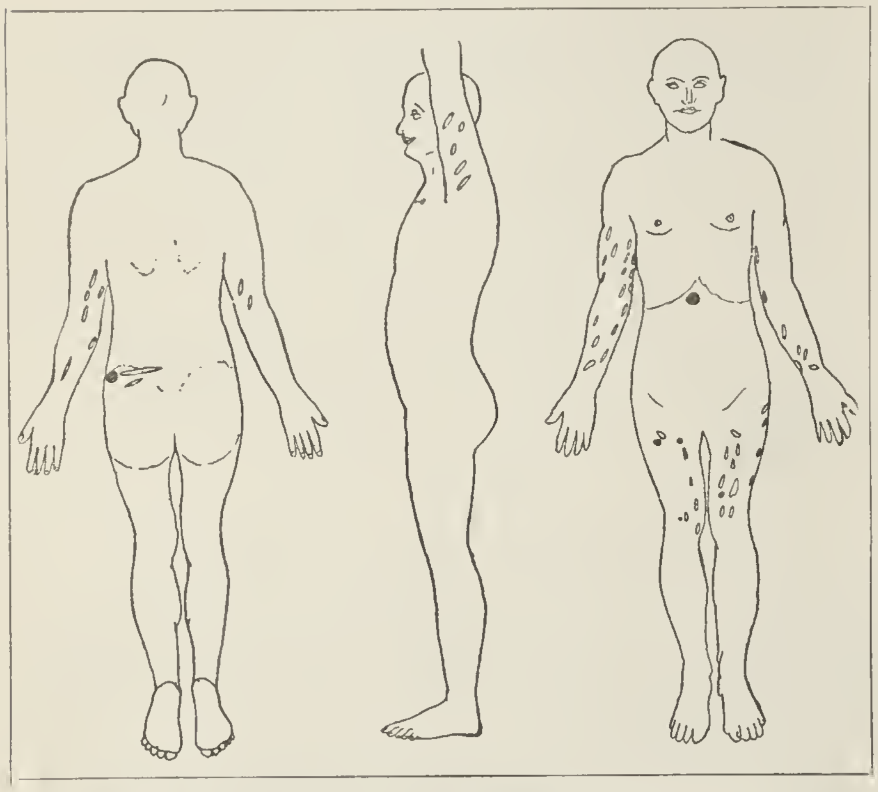
A CASE OF MULTIPLE LIPOMAS OF SYMMETRICAL DISTRIBUTION *

Hilbert F. Day, M.D., and William A. Hinton, M.D.,
Boston

This case is reported (1) because of the symmetrical placement of lipomas, which showed a marked tendency to follow the paths of certain superficial nerves, and (2) because the distribution of the painful tumors was so characteristic of the typical von Recklinghausen's disease (generalized neurofibromatosis) that the histologic report of multiple lipomas was a surprise.

REPORT OF CASE

A car repairer, aged 30, and single, came to the surgical department of the Boston Dispensary, complaining of painful lumps on his arms, back and legs. His family history had no relation to his present condition. His habits were confined to the moderate use of tobacco and alcohol, except for an occasional excess in the latter. The patient's own history was unimportant, except that he said he had a complete right-sided "neuritis" at the age of 19, lasting two months, and characterized by dull pain on the affected side. This was not relieved by morphin or phenacetin. His present symptoms began six years ago, while in the Canadian army, when he first developed hematuria and a dropped heart beat, for which he was given a subcutaneous injection in the left arm. One month later, he noticed a slight elevation near the site of the injection. Associated with this elevated area was a tickling sensation. Shortly after, similar lumps appeared on the left hip. As these grew, they became painful. Additional ones came on the left arm, left hip, and, later, on the right arm, leg and hip. He said that during the last six years he had had eight operations, at which varying numbers of these tumors were removed.



Distribution of lipomas: Scars are indicated in outline; the existing lipomas, by solid dots.

The examination was confined to the external surface of the body. The patient was well developed and well nourished, with a slight tendency to obesity. The external surface of the body showed no abnormal pigmentation. Fifty-six scars were noted. The skin was clear except for the scars and for acne marks, which were situated chiefly on the back. In addition to these lesions, six or more tumors, varying in size from approximately 2 mm. to 4 cm., were observed, one on the right side of the ensiform process and another on the left buttock. All the tumors were freely movable, firm but not hard, and lay just beneath the epidermis. The diagram, by Mr. A. L. Caron of the Harvard Medical School, shows that the distribution of the scars and tumors was bilaterally symmetrical and followed very closely the superficial nerves. Those of the legs and back seemed to be limited to the areas supplied by the dorsal divisions of the second and third lumbar nerves, the lateral femoral cutaneous nerve and one of its branches, the anterior femoral cutaneous.

Those of the arms are not quite so definitely from one or two nerves, but are limited to the following definite branches of the brachial plexus (composed of the fifth, sixth, seventh and eighth cervical nerves, and the first thoracic nerve): (*a*) the lateral antibrachial cutaneous, a continuation of the musculocutaneous, from the lateral cord; (*b*) the medial antibracheal cutaneous, from the medial cord, and (*c*) the dorsal antibrachial cutaneous, from the radial, which is a continuation of the posterior cord.

The characteristic response of extreme tenderness was not elicited by pressure over the existing tumors. The scars from the earlier operations were white, while those from the later ones were red. They all showed a distinct tendency to keloid formation.

With local anesthesia, three tumors were removed for histologic examination at two sittings, because it seemed that the pathologic examination should show neurofibroma. The tumors were surrounded by a connective tissue capsule which contained small blood vessels, the endothelial layer of which had not flattened out, in many instances. The trabeculae showed a similar structure. The intervening tissue was composed of fat cells. About four fifths of the cut section was composed of fatty tissue, and the remaining part of trabeculae and capsule. The histologic picture was that of lipoma.

COMMENT

This, therefore, is undoubtedly a case of adiposis dolorosa, which is a name given to the disease of multiple subcutaneous lipomas. According to other minds, these lipomas are frequently symmetrical, and, in a certain group of cases, pain is a prominent symptom. The multiple tumors do not tend to increase rapidly in size, and pain, which often accompanies their appearance, does not long persist.

45 Bay State Road.

YEAST MENINGITIS: PRELIMINARY REPORT

L. L. Shapiro, M.D., and Josephine B. Neal, M.D., New York

In view of the rarity of yeast meningitis and the fact that it is seldom diagnosed during life, it seems advisable to publish a brief preliminary report of a case now under observation.

A boy, aged 16, developed a severe headache with vomiting after eating a large amount of chocolate and pie, May 15, 1923. He complained also of weakness and dizziness. His family physician (Dr. Shapiro) was consulted, May 19, and suitable treatment was given, but the headache and vomiting persisted. A few days later, May 23, the patient was sent to a sanatorium, where he was under careful observation. Various diagnoses were considered, such as a subacute attack of meningitis, either tuberculous or meningococcic in origin, encephalitis, and brain tumor, the last being suggested on account of the marked papilledema. During this period the temperature was normal most of the time. The mental condition was clear except for a period of delirium which lasted only a few hours. The blood count showed a moderate leukocytosis, with a slight increase in the percentage of polymorphonuclears. Although the patient complained of a slight tenderness at the back of the neck, there was at no time a well defined stiffness. A moderate Kernig sign developed. The patient complained in a rather indefinite way of some slight disturbance of vision.

This describes the condition up to May 29. On this date, a lumbar puncture was made and the fluid found to be under very high tension. Only about 15 c.c. of fluid was removed at the first puncture. Daily lumbar punctures have been made since then, and larger amounts removed. Examination of these fluids by smear and culture has shown the constant presence of a pathogenic yeast usually classified as *Torula.*

---

* From the Boston Dispensary.

At present (June 5) the patient is showing a slight clinical improvement, and the number of yeast cells is apparently decreasing.

A full report of the case with a detailed study of the yeast will be published later.

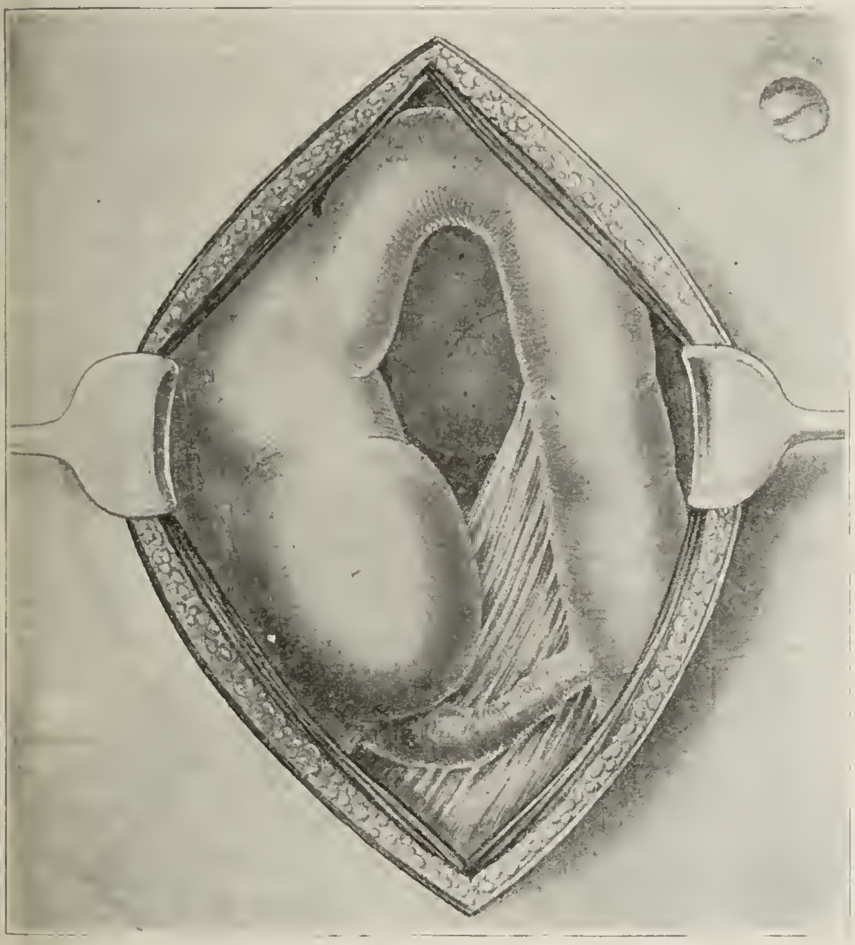
955 Park Avenue.

ANOMALY OF THE APPENDIX

L. S. Willour, M.D., McAlester, Okla.

Attachment of the tip of the appendix to the bladder with rupture into this organ has been reported by Judd, but I am unable to find any case, noted at operation, in which the appendix tip was attached to the intestine and communicating with its lumen.

Careful search of the literature reveals three cases found at necropsy: one by Thoyer,[1] in which the cause of death was cancer of the rectum; one by McDonald,[2] in which the cause of death is not given, and one by Pohlman,[3] in which the cause of death was pulmonary tuberculosis.



Appendix with tip attached to ileum, and opening into it.

REPORT OF CASE

R. H., a farmer, aged 28, whose history as to previous disease was negative, had a typical attack of acute appendicitis in December, 1922, as reported by his family physician, at which time operation was advised. Two weeks before I saw him he had an attack of pain in the right inguinal region, of much milder character than that of the preceding attack. The present attack started forty-eight hours before I saw him, and the attending physician reported that with this attack there had been fever and vomiting.

Examination of sclera, mouth, throat and chest was negative. The abdomen was flat, with a point of tenderness over McBurney's point. There was considerable spasm of the right rectus muscle when palpation in the region of the appendix was attempted. The remainder of the physical examination was negative. The temperature was 99.4 F.; pulse, 88; leukocytes, 8,500; polymorphonuclears, 85 per cent.

Operation was performed at once, Jan. 19, 1923. Exposure of the cecum showed many fine adhesions. The appendix was deep red, with the base normally attached and the tip attached to the ileum about 5 inches from the ileocecal junction. This was first thought to be an inflammatory adhesion; but as it could not be detached by ordinary means, it was found that the contents of the appendix could be milked into the ileum.

The appendix was removed, the hole in the ileum repaired, and the stump of the appendix treated in the usual manner.

It is my opinion that during the first attack the tip of the appendix became attached to the bowel and ruptured into it; but, as drainage was incomplete, there was return of the symptoms; however, the condition may have been congenital.

The accompanying illustration shows the condition as found at operation.

Cambron Building.

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[1] Thoyer: Bull. Soc. anat. de Paris 7: 205-206, 1893.

[2] McDonald: Proc. Med.-Chir. Soc. Montreal, 1885, pp. 6, 7.

[3] Pohlman: J. A. M. A. 50: 961, 1908.

New and Nonofficial Remedies

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application. W. A. Puckner, Secretary.

SULPHARSPHENAMINE (see The Journal, March 31, 1923, p. 919).

Sulpharsphenamine-Billon.—A brand of sulpharsphenamine-N. N. R.

Manufactured by Powers-Weightman-Rosengarten Co., Philadelphia, under U. S. Patent 1024993 (April 30, 1912; expires 1929) by license of the Chemical Foundation, Inc.

Sulpharsphenamine-Billon, 0.1 Gm. Ampules.
Sulpharsphenamine-Billon, 0.2 Gm. Ampules.
Sulpharsphenamine-Billon, 0.3 Gm. Ampules.
Sulpharsphenamine-Billon, 0.4 Gm. Ampules.
Sulpharsphenamine-Billon, 0.5 Gm. Ampules.
Sulpharsphenamine-Billon, 0.6 Gm. Ampules.

RADIUM EMANATION (Radium Emanation Corporation).—The emanation, mechanically removed from a solution of a radium salt, in admixture with inert gases. It is supplied in sealed glass capillary tubes; each tube is accompanied by a statement of the amount of radium emanation in terms of millicurie contained in it at the time of sale.

Actions and Uses.—The radiation from radium emanation as a therapeutic agent is analogous in all respects to that from radium and its salts except that the activity decreases rapidly. (See Radium and Radium Salts, New and Nonofficial Remedies, 1923, p. 255.)

Dosage.—See Radium and Radium Salts, New and Nonofficial Remedies, 1923, p. 255. Therapeutically the penetrating radiation from one millicurie of radium emanation is of the same nature and intensity as that from one milligram of radium, but the radiation available from a tube of radium emanation is greater than that from a tube containing the same number of milligrams of radium. The intensity of radiation from an initial millicurie does, however, not remain practically constant as in the case of radium because of the rapid decay of the emanation (about three-fourths per cent. per hour).

Manufactured by the Radium Emanation Corporation, New York. No U. S. patent or trademark.

Radium Emanation (Radium Emanation Corporation) is obtained by removing the radium emanation produced in a solution of a radium salt. The emanation is removed from the solution by a system of mercury pumps together with other gases formed by the decomposition. The extraneous gases are for the most part removed by chemical means. The residual gas with the emanation is forced into the desired container.

To determine the emanation content of a sealed container it is compared after equilibrium is attained by determination of the gamma ray activity with a tube of radium salt standardized by the U. S. Bureau of Standards. The tubes are shipped in lead lined containers.

Radium.—The total supply of radium in the United States, it is reported, is about 100 grams, most of which is owned by physicians. Rich deposits of radium having recently been found in the African Congo, the Radium Company of Colorado has closed its mines and is now an agent for the Congo supply, which, although richer than the Colorado supply, yields only 1 part of radium to 5,000,000 parts of ore.

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SATURDAY, JULY 21, 1923

A PROPOSED CLASSIFICATION OF HYPERSENSITIVENESS

Classifications, like theories, are, only too often, clay idols which fetter the imagination of men. During their reign, however, they form a target to focus effort, and their very downfall marks the improved aim they have engendered; so we must welcome any attempt to organize the protean and perplexing phenomena variously known as allergy, anaphylaxis, idiosyncrasy and hypersensitiveness. Doerr[1] and Coca and Cooke[2] have been active in this work, and the classification evolved by the latter may be of interest.

Hypersensitiveness is chosen as the generic term and defined as "a state of susceptibility in man and animal that is mediated by a special mechanism that occurs naturally or is developed artificially, and which may be specifically influenced (toward increased or diminished sensitiveness) by the suitable administration of the exciting agent." The "special mechanism," e. g., the various immune bodies, may be demonstrated and artificially induced in anaphylaxis and infection; but in certain forms of hypersensitiveness, as hay-fever, the mechanism is not yet known, and in such cases its presence is inferred by two criteria. The presence of a reaction in but few individuals of a species or in one species of mammalia while absent in all others indicates in these individuals or in this species a special mechanism for its production not present in the others, and which is the basis of the hypersensitiveness. The other factor in the definition, that administering the exciting agent may change the susceptibility, includes the usual sensitizations and desensitizations.

A hypersensitiveness of a whole species which is present in varying degrees in all its members is considered normal, in contradistinction to that present only in certain individuals and therefore abnormal. Thus, serum disease in man (the urticaria, pruritus, joint pains and fever occurring from five to fifteen days after the administration of serum, not the immediate true anaphylaxis or the dyspnea in susceptible persons) appears with various intensities in 90 per cent. of all persons, but is said to be unknown in animals, and similar relations hold for dermatitis venenata (caused by poison ivy and sumac); whereas hay-fever and asthma are present in fewer than one in ten persons. Serum disease and dermatitis venenata are therefore the results of what is called normal hypersensitiveness.

Three kinds of abnormal hypersensitiveness are distinguished: anaphylaxis, "the hypersensitiveness of infection" and "atopy," each of which has its own special mechanism and distinguishing earmarks. The "hypersensitiveness of infection" includes the cutaneous and other reactions which may be induced in infected persons by injecting preparations of the infecting agent. The best known of these is the response of the tuberculous to tuberculin injections; but similar susceptibility has been found for *B. typhosus, B. mallei, Spirochaeta pallida, Trichophyton* and other agents. This form of hypersensitiveness is distinguished from anaphylactic sensitiveness by a number of points. The latter is expressed by definite symptoms and lesions characteristic in each species, and differing in the guinea-pig, rabbit and dog, while the former is expressed in symptoms and lesions (both cutaneous and general) which are not characteristic in each species and which are different from the anaphylactic reaction in any species. Further, anaphylactic sensitiveness is developed by administration of proteins which are precipitinogenic (and therefore true antigens), while the hypersensitiveness of infection develops in the course of an infection with micro-organisms in response to supposedly nonprecipitinogenic substances—probably the secretory products of bacterial growth. Injection of killed cultures (bacterial proteins) induces the anaphylactic sensitiveness, not this type. Finally, anaphylactic sensitiveness can be passively transferred to normal animals with the serum of sensitized ones, whereas the hypersensitiveness of infection apparently cannot be so transferred. In not being inherited, and in being removable by injection of the active substance, these two forms are similar.

Atopy or atopic (out of place or rare) hypersensitiveness is coined to cover inherited idiosyncrasies, as asthma, hay-fever, and drug idiosyncrasy. The fact that this sensitiveness is inherited (subject to a dominant gen) in itself distinguishes it from both of the other forms of abnormal hypersensitiveness. Furthermore, it is expressed in symptoms and lesions, the important ones of which are different from the anaphylactic reaction in the guinea-pig, rabbit or dog. Atopy may be exhibited against either precipitinogenic or nonprecipitinogenic substances, is not passively transferable with the blood of a sensitive individual, and may be lessened but not removed by injection of the active substance, which criteria help further to distinguish this hypersensitiveness.

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[1] Doerr, in Weichardt's Ergebnisse der Hygiene **5**: 73, 1922.

[2] Coca, in Tice's Practice of Medicine, W. F. Prior Company **1**: 107, 1920. Coca and Cooke: J. Immunol. **8**: 163, 1923.

As the authors realize, these groups are by no means final, and further investigation is certain to show some overlapping, as, in fact, it is already doing. Until, however, the actual mechanism of each kind of sensibility is known no classification can be biologically certain, and the one proposed has at least the merit of pointing out obvious differences and distinctions. Anaphylaxis is limited to a definite condition not occurring naturally so far as known, and very rare in the human species; and it is to be hoped that this will help the practitioner to realize—to paraphrase Hamlet—that there are more things besides anaphylaxis in hypersensitiveness that have not been accounted for in his philosophy.

PHYSIOLOGIC CLINKERS

One reason why the professional study of science in general, and medicine in particular, has failed to win public applause and gather popular support in larger measure than it does at present lies in the distortions and misrepresentations to which this department of learning has all too often been subjected. The quack and the impostor make no sincere pretense of adhering strictly to the known in heralding their claims; the pseudoscientist usually dresses his propaganda in a variety of raiment that may include ignorance, erroneous belief and mere conjecture. All too often, even the reputed scientist is found supporting a doctrine that is dangerously near uncertainty of demonstration, or rests at best on the basis of inadequate investigation. Much of the scientific teaching of today is permeated with a cock-sureness that is unwarranted by the meager facts of experience or experiment.

When the out-and-out fraud is perpetrated we do not hesitate to assail the perpetrator. The Propaganda for Reform supported by the American Medical Association is frank and unrelenting in its attacks on such persons as nostrum venders and their ilk. Even the public can usually appreciate the propriety and benefit of these efforts to eradicate a harmful evil. Criticisms of the food faker, the health faddist and similar types of pseudoscientists usually find a less sympathetic hearing, possibly because the man in the street is unable to distinguish between the language of these uncritical if not unscrupulous propagandists and that of the honest devotee of science. As for the unweighed or unguarded statements of the latter, they are often received as the dictum of "authority." Who among us can always discriminate between the offhand remark and the well reasoned belief of an "expert" in science?

The time has come when those interested in the dignity of science should protest, wherever it seems desirable, against any semblance of finality or any assumption of authority in unwarranted statements of those who trade on scientific investigations. When we hear the enthusiastic advertiser say that "fish is a brain food" or that his suction device will "grow hair" on a bald head or that electric belts will prevent an attack of rheumatism, let us soundly berate him. Let us not overlook the more subtle forms of questionable information such as recently appeared in the alleged remarks of a president of one of the prosperous medical cults. Attacking what he termed "food drunkards," he was quoted widely as saying:

> The American diet of bread and meat and potatoes, topped off with sweets, is the cause of more spinal curvature and joint deformation than any other one thing. If congress would place a tax of a dollar a pound on sugar, the national health would show an immediate improvement. As for bread and meat and potatoes, they are too heavy and concentrated, and form clinkers in the system.

It is, of course, true that bread and meat are "concentrated foods" when compared with fruits and vegetables in general. However, few foods in the entire dietary of man show as high a coefficient of digestibility as do the items which the "drugless" food "expert" has so glibly condemned. What, then, is meant by "clinkers in the system" in the case of these foods? Surely not indigestible residues. Studies in nutrition belie such an answer. Or are there perhaps "clinkers" in the metabolism—some half oxidized fragment of an amino-acid or glucose? Scientific reasoning fails here when the unmeaning analogy of the cellar furnace is used to conjure with before an audience that understands the firebox of iron and clay only. Bread, the backbone of our national dietary, produces physiologic clinkers? Bosh! And, yet, a little physiologic knowledge is a dangerous thing—in the hands of a clinker expert.

RESPIRATORY CHANGES AT HIGH ALTITUDES

The study of the physiology of altitude has unquestionably received a great impetus from progress in ballooning and aviation. Only a few years ago it was primarily the mountain climber and the resident of mountainous regions who awakened an interest in the changes of bodily functions associated with lowered barometric pressure. It gradually became apparent that man's ability to grapple with altitude in something more than an amateurish fashion depended on learning with precision what his handicaps are in the upper reaches of the atmosphere. The menace of mountain sickness long remained a puzzle. When its analogue in the form of mal des aviateurs—aviator's sickness—came into notice, the need of physiologic knowledge was emphasized more than ever. The conquest of the highest peak of the Himalayas or an ascent of more than five miles upward in an aeroplane are to be rated as physiologic achievements quite as much as physical successes. What are some of the conditions that must be encountered?

Foremost has long been recognized the relative shortage of oxygen experienced with the falling barometric pressure. In response to this, changes occur in the oxygen-carrying capacity of the blood. The number of red corpuscles in the circulating medium is promptly increased as an obvious adaptive response. There are altered behaviors in other aspects of the circulation. Respiration is also modified under conditions of lowered oxygen pressure. With respect to the gaseous metabolism at high altitudes, opinions have not been entirely concordant. It is highly important to establish the truth about the respiratory exchange, however, because it will tell us something of the conditions attending physical activity in rarefied atmospheres. Professor Schneider[1] of the School of Aviation Medicine at Mitchell Field, Long Island, has recently reported his numerous observations on men both at rest and at work during a period of acclimatization on Pike's Peak, at an altitude of 14,110 feet. These studies show that physical exertion caused a higher rate of metabolism than was normal for low altitudes, during the first days of residence at the high altitude. There were individual differences in the amount of increase and in the time that the heightened metabolism persisted. The results thus indicate that, during the first part of a sojourn at a high altitude, physical exertion may be more costly to the body than at a low altitude or than it will be later on at the high altitude. However, as acclimatization occurs, the gaseous metabolism, which is an expression of the exchange of energy, usually returns to, or almost to, the low altitude level. In some individuals this return is made more slowly than in others. Usually from one to three days suffices at the height of Pike's Peak. The conclusion that there is no profound change in the gaseous metabolism at the high altitude is supported by the fact that the respiratory quotient is not definitely altered by residence there.

It is now generally admitted that a foremost factor in the causation of mountain sickness is the lack of oxygen. This has not satisfied all investigators, however, as an adequate explanation of the entire phenomenon. Physiologists of note have asserted that lack of acid or an undue proportion of alkalis in the blood is a contributive, if not a dominant, factor. Barcroft,[2] for example, believes that the vomiting center is stimulated by the lack of acid in the blood when mountain sickness is induced by the action of want of oxygen on the brain. Haldane and his collaborators in England, and Sundstroem, Henderson and Haggard in this country, find in alkalosis a probable explanation of some of the symptoms. For these students of the subject, acclimatization would presumably consist in the excretion of the excess of alkali from the blood. Schneider's experience, on the other hand, fortified by many analyses of the alveolar air of his subjects on Pike's Peak, leads to the conclusion that some men are more tolerant of low oxygen than are others, and that mountain sickness is more closely associated with oxygen want than with an alkalosis of the blood. Indeed, he doubts whether the latter is an important causative factor. Mountain sickness was found to be most severe in the physically unfit, and to be associated with a low alveolar oxygen tension. Hence, those who aspire to reach great heights must truly cultivate fitness of body.

Current Comment

CONNECTICUT SEES THE LIGHT

Governor Templeton of Connecticut has rendered a praiseworthy service recently in vetoing two bills relating to the treatment of disease and injury. One bill undertook to validate some twenty licenses to practice medicine, which had been found to be void because based on unlawful certifications by the Connecticut Eclectic Medical Examining Board. The other created a commission to pass on the moral and educational qualifications of persons applying for licenses, and to report to the general assembly in 1925 on the status of medical legislation, with suggestions for such changes or codification as the commission might deem proper. The bill to validate the void licenses was briefly disposed of in the governor's enlightened veto message as follows:

> It is admitted that the eclectic board approved these names in violation of law. . . . True, the particular eclectic board which took this action is worthy of censure, but that does not justify receiving as doctors persons who are not qualified. The public should be considered first in the matter. These persons knew that they were taking chances when they went to an inferior school and received an easy diploma. At all events, I feel bound to protect the public, however much I may regret inconveniencing these individuals.

The bill creating a commission to act as a preliminary examining board and to report on the legislative needs of the state was meritorious in the ends it sought to accomplish, but defective in the method through which it sought to attain them; for a fatal error was made in defining the personnel of the commission, which was to be made up of a physician, a homeopathic physician, an eclectic physician, an osteopath, a chiropractor, a naturopath and five laymen. Pointing out the incongruity between the qualifications of this commission and the functions it was to perform, Governor Templeton said:

> To this commission the bill gives power not only to recommend new law, but actual and sweeping power over the admission of applicants. . . . These are very large powers to place in the hands of five laymen, however competent, and of six professional men of whom three are in theory opposed to the use of medicine. . . . This bill might force those schools (which insist on a high standard of education) to accept lower standards or different standards, and deprive the sick of even that insufficient protection which the Connecticut law now affords. And the public ought to be considered in the matter.

The physicians of Connecticut compare favorably with those found elsewhere. Yet it has long been recognized that, because of inadequate protective laws, Connecticut has become one of the sloughs into which float the spawn of the most notorious proprietary medical colleges in the country and other medical and pseudomedical riffraff. It is to be regretted, therefore, that the details of the bill to improve the situation were not better thought out; nevertheless the governor is to be commended for his insight and courage in exposing the flaw in it and in forestalling its operation. Doubtless he can still attain the main object of the bill by appointing on his own initiative a commission of representative citizens to report such changes in the laws of the state as may be deemed necessary, and with its advice the governor can recommend to the next general assembly the enactment of whatever legislation may be necessary to safeguard the health of the people against incompetence and quackery. Let us hope he will do so.

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[1] Schneider, E. C.: The Respiration Exchange and Alveolar Air Changes in Man at High Altitudes, Am. J. Physiol. **65**: 107 (June) 1923.

[2] Barcroft, J.: Respiratory Function of the Blood, Cambridge, 1914.

CARBONATED WATERS

A press sheet just received, issued by the Publicity Bureau of the American Bottlers of Carbonated Beverages, is a plea for the giving of soft drinks to young children and an attempt to combat "a prejudice held by some persons" against this product:

> Carbon dioxid, used in the manufacture of carbonated beverages, long has been recognized as an aid to digestion and as having valuable germicidal qualities. A fact not so well known is that mother's milk also contains 10 per cent. carbonic gas by volume—proof that Nature realizes the health-giving qualities of CO_2.

Reasoning from the fact that mother's milk contains sugar, water and carbon dioxid, the inspired publicity man continues:

> Thus it is seen that three—and the main three—component parts of a carbonated beverage are in accordance with Nature's own formula for infant food. To these the manufacturer of carbonated beverages adds a fruit flavor with its vitamines and cell-building elements.

This paragraph and the one that follows are noteworthy not only for their absolute disregard of proved fact, but for their dangerous implied recommendations:

> A carbonated beverage is a food. It is recognized and regulated as such by law. An average bottle gives more food value than a slice of meat or a slice of bread—its energy immediately available with no tax on the digestion.

How preposterous that it should be necessary to advertise such a staple as ordinary soda water, not on its merit as a sweet, cool drink but as a stimulating, nourishing food substance! Is there no limit to the extent to which the public is to be deluded, misguided and exploited by uncontrolled and selfish commercial propaganda?

LIGHT THERAPY IN TETANY

Good results following exposure to light in the treatment of rickets have been duplicated by similar treatment in active infantile tetany. In 1920, Huldschinsky[1] treated six children suffering with tetany by means of ultraviolet rays, and reported that the symptoms disappeared in from four days to four weeks. Experiments performed by Howland and his associates in the department of pediatrics at the Johns Hopkins University have shown that the calcium concentration of the serum of children with rickets can be raised to the normal level by exposing the children to rays from the mercury vapor quartz lamp. It has also been shown that in cases of active infantile tetany the calcium concentration of the serum is uniformly low. Recently, Casparis and Kramer[2] of the same department exposed five children suffering with tetany to the rays from the mercury vapor quartz lamp. Clinical manifestations of tetany were present in each case, and three of the patients had had convulsions before admission to the hospital. They report briefly that the clinical manifestations disappeared in from three to seven days following exposure to the rays, and that the calcium concentration of the serum increased approximately to normal. As they point out, similar results may be obtained in tetany by the administration of large doses of calcium chlorid. However, such medication does not increase the concentration of inorganic phosphorus in the serum, whereas light treatment increases not only the calcium concentration but also that of phosphorus. If these experiences are confirmed, we shall have available a new, simple and effective means of treating tetany. Moreover, the striking systemic effect of these rays offers an explanation for other conditions in which the calcium metabolism seems to require stimulation. They may even indicate to some extent the manner in which exposure to light effects healing of tuberculous lesions.

OXYGEN AND METABOLISM

The word oxygen has long been endowed with unique vitalizing significance in its popular appreciation. For the layman, as for the physiologist, the intake of oxygen spells the very breath of life; and not without propriety. Since the days of Priestley and Lavoisier a century ago, the importance of this gaseous constituent of the atmosphere has gained proper recognition in its relation to the processes of life. To the untutored, oxygen is merely a word to conjure with; it represents the essence of some power that stimulates and vivifies man, so that one often hears of the desirability of "getting plenty of pure oxygen" into one's lungs. The implication that some product or some procedure will supply more oxygen is likely to make an appeal to the seeker of health. It is, of course, eminently true that oxygen is a promoter of physiologic well being. The lack of oxygen, as it is found, for example, at high altitudes or in disease conditions in which respiration becomes seriously impaired, may be attended by distressing consequences. Enough oxygen is always required to permit the metabolism to proceed in a normal manner. Given a soundly functioning organism, it is obvious from all human experience that the "sea of oxygen in which we are bathed" suffices to meet the physiologic needs. Nevertheless, there is an impression abroad among many that oxygen is a "stimulant" or "energizer" of such wholesome potency that a large dose is likely to prove a veritable blessing. This popular conception involves a belief that oxygen is the cause of metabolism, whereas modern physiology since the days of Carl Voit has clearly demonstrated that, in reality, the degree or extent of metabolism going on—the transformation of matter—determines the need of oxygen. Several years ago, Benedict and Higgins[1] of the Nutrition Laboratory of the Carnegie Institution of Washington, at Boston, examined carefully the effect of the inhalation of oxygen on the metabolism of man. They concluded that, as indicated by the gaseous exchange, the breathing of mixtures containing 40, 60 and even 90 per cent. of oxygen does not alter the basal metabolism of normal persons. And now Meyer[2] of the School of Hygiene and Public Health at the Johns Hopkins University has made tests on animals under exposure to pure oxygen at atmospheric pressure without detecting any demonstrable change in the metabolism. It is time to teach the public that there is a limit to the degree to which man can be successfully "oxygenated."

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[1] Huldschinsky, K.: Die Beeinflussung der Tetanie durch Ultraviolettlicht, Ztschr. f. Kinderh. **26**: 207-214, 1920.

[2] Casparis, Horton; and Kramer, Benjamin: The Treatment of Active Infantile Tetany with Radiations from the Mercury Vapor Quartz Lamp, Bull. Johns Hopkins Hosp. **34**: 219 (July) 1923.

VITAMINS AND EXERCISE

The lack of positive knowledge regarding those more recently recognized dietary essentials described as vitamins is annoying to students of nutrition, who are continually being importuned to explain the physiologic functions of these food factors. Although various pathologic manifestations of a fairly specific sort are now recognized as indications of deficiency of one or another of the vitamins, it by no means follows that the phenomena of shortage of the latter will give an answer to the question of their normal actions in the organism. To assume that they "promote" some ill-defined process—that they stimulate growth or metabolism—is at present largely an excursion into the domain of conjecture. There is as yet no positive evidence that any of the known vitamins excite the secretory glands to action, although it would appear that vitamin B, at least, is concerned with the appetite. Somehow the impression has gone abroad that vitamins are concerned with muscular efficiency in that the ill effects of lack of these dietary essentials are more severe or appear earlier in both animals and human subjects under the strain of muscular exercise than in comparable subjects at rest. The well-known vitamin report of the British Medical Research Committee[3] actually states that "whilst there is as yet practically no experimental evidence on this point there are indications based on human experience that the demand for the three accessory factors is greater when work is being accomplished." Recently, however, Keith and Mitchell[4] of the University of Illinois have compared the condition and the weight changes of exercised and unexercised animals on rations deficient in vitamin A or vitamin B, other conditions being kept as nearly uniform as possible. As regards vitamin B, no clear evidence was obtained that the amount and type of muscular work imposed affected the dietary requirement for this factor. On the other hand, vigorous exercise did hasten the appearance of symptoms of deficiency in vitamin A and hastened the death of young animals receiving insufficient amounts of this vitamin. Keith and Mitchell venture the conclusion that muscular exercise or some condition contingent on it increases the demand for vitamin A, and they believe that the latter is involved in the metabolism incident to increased activity of the voluntary muscles. The fact that exercise may increase the susceptibility to the ill effects of the lack of vitamin A seems demonstrated; but beyond this we cannot follow the Illinois investigators until more cogent evidence of the concern of muscular metabolism with vitamin functions is forthcoming. The prospect of discovering a new "pep" in the category of vitamins is too alluring—to the nostrum promoter—to warrant the acceptance of any uncertain indications in these days of limitless propaganda.

Association News

MEETINGS OF THE BOARD OF TRUSTEES

The Board of Trustees of the American Medical Association met at the Palace Hotel, San Francisco, at 4 p. m., Saturday, June 23, and meetings were held daily until after the final adjournment of the House of Delegates.

The following, among other business, was transacted:

Pathologists Protest Against Advertising of Commercial Laboratories in The Journal

A protest from the American Society of Clinical Pathologists in regard to the advertisement of commercial laboratories in The Journal was presented to the Board at its first meeting. It was voted to postpone action, however, until representatives of the society presenting the protest could be present. The matter was again brought up at the meeting of the Board held in the Civic Center Auditorium at 3 p. m., June 26. A committee consisting of Dr. Philip Hillkowitz, president; Dr. William C. MacCarty, vice president, and Dr. E. A. Victors, a member of the American Society of Clinical Pathologists, was present. The protest, with arguments, was presented to the Board by Dr. MacCarty, and was discussed at length by members of the Board and by Drs. Fishbein and West. Dr. Hillkowitz objected to any kind of advertising of commercial laboratories appearing in The Journal, while Dr. MacCarty expressed the opinion that advertising of such laboratories would not be objectionable if the fees for work done and the names of consultants were not mentioned. Attention was called to a quarter-page, boldly printed announcement of Dr. Hillkowitz' laboratory in *Colorado Medicine*, as representing what is asked by the clinical pathologists. The chairman of the Board inquired as to whether the members of the committee did their own laboratory work, and stated that he knew from personal observation that some laboratories conducted by clinical pathologists employ lay technicians to do most of the work. Dr. Hillkowitz replied that they supervise all of the work done in their laboratories. After the committee had retired, the Board discussed the subject fully and decided to refer the matter, and that of the advertisement of baby foods, to the Executive Committee of the Board, with the understanding that that committee should continue to act in an advisory capacity to the committee on advertising at headquarters for an indefinite period.

Gorgas Memorial

A communication was received from Dr. Franklin H. Martin relative to the reorganization of the board of trustees of the Gorgas Memorial, and the Board was informed that Dr. Martin desired to present the plans of the reorganization to the House of Delegates. It was moved that Trustee Richardson be requested to secure an opportunity for Dr. Martin to appear before the House of Delegates if possible (J. A. M. A. **81**:40 [July 7] 1923).

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1. Benedict, F. G., and Higgins, H.: Am. J. Physiol. **27**: 1, 1911.
2. Meyer, A. L.: The Effect on the Metabolism of Breathing Pure Oxygen at a Pressure of One Atmosphere, Am. J. Physiol. **65**: 148 (June 1) 1923.
3. Special Report 38, Medical Research Committee, National Health Insurance, 1919, p. 51.
4. Keith, M. Helen, and Mitchell, H. H.: The Effect of Exercise on Vitamin Requirements, Am. J. Physiol. **65**: 128 (June 1) 1923.

Veterans' Bureau

The Secretary of the Association called attention to a communication from the U. S. Veterans' Bureau (J. A. M. A., **80**:1914 [June 30] 1923), and stated that Dr. H. C. Watts of San Francisco, a representative of that bureau, desired to appear before the Board on the subject, viz.: the official representation of the Veterans' Bureau in the House of Delegates. Dr. Watts appeared before the Board and presented the matter. Incidentally, the question of the bureau's policy in training disabled soldiers in chiropractic was discussed. It was agreed that the representative of the Veterans' Bureau attempt to secure from the director of the bureau a statement in regard to the adopted policy in the education and training of disabled veterans in chiropractic. A report was prepared for presentation to the House to the effect that direct, official representation of the Veterans' Bureau in the House of Delegates would necessitate a change in the Constitution and was not advisable (J. A. M. A. **81**:39 [July 7] 1923).

On Thursday, June 28, a telegram was received from the director of the Veterans' Bureau, to be read to the House of Delegates (J. A. M. A. **81**:117 [July 14] 1923).

Advertising in Hygeia

President de Schweinitz presented a resolution from the Philadelphia Pediatric Society protesting against the advertisement of infant foods in *Hygeia* (J. A. M. A. **81**:36 [July 7] 1923). The subject was fully discussed, after which the Board directed that the Executive Committee determine this question, as well as other questions relating to advertisements in the publications of the Association, acting in an advisory capacity to the Committee on Advertising at headquarters.

Council on Health and Public Instruction

At the meeting of the Board at the Palace Hotel on the afternoon of June 25, Dr. Rankin, of the Council on Health and Public Instruction, appeared before the Board. He stated that, speaking for himself, he was of the opinion that the need for the Council on Health and Public Instruction no longer existed, since its functions on organization, on legislation and on medicolegal affairs have been distributed to other departments; and that hereafter the health activities of the Association would be conducted largely through *Hygeia*, and its proper conduct was, therefore, of vital importance. Dr. Rankin suggested that the responsibility for the publication of *Hygeia* should be placed on the Board of Trustees. After discussion of the matter, the Board approved and adopted resolutions favoring the proposition made by Dr. Rankin (J. A. M. A. **81**:40 [July 7] 1923). At a later and final meeting of the Board, the matter was brought up and emphasis was laid on the imperative need of the early organization of the Bureau on Health and Public Instruction at headquarters, as authorized by the House of Delegates. Attention was called to the fact that the establishment of such a bureau at headquarters implied the appointment of an executive secretary of the bureau and an editor of *Hygeia*. The Board directed that the Executive Committee and the General Manager make surveys and investigations necessary to the proper organization of the bureau and the selection of a qualified editor of *Hygeia*.

Special Journal on Diseases of the Ear, Nose and Throat

A petition was received, signed by the majority of the members of the Section on Laryngology, Otology and Rhinology, dated June 27, 1923, requesting the Board to establish a special monthly journal devoted to diseases of the ear, nose and throat.

Final Meeting

The final meeting of the Board was held at the Civic Center Auditorium at 5:30 p. m. Thursday, after the adjournment of the House of Delegates. The meeting was called to order by Dr. Dowling, and Dr. J. H. J. Upham was introduced as the newly elected member. All the members of the Board were present; also the President, Dr. Wilbur; and the Speaker of the House, Dr. Warnshuis. The Board proceeded to the matter of reorganization, which resulted in the election of Dr. Wendell C. Phillips as chairman, Dr. Thomas McDavitt as vice chairman, and Dr. Frank Billings as secretary. The chairman appointed Drs. D. Chester Brown (chairman), J. H. J. Upham and Frank Billings to constitute the Committee on Scientific Exhibit. He also named as the Executive Committee for the ensuing year Drs. A. R. Mitchell, Charles W. Richardson and Frank Billings.

Appreciation of Services of Dr. Sarles

The Board passed a resolution expressing deep appreciation for the splendid service rendered by Dr. Sarles to the Association during his fifteen years of trusteeship, for his universal courtesy, and for his splendid judgment in the discussion and disposal of matters brought before the Board, and expressed the regret of the Board in the termination of this long and pleasant association with him.

The Board unanimously adopted a resolution, to be formulated by the secretary of the Board, indicating appreciation of the splendid work accomplished by Dr. W. E. Musgrave, chairman, and the other members of the Local Committee of Arrangements.

Frank Billings,
Secretary, Board of Trustees.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

CALIFORNIA

Society News.—The following officers were elected, June 23, at the eleventh annual meeting of the Pacific Coast Oto-Ophthalmological Society at Los Angeles: Dr. Frederick A. Kiehle, Portland, Ore., president; Drs. Arthur C. Jones, Boise, Idaho, and Ronald A. Green, Spokane, Wash., vice presidents, and Dr. Clarence Benson Wood, Los Angeles, secretary-treasurer.

Hospital News.—The first wing of the permanent building for Fabiola hospital, Oakland, will be dedicated in October, it was recently announced. It will contain fifty beds, and will cost $250,000. Mrs. H. Spens Black has endowed one of the beds for $10,000.——A bond issue of $5,000,000 has been approved for the Department of Charities of Los Angeles County, three million of which will be spent on the Los Angeles County Hospital.

FLORIDA

Personal.—Dr. A. C. Hamblin, Tampa, has resigned as district health officer for the state board of health to accept the position of city health officer of Tampa.

GEORGIA

Medical Society Reorganized.—The Jefferson County Medical Society was reorganized, June 22. Dr. J. J. Pilcher, Wrens, was elected president, and Dr. W. B. Jordan, Bartow, secretary.

IDAHO

Hospital News.—The Wendell Inn, Wendell, has been taken over by the Benedictine Sisters, and will be remodeled as a hospital and a home for the aged.

ILLINOIS

Smallpox Quarantine Lifted.—The smallpox quarantine which had been in force for two weeks at St. Charles was lifted, June 30. The epidemic caused no deaths.

Health Officers Dismissed.—Twenty-one district health officers of the state were dismissed, June 30, by Dr. Isaac D. Rawlings, director of the department of health, it is reported, on account of a reduction in the appropriation for these officers from $80,000 to $30,000. Seven of the twenty-one, it is said, will be reemployed.

Health Examination Campaign.—At the suggestion of the National Health Council, the state department of public health has initiated a movement for a state-wide campaign to stimulate frequent physical examinations. A half dozen agencies, including the medical society, Red Cross and tuberculosis association, have been invited to an organization conference at Springfield in July.

Half Holiday for Physicians.—The physicians of Gibson City will close their offices on Thursday afternoons during July, August and September. The vacation schedule is so arranged, however, that not all physicians will be out of the city at the same time.

Physician Committed.—Dr. Alfred Stocker, Rock Island, was held to the grand jury, July 2, it is reported, charged with violation of the Harrison Narcotic Law. In default of the $3,000 bond fixed by the federal commissioner, Dr. Stocker was committed to jail.

"Doctor" Scott Jailed.—A. Scott, alias "Dr." A. Scott, Peoria, a negro, was placed in the county jail, recently, it is reported, on complaint of a patient for whom he prescribed without having a license to practice medicine. "Doctor" Scott, the report states, has been tried and convicted on the same charge on previous occasions.

Society News.—The seventy-fifth semiannual meeting of the Aesculapian Society of the Wabash Valley, composed of physicians of the cities of eastern Illinois and western Indiana, was held in Mattoon, May 31. Following the banquet, Dr. Zachary T. Baum, Paris, spoke on "Reminiscences of the Last Thirty Years in Medical Work."——At the annual meeting of the Lake County Medical Society at Libertyville, June 7, Dr. Morris J. Kaye, Waukegan, was elected president to succeed Dr. Louis B. Jolley, Waukegan, and Dr. Luther J. Osgood, Chicago, was elected secretary.

Measles.—During the first six months to 1923 there were about 30,000 more cases of measles reported to the state department of public health than for the same period last year. There was also an increase in pneumonia of 4,000 cases, while whooping-cough reports increased 2,000, and tuberculosis, 1,000. The increased registration of the latter, as well as slight increases for venereal diseases, is believed to be due to more complete reports rather than to an increased prevalence. Very definite declines marked the reporting of diphtheria, scarlet fever, smallpox and typhoid fever.

Eighth Annual Baby Conference Announced.—The state director of public health announces that plans have been completed for the Eighth Annual State Fair Better Babies Conference, to be held in Springfield, September 15. Applications for entry will be received between July 23 and September 7, all children in the state between 6 and 60 months being eligible for examination. No registration fee or other charge will be made. Complete mental and physical examinations will be given, and each child will be rated on the basis of a standard score card. The maximum capacity of the conference will probably be from 500 to 600.

An Advance in Social Hygiene.—A new state law provides for heavy fines and imprisonment for patrons, owners, lessors, proprietors or other persons directly influencing the operation of houses or quarters for prostitution. The standards of infectivity have been worked out by a committee consisting of Drs. W. A. Evans, Herman N. Bundesen and Louis Schmidt of Chicago. The first draft of the standards was written after visits to important clinics and eminent specialists. They were then sent to a number of physicians, and to state, provincial and large city health officers for criticism. The final draft has been turned over to the state director of public health. The standards of infectivity will be distributed in September.

Chicago

Hospital News.—The Illinois Home for the Aged Deaf, the first of its kind in Illinois, was dedicated, June 17, under the auspices of the Illinois Association of the Deaf.——An outpatient department for diabetes and nephritis has been instituted at St. Bernard's Hospital, with Dr. H. Leonard Bolen in charge. Arrangements have been made for beds for charity cases for treatment of diabetic conditions with insulin.

IOWA

Society Meets in Open.—The Fayette County Medical Society held its session at Donnan, June 29, on the lawn. Among other papers read was that of Dr. Howard Risk, Oelwein, on the early history of medicine in Fayette County. Dr. Jacob M. Schmittle, Waucoma, was elected president of the society, and Dr. John R. Wood, Wadena, vice president.

Personal.—Dr. Rodney Fagan, Des Moines, has been reappointed secretary of the state board of health for a term of five years, beginning July 1.——Dr. Lydia M. O'Harrow, assistant director of the student health department, Iowa University, Iowa City, has resigned to accept a position at Smith College, Northampton, Mass., in the department of physical education and health.——Dr. David N. Loose, Maquoketa, has been elected president of the Jackson County Public Health Association.——Dr. Clare V. Lawton, Kanawha, has been appointed resident physician at Mercy Hospital, Iowa City.

KANSAS

Personal.—Dr. Clive S. McGinnis, Parsons, it is reported, has succeeded Dr. Orton S. Hubbard as superintendent of the state hospital for epileptics.

Neglect of County Inmates Leads to Manslaughter Charges.—An investigation at the Butler County poor farm following the death of two aged inmates led to the filing of charges of manslaughter for the neglect of the county's dependents, it is reported, against two county commissioners, the county health officer, Dr. Fred A. Garvin, and the county physician, Dr. Ralph B. Earp.

LOUISIANA

Society Favors Restraining Marriage.—The house of delegates of the Louisiana State Medical Society went on record at the recent annual meeting as favoring a law that would restrain the insane, feebleminded, epileptic, or persons infected with venereal disease from marrying. A special committee was appointed to draw up a suitable law to that effect and to report back to the house at the 1924 session.

MARYLAND

Society News.—At the annual meeting of the Charles County Medical Society at La Plata, June 20, Dr. Thomas Carlyle Speake, Grayton, was elected president, and Dr. Samuel J. Fort, La Plata, secretary.

Preschool Child Clinic.—The child hygiene bureau of the state department of health will shortly establish a child hygiene clinic at Tilghman's Island, where a public health demonstration in the care of preschool children will be given. The demonstration, involving the physical examination of all children nearing school age whose parents consent to the test, and efforts to correct defects, covers a field almost untouched in Maryland counties, according to Dr. James H. Mason Knox, director of the bureau. Dr. Walter W. Palmer, county health officer, and Dr. J. R. Sudler, the only physician on the island, will cooperate in this work. Tilghman's Island is a typical rural community.

MASSACHUSETTS

Physician's License Revoked.—The Board of Registration in Medicine reports that the license to practice medicine and surgery of Dr. Walter B. Willey, Everett, was revoked, May 2, 1923, after he had been arrested for violation of the Prohibition Act.

Clinical Demonstrations During July.—There will be held during July in the amphitheater of the Peter Bent Brigham Hospital, Boston, a clinical demonstration of diabetic patients with particular reference to the use of insulin. All physicians are invited to these demonstrations, which take place between 10 and 11 a. m.

Personal.—Dr. David L. Edsall, Boston, has resigned from service at the Massachusetts General Hospital and as Jackson Professor of Clinical Medicine at Harvard Medical School, in order to be able to give more time to other school duties.——Dr. Homer Gage, Worcester, has retired after thirty-five years' service as surgeon to the Memorial Hospital.——Dr. Hugh G. Rowell, New Bedford, has been appointed lecturer in physical education and assistant physician in Teachers College, Columbia University College of Physicians and Surgeons, New York. He will begin his new duties in September.

MICHIGAN

Personal.—Dr. J. Earl McIntyre, Lansing, has been appointed a member of the Lansing Board of Health.——Dr. Glen L. Bellis, Manton, has been appointed superintendent of the Muirdale Sanitarium, Milwaukee, it is reported.

Veteran Dines County Physicians.—Dr. Henry A. Bishop, aged 73, for sixteen years postmaster at Millington, assisted by Dr. Wynne C. Garvin, the present postmaster, entertained at dinner, June 14, all the physicians and their wives of Tuscola County.

Physician Arraigned for Prescribing Narcotics.—Dr. A. Lee Smith, Detroit, was recently arraigned before United States Commissioner J. Stanley Hurd, charged with violation of the Harrison Narcotic Law, according to reports. Dr. Smith, it is alleged, prescribed narcotics in attempting to cure patients of the drug habit.

Statistics Sold by Health Department Employee.—An investigation in the near future probably will be made in all departments of the state, it is reported, in order to protect the public from further annoyance and to stop such petty graft as was recently discovered by Dr. Richard M. Olin of the state health department. It appears that tombstone manufacturers bought lists of deaths from a health department clerk, and sent agents or letters or both to relatives of the deceased to interest them in monuments. "Patent medicine" companies purchased from the clerk lists of births, then circularized the mothers to interest them in "baby foods" and medicines. Dr. Olin has turned over to the governor a report of his discovery. The clerk, it is said, earned more selling state records than he received in salary.

Reorganization of the Butterworth Hospital.—Reorganization of the staff of the Butterworth Hospital, Grand Rapids, preparatory to moving into the new building was completed, June 11, at a meeting of the board of trustees. The following appointments were announced: Chief of staff, Dr. Robert J. Hutchinson; vice chief of staff, Dr. George L. McBride; chief of surgery, Dr. Rowland F. Webb; vice chief of surgery, Dr. Ansel B. Smith; chief of medicine, Dr. Burton R. Corbus; vice chief of medicine, Dr. Abel J. Baker; chief of eye, ear, nose and throat, Dr. John R. Rogers; chief of obstetrics, Dr. Harrison S. Collisi; chief of pediatrics, Dr. Frederick J. Larned; chief of outpatient department, Dr. Frederick C. Warnshuis. The attending staff will be divided into five groups: medicine, surgery, obstetrics, pediatrics and eye, ear, nose and throat. It also will be divided into junior and senior groups.

MINNESOTA

County Commissioner May Authorize Hospital Admissions.—A law recently passed in Minnesota authorizes a county commissioner to sign a certificate admitting patients from his district to the University Hospital. The state and county will each pay half of the cost for the patient's care and treatment.

Medicinal Garden to be Transplanted.—The three acre tract on the University Campus which for thirty-one years has been a medicinal garden is near the site selected for the new memorial auditorium. The drug bearing plants which have attracted scientists from afar, and which have been a source of pride to university students, will be transported to another location.

MISSOURI

Personal.—Dr. J. J. Ertz, Marion, has been appointed chief of the Wichita health department to succeed Dr. M. O. Nyberg, now secretary of the state board of health.

NEW JERSEY

Typhoid Fever at Rockaway.—There were during May and June forty cases of typhoid fever at Rockaway, with three deaths.

Governor Appoints Consultants.—Governor Silzer has appointed the following board of physicians to act as advisers in matters pertaining to health, and as consultants with the state medical society: Dr. Arthur L. Smith, New Brunswick, chairman; Drs. Francis R. Haussling, Newark; \. Haines Lippincott, Camden; John J. Broderick, Jersey City, and John C. McCoy, Paterson.

NEW YORK

Chairman Public Health Council Appointed.—Dr. Simon Flexner of the Rockefeller Institute of Medical Research was appointed by Governor Smith, July 13, chairman of the Public Health Council, to succeed the late Dr. Hermann M. Biggs. Dr. Flexner has been a member of the council since its establishment.

Society News.—The Italian Medical Society gave its third annual dinner at Brooklyn, June 9. The society's first meeting was held in 1915, but the meetings were discontinued until 920, owing to the World War. Dr. Frank D. Jennings, Dr. Charles A. Gordon, Dr. Joseph A. Manzella and Dr. Joseph B. 'Episcopo gave addresses.

New Health Commissioner Appointed.—Dr. Matthias Nicoll, Jr., of Albany, was appointed by the governor, July 12, state commissioner of health, to succeed the late Dr. Herman M. Biggs. Dr. Nicoll has been with the state health department for eight years and has been deputy state health commissioner for the past four years.

Nassau Hospital Staff Reorganized.—Miss Katherine Hurley of South Acworth, N. H., has been appointed superintendent of the Nassau Hospital, Mineola, L. I., and with her appointment the medical and surgical staff of the hospital has been reorganized. The new staff consists of Drs. Benjamin W. Seaman, B. R. Allison, M. D. Lawrence, Arthur C. Martin, Richard Derby, Everett C. Jessup and Henry B. Smith.

Children's Hospital Service Extended.—The Children's Hospital Service, which has been in existence in New York state for several years, has been rapidly extended during the past year. This service, which offers relief to deserving children at special rates, is now available in 125 hospitals and dispensaries in eighty-five different localities throughout New York state. The New York state department of education urges school authorities to familiarize themselves with the service available in their particular localities, so that it may be utilized to give the best attention to school children.

Cornell's Traveling Fellowship.—A traveling fellowship in medicine has been established at the Cornell University Medical College for 1923-1924, amounting to $2,000. It is available for men and women who have graduated from Cornell within ten years or who are graduates of other medical colleges within ten years, and are now attached to the instructing staff of Cornell. Candidates must have completed a hospital internship or have engaged in laboratory training or research for two years after graduation. The fellowship has been awarded to Harold Edwin Himwich, who graduated in 1919.

A Law to Protect Dairymen.—A measure signed by the governor at the close of the recent legislature provides for the examination of glassware used to count bacteria in milk and cream. Officials of the experiment station at Geneva, N. Y., have been designated to make the examination of all pipets to be used in taking samples of milk or cream which pipets must conform to certain set standards. The new law aims to make bacterial counts more reliable. Purchasers of milk and cream, on the basis of bacterial content, are forbidden to use other than standard pipets passed as satisfactory by the experiment station authorities.

Veterans' Memorial Hospital.—Ground was broken, July 4, at Kings Park, Long Island, for the Veterans' Memorial Hospital, for which the state legislature has appropriated $1,500,000, and which will permit the concentration there of all the mentally disabled veterans of the state. The hospital has been designed to set a higher standard in the care and treatment of the insane. The buildings will be as nearly fireproof as possible; none will be more than two stories high; the lighting will be installed so as to avoid eye strain; heating will be done from a central power house. Most of the patients will be housed in cottages, each unit containing twenty-five beds. No dormitory will have more than twenty beds, and there will be a large number of single rooms. Recreation will be afforded in a gymnasium, an athletic field, a drill field for calisthenics and a modern assembly hall.

Physical Tests for School Children.—The state department of education made public, July 6, the results of the fourth annual state physical tests for children above the sixth grade in schools outside of New York City. The ratings were made by testing the ability to run, jump, throw and climb. The state is divided into six districts for the competitions. Comparison of this year's scores with those of past years shows a steady gain, which has been most marked in the case of girls. Reports indicate that more than 300,000 children were reached through these activities. Emblems are awarded to pupils who score 50 or more points in each event. This work has been very effective in interesting children in physical education. The plan should help train children to favor an annual health examination. The scores of each child are kept from year to year.

New York City

Physician Missing.—Dr. Julius Weinstein, it is reported, has been missing from his Brooklyn home since July 4. Dr. Weinstein had a nervous breakdown sixteen months ago.

Smallpox in Brooklyn.—Four cases of smallpox have developed among the negroes of Brooklyn in the Stuyvesant Heights district. The victims have all been sent to hospitals and are said to have a mild type of the disease.

Health Department Moves Diagnosis Station.—The Hospital Diagnosis Station, previously located at 128 Prince Street, was transferred to 505 Pearl Street and affiliated with the Corlears Tuberculosis Clinic, which is under the supervision of Dr. Edward L. Creeden. The station will be open Tuesdays, Thursdays and Saturdays from 2: 30 to 4: 30 p. m.

Summer Courses at Kings County Hospital.—The Department of Public Welfare announces a course in the treatment of fractures, Aug. 3-Sept. 30, 1923, on Mondays, Wednesdays and Fridays, from 11 a. m. to 12 m. There will also be a course in operative surgery, August 4-September 29. These courses will be under the direction of Dr. Joseph Tenopyr, and each will be limited to ten postgraduate students.

Personal.—Dr. William D. Cutter, Albany, has resigned as secretary of the state board of medical examiners to become dean of the New York Post-Graduate Medical School and Hospital, New York City.——At a meeting of the council of the University of Strasbourg, May 24, the honorary degree of doctor of the University of Strasbourg was conferred on Dr. Simon Flexner, director of the Rockefeller Institute for Medical Research, New York.——Dr. Clarence C. Burlingame is the new executive officer of the combined Presbyterian Hospital and the Medical Department of Columbia University, with the title of executive vice president. Dr. Charles H. Young, former superintendent of the Presbyterian Hospital, is now head of the Hospital of the Good Shepherd, Syracuse.

NORTH CAROLINA

Personal.—Dr. Everett A. Lockett, Winston-Salem, was recently appointed county physician.

Increase in Diphtheria Investigated. — Unable to explain the alarming increase in the number of cases of diphtheria in the state despite constant activity by the state department of health to lower the incidence, State Officer Rankin has written to every physician in the state, it is reported, asking cooperation to determine the cause. From 1919 to 1922 the number of cases increased from 3,519 to 8,136. It has been noted during this period that the number of cases steadily increases from August until December, when it starts to decline.

NORTH DAKOTA

Fargo Health Officer Appointed.—Dr. Burton K. Kilbourne, Topeka, Kan., was recently appointed health officer of Fargo. The American Child Health Association, which is conducting a health demonstration at Fargo, will bear the expense of this new office until September 1, when the commission will assume the expense for one year.

OHIO

Child Health Stations.—The Cincinnati health department will soon open six child health stations. A physician and a nurse will be in attendance at each station. Special attention will be given children of preschool age and infants.

Chiropractor Loses Appeal.—The Court of Appeals, Cleveland, June 30, upheld the chief justice in the municipal court in the conviction of Albert J. Schnacke, chiropractor, for practicing without a license, according to reports. Schnacke was the only one of a score of other chiropractors recently convicted in municipal court who appealed his case; the others were fined $25 each, but chose to go to jail.

Health Examination Conference.—Plans for a state-wide campaign to encourage periodic health examinations were made at a conference at Columbus, June 22, at which, among others, representatives from the following organizations were present: the state federation of labor, manufacturers' association, American Legion, Ohio Farm Bureau Federation, state medical association, and Ohio Public Health Association. Dr. John E. Monger, state director of health, was elected chairman of the campaign committee. The campaign, which will be educational, will be conducted under the direction of the state department of health in cooperation with the Ohio Public Health Association and other affiliated bodies.

Personal. — Dr. George M. Guest, Cincinnati, has been appointed a fellow of the Commission for the Relief of Belgium Educational Foundation of New York and will spend a year in research study at the University of Belgium. ——Dr. John D. Boylan, for three and a half years health commissioner of Mahoning County, has resigned to enter private practice about September 1.—Dr. Mifflin B. Brady has been appointed a member of the Cincinnati board of health to fill the unexpired term of the late Dr. George A. Fackler.——Dr. David J. Wolfstein, professor of psychiatry, University of Cincinnati College of Medicine, has resigned, it is reported. Dr. Wolfstein has been identified with medical education in Cincinnati since 1894.

OKLAHOMA

Tulsa Adopts Health Measures.—On the recommendation of the superintendent of health, the city commission appointed, July 3, an active board of health as follows: Drs. Albert W. Pigford, Arthur V. Emerson, Thomas W. Stallings, Clarence S. Summers, and Irenaeus N. Tucker. The commission also amended the milk ordinance to require that every cow whose milk is sold in the city must have a tuberculin test annually; the collection of milk bottles by junk dealers for resale to persons engaged in selling milk was prohibited.

OREGON

Personal.—Dr. Frederick O. Stricker, state health officer, was elected president of the Pacific Coast Health Officers' Association at the meeting recently held in San Francisco.

PENNSYLVANIA

Campaign for Health Examinations.—The state secretary of health called a meeting, June 21, at Harrisburg, to organize an educational campaign to encourage annual health examinations. Dr. Charles Miner, state secretary of health, introduced, among others, the following speakers: Dr. Edward Martin, Philadelphia, chairman of the Committee on Public Relations of the state medical society; Dr. Elizabeth Bricker, Harrisburg, of the Department of Labor and Industry; Dr. Howard C. Frontz, Huntingdon, president-elect of the state medical society. Dr. Miner was empowered to appoint an executive committee of five to formulate detailed plans and to report to the general committee.

Philadelphia

Club Founds Hospital Bed.—The Poor Richard Club of this city has founded a bed in the American Hospital in Brussels, to be known as "The Poor Richard Club Bed."

Woman's Medical College Appointments.—The following appointments have been made to the teaching staff of the Woman's Medical College of Pennsylvania: Dr. George M. Dorrance, on the staff of the University of Pennsylvania Hospital to the chair of surgery; Dr. Joseph C. Doane, medical director of the Philadelphia General Hospital, to be clinical professor of medicine; Dr. Elizabeth Dixon Wilson, to be director of laboratory hospital work, and Dr. H. Evert Kendig, to the chair of pharmacology and materia medica.

Congestion a Menace to Health.—Migration of Southern negroes to this city in record breaking numbers has produced a serious health menace from overcrowding and inadequate housing, according to a recent survey by a committee representing the Armstrong Association, the Mercy Hospital (both colored institutions), Travelers' Aid Society and the Philadelphia Housing Association. Approximately 10,500 negroes, or about one-third the total number of newcomers in this city in one year, arrived here between July 1, 1922, and June 30 of this year. Families are going into premises already occupied, either as householders in one or two rooms, or as lodgers. A single room in West Philadelphia, which had neither yard nor toilet, was occupied by sixteen persons. Within seven months, medical inspectors have quarantined forty-two different districts and vaccinated residents. Every one of the smallpox cases found in these districts was a negro who had recently arrived from the South. In one house, it is said, occupied by thirty-eight recent arrivals, seven cases were found.

SOUTH CAROLINA

Infant Welfare Campaign.—The state board of health and the county medical society are cooperating in a two months' infant welfare campaign which was recently started in Abbeville County. The campaign will be educational and preventive.

Abrams' Followers to Be Expelled.—The Barnwell County Medical Society adopted resolutions, May 30, it is reported, to expel all members who now or may in the future practice the Abrams methods. Barnwell, it is said, is the pioneer county in the state to disown the Abrams disciples.

SOUTH DAKOTA

Personal.—Governor McMaster has appointed Dr. Alfred Hennings, Kadoka, health officer of Washabaugh County.——Dr. W. G. Magee, Watertown, has been appointed county coroner for the unexpired term of H. O. Haroldson, who has moved to Minot, North Dakota.

TEXAS

Hospital News.—The war memorial hospital of the Woodmen of the World, San Antonio, was dedicated, July 4.

State Board Appointed.—Governor Neff recently announced the appointment of a state board of health to be composed of the following members: Drs. Murff Franklin Bledsoe, Port Arthur; Albert Fitzhugh Beverly, Austin; Wm. F. Holland, Santa Anna; Frank Lafayette Paschal, San Antonio; Arthur Carroll Scott, Temple, and Thomas B. Fisher, Dallas.

WASHINGTON

Personal.—Dr. Edward L. Brinson has been appointed health officer of Whatcom County, to succeed Dr. Fred V. Shute, whose term expired July 1.——Dr. John T. Coleman, Chehalis, has been reappointed county health officer by the board of county commissioners.

WISCONSIN

Law Makers Deadlocked on Medical Bills.—By a vote of 52 to 24, the assembly recently killed the Benfry bill which required all who practice medicine to submit proof of adequate preparation, and which conformed with a recent decision of the supreme court. The senate recently killed a bill introduced by chiropractors, it is said, which would allow them to sign health reports and death certificates and to treat contagious diseases. The deadlock between the two houses resulted in no new legislation affecting the medical practice act.

CANADA

Public Health News.—According to a recent bulletin, the health of Ontario province for May, 1923, was about on a par with that of May, 1922, with the exception of a marked decrease in the number of cases of smallpox and an increase in scarlet fever. There was also an increase of 198 cases of measles, the month's total being 2,359.

Hospital Notes.—Plans have been completed for a $600,000 addition to the Hospital General St. Vincent de Paul, Sherbrooke.——An addition will be made to the Lady Grey Hospital, Ottawa, in the near future.——A new $40,000 Catholic hospital will be erected at St. Paul des Metis, Alberta. It will be a one-story frame structure.——Construction work has been started on the $40,000 addition to Moose Jaw General Hospital, Moose Jaw. Plans call for a three-story building of brick construction.——A four-story building will be added to the Salvation Army Hospital at Winnipeg.

Banting's Recognition by Canada a Precedent.—Recognition by the Canadian government of Dr. Frederick G. Banting with an unconditional annuity of $7,500 a year constitutes a precedent for Canada, it is reported, and for many other nations in the way of reward for scientific achievement. The ederal government's annuity is in addition, it is said, to the provision recently made by the Ontario legislature, which provided $10,000 a year for a department of research in the University of Toronto, the chair to be known as the Banting-Best Chair of Research. By an understanding with the overnment, Dr. Banting has been appointed the first incument in this position, with a salary of $6,000, thus making in ll an assured income of $13,500.

GENERAL

Society News.—At the recent meeting of the American anatorium Association, at Santa Barbara, Calif., the following officers were elected: Dr. J. W. Pettit, Ottawa, Ill., presient; Dr. F. M. Pottenger, Monrovia, Calif., vice president; Dr. E. S. McSweeney, New York, secretary-treasurer.

Aid for Russian Physicians.—The Nansen Relief Mission as appealed for contributions and equipment to help the hysicians of Russia, among whom, it is said, there is a high eath rate, due to lack of food, overwork and exposure. Contributions should be sent to Nansen Relief Mission, Aid for Physicians in Russia, Dr. Gregory Stragnell, Treasurer, Madison Avenue, New York.

Embargo on Narcotics to Continue.—The Federal Narcotics ontrol Board recently announced that the embargo on the importation of narcotic drugs would continue until it was decided what disposition will be made of surplus army and navy supplies, which, it is said, are sufficient to stock up the manufacturers who are asking for permission to import these drugs.

Delegates to International Physiologic Congress Sail.—Among the delegates of the American Society for Experimental Biology at the eleventh international physiologic congress, to be held in Edinburgh, who sailed on the *Mongolia*, July 11, were Dr. Victor C. Myers, New York; Dr. Albert L. Stavely, Washington, D. C., and Drs. Leon Jonas and Arthur B. Light, Philadelphia.

Beer Not Medicinal.—The Assistant Secretary of the Treasury made public supplemental instructions to the Public Health Service, June 29, prohibiting the allowance of beer and malt liquors to liners for medicinal purposes. The order said that under Section 2 of the Act of Nov. 23, 1921 (Willis-Campbell Act) "only spiritous and vinous liquors may be prescribed for medicinal purposes in the United States all forms of beer and malt liquors being thus prohibited by exclusion."

Liquor Withdrawals. — The amount of tax-paid distilled spirits withdrawn in the three years since prohibition became effective has been about 75 per cent. less than the amount withdrawn in the three years immediately preceding prohibition. Records of withdrawals, according to Commissioner Haynes, for the present fiscal year have been (thus far) at a rate of only one third as much as that for the last fiscal year, which was approximately one third that of the previous year, 1921. For the ten months of the present fiscal year, 9,003,204 gallons of alcohol, high wines and cologne spirits were withdrawn, and 1,517,345 of whisky, gin and brandy.

Head of Bureau of Chemistry Appointed.—Announcement of the selection of Charles A. Browne, Ph.D., to head the Bureau of Chemistry, U. S. Department of Agriculture, has been made by Secretary Wallace. Dr. Browne succeeds Dr. Carl L. Alsberg, who resigned two years ago. Dr. Browne is a graduate of Williams College, and received the Ph.D. degree from the University of Göttingen in 1902. He has engaged in agricultural chemistry, but is noted especially for his researches on sugar. Since 1907 he has been in charge of the New York Sugar Trade Laboratory. He is author of a number of books and is associate editor of the *Journal of the American Chemical Society*.

Council of League of Nations Indorses Opium Report.—The Council of the League of Nations, Geneva, Switzerland, July 7, indorsed the report of the recent opium conference and adopted a resolution inviting the League's assembly to concur in realizing its aims. The report will be communicated at once to all state members of the league in order to enable their representatives at the forthcoming assembly to take such action as is necessary to make the recommendations effective. The Chinese delegate voiced the appreciation of his country for the efforts of the United States in this work. Lord Robert Cecil also praised America's efforts, and on his proposal, a unanimous vote of thanks to the United States government for sending a delegation to the opium conference was placed on the minutes.

Life Expectancy Gains.—Figures just made public by the Metropolitan Life Insurance Company for the registration area of the United States during 1921 show that the mortality rate was the lowest and life expectancy the greatest on record. At birth, the expected life span was 58.01 years, an increase of 3⅓ years over the figure for 1920. The average life span was extended more during 1921 than during the preceding ten years. The male population of the United States showed an increase of 4.11 years in life span; the female population, a gain of 3.99 years. Gains in life expectancy were most pronounced at the younger ages. The more favorable balance among males resulted almost entirely from the more rapid decline of the infant death rate for males. The indications, according to this report, are that the years 1922 and 1923 will exceed the 1921 record.

Provisional Birth and Mortality Figures: 1922.—The Department of Commerce announces that birth rates for 1922 were lower than for 1921 in all of the twenty-five states for which birth registration figures are available. The highest 1922 birth rate (34.4 per thousand) was in the cities of Wyoming; the lowest (16.5) in the rural districts of Connecticut. Death rates for 1922 were slightly higher than for 1921 in nineteen of the twenty-seven states having data. The highest 1922 death rate (21.8 per thousand) was in the cities of Mississippi and the lowest in the rural sections of Montana (7.4). The highest 1922 infant mortality rate (105) was in the cities of South Carolina and the lowest (55) in the rural districts of Nebraska. Infant mortality rates shown for both years for fifty-one cities of 100,000 people or more are lower in nineteen of those cities for 1922 than for 1921; the highest rate (107) is for Trenton; the lowest (50) for Seattle.

Churches Establish Clinics.—St. Marks-in-the-Bouwerie, New York, the church founded by Peter Stuyvesant, and the Plymouth Congregational Church, Seattle, have opened clinics for the treatment of disease. The former organization announced that physicians highly trained in medicine and psychiatry will conduct examinations of patients and offer such help as may be practicable. The plan constitutes, it is said, a complete cooperation between specialists in medicine and clergymen, and was instituted only after many conferences. The Rev. Mr. Crosby said, it is reported, that the plan "is against medical quackery of all sorts and it is against the quackery that sometimes hides under the name of faith healing in various stages of organization and various depths of charlatanism." The pastor of the church in Seattle announces, it is said, that the clinic "has no use for any occult philosophy or primitive supernaturalism or faith cure, but the best scientific knowledge which this generation has to offer. Five reputable physicians of the city, it is said, will conduct the clinic.

Information on Maternal Welfare Wanted.—The Committee on Maternal Welfare of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons desires accurate information on the progress each state is making in maternal welfare in order to formulate a report for the annual meeting in Philadelphia, in September. A preliminary program was published in the *American Journal of Obstetrics and Gynecology*, June, 1923, which may suggest an outline for national work among medical societies, departments of health and commissions of social workers. A brief synopsis of the results accomplished in each state and if possible a contrast of the record of the clinics or regions where patients have had pre-natal care with the statistics of the community in general where no supervision has been afforded prospective mothers are especially desired. These, it is planned, to incorporate in the completed survey to be presented to the association and to be published in the annual transactions later on. Such information will be gladly received by Dr. Henry Schwarz, St. Louis; Dr. George W. Kosmak, New York, or Dr. George Clark Mosher, chairman, Kansas City, Mo.

Fake Medical Schools Flood India with "Doctors."—The editor of the *Indian Medical Record* (June) writes at some length to warn his government and the public against the flood of "medical men" with questionable foreign degrees which has recently inundated Calcutta and other large Indian cities. He emphasizes the fact that many of these "degrees" come from schools not listed in the last educational number of The Journal, and calls for an explanation of that fact from the representatives of these schools in India. The "schools" questioned by the editor are: "The International Medical College," said to be affiliated with the Lincoln Jefferson University, 65 West Randolph Street, Chicago, Ill.; (2) "The Oriental University of Washington," and (3) "The International University of U. S. A." The editor reprints a letter signed by the principal of "The Oriental University of Washington" in which, as a special concession, a diploma (M.D.) is offered for Rs. 400. References are made to The Journal's educational number throughout the editor's letter, which concludes: "There are good universities in U. S. A. whose diplomas are held in high esteem throughout the world, and a list of which will be found in the educational number of The Journal of 1922. Any so-called university, the name of which does not appear in that list should be looked on with suspicion."

LATIN AMERICA

Personal.—Dr. W. F. Molina has been elected dean of the faculty of sciences, University of Lima; Dr. Manuel V. Villarán has been reelected president.

Argentine Prize Offered for Work on Hygiene.—The Argentine Medical Association has established the biennial Rawson prize of a gold medal and the interest on $5,300, to be awarded for the best unpublished work on hygiene presented in competition by physicians, students or professors residing in Argentina.

FOREIGN

Society News.—The ninety-first annual meeting of the British Medical Association will entertain as the guest of the July 24-27.

Veteran Editor to Be Entertained.—The Council of the British Medical Association will entertain as the guest of the evening at the council dinner, Oct. 24, 1923, Sir Dawson Williams, who has completed twenty-five years as editor of the *British Medical Journal*.

Pasteur Scholarships in Holland.—The organization, "Studiefonds Pasteur," recently formed, has for its purpose the provision of funds for young investigators of Holland who desire to complete their studies at the Pasteur Institute at Paris. Two scholarships are now available.

The Budde Memorial Laboratory in Copenhagen.—Dr. Vilh. Budde, who for many years was editor of the *Ugeskrift for Læger*, on his death bequeathed 250,000 kroner to the University of Copenhagen for an institute of hygiene. By the death of his widow, this sum has recently become available.

New Hospital for China.—The New South Manchurian Railway is erecting a three-story hospital of from six to eight units, which will accommodate about 300 patients. The hospital will be for the use of the Japanese as well as the Chinese people in South Manchuria. It will cost about 4,000,000 yen.

The German Council on Pharmacy and Chemistry.—The Arzneimittelprüfungsstelle has been recently organized as an attempt in Germany to supervise proprietary medicinal articles along the lines of the principles followed by the Council on Pharmacy and Chemistry of the American Medical Association. Our German exchanges state that there is an agitation under way to have veterinary articles included in the investigations of the council.

No Decline in Diphtheria in Swedish Cities.—Official statistics show that during the five-year period, 1890-1894, the city population in Sweden was 925,482, with 13,460 cases of diphtheria, or 29 cases per 10,000 inhabitants. During the period 1910-1914, there were 25,632 cases to a population of 1,444,617, or 35 per 10,000. During the period 1915-1919, the city population had increased to 1,635,666, and the cases of diphtheria and membranous croup to 42,743, or 52 per 10,000.

International Pure Food Laboratory of the League of Nations.—Our Paris exchanges mention the organization of the committee composed of delegates from the nations which signed the international convention relating to analysis of foodstuffs. Professor Bordas, the French delegate, presided. The delegate from Argentina was elected president of the committee. The laboratory is to be in charge of the director and subdirector of the central laboratory of the French ministry of agriculture.

Pensions for Aged Physicians.—The council of Epsom College will, in the near future, award several France pensions of £30 a year to medical men. The candidates must be at least 55 years of age, and their income, independent of any allowance from the college, must not exceed £100 a year. The council will also award one pension of £50 a year, for which there is no age limit. The candidates in this case must however be legally qualified medical men who have retired from professional work and who need the pension.

Pharmacy Board Disciplines Chemists.—The Cape Town Pharmacy Board, Cape Town, South Africa, recently dealt with the case of two chemists charged with having divulged the contents of prescriptions without the consent of the patients for whom they were written. After an exhaustive hearing, the chemists were found guilty of improper and unprofessional conduct. They were only cautioned however, as the board considered they believed the serving of a subpoena carried with it the legal obligation to give up prescriptions to the attorney serving the subpoena.

Medals of Society of Tropical Medicine and Hygiene.—At the annual meeting of the Royal Society of Tropical Medicine and Hygiene, London, England, June 21, the retiring president, Sir James Cantlie, presented a handsome chain and enameled badge to be worn by all future presidents of the society. The medallion, which bears an anopheles mosquito, with a cinchona leaf, is suspended from a gold chain whose links bear the names of past presidents of the society. The Patrick Manson medal was awarded to Surg. Gen. Sir David Bruce, and the Chalmers Memorial Medal to M. Emile Roubaud of the Pasteur Institute of Paris.

Medical Resources of Czechoslovakia.—Dr. K. Secher accompanied a party of forty-three physicians, guests of the government and the watering places, from the Scandinavian countries and Holland on a journey through the watering places of Czechoslovakia during the period from May 16-30. He writes to the *Ugeskrift for Læger* that the medical standards of that country may serve as patterns anywhere in the world. He refers especially to the private clinic of the Czech physicians at Prague and to its roentgen-ray installation, the radium content of the hot springs at Teplitz-Schoenau, the carbonated springs at Franzenbad and Marienthal, the radium baths of Joachimsthal and the hot sulphur springs of Teplice.

International Competition Offered by the Medical Institute of Valencia.—The prizes of the Instituto Médico Valenciano, Spain, for the next year, open to international competition, constitute diplomas of honorary fellowship. They are awarded to authors of the best works on "Early Diagnosis of Abdominal Lesions"; "Valuation of Clinical Signs which Indicate Urgent Surgical Intervention"; "Diagnosis and Treatment of Suppuration of the Hands"; "Critical Study of the Spanish Method of Surgical Treatment of Strabismus"; "Malaria in Valencia"; "Chemical Industries Possible in Valencia"; also one elective subject: "Any Subject Referring to Medical Science or Its Auxiliaries." The works presented may be written in Latin, German, English, French, Italian or Portuguese. They should be addressed to the Instituto Médico Valenciano, plaza de Wilson, 16, before Dec. 13, 1923, accompanied by a sealed envelope containing the name of the author.

Personal.—Dr. and Senator F. Huertas, Madrid, has been decorated by the government of Greece as commander of the Order of George I.——The seventieth birthday was recently celebrated of Prof. Adolf v. Strümpell, the Leipzig neurologist, whose name is familiar by his various signs and descriptions of polioencephalomyelitis and rhizomelic spondylosis. His textbook on internal medicine, published in 1883, has been translated into a number of foreign languages, among them Japanese and Turkish.——Dr. Euzière, professor of psychiatry, has been made dean of the medical faculty of Montpellier, the oldest university in France. Psychiatrics have also the honor of counting Dr. Jean Lépine, dean of the medical faculty of Lyon, among their numbers.——Prof. Alberto Ascoli, of the University of Modena, delivered the official commemorative address at the unveiling of the bronze bust raised to the honor of Carlo Moreschi at the front of the house where he was born.——Dr. J. Francisco Tello has been awarded the Achucarro prize for his work on neurogenesis. This prize was founded to honor the memory of Achúcarro, and is bestowed for eminent work on histology not only in Spain but in other countries. Although founded so recently, it has already been awarded three times. The recipients before Tello were Del Rio-Hortega in Spain and Marinesco in Roumania.——Dr. Cesar Chicote was appointed the delegate from Madrid to the Pasteur celebration at Strasbourg.——Sir William B. Leishman, London, and Professor and Senator Sanarelli were recently elected foreign corresponding members of the Académie de médecine at Paris. Sanarelli is director of the *Annali d'higiene*. Another member of the editorial staff, Prof. C. Gorini of the Agricultural College at Milan, has received a prize from the Académie des sciences at Paris for his works on physiology, and from the French Académie d'agriculture for his studies on lactic acid fermentation.

Deaths in Other Countries

Dr. **John Penn Milton**, Darvell, England, authority on tuberculosis, aged 51.——Dr. **J. Delpratt Harris**, Exeter, England, May 30, aged 73.——Dr. **Walter d'Este Emery**, Brighton, England, bacteriologist and serologist, June 19, aged 53.——Dr. **Carl J. With**, Copenhagen, formerly dermatologist at the Finsen Light Institute and assistant at the Fredericksberg Hospital, aged 45.——Dr. **Otto Naegeli**, Ermatingen, Switzerland, aged 79. Among his best known works is "Treatment of Neuralgia and Neuroses by Manual Procedures (*Handgriffe*)." These included means to arrest the spasm in whooping cough, and to arrest vomiting by pushing up the hyoid bone.——Dr. **Arturo Urcelay**, Merida, Mexico.——Dr. **Adolf Zeller**, chief surgeon of the Marienspital, Stuttgart, aged 69.——Dr. **Grellety**, consulting physician, Vichy, France.——Dr. **W. Harttung**, Breslau, dermatologist of the Allerheiligenspital, aged 65. He published a number of works on syphilis, gonorrhea and tuberculosis.——Dr. **Daspres**, chief surgeon of the hospital of Toulon.——Dr. **Gellé**, formerly vice president of the Société de biologie, Paris, aged 90.——Dr. **P. Gentit**, Paris, medical inspector general of the reserve corps, aged 78.——Dr. **V. Guillemet**, professor emeritus of gynecology, Nantes, aged 72.——Dr. **G. Siringo-Corvaja**, Naples, professor of chemistry at the Technical Institute, author of numerous scientific works.——Dr. **Carl Rosing-Hansen**, chief physician at the Skive Hospital, Denmark, aged 59.——Dr. **R. P. Rottger**, La Plata, Argentina, member of the legislature, known throughout his district as the *padre de los pobres*.——Dr. **T. Brünings**, Munich.

Foreign Letters

LONDON

(From Our Regular Correspondent)

June 30, 1923.

Memorial to Alfred Russell Wallace

A memorial portrait of Dr. Alfred Russell Wallace, the joint promulgator with Darwin of the doctrine of natural selection, has been unveiled at the Natural History Museum, South Kensington, by Sir Charles Sherrington, president of the Royal Society. The present year is the centenary of Wallace's birth. Standing by the statue of Darwin in the museum, Sir Charles said that the building was a fitting place for the portrait, for to its great collections Wallace had contributed largely from his expeditions in the Malay Archipelago. But he did more for that collection and for all collections of natural history throughout the world by contributing the fertile idea which gave them a new significance. Faced with the almost wasteful luxuriance of nature in the tropics, there arose in him the idea of "the struggle of existence" in relation to the origin of all that astounding manifoldness of feature that the world exhibits—the origin of species. The discovery of two great men, Darwin and Wallace, came at the same moment. This might have proved an embarrassment to one or the other, but it formed a bond of generous association between them, each striving to exalt the merits of the other.

Smallpox Epidemic

The fears, expressed from time to time in previous letters, that the neglect of vaccination in this country would result in an epidemic of smallpox, are at last being realized. Not only are outbreaks occurring in various places in England and Wales, but an epidemic has developed in Gloucester, where there are now 161 cases in the hospital. An unfortunate mistake was made in diagnosing the early cases as varicella, and this was not discovered until the ministry of health sent down an expert to inspect them. Gloucester is the home of the egregious Dr. Hadwen, the leader of the antivivisectionists and antivaccinators in this country, whose capacity for rhetoric and membership in the medical profession render his repetition of antivaccination fallacies a public danger. It is not surprising that only 10 per cent. of the babies in Gloucester have been vaccinated in the last three years and a large number of adults are unvaccinated. So far the vaccinated have escaped very lightly. Only one or two adults, who were vaccinated many years ago, and a youth of 18 have contracted the disease. An aerodrome has been converted into a temporary hospital, but the antivaccination propaganda has been so mischievous—Dr. Hadwen still maintaining that the epidemic is one of varicella—that patients have sometimes to be removed there by force, the first occasion in this country in which this has proved necessary. While the health authorities have opened vaccination stations and are making efforts to check the epidemic, Dr. Hadwen has become very active against what he is pleased to call "the vaccination hysteria." In his organ, the *Abolitionist*, he describes Gloucester as "the City of Dreadful Lies," because smallpox is said to be epidemic in it. He describes the people as being dragooned into an isolation hospital, established at a great waste of the ratepayers' money, because they are suffering from heat rashes. It is no wonder that the city councilors are incredulous at the reports of eminent experts sent down by the ministry of health to control the epidemic. Dr. Davison, assistant health officer of Birmingham, a very capable man, has been lent to the city and given administrative control. It seems that about 10 per cent. of the original cases were varicella, and the smallpox was at first mild. So far, no deaths have been reported. In a letter to the press, Dr. Wanklyn, health officer of the London County Council, says that our vulnerability to smallpox is now so great that, because of neglect of vaccination, 80 per cent. of us would probably take the disease. Outbreaks of smallpox are also occurring in the Rhondda Valley, in Nottinghamshire mining towns, at Cardiff.

Canada: Immigration; Medicine in the Courts

Prof. Dr. C. K. Clarke, professor of psychiatry in the University of Toronto, in the course of the Maudsley lecture, which he delivered in London, dealt with the question of immigration into Canada. He made a plea for the introduction of the best Nordic types. He did not want to see the country flooded by people of an inferior type. He said that Canadian public men were greatly influenced by American ideals and were following in the footsteps of Uncle Sam closely in the endeavor to rob Europe of its needy millions, with little attempt at sorting. The intelligent study of emigration, rather than immigration, was the essential thing in Canada today. The United States long ago discovered that Canada, as a whole, had been occupied by sturdy Nordic types, who were efficient and capable, and to the descendants of these they extended a warm welcome, with the result that Canada suffered by the loss of its best. To show the danger of unrestricted immigration, Clarke stated that 5,800 children were referred for examination to a national mental hygiene specialist. These were special cases, and 1,386 of the children were mentally subnormal to such a degree that they were incapable of acquiring an ordinary school education. Of this group, only 25 per cent. were Canadians; 33 per cent. were foreign born, and the remainder were children of immigrants who had recently arrived.

In passing to the relations between law and medicine in Canada, Clarke said that these were most unsatisfactory. Canadian judges were men of the highest type, and the legal profession was generally beyond suspicion. At the same time, the well advised psychiatrist hesitated long before appearing in court to give evidence in criminal cases. He realized that the dice were loaded against him, because the law had not awakened to the fact that mental disease was ordinarily a distinct entity, rather than an abstract something that could be explained by a few metaphysical or psychologic speculations. In murder cases, the McNaughton decision still worked overtime, and, if the law had been responsible for a large number of judicial murders in the case of crimes committed by insane or defective persons, it had not realized the responsibility. Perhaps medicine had not been without blame, as so many untrained and poorly qualified practitioners, without knowledge of psychiatry, had been willing to pose as experts and to air their ignorance before equally ignorant juries. Psychiatrists of the new school must force the issue, and the law must be taught that there are realms it cannot invade with success and do what it sets out to do—administer justice. Already the thin end of the wedge had been driven in, and in one of the Canadian juvenile courts, a psychiatrist advised the judge in all cases in which mental disease or mental defect might be suspected.

The Health of the Worker

At the Industrial Hygiene Section of the Congress of the Royal Institute of Public Health, which has just been held, Sir Thomas Oliver delivered an address on the "Health of the Worker as a National Asset." He pointed out that during the last few decades, the tendency had been in Great Britain toward a lengthening of the average span of human life. The crude death rate for 1921 was 12.1 per thousand as compared with 22.4 for the period from 1841 to 1850. The average age at death had risen, and to this circumstance preventive medicine, with improved social conditions, had materially contributed. Between 1838 and 1854, the expectation of life at birth was, for males, 40 years, and for females, 42 years; for 1921, it was 51 for males, and 55 for females. On the other hand, the life expectation of men at 45 was no better today than it was seventy years ago. If the British race was to improve in physique and add to its longevity, the greatest care should be taken of infant life, since it was in the early years that the foundation was laid on which the future had to be built. The examination of two and a half million men for the army during the war showed that only one out of every three reached the standard of fitness for military service. Physical unfitness was irregularly distributed throughout the country, which showed that it was correlated with occupation. Taking the different groups of men in Yorkshire between the ages of 18 and 25, it was found that 71.9 of the agriculturists were in Grade 1, 68.9 of the miners and 60.9 of the engineers, while in the woolen trade only 36.5, and of tailors, only 33.9 attained that grade. There had been a marked decline in tuberculosis in Great Britain. Sixty years ago its death rate was 3.3 per thousand of population, and in 1910 it was only 1.5.

PARIS

(From Our Regular Correspondent)

June 22, 1923.

Death of Dr. J. P. Langlois

Dr. Jean Paul Langlois, who was agrégé professor of physiology at the Faculté de médecine of Paris, has died, at the age of 62. Langlois was born in Paris, Aug. 2, 1862; he became doctor of medicine in 1887, and doctor of science in 1896. He was appointed agrégé professor of physiology in 1898, and, in 1908, he was made the head of the practical work in physiology. As a pupil and friend of Prof. Charles Richet, he at first worked along the lines in which his teacher had been most active, and furnished interesting contributions on animal heat and the regulatory mechanism of heat in the living organism. But his reputation as a physiologist rests mainly on two series of researches: on respiration and pulmonary circulation, and on the functions of the suprarenal capsules, which he began in collaboration with Abelous, now dean of the faculty of medicine at Toulouse, and which he continued alone for several years. Since 1908, Langlois had devoted himself to the study of the physiology of work and of industrial hygiene (including work in the air, in mines, etc.). For a number of years he was professor of hygiene and industrial organization in the Conservatoire des arts et métiers. When, in 1919, a new course in physiology as applied to physical education was organized at the Faculté de médecine of Paris, Langlois was entrusted with its development and the creation of a laboratory. He had been, since 1911, the director of the *Revue générale des sciences*. He was a member of the Academy of Medicine. One of his last researches, carried out with the assistance of Léon Binet, deals with diseases due to physical causes: accidents due to variations in pressure (mountain sickness, aviator's sickness, caisson sickness, windage from shell explosions); thermic accidents (effects of heat and cold); electrical injuries; radiodermatitis, etc. The results of this research were published in Part 7 of Nouveau traité de médecine, edited by G. H. Roger, F. Widal and P. J. Teissier.

International Bureau of Public Hygiene

The permanent committee of the International Bureau of Public Hygiene recently held its extraordinary session for 1923. Most of the countries (forty in number) adhering to the international bureau by virtue of their acceptance of the arrangement of Dec. 9, 1907, sent delegates. The delegates brought information on the sanitary condition of their respective countries and on epidemiologic events or new sanitary procedures introduced since the preceding session, especially plague and the eradication of rats; typhus fever and practical modes of disinfection; recurrent fever and its incidence in Africa; epidemic encephalitis, and paludism. The committee also discussed three important subjects: the differences in the mortality from cancer in various countries; prophylaxis against typhoid fever, and prophylaxis of endemic goiter.

The committee decided to submit to the various governments a proposal for the establishment of a uniform method of titrating antidiphtheritic serums; conclusions on the control of the manufacture of arsphenamin and its derivatives; and a recommendation for the adoption of a uniform sanitary clearance certificate for merchant and passenger vessels.

The Decrease of Alcoholism

M. Albert Peyronnet, minister of labor, has been investigating the consumption of alcohol by the laboring classes. He addressed his communications to the heads of labor unions, superintendents of large industrial establishments, and other persons who are in daily touch with a large number of laborers. The complete results of this inquiry will not be published until later, but the last number of the *Bulletin du ministère du travail* contains a summary of the information pertaining to Paris. It appears that alcoholism among the working classes is declining at a substantial rate, that absences from work on account of drunkenness are much less numerous, that discipline is better preserved, and that the workmen of Paris have a higher sense of dignity than ever before.

First Woman to Become Agrégé Professor

The competitive examination of candidates for the vacant agrégé professorships has just been held. For the first time in history, a woman—Mlle. Condat—has been appointed an agrégé professor, being assigned to the medical faculty of the University of Toulouse. This is not the first time that a woman has aspired to such distinction; a few years ago, a woman physician applied for the position of agrégé professor of obstetrics on the medical faculty of the University of Montpellier, but was not elected. It is interesting to note the various stages through which women have passed in the struggle for medical recognition. The first woman to be admitted as a doctor of medicine in France was Miss Elizabeth Garrett Anderson, of English descent, whose doctoral thesis is dated 1865. The first Frenchwoman so honored was Madame Brès, to whom I have referred in previous letters (The Journal, April 9, 1921, p. 1023, and Jan. 21, 1922, p. 207); she was graduated in 1875. But, for many years, the admission of women to the competitive examination for hospital interns met with tenacious resistance. Mlle. Klumpke was the first to triumph over all opposition. In 1886, she was sixteenth in the competitive test for internships. She became later the wife of Professor Dejerine.

Reelection of Professor Roger

By a vote of 51 out of 52, the assembly of professors of the Faculté de médecine of Paris recently reelected Professor Roger dean of the medical faculty.

Personal

At a recent meeting of the Académie des sciences morales et politiques, Professor Pitres, formerly dean of the medical faculty of the University of Bordeaux, was unanimously chosen correspondent for the section of morals, in place of Professor Riehl of Berlin. Dr. François Henrijean, professor of the University of Liége, received the insignia of doctor *honoris causa*, a title conferred on him by the University of Toulouse.

Pharmacists of Alsace-Lorraine

The *Journal officiel* publishes the text of a new law authorizing pharmacists of Alsace-Lorraine to practice pharmacy throughout French territory, under the same conditions as pharmacists who were granted a diploma by the French government.

Death of Dr. O. Josué

The death of Dr. O. Josué, physician to the hospitals of Paris and vice president of the Société de biologie, has been announced.

The Value of Necropsies

In a previous letter (The Journal, Sept. 30, 1922, p. 1158) I referred to the unsatisfactory condition of anatomopathologic studies in France, with the sole exception of the Faculté de médecine of Strasbourg. This condition of affairs is due, in part, to the difficulties surrounding necropsies. With a view to remedying this condition, the medical committee of the department of Bouches-du-Rhône has passed the following resolution:

> The medical committee, noting the increasing difficulty of securing bodies for necropsy, and considering the fact that, in addition to a very evident prophylactic purpose, necropsies are indispensable for medical and scientific study, hereby adopts a
>
> *Resolution*, That the administrative commission of the hospitals of Marseilles should use all the means at its command to facilitate the securing of material for necropsies.

Pretended Extraretinal Vision

The daily papers have caused considerable stir of late through their accounts of experiments assuming to demonstrate the possibility of extraretinal vision. In order to inquire into these reports, a committee of ophthalmologists of Bordeaux, with Professor Lagrange as chairman, met recently in the ophthalmologic clinic of the Faculté de médecine of that city, for the purpose of witnessing the experiments carried out by M. Simonin Raymond with a view to demonstrating his claims with respect to the possibility of "paroptic" vision, so called. Raymond presented two girls, aged 12 and 16, respectively, who, he asserted, were able, under certain conditions, merely through cutaneous impression at a distance, more particularly of the skin of the forehead, to see objects, to read, etc., without any aid from the eyes. The younger of the girls was selected as the subject for the first experiments. By digital pressure applied to the eyeballs, M. Simonin Raymond stated that he was able to bring about a peculiar condition attended by closure of the eyelids but which is not an hypnotic state, for, quite contrary to the conditions surrounding hypnosis, the subject preserves, after the experiment is over, a clear recollection of all that has happened during the state of special sensibility. Over the eyelids thus closed, as Raymond maintained, he placed a bandage which was tied over the occiput. With this bandage over the eyelids, the experimental subject was placed directly in front of a chart for testing the acuity of vision. At first, in this fixed position, no letters on the chart could be read; but soon the girl, abandoning her rigid position, began to turn her head to the right and to the left, and, with the head in a lateral position, she was finally able to decipher two letters on the chart. Hereupon the members of the committee contended to M. Raymond that his method of blindfolding was entirely inadequate; that it furnished no guarantee that the subject could not see directly, with the aid of her eyes. As proof of their contention, Dr. Bonnefon, one of the members of the committee, applied to his own eyes the bandage used by the experimenter and showed that, by slight or even imperceptible movements of the face muscles, it is easy to loosen the blindfold so as to see past it. It was accordingly decided to apply a truly hermetic seal to the eyes of the experimental subject, leaving the forehead exposed, since, according to M. Simonin Raymond, it is through the skin of the forehead that "cutaneous vision" is accomplished. Over each eye of the subject was placed a four-ply black cloth with a good-sized pad of cotton, held in place by adhesive strips. Under these conditions the girls were no longer able to "see without the aid of the eyes." Whenever it was possible for them to read any of the letters, it could be demonstrated beyond question that the blindfold was not functioning properly and that the partial vision was due solely to the inadequate occlusion.

BUDAPEST

(From Our Regular Correspondent)

June 19, 1923.

The Expiration of Immunity Against Rabies

Professor Szekely, director of the Budapest Pasteur Institute, in an address recently before the Royal Medical Society, said that it often happens that a person previously bitten and inoculated is subsequently again bitten by a mad dog. The question then naturally arises whether he should be inoculated de novo against rabies or whether revaccination is superfluous, the first inoculation having afforded immunity against further infection. The same question presents itself also in regard to smallpox. Before giving an answer to this important and at present much discussed practical question, we must first decide how long the immunity artificially produced by inoculation lasts. Does it last for life or does it lapse after a certain time? In the latter case, obviously, we ought to inoculate anew if we desire to obviate an imminent risk. Jenner himself held the opinion that immunity once produced against smallpox infection lasts for life. Therefore he advised inoculation being performed in the first year of life. But experience has taught us that the immunity disappears after a certain time; and a protected person, in the event of a fresh smallpox epidemic, may contract the disease anew, though in a milder form. Decades passed, he said, before science cleared up this question, because our observations were taken only from statistics. Nowadays, when, thanks to Pasteur, we are able to add to our knowledge by experimental observation, similar questions in respect to the various infectious diseases can be more quickly settled. We know, for example, that the immunity afforded by variola lasts about ten years. According to Haffkine, the immunity against plague begins within eight days of inoculation and lasts about as many months. It is important to know the duration of the immunity produced against rabies. The only information on this subject came to us from Paris and from the Budapest Pasteur Institute. Pasteur kept his immune dogs under observation for many years. From time to time he tested their immunity against a lethal dose of the rabies virus. The result was that these immune dogs, when injected intra-ocularly with rabies virus, did not develop the disease; but the control dogs, similarly infected with the same virus, became mad. Pasteur mentions in one publication that, in a certain dog, immunity lasted at least five years. In 1892, Högyes, then professor of the Budapest Pasteur Institute, published an article dealing with the question of the duration of immunity. He described his observations on eight immune dogs, on which he repeated the test-injections with rabies virus after days, months and several years. These experiments gave the average results that, after the antirabic inoculation, the immunity developed in a very short time (in one case after seven days) and lasted from four to seven years. How long does it last? Before answering this question, he described two cases in detail.

A dog that was inoculated, Jan. 20, 1908, resisted the test infection perfectly, Feb. 19, 1911, so that it was absolutely immune after three years, even against the strongest virus. July 31, 1917, i. e., after nine and a half years, it was again inoculated with rabies virus, but this time it became infected, and died, Aug. 27, 1917, with symptoms of paralytic rabies. A hare, inoculated on the same day with the virus taken from the brain of the dead dog, died after three days' illness, Sept. 27, 1917. The immunity, therefore, still existed after three years, but came to an end after a certain interval between that date and nine and a half years.

Another dog had the antirabic inoculations, Jan. 27, 1908. In 1911, a test was made and the dog was absolutely immune. Oct. 25, 1913, it died, with mild symptoms of rabies. This was proved by an experiment in which a hare, infected with the virus taken from the brain of the dog, died on the fifteenth day with symptoms of rabies. This dog, too, which was immune after thirty-two months, had lost its immunity after five years and four months. Therefore, the supposition is justified that the limit of immunity is between three and five years.

From the results of these two experiments, the lecturer stated that the average duration is between three and five years, say, about four years. Naturally, individual factors have to be considered in this connection, because after from two to three years all the eight dogs examined proved to be immune; he is therefore at liberty to suppose that the average limit of immunity may even exceed four years. Considering now the question whether these facts hold good for human beings, up to the present we have no experimental data on which to rely. In the absence of direct proofs we must reason by analogy.

On account of the close relationship which exists between human and animal (particularly dog) rabies, both in the occurrence of symptoms and in the course, we are justified in supposing that the process of immunity is analogous in men and dogs. Therefore he stated that, in all probability, the immunity against rabies in man also expires after a certain time. We are now in a position to answer this practical question, whether we should inoculate de novo if a person is subsequently bitten by a rabid animal; in the event of a fresh bite by a mad dog, revaccination is advisable in every instance, and is superfluous only when the fresh bite occurs at a very short interval after the previous antirabic inoculation.

VIENNA

(From Our Regular Correspondent)

June 17, 1923.

A Crisis in the Vienna Medical Organization

The profession in this city has within the last few years succeeded in holding its own economically by means of a well established organization called the "Wirtschaftliche Organisation," which comprised nearly 95 per cent. of all physicians and was ably managed. Its chief aim was to obtain all possible advantage for practitioners by negotiating with others on the lines of the trade unions. In fact, it could be regarded as a "medical trade union." The similarity went so far that once a "strike" was proclaimed for a period of four hours. The organization achieved really useful results by enforcing the system of free choice of physician for three large health insurance clubs—the "Krankenkasse" of civil service officers, of state railways, and of municipal officers—that is to say, for the bulk of the former lower middle classes, who would be unable now to pay the private practitioner. But recently a large group of young physicians, house physicians or juniors in hospitals, have resigned from membership in the organization, because the latter had induced the government to forbid private practice by them so long as they were paid by hospitals. The private practitioner, who has to pay all expenses from his own pocket, should not be handicapped by competition with the hospital physician, who has hardly any expenses and a fixed salary. Other grievances, such as restriction of marriage during tenure of office, were also put forward to justify the resignation from membership. This robs the organization of about 10 per cent. of its members. Dissatisfaction with the methods of the board of managers has been expressed repeatedly from various quarters, and a new election is taking place. The profession must endeavor to unite again all members under an economic shield, because this has been proved to be the only way of safeguarding its interests. Otherwise the tendency for separation by reason of political, national and religious causes is so strong that disruption of the profession is inevitable. This would mean rapid loss of the working arrangements made with the leading parties in the state. They submitted reluctantly to the requirements of the profession because the organization was strong enough to force them to come to terms. If this body disintegrates, they would immediately play one group of physicians against the others and suppress all.

A Syphilis and Tuberculosis Debate in the National Assembly

In the national assembly, the budget of the ministry of health has been recently under consideration, and in the course of discussion some interesting data were brought forward. In order to reduce the housing difficulty, the government plans to induce the larger banking establishments to build flats for at least 25 per cent. of their personnel, as has been done in Jugoslavia with good results. Overcrowding in the cities is serious, and causes an increase of tuberculosis, especially in children; where housing conditions are fairly good, a marked drop in the reported cases is discernible. The general food condition is better than two years ago, and is noticeable at once in the statistics of the large workmen's health insurance societies. Unsatisfactory figures were reported as regards infection with syphilis. A census, during the month Nov. 15, to Dec. 14, 1921, taken in the outpatient departments and by private practitioners in Vienna, disclosed that 13,643 men and 7,197 women were infected and under treatment for the first time; since that time, conditions have become worse. There is, in consequence, a strong tendency in the assembly toward compulsory treatment of all persons found suffering from this disease, and examination of all couples desiring to marry. Legislation toward this end is expected shortly. The diminution of consumption of alcohol is desirable, as in this country we have hardly any means for dealing with chronic alcoholics except in the lunatic asylums. As regards cretinism, the conditions are also far from ideal. In the mountainous districts, no less than 10,000 persons are reported as subject to this and allied conditions; protracted treatment by means of small doses of potassium iodid administered in food with the salt is strongly recommended by the government officers of health. An interesting remark was made by one speaker concerning conditions in the Vienna Pathologic Institute. This old building is absolutely inadequate from a hygienic point of view; it is full of dark passages, corners and chambers, because every now and then more and more room has had to be made for the increasing requirements of study. It is well known that eminent scientists, called to Vienna and offered appointment at the head of the institute, refused to continue work in this building; but no new building was erected. This is due to lack of funds since 1914. Within the last six years, the institute has changed directors no less than three times because all have died suddenly. It is a significant fact that of thirty-three physicians and other men now on the staff of the institute, only three are free from tuberculosis. The remaining thirty are suffering from this disease in a more or less marked degree. The new director, Professor Mareset, is resolved to clear up matters. He will not permit any of the dark, unhygienic nooks and corners to be used for work. He allows only so many men to continue work as can be safely accommodated without mutual danger of infection. This spells, of course, restricted possibilities for research, and loss of scientific efficiency for many eager men.

Infectious Diseases in Austria in 1922

With the exception of epidemic meningitis and trachoma, all infectious diseases have shown a marked drop in 1922 in comparison with the previous year. Thus, in 1922, we had: scarlet fever, 2,658 cases (in 1921, 4,210); diphtheria, 2,807 (3,921); typhoid fever, 2,303 (4,288); dysentery, 1,196 (4,733); epidemic meningitis, 38 (21); puerperal fever, 293 (340); typhus exanthematicus, 23 (81); smallpox, 4 imported (18); not one case of cholera; and trachoma, 320 (219). All cases of exanthems and smallpox could be traced to visitors from abroad, especially from the Balkans, while trachoma is frequent now because part of the former Hungarian country is now under Austrian rule and this disease used to be frequent and little treated.

Legislation Against Industrial Poisoning

By order of the ministry for social administration, with which is included the board of health, a series of separate bills, passed by the national assembly some time ago, have been uniformly put in force already. They deal chiefly with prophylaxis against poisoning in certain industries. These are: the manufacture and use of lead and zinc, printing offices and lithographic industries, enamelers, and all workmen handling substances containing poisonous metals. In every working place concerned, a notice must be posted containing instruction of the risks from neglect of clean linen and of the kind of measures that are required from the workmen: the necessity of change of clothing when leaving the factory, of fat in the food, and of early medical examination when certain symptoms occur. A regular examination of factory hands by physicians is compulsory, as well as perfect ventilation of rooms and the provision of apparatus to remove or condense various gases and dust. A daily wet wash of the floor and walls is stipulated when possible. The working dress must be cleaned at least once a week, and sufficient provisions made for bathing and washing by workers in every factory. The transport of raw materials must be so managed that no dust is produced; the loading of the furnace and other machinery must be done with strict observation of hygienic principles, i. e., prevention of dust. Wherever lead is melted or bronze or lead dyes are used, air space of at least 15 cubic meters and floor space of at least 3 square meters must be provided for each workman; in other instances 12 cubic meters and 2.5 square meters are permissible. In cellars or subterranean localities, such work is not permitted. Spittoons must be provided everywhere, and be filled with liquids or moist materials. A first-aid outfit must be within easy reach in every factory, and the foremen must be instructed in first-aid work. In factories producing much dust or noxious gases, the workmen must be advised to wear respirators. Special attention is paid to prophylaxis in regard to children and women. In printing industries and dye factories, children under 17 years may not be employed at the dangerous parts of the work or where poisonous dust is prevalent; women (over 18 years) must have at least a ten minute rest after each two and one-half hours' work at a machine. Change of work must be provided after one week's occupation at the dye department, or two days without work. No food may be consumed on the working premises. For this purpose, a special well ventilated space must be set apart.

If a person is affected by plumbism or other poisoning arising from his work, due to faulty observation of the rules on the part of the employer, he must be paid his regular wages, as long as he is kept from work, of course subject to exact treatment. But if the fault or neglect is caused by the laborer, he receives only sick pay. Free treatment is always insured by means of the compulsory "Krankenkasse" (sickness insurance) toward the premiums of which the employer contributes one third, the employed two thirds weekly. It is clear that this legislation is a distinct step toward assurance of undisturbed health for the laboring classes, and is the outcome of the present strongly socialistic trend of health authorities. It compares favorably with conditions prevailing in other industrial countries where little or no attention is paid to the well-being of the factory hands, and also with conditions in this country twenty years ago.

The Number of Practitioners in Austria

The total number of persons entitled to practice medicine and surgery in the Austrian Republic is 7,054, distributed over an area of 98,000 square kilometers, with a population ot 6,280,000. The relative density varies in different provinces. Thus, in Vienna, there is one physician to each 439 inhabitants, while in Carinthia the ratio is 1:2,433. In Vienna there are 4,191 physicians; in Carinthia, 171. In Lower Austria there are 806 physicians (1:1,808); in Upper Austria, 467 (1:1,839); in the Tyrol, 315 (1:972); in Styria, 785 (1:1,208); in Salzburg, 158 (1:1,356); the remaining physicians are distributed in outlying districts, mostly mountainous or on the new Hungarian frontier. About 90 per cent. of these belong to the two powerful medical organizations, one in Vienna with about 3,900 physicians, and one in Graz with about 2,800 country practitioners.

BERLIN

(From Our Regular Correspondent)

June 16, 1923.

Meeting of the German Pathologic Society

At the nineteenth session of the Deutsche Pathologische Gesellschaft in Göttingen, a few weeks ago, the main topic discussed was the theory of inflammation. According to Professor Lubarsch of Berlin, the notion of inflammation, as viewed from the scientific and practical standpoint, must be retained. It is difficult, in many instances, to distinguish inflammatory processes from other related processes; for example, those of organization or regeneration. When local cellular, and, more particularly, lymphocytic reactions appear solely as a partial manifestation of a general reaction, they do not belong under the head of inflammation. Inflammatory processes are attended by local reactive changes in the vascular system, connective tissues, and parenchyma, and consist of migratory, secretory, absorptive, progressive and regressive processes. The point of attack of the injuries causing the inflammation varies. The nervous system plays no special rôle in the matter of inflammation. The difference in the character of the cells that develop in connection with inflammatory processes is determined, on the one hand, by disturbances of metabolism caused by the injuries, and, on the other, by the degree of immunity of the body. One should not speak of chronic inflammation unless paroxysmal or recurrent inflammatory processes succeed each other. Inflammation may be counted among the defense reactions, but inflammation and defense must not be regarded as identical.

According to Professor Rösle of Basle, the capacity for inflammation is a function of the mesoderm and its derivatives, which in the course of phylogenesis has become more pronounced. Inflammation is closely related to ordinary digestion. In both, we may distinguish between a secretory (extracellular) predigestion and a phagocytic (intracellular) digestion. The mechanism of inflammation, humoral and cellular, is more complex in the more highly developed animal organisms. The highest capacity for inflammation is shown in "allergic reactions," and is manifested sometimes in the form of a general anaphylaxis and sometimes in the form of local "hyperergic" inflammation, examples of the latter type being found in the general tuberculin reaction and in the focal reaction in tuberculosis. The presence of inflammation in connection with normal processes in the connective tissue is revealed most distinctly by the existence of a so-called physiologic inflammation, such as the cellular processes connected with nutrition in the intestinal wall and in the reticulo-endothelial apparatus; it is also to be noted in the retrogression of embryonic organs, and in the resorption of cells whether native or foreign to the body.

Professor Schade, a department head in the physiologic institute in Kiel, stated that physical chemistry had advanced knowledge out of all proportion to microscopic research. The distribution of the colloids, dependent on a definite arrangement of ions, is a prerequisite for the normal functioning of the living cell. The isotonicity due to hydrogen, hydroxyl, sodium, potassium and calcium ions and osmotic isotonicity determine the colloidal state of the protoplasm. In inflammation, the osmotic pressure rises and the hydrogen ion concentration is increased. The connective tissue and the vessel walls are severely injured, and the latter become permeable for albumin. The increase of osmotic pressure leads to edema. The formation of substances that decrease the surface tension plays a rôle in the movements of the leukocytes. The cause of both the physical and the chemical metamorphosis lies in the increased metabolism due to inflammation. If the compensatory mechanism becomes inadequate, this leads to edema, blood stasis, exudation, infiltration with leukocytes, and, finally, to morphologic degeneration of the fixed tissue cells. Physical chemistry is not in opposition to anatomicopathologic research, but supplements it. During the discussion that followed, considerable opposition developed, especially toward Rösle's conception of "physiologic inflammation," Joest of Dresden contending that the line of demarcation between regeneration and inflammation would thus be effaced.

Ghon and Winternitz (Prague) discussed primary tuberculosis in children. In accord with the Viennese researches, they found only 2.48 per cent. extrapulmonary primary lesions. The primary pulmonary foci were, in the main, subpleural; more frequently on the right side, and especially frequent in the right upper lobe. There was no frank election of the apex. The number of so-called obscure cases is reduced by careful examination.

Schmorl of Dresden dealt with the so-called Schneeberg lung cancer, which is an affection endemic among the Schneeberg miners. He emphasized that the tumors were most often genuine carcinomas, and not lymphosarcomas, as formerly asserted. It is possible that precancerous changes associated with anthracosis and chalicosis play a part in their genesis.

E. Kraus reported that in diabetes mellitus he had found diminution in the weight of the hypophysis, together with evidences of degeneration, increase of connective tissue and growth of "fetal cells"; in the pineal gland, absence of nucleoli; in the parathyroid glands, lack of oxyphilous cells, and diminution in the size of the organs; in the pancreas, changes in the islets of Langerhans, as described by Weichselbaum; in the suprarenals and the gonads, atrophy of the specific parenchymal cells. He regards diabetes, in the main, as of pancreatic origin. His findings in the pituitary body met with considerable opposition during the discussion.

Berblinger brought forward a number of his own cases to show that the necropsy findings in cases presenting hypophysial changes and adiposogenital dystrophy did not indicate a sharp division of the pituitary body in man into a gland influencing growth (anterior lobe) and a gland affecting metabolism (pars intermedia).

German Council on Pharmacy and Chemistry

The Deutsche Gesellschaft für innere Medizin sent Professors Penzoldt, Brauer, Heffter, G. Klemperer, Zinn and Holste as representatives to the Gemeinsame Arzneimittelkommission, concerning which I reported in a previous letter. The Deutsche Aerztevereinsbund and the Hauptverband deutscher Ortskrankenkassen were also represented by delegates. The work of the council falls into three categories: 1. New remedies are examined to determine whether they are adapted for general practice, and especially for the use of physicians on the health insurance panel; that is, whether or not they are efficacious, practical and reasonably priced. The remedies are submitted to a suitable pharmacologic institute for chemical and pharmacologic study; after the report of the institute is received, they are sent for clinical tests to a clinic or hospital. 2. Besides the routine examination of new remedies, a systematic reexamination and, if need be, retesting of the articles already accepted will be undertaken, in order to decide what remedies may be retained on the accepted list, and what should be discarded. 3. The results of these tests will be collected and published in book form *(Arzneimittelbuch)*. This book will contain: (*a*) all remedies accepted by the commission; (*b*) remedies that, in quality, form, packeting and price, meet the requirements set up by the health insurance societies. List *a* for the use of German practitioners in general, and *b*, for the use of physicians on the health insurance panel, will be published in medical journals. Professional opinions on the remedies will also, in certain instances, be published.

Criminal Statistics of Cripples

Würtz has collected statistics on the causes of criminality among cripples. In December, 1921, the statistics of ninety-three institutions, containing upward of 200 cripples each, gave 352 cripples who were guilty of crimes or misdemeanors. Of these, 193 were war injured and 159 were the victims of peace injuries. All criminal cripples were requested to fill out a questionnaire concerning their lives; all without exception complied. The various excuses assigned for the delinquencies were: lack of will power, disturbances of the will, temporary irresponsibility and inability to work. The lack of employment from 1919-1920 was the cause of many delinquencies. The need of compelling all cripples who are able to work to accept employment has been fully established. Cripples who have not served in the army or navy must be given the same opportunities for employment as are given ex-service men.

The Care of Cripples in Berlin

Details of the new law regulating the care of cripples in the city of Berlin have just been published. Their public care is assigned to the juvenile welfare bureau of the city, with the cooperation of the central health bureau and its local branches. The duties are: the establishment of policies, keeping in touch with the supervising boards, keeping and adjusting accounts with the state, and organization and execution of the budget and statistical plans. The practical application of the law in the various districts is in charge of the local branches of the bureau. They receive the reports of cases and transfer the subjects to the welfare centers having jurisdiction. They inquire thoroughly into the need of assistance, and decide on care and reeducation. The district juvenile welfare centers have in their hands the granting and raising of funds, and also the supervision of ambulant cripples. The authorities must keep lists of cripples, note their movements and send regular reports to the juvenile welfare bureau. An advisory council is established, consisting of a municipal public health officer, three orthopedists, three trained instructors and the chairman of the council for severe war injuries. This advisory council is called on for aid in all medical, pedagogic and scientific problems of fundamental importance. Its advice must be sought in the establishment of regulations, including schedules of fees or charges. It also decides in controversies between the local offices and the welfare centers. The central public health bureau has charge of all medical matters pertaining to the care of cripples. Special financial provisions are made for inmates of child welfare institutions, wards of the state, and the children of war veterans and the war injured.

Vital Statistics of German Cities, January-March, 1923

The decrease in the birth rate in the large cities of Germany since 1921 was still manifest in the first quarter of 1923, during which period only 69,631 living births were registered in the forty-six largest German cities, as compared with 78,049 during the corresponding period of the previous year, or 16.8, as against 19.2 per thousand on the basis of an estimated adult population of 16,625,000. For the first time, the birth rate has fallen below that of the ten largest French cities, which for the year 1922 was 17.5. The decrease in mortality since the war has been more marked in the cities of Germany than of France because heretofore the excess of births over deaths was greater in the German cities. As was also true during the last two quarters of 1922, which were noteworthy for having the lowest death rates ever recorded, the continued fall in the exchange value of the mark exerted no unfavorable effect on the death rate for the first quarter of 1923; on the contrary, the death rate for the first quarter of 1923 (15.2) was lower than during the same period in 1922 (16.4). This decrease is due mainly to the fact that the winter of 1922-1923 was considerably milder than the one that preceded it; the absence of epidemics also played a part. The milder winter reduced especially the mortality from pneumonia and influenza, and other diseases of the respiratory organs. The death rate from tuberculosis, however, increased from 1.82, during the first quarter of 1922, to 2.08 for the first quarter of 1923. Since, in view of the milder winter of 1922-1923 the case mortality of tuberculosis can scarcely have increased, the cause for the increase in the mortality rate from tuberculosis was doubtless due to increased morbidity.

Marriages

CALDWELL B. SUMMERS, Kansas City, Mo., to Miss Gladys Claire McGrath, of Savannah, Ill., June 26.

MARK SNOWDEN NELSON, Canton, Ill., to Miss Frances Amrine of Rushville, June 28, at Chicago.

GUY FOOTE PULLEN, Leonia, N. J., to Miss Ingrid Henrietta Wester of Greenwich, Conn., June 30.

JOHN R. BRAYTON, Hardy, Ky., to Miss Berenice Marie Havens of Kokoma, Ind., June 30.

EARL FRED CAMP, Buffalo, Okla., to Miss Kathleen Stephens of Topeka, Kan., June 28.

JOHN HURTER GORDON to Miss Jennie Evlynne Peterson, both of Detroit, June 19.

ISIDOR CHERNIAC BRILL to Miss Ruth Lowengart, both of Portland, Ore., May 26.

LAWRENCE R. GOWAN to Miss Eleanor Schwerin, both of Minneapolis, in June.

ORR FALLS, Wapello, Iowa, to Miss Evaline Helland of Slater, June 20.

Deaths

Edward Robeson Taylor, San Francisco; Toland Medical College, San Francisco, 1865; died, of senility, July 5, aged 84. He was admitted to the bar in 1872, and became a member of the the board of Freeholders for San Francisco in 1886 and again in 1898 when the present charter was framed. He was dean of the Hastings College of Law 1899-1919; mayor of San Francisco, 1907, and was president and vice president of the Cooper Medical College for thirty years. Dr. Taylor was formerly president of the San Francisco Law Library and the San Francisco Bar Association. He was the author of "Moods and Other Verse," "Selected Poems," "To Arms," and other poems. He was decorated with the Cross of the Legion of Honor, France, in 1920.

Edward A. Fischkin ⊕ Chicago; University of Berlin, Germany, 1894; member of the Chicago Dermatological Society; formerly professor of dermatology and syphilology at the Bennett Medical College and the Chicago College of Medicine and Surgery; on the staffs of the Mount Sinai, St. Elizabeth's and the Norwegian Lutheran Deaconess hospitals; aged 60; died, July 13, of pernicious anemia.

William Henry Doughty, Jr. ⊕ Augusta, Ga.; University of Georgia Medical Department, Augusta, 1878; dean, and at one time professor of surgery at his alma mater; member of the Southern Surgical Association; president of the Georgia State Board of Health; on the staff of the University Hospital; aged 67; died, June 22.

Thomas Wilson Serviss, San Francisco; McGill University Faculty of Medicine, Montreal, Que., Canada, 1881; formerly assistant professor of rhinology and laryngology, University of California Post-Graduate School, San Francisco; aged 67; died, June 28, of cirrhosis of the liver and myocardial insufficiency.

William John Blake, Benwood, W. Va.; University of Maryland School of Medicine, Baltimore, 1909; member of the West Virginia State Medical Association; served as health officer of Benwood for four years; aged 38; died, June 25, at the Ohio Valley General Hospital, Wheeling.

Alexander Sands Rochester, San Jose, Calif.; Jefferson Medical College of Philadelphia, 1906; member of the Chicago Ophthalmological Society; served in the M. C., U. S. Army, in France, during the World War; aged 40; died, June 20, at Savannah, Ga., of septicemia.

Ernest Ludwig Schaefer ⊕ Brooklyn; Long Island College Hospital, Brooklyn, 1912; served in the M. C., U. S. Army, during the World War; on the staff of the Wyckoff Heights Hospital, where he died, July 2, of meningitis, following an operation for mastoiditis, aged 34.

John Grant Burke ⊕ Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1897; member of Pittsburgh Dermatological Society; formerly demonstrator in dermatology at his alma mater; aged 54; died, June 25.

John Henry Jamar, Elkton, Md.; University of Pennsylvania School of Medicine, Philadelphia, 1861; member of the Medical and Chirurgical Faculty of Maryland; Civil War veteran; aged 83; died, July 5, of paralysis.

Henry Peter Fahrney, Frederick, Md.; Jefferson Medical College of Philadelphia, 1895; member of the Medical and Chirurgical Faculty of Maryland; county health officer; aged 53; died suddenly in June, at the City Hospital.

Adolph William Miller, Philadelphia; University of Pennsylvania School of Medicine, 1871; also a druggist; formerly demonstrator and lecturer on practical pharmacy at his alma mater; aged 82; died, July 6, of senility.

Deloss Hurlbut, Lehigh, Iowa; Bellevue Hospital Medical College, New York, 1879; State University of Iowa College of Medicine, Iowa City, 1883; aged 67; died, June 30, at a hospital in Fort Dodge, of carcinoma.

Milton Corwin Conner ⊕ Middletown, N. Y.; Medical Department of Columbia College, New York, 1883; member of the Radiological Society of North America; aged 69; died, July 5, following a long illness.

James Dennis Jackson, Erie, Pa.; University of the South Medical Department, Sewanee, Tenn., 1906; also a druggist; aged 39; died, May 18, at St. Vincent's Hospital, Cleveland, of ulcer of the stomach.

Thomas Porter Davis, Terrell, Tex.; Southern Medical College, Atlanta, 1880; member of the State Medical Association of Texas; formerly city health officer; aged 65; died suddenly, June 23.

Roscoe Conkling Waterbury ⊕ Kinderhook, N. Y.; Albany (N. Y.) Medical College, 1905; health officer of Kinderhook; at one time member of the state legislature; aged 45; died suddenly, June 6.

Olin L. Abney, Waskom, Tex.; University of Louisville (Ky.) Medical Department, 1881; member of the State Medical Association of Texas; aged 65; died, May 30, of heart disease.

George Frederick Lewis, Mayfield, Calif.; Yale University School of Medicine, New Haven, Conn., 1866; Civil War veteran; aged 81; died, June 25, at the Palo Alto (Calif.) Hospital.

Parson G. Udell, Spencerport, N. Y.; University of Pennsylvania School of Medicine, Philadelphia, 1871; member of the Medical Society of the State of New York; aged 73; died, June 23.

James C. Johnston, Denver; University of Pennsylvania School of Medicine, Philadelphia, 1874; Hahnemann Medical College of Philadelphia, 1875; aged 70; died, June 8.

Giles A. Blasdel ⊕ Hutchinson, Kan.; Kansas City (Mo.) Medical College, 1898; president of the Reno County Medical Society; aged 51; died, July 3, at Kansas City.

Andrew Mauro, Chicago; (licensed, Illinois, 1877); aged 82; died, July 8, at the West Side Hospital, of acute dilatation of the heart, following a prostatectomy.

Helen Finney Cochran, Oberlin, Ohio; University of Cincinnati (Ohio) College of Medicine, 1916; aged 38; died, July 2, at Cincinnati, following an operation.

D. Fort Anderson, Orlando, Fla.; University of Pennsylvania School of Medicine, Philadelphia, 1853; Civil War veteran; aged 93; died, June 10, of senility.

Thomas Pennel ⊕ Belton, S. C.; Atlanta (Ga.) College of Physicians and Surgeons, 1913; aged 40; died, June 29, at a hospital in New York, of pneumonia.

John K. Davidson, Eagle Lake, Tex.; University of Alabama School of Medicine, Tuscaloosa, 1873; Confederate veteran; aged 81; died, June 24.

Alice Laura Scott Hill, Washington, D. C.; State University of Iowa College of Homeopathic Medicine, Iowa City, 1900; aged 66; died, July 3.

Howard Charles Paden, Niles, Ohio; Cleveland (Ohio) Homeopathic Medical College, 1906; aged 40; died, May 26, following a long illness.

Sara J. Allen, Charlotte, Mich.; Hahnemann Medical College and Hospital, Chicago, 1881; aged 79; died, June 26, following a long illness.

Da Costa Walker, Hot Springs National Park, Ark. (licensed, Arkansas, 1903); aged 42; died suddenly, June 30, of heart disease.

Hartford Sweet, Brookfield, Ill.; College of Physicians and Surgeons, Chicago, 1904; aged 47; died, June 26, following an operation.

Timothy De Witt Warren, East Tallassee, Ala.; Atlanta (Ga.) College of Physicians and Surgeons, 1909; aged 36; died, June 9.

John Henry Griffin ⊕ Armuchee, Ga.; Chattanooga (Tenn.) Medical College, 1902; aged 47; died, June 27, at a hospital in Atlanta.

James Elias Dodson ⊕ Vernon, Tex.; Medical Department Vanderbilt University, Nashville, Tenn., 1875; aged 76; died, June 24.

Ezra Read Larned ⊕ Detroit; Rush Medical College, Chicago, 1897; aged 55; died suddenly, July 3, of heart disease.

Vincent A. Fitzsimon, Edgewood, R. I.; Bellevue Hospital Medical College, New York, 1874; aged 80; died, June 5, of senility.

Henry C. Davisson, Hartford City, Ind.; Indiana Medical College, Indianapolis, 1871; Civil War veteran; aged 81; died, July 6.

William L. Sikes, Sylvester, Ga.; Atlanta (Ga.) Medical College, 1879; aged 72; died, June 22, following a long illness.

Loren H. Snepp, Dayton, Ohio; Ohio Medical University, Columbus, 1901; also a druggist; aged 50; died, June 26.

Thomas Lawton, Hinsdale, Ill.; Chicago (Ill.) Homeopathic Medical College, 1890; aged 61; died, July 10.

William B. Yeo, Cambridge, Ohio (licensed, Ohio, 1896); aged 81; died, April 23, of senility.

Correspondence

IMPOSSIBILITY OF MOVING VERTEBRAE

To the Editor:—In these days, when we hear on every side the claims that the articulations of the spinal column need repeated "adjustments," I think that medical men ought to have some definite data as to the strength of the spinal symphyses.

The following experiments were performed in the anatomy laboratory of the College of Medical Evangelists at Loma Linda, Calif.:

The spinal column selected was a fairly fresh one, and it was taken from a cadaver that had never been put into the preserving tank. A block of wood was taken, and into its surface there was cut a mortise slightly wider than the vertical dimension of a lumbar vertebra. The spinal column was then firmly fastened to this block so that the ventral margin was against the surface of the wood, and the body of the second lumbar vertebra was directly over the mortise, thus leaving that vertebra unsupported except by its union with adjoining vertebrae. Pressure was then applied to the spinous process of the unsupported vertebra by means of a lever of the second class acting downward, and this force was carefully calculated. When the pressure had reached 1,195 pounds, the neural arch was crushed, but the vertebral body remained unmoved.

The broken fragments of the arch, together with the remains of the pedicles were then cleared away, and pressure was applied to the posterior surface of the vertebral body. In this instance a piece of smooth hard wood was placed on top of the surface of the bone so that the force would affect all parts equally, the wood being about 2 mm. narrower than the vertical measure of the vertebral body. On the application of 800 pounds the body was crushed to pieces, a part of it being reduced almost to the consistency of bone meal. Yet for the most part there was no dislocation at the union with the adjoining cartilages. The bone was crushed about a millimeter from that union, but the articulation remained intact over the most of its area.

The tenth thoracic vertebra was next selected, and the pressure was applied at the side. The piece of wood was used in this experiment also, and it was placed so as not to cover the ventral one fourth of the vertebral body. On the application of 1,315 pounds, the body was crushed without materially impairing the articulation with the adjacent cartilages, and the part of the body extending beyond the end of the piece of wood remained unmoved. In other words, the posterior three fourths of the vertebral body was crushed by a force applied at the side without any twisting of the anterior one fourth on its vertical axis.

In the spinal column used, the strength of the vertebral symphyses was greater than that of bone substance of the bodies of the vertebrae.

L. C. KELLOGG, M.D., Loma Linda, Calif.
Instructor in Anatomy, College
of Medical Evangelists.

Infection with Tuberculosis Almost Universal After Sixteen.—There are constantly over 1,000,000 people in the United States sick with tuberculosis, many of whom are careless or ignorant. Large numbers of these persons are not in hospital. Many people, believing themselves to be healthy and appearing well, are occasional "carriers" of the tubercle bacillus. There are many sources of infection. In spite of all precautions, therefore, most people are slightly infected with tubercle bacilli at an early age.—F. C. Smith, *Public Health Rep.* **38**:777 (April 13) 1923.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TESTS FOR BLOOD SUGAR

To the Editor:—There is no laboratory in Macon, Ga., that does blood chemistry at present. Without it we are certainly not in a position to use insulin intelligently. I am writing to inquire whether instruments of the type of the Kuttner microcolorimeter are sufficiently accurate to be relied on in this work and in the other tests for which they are used. If they can be used satisfactorily but need to be corrected by an allowance for constant error, I would like to know what margin of error has to be figured.
CHARLES C. HINTON, M.D., Macon, Ga.

ANSWER.—The Duboscq instrument is, of course, the most accurate and desirable one for all biologic microcolorimetric work. However, it is very expensive and may not justify the expenditure by the general practitioner. Instruments of the type of the Kuttner, Heilige, Bock-Benedict, and Meyer colorimeters are very satisfactory and are widely used both by the general worker and by the larger clinical laboratories. They are sufficiently accurate for all blood chemistry work, as the errors introduced are minimal and constant. With any colorimeter the personal factor enters into the color comparisons to a very large extent, so that the worker must know his instrument. Once having corrected his own personal error, he will have no trouble in doing close work with any of the above-mentioned instruments. There is no correction to be made in using these instruments, as this depends more on the person using them than on the instruments themselves. As what is wanted is comparative results in studying the cases from time to time, the use of the same instrument by the same individual will give concordant results. The purchase of an instrument such as the Kuttner will probably prove satisfactory.

CAUSE OF DEATH IN "ACUTE INDIGESTION"

To the Editor:—Please explain the modus operandi of death in acute indigestion. "Acute indigestion" is a very common cause of death on death certificates. I have never seen the explanation of just how death is produced in these cases.
F. E. PERKINS, M.D., Watertown, N. Y.

ANSWER.—Cases have been reported, after apparently careful investigation, in which death resulted from acute dilatation of the stomach; usually, however, there is also duodenal dilatation. These conditions may result from shock in a manner comparable to that by which paralytic ileus occurs. Indiscretions in diet, the stomach being overloaded, may also bring about so-called acute indigestion, especially when, in addition, there has been some abnormality in the mesentery which allowed the distended stomach to obstruct the duodenum. It is also possible that acute digestive disturbance, by its action on the vagus nerve terminations, may reflexly affect the heart action and may result fatally if there is some heart defect—myocardial or endocardial. Such cases, however, are unusual, and it is probable that most deaths from "acute indigestion" have a more definite cause. The clinically descriptive term is used because the symptoms were those of vomiting and abdominal distress, the real cause for which was not recognized.

TRANSPLANTING AN EYE

To the Editor:—I went blind two years ago from the effect of a black powder blast. I have tried several physicians, but in vain. There has been an advertisement in the newspaper about Dr. Theodore Koppanyi of Vienna in Colorado Springs, Colo., also an item about a doctor from New Jersey who stated about transplanting in eyes. I should like to know whether such a thing was a success. I should like to get some information.
TOM JOHNSON, Minneapolis.

ANSWER.—There is not the slightest evidence that the eye can be successfully transplanted and functionate.

THE WASSERMANN TEST

To the Editor:—1. Is the Wassermann reaction generally considered an infallible test for syphilis? 2. Is a positive reaction ever obtained in any other condition than that of syphilis?

ANSWER.—1. Practically so. 2. Yes. See current comment "The Trend of the Wassermann Reaction" (THE JOURNAL, May 5, 1923, p. 1317).

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Philippine Islands: Manila, August 14. Sec., Mr. **José V. Gloria,** 400 Asuncion, Manila.

THE UNIVERSITY OF COLORADO SCHOOL OF MEDICINE AND HOSPITAL

CHARLES N. MEADER, M.D.
Dean
Denver

The development of structural plans for a coordinated medical school and hospital, unhampered by the presence of existing units which do not easily lend themselves to a general scheme, presents an interesting opportunity to the architect and to the medical faculty. Advances in hospital practice and medical school organization may be fostered, desirable coordination may be introduced, and economies in administration and maintenance may be promoted by study and forethought in arranging the plans.

Such an opportunity has come to the University of Colorado, and an attempt has been made to devise plans which should in some degree promote correlation and flexibility in medical teaching.

The initial step in the development of its project for the expansion and development of the School of Medicine was naturally the formulation of a definite program. That which was eventually adopted comprised the union of the four years of the school at Denver, the selection of a site sufficiently large not only to accommodate buildings now contemplated but also to allow for future expansion and for the erection of other hospital units should need arise, and the erection of a medical school building housing classes of fifty students each, of a state general hospital of 150 beds, a nurses' home accommodating ninety nurses and a central heating power and laundry plant. In addition to the group outlined a state appropriation is available for the construction and equipment of a psychopathic hospital of approximately eighty beds to be located on the same site and served by such central utilities as the power plant, laundry, kitchen and staff dining rooms. The nurses on duty in this hospital will live at the nurses' home.

The Medical School, the School of Nursing, the Colorado General Hospital and the Colorado Psychopathic Hospital are under the complete control of the Board of Regents of the University of Colorado; the General Hospital will receive indigent patients from the entire state, and its staff will be composed of the faculty of the School of Medicine.

The site which was finally adopted comprises a rectangle of about 17 acres with its long dimension running directly east and west, and is located at the edge of the closely built up portion of the city.

UNIT CONSTRUCTION

Entrance court to University of Colorado School of Medicine and Hospital.

Before actual work on the plans was started, it was determined that they should embody certain fundamental features so far as was feasible. First, that the principle of unit construction should be carried out in both school and hospital to facilitate future changes in the utilization of space, which will probably become necessary either by the trend of development of the institutions themselves or by changes in the practice of medical school and hospital organization. To this end a unit of 12 by 21 feet has been adopted in the school, and each unit supplied with facilities for connection with hot and cold water, gas, electricity (direct and alternating current), compressed air, vacuum and steam, so that any unit may be used for any purpose. All service connections are carried in either the outer or the inner wall, leaving the partitions free, and all partitions are set on top of the finished concrete floor and may be moved without patching the floor. Units may thus be used singly or in groups need may arise, without structural alteration and at a nimum expense for rearrangement.

The same arrangement of partitions and service connec- ns has been carried out in the outpatient building, and, erever indicated, in the administration building. In the spital, the only fixed portion of the ward floors is the vice room unit; elsewhere the use of partitions as in the ool makes it possible to alter inexpensively the present angement at any future time, either in the direction of re single rooms or more two and three bed wards, as erience may indicate. Here, as elsewhere, service con- tions are carried in outer or inner walls. The present angement provides for ward units of sixteen beds, divided 6 foot partitions into cubicles with beds so placed as not face the light, and for varying numbers of one and two quiet rooms in the different services.

University of Colorado School of Medicine and Hospital.

CORRELATION

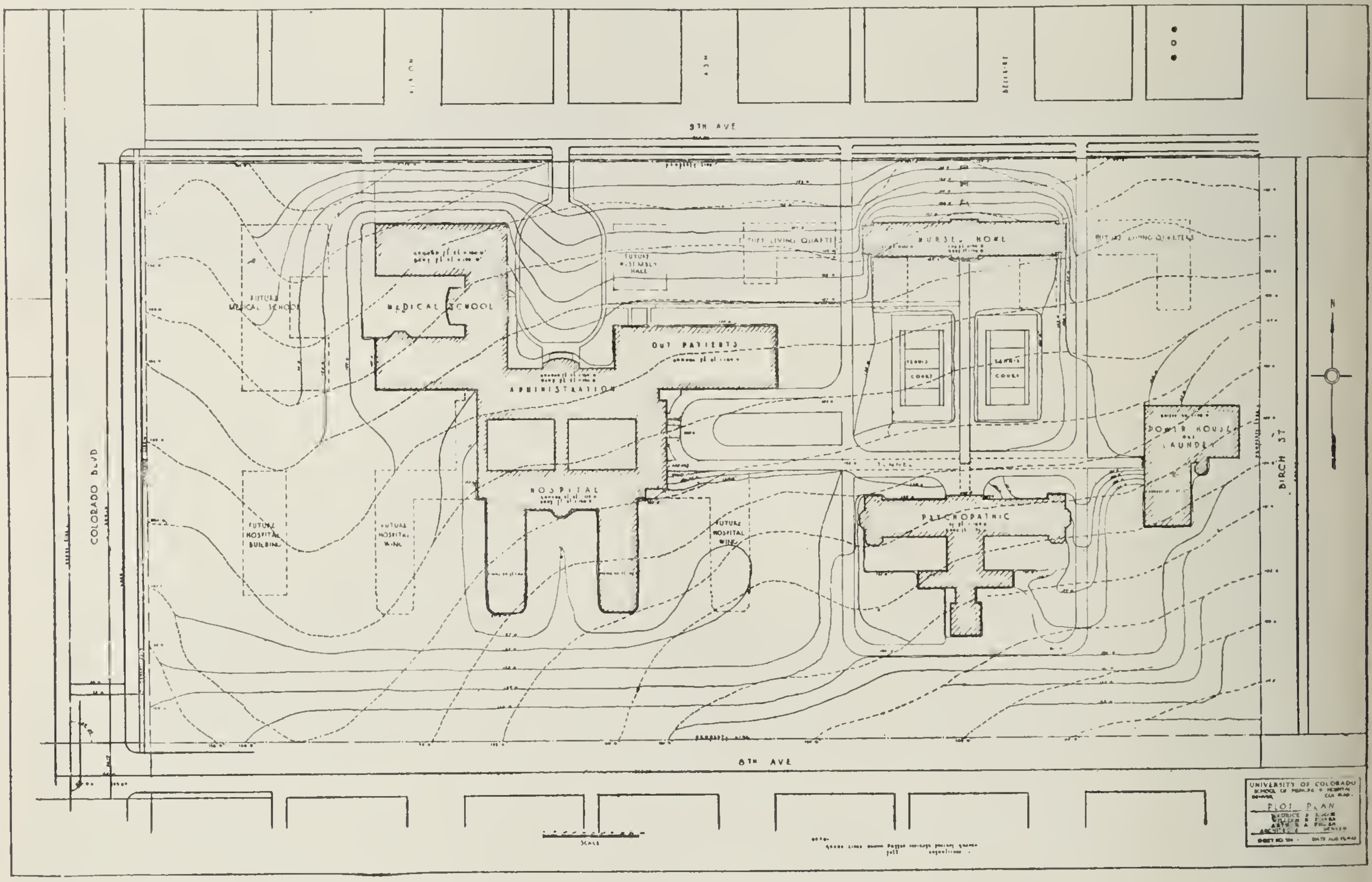
second basic consideration was to provide for close cor- ation, not only of medical school, hospital and outpatient artment, but also of the various departments housed in h, and for central location of those units used mutually several departments. The fundamental aim has been so correlate the laboratory and clinical departments struc- ally that correlation of function would be promoted. tended study and rearrangement have evolved the plans e presented, which it is believed represent a step in this ection.

n general, it will be noted that students and faculty have y and direct access from school to hospital, from school outpatient department, and from outpatient department to pital, and vice versa. The library, museum, clinical phitheater, and roentgenology department, used jointly by ool, hospital and outpatient department, are conveniently ated in the central administration building, the amphi- ater being flanked on each side by museum and library the convenient assembling of specimens and charts to ompany clinical demonstrations. The operating suite is ced on the fourth floor of the administration building, tral to the hospital, easily accessible to small groups of dents from hospital, outpatient department or school, and nected by stairs with the department of pathology on the r below. On the first floor of the administration building grouped the administrative office of the hospital and ool of nursing, adjacent to the dean's offices in the school in close connection with the record room, admitting unit, doctors' lounge. In the medical school, the departments clinical pathology and bacteriology, of biochemistry and siology and pharmacology, and of pathology and anatomy have been placed on the same floors, that member of each pair most closely connected with clinical work being in each case placed nearer the hospital. Animal quarters and animal operating rooms are provided on the fourth floor of the medical school, while on the ground floor the postmortem unit and cadaver storage occupy the two wings, with direct elevator connection with the latter to the department of anatomy on the third floor. The central section of the ground floor houses the students' locker rooms, lounging rooms and book store in close relation with the administrative offices.

A further application of the principle of centralization of mutually used units has been made in locating the single record room and drug store between the hospital and outpatient department, serving both. The admitting unit and isolation unit have been located in the connecting portion between outpatient department and hospital, thus serving both and making the isolation unit equally available for suspicious cases which may appear in the outpatient department, admitting room or hospital wards. The arrangement is such that these units may be easily incorporated in the outpatient department should it later seem wise to make all admissions by that route. In the hospital, correlation of departments has been carried out vertically by placing medicine and the medical specialties in the west wing, and surgery and the surgical specialties in the east wing. This division is not, however, maintained in the case of children, who will all be cared for on the third floor of the west wing in the pediatrics unit. It will be noted that this unit is on the same floor as the obstetrics unit, facilitating correlation of these departments in the care of the new-born. The special teaching function of the hospital is recognized by the provision of a conference room and a students' laboratory on each floor.

TRAVEL AND TRANSPORTATION

A third primary purpose to which much thought has been given is that of minimizing horizontal travel and of avoiding cross currents so far as possible in future operation. Both are believed to be important factors in economy and ease of administration. Vertical travel in the medical school is provided for by two elevators, one to be used exclusively for animals, cadavers, waste and supplies. In the hospital, an elevator in the administration building provides for staff and visitors, while that in the hospital proper (an additional one is shown to provide for eventual expansion) cares for the transportation of patients and supplies and internal needs in general. Linen chutes are provided for soiled linen. An elevator in the outpatient department provides for patients unable to use the stairs. The medical school and hospital are connected by separate corridors on the first two floors, above which level direct access is had by the main central corridor which connects hospital and administration buildings on each floor, while communication between outpatient department and hospital is direct on both floors of the former. All supplies destined to any part of the group will enter through the central receiving room on the east side of the basement and, after checking, pass direct to their appropriate store-rooms. The kitchen is centrally located in the basement, lighted overhead and at the sides and ventilated by large flues. The store-rooms and preparation rooms serving it are grouped at one end, while the prepared food passes out the other, past the diet-kitchen and dietitian's office, to the dumb-waiters which deliver it in the ward serving rooms. The return current of soiled dishes is deposited in the dish-washing room lying between the dumb-waiters in the basement. The dining rooms for staff, nurses, students and male and female help are grouped in the administration and hospital wings, easily accessible from the kitchen and on the same floor with it. Separate entrances are provided for each of these dining rooms with toilet and locker rooms for male and female help; a central linen and sewing room, with associated gauze reclaiming room, and a central sterilizing and dressing preparation room will serve the entire group.



Plot plan.

PROVISIONS FOR EXPANSION

The experience of other hospitals and medical schools shows that it is unwise not to undertake, in the original plans, to foresee possible future expansion, and that this may occur in unexpected directions. Such prevision has accordingly been sought in developing the present plans. The site provides ample room not only for the further development of the present group but also for the erection of detached hospitals of special character, should any wish at some future time to come in as teaching units. The present medical school provides for laboratory classes of fifty, but lecture rooms accommodate 100, so that expansion may be provided either by conducting laboratory classes in sections or by extension of the wings of the present building, or even by reduplication of the present unit in an inverted position. An intermediate stage of expansion or the extension of the research activities of the school, independent of increased enrolment, may be provided for by the expansion of the west connecting corridor between school and hospital into a three story unit containing individual research rooms. These will be easily accessible to both the clinical and the laboratory staffs, and will serve to strengthen the ties of interest between them. The general hospital, of a present capacity of 150 beds, is so designed as to permit the later superposition of three more ward floors, thus doubling its capacity; and should still further expansion be required eventually, additional identical units of whatever number of stories may be required can be placed at either side of the present units to an eventual total expansion of 600 beds. The outpatient building may be expanded either by additional stories or by an L addition. The administration building has not room for lateral expansion, but is believed to be ample for any probable future needs. It will be noted that in no case does expansion involve the sacrifice of the correlations and centralizations which have been worked out for the present units.

As a preliminary step to the development of plans, a study of wind direction and velocity for Denver was made from the records of the U. S. Weather Bureau in order to secure a minimum exposure of wards to violent winds, and a maximum avoidance of smoke and odors from the heating plant and laundry. A sun and shadow study was also made by constructing an exact cardboard model of the hospital wards, exposing it to the sun on the site and plotting the shadow curves on it. It was thus possible to determine the best orientation of this unit and its optimum height to width relationship to secure a maximum of sunshine.

Architecturally, the buildings of the group have been designed in a simple Georgian style, with little attempt at ornamentation, reliance being placed on mass and line to secure a simple and dignified effect.

In the development of these plans the architect and I visited most of the medical schools and important hospitals of the Middle Western and Atlantic states, and discussed the plans with deans, superintendents, faculty, nurses and others. It is a pleasure to acknowledge their universally helpful cooperation and the sound advice and criticism which they have so freely given.

Thirteenth and Welton streets.

Book Notices

Diseases of the Skin. A Manual for Students and Practitioners. By Robert W. MacKenna, M.A., M.D., B.Ch., Honorary Dermatologist, Royal Infirmary, Liverpool. Cloth. Price, $6.50 net. Pp. 451, with 166 illustrations. New York: William Wood & Co., 1923.

This is a recent addition to the already crowded field of dermatologic textbooks, and must compete with several established works of similar size. The author has adopted a classification based on etiology; but, as he states in the preface, in a field in which there are so many undiscovered etiologic factors, the point is soon reached at which such an arrangement must break down, and the arrangement of diseases is then based on their clinical characteristics. This method of classification leads to unfamiliar groupings. The book, prepared for the student and general practitioner, excludes some of the rare dermatoses, but many of them are considered briefly. The discussion of the various dermatoses is capable, and reflects the author's observations. Differential diagnosis is given special attention, and the treatment of the various dermatoses is given full consideration, especially methods that have commended themselves to the author. There is, however, frequent mention of colloidal therapy, ionization and similar measures, which are used more or less extensively in England, but which have not enjoyed wide use by American physicians. In the section on general therapeutics, there is a great deal of practical advice. The illustrations are numerous, well selected, and for the most part well reproduced. The book is attractively printed, and is to e commended as meeting the requirements for which it was lesigned; but it will scarcely serve to replace other works f similar scope.

Malaises des Aviateurs. Leurs Causes; Leurs Explications; Leurs Remèdes. Par le Drs. Perrin de Brichambaut & P. Béhague. Paper. Price, 1 franc. Pp. 15. Paris: Librairie Gauthier-Villars.

This brochure is an example of the careful watchfulness f the French medical officer to guard the health of the iviators, and is well worthy the attention of officers and men ngaged in flying. It is a brief compendium of general iygienic advice for the flier, and is of especial value for the fficer, who may with advantage know the general rules of ife particularly adapted to his men. The writers narrate riefly, in nontechnical language, the altered conditions in vhich the body is placed during flight, and the precautions hat may be taken to avoid troubles that may possibly arise. To each system a short paragraph is given, followed by an ccount of the precautions to be taken. For instance, under the eading of the circulatory system and the kidneys, the effects f variations of atmospheric pressure are pointed out, and, s a safeguard to keep these parts healthy, the flier is warned f the dangers of alcoholic liquors and of syphilis. The part layed in balancing by the internal ear is stated briefly, and he importance of equalizing pressure in the middle ear during rapid changes of atmospheric pressure. The flier is varned not to regard lightly a persistent cold in the head, vhich may interfere with the working of the eustachian tube, nd he is advised to keep the external meatus free of any blockage by wax or cotton. Finally, as flying stress is not uncommon, the authors point out the importance of the central nervous system as the regulator of the human organism, which must be kept in perfect order by sufficient sleep and sobriety in all things.

Sterility in Woman: Its Causes and Treatment. By Robert A. Gibbons, M.D., M.R.C.P., C.M., Gynecologist to the Grosvenor Hospital for Women. Cloth. Price, 12 shillings, 6 pence net. Pp. 244, with 44 illustrations. London: J. & A. Churchill, 1923.

The author has analyzed the subject of sterility in woman, beginning with thirty-three pages of statistics presented in readable style, and on the basis of which he concludes that the state should require a medical certificate from both parties; that special provision should be made for the care of illegitimate children because of the high mortality among them, and that there should be compulsory notification of all gonorrheal and syphilitic infections. Fifty-two pages are devoted to the anatomy and physiology of the genitalia. The literature has been very well reviewed, and is deficient only in the newest work on the causation of menstruation with a complete explanation of its mechanism and the rôle played by the tryptic secretion of the uterine glands (O. Frankl). There can be no dispute as to the correctness of the author's four postulates that determine pregnancy: 1. Ovulation must occur. 2. The ovum must be healthy. 3. The uterine mucous membrane must be physiologically sound. 4. The spermatozoa must be healthy. The author does not stress the aspiration theory of insemination, nor does he emphasize the importance of eupareunia. If the work of Kehrer is conclusive, this phase of sterility assumes much more significance, Kehrer believing that the incomplete orgasm results in a chronic hyperemia and chronic lymph stasis of the pelvic organs and resultant alterations in structure and function. In an excellent analysis of the male side of the sterility equation, the author emphasizes the importance of not giving an absolutely bad prognosis merely because of aspermia, pointing out the occasional occurrence of pregnancy when the husband has for years shown aspermia and then at length some spermatozoa have reappeared. In a detailed description of the microscopic appearance and behavior of the spermatozoa, the author justifies the importance of much greater study of the semen in its relation to sterility. There is much more to the actual fertilization problem than the mere observation of the presence of active spermatozoa. The rôle of the finer biochemical reactions is little understood. In twenty pages devoted to structural causes of sterility, the subject is well canvassed. It might have been more profitable to lay greater emphasis on the paragraphs dealing with strictures of the cervical canal, both congenital and acquired, and the problem of habitual abortion. In the chapter on functional and constitutional causes, the important rôle of malnutrition, obesity, alcohol and drugs, vaginismus and endocervicitis is well brought out. Profluvium seminis is properly relegated to an unimportant place. However, the author might well have devoted more space to dyspareunia and the endocrine interplay. Under medical treatment he takes up the various causes as laid down in the preceding chapters, and presents well balanced and sane views on such difficult subjects as dyspareunia, incompatability, endocervicitis, the chronic infections, and anaphrodisia. Operative treatment is well discussed in thirty-five pages covering all the usual subjects, including pneumatic dilation for partial stenosis of the tube as it was done by Eden and Lockyer and illustrated in their textbook several years ago. The entire volume is well worth careful reading, and is a real addition to systematic understanding of the problems involved, made readily accessible to the general practitioner.

Artificial Limbs and Amputation Stumps. A Practical Handbook. By E. Muirhead Little, F.R.C.S., Consulting Surgeon to the Royal National Orthopaedic Hospital. Cloth. Price, $4.50. Pp. 319, with 217 illustrations. Philadelphia: P. Blakiston's Son & Co., 1922.

This is unusual in that the subject matter is unusual, particularly to the American surgeon who, probably because of less extensive experience with amputations than his European colleague, has given little or no thought to kineplastic procedures on amputation stumps. The work opens with an interesting historical introduction; next follows a chapter on the surgery of amputations. The mechanics of various joints and muscles and their relations to various types of protheses are next described. A large part of the book is devoted to an extensive cataloguing of the various types of artificial limbs and their mechanics. These are profusely illustrated by excellent reproductions of photographs. The book is not bulky, and was not intended as a complete encyclopedic work. It has many interesting surprises for the average surgeon not familiar with recent advances in the development of artificial prostheses.

Anleitung zur Diagnose und Therapie der Kehlkopf-, Nasen und Ohrenkrankheiten. Vorlesungen gehalten in Fortbildungskursen für praktische Aerzte. Von Dr. Richard Kayser. 13th and 14th editions. Paper. Pp. 234, with 140 illustrations. Berlin: S. Karger, 1923.

This is the fourteenth edition of a small guide to ear, nose and throat diseases originally compiled from the author's lectures. It is designed primarily in its present form for the use of general practitioners, and as such, is far more detailed and text-laden than similar volumes published in England and America. For this reason there is little to recommend it to the practitioner on this side of the water. The diagnostic methods and instrumentation advised will seem crude and awkward to the American physician, and it is doubtful whether much of the armamentarium described is still obtainable in our up-to-date instrument houses. The illustrations do little to assist the reader through the verbosity of the text, as they consist principally of small pen pictures.

Epidemiology and Public Health. A Text and Reference Book for Physicians, Medical Students and Health Workers. By Victor C. Vaughan, M.D., LL.D., Emeritus Professor of Hygiene in the University of Michigan, assisted by Henry F. Vaughan, M.S., Dr.P.H., Commissioner of Health of the City of Detroit, and George T. Palmer, M.S., Dr.P.H., Epidemiologist for the Department of Health of the City of Detroit. In three volumes. Vol. II: Nutritional Disorders, Alimentary Infections, Percutaneous Infections. Cloth. Price, $9. Pp. 917, with 53 illustrations. St. Louis: C. V. Mosby Company, 1923.

The high standard set by the Vaughans and Palmer in the first volume of their "Epidemiology and Public Health" has been maintained in the second. The volume before us deals with nutritional disorders, alimentary infections and diseases contracted through the skin. An attempt is made to group diseases according to the avenues through which the virus reaches and infects the body. This is a useful arrangement for the purposes of prevention and public health administration, but the authors evidently had trouble with the classification. The authors frankly admit the difficulties, for there are some epidemic diseases for which there is no specific virus, there are others in which the avenues of infection are multiple, and they might have added that there are a number about which our knowledge is inadequate. Any grouping will need rearrangement with increase in our knowledge of epidemic diseases, their causes and modes of transmission.

The book continues to be a thoroughly reliable encyclopedia of knowledge concerning the ills of mankind. It is not only a compendium of reference, but also a readable textbook. Technical details are avoided, obtuse scientific researches are clearly epitomized; in fact, the style has charm and directness, and the high lights of preventive medicine are brought out with dramatic force. The story of yellow fever, the drama of rabies, the romance of typhoid fever and the history of plague are told with telling effect.

One of the outstanding features of the book that merits special commendation is the conservative, even cautious attitude which the authors assume toward many of the recent scientific advances. While judiciously critical concerning recent laboratory researches, the work is fully alive to modern progress: it is up to the minute. Vaughan does not admit unreservedly the nutritional cause of rickets and pellagra, and adheres to the possibility of infection in scurvy and endemic goiter. It is refreshing to find our ignorance on many points so frankly and manfully stated: the histories of the medical sciences and the conquests of sanitation are not lessened by an acknowledgment of our limitations.

Epidemiology has not yet been clearly defined. Vaughan's conception is broad and deep. He includes any information concerning a disease that throws direct or collateral light on its vagaries, or that may be useful in prevention or even in understanding its nature. He draws a sharp distinction between epidemiology and bacteriology, insisting that the former is very much broader and embraces the latter. He emphasizes the point, well known to epidemiologists, that some diseases were worked out and sufficiently well known to form the basis of rules and regulations for their prevention and control long before their causes had been discovered. He cites cholera as an example, and he might have added yellow fever and other infections. The historical side of each infection is illuminatingly drawn, and the statistical side is illustrated with special examples taken largely from American experience.

Food poisoning is well considered, this being one of the subjects to which Vaughan has made notable contributions. It is now admitted that food poisoning, for the most part, is an infection. There is a tendency at present to call all forms of food poisoning botulism: this is certainly an error. There can be no doubt that there are many bacteria in the colon-typhoid group, including the paratyphoids, which are the real cause of most cases of so-called food poisoning. Vaughan believes that food poisoning due to putrefactive changes in food is now very rare compared with what it was thirty or forty years ago. This he attributes to a greater care given to the preparation and care of food. Especially is this true of milk and milk products.

In a work of this sort, some chapters are bound to be better than others, and a certain unevenness is doubtless unavoidable in an undertaking of this magnitude. We would like to have more concerning plague, typhus fever, and infestations due to some of the animal parasites.

Evidence of Vaughan's long and active experience in the field, in the laboratory and in administrative positions shines forth in this volume, as in the first. He has long been a teacher of teachers, and he has now summarized his knowledge in permanent archives for all time. That Vaughan received his training in another generation is evidenced by his adherence to such terms as "cholera infantum"; that he leads the present generation in originality of thought is indicated by his proposal of new terms for old troubles: thus, he would have us call food poisoning "bromatotoxismus," which seems a little too long a word to become popular.

The publishers have again done their part well. The paper, print and illustrations are excellent. The book is indispensable for sanitarians, but will also be useful for the practitioner of medicine, as well as nurses, social service workers and students in medical and health schools.

Rickets: The Relative Importance of Environment and Diet as Factors of Causation: An Investigation in London. By H. Corry Mann, O.B.E., M.D. Medical Research Council, Special Report Series, No. 68. Paper. Price, 2 shillings, 6 pence net. Pp. 99. London: His Majesty's Stationary Office, 1922.

This is a comprehensive and painstakingly controlled report. The author emphasizes the rôle which unbalanced diet plays, contending that excessive carbohydrate with deficient fat is the main causative factor. He points out how lack of means promotes the use of such an adverse fat-carbohydrate diet. Contrary to Paton of Glasgow, he does not find that bad housing, and overcrowding and deficient air space are responsible, and he supports his contention by control cases. Other influences, such as heredity, are discussed and evaluated. This field of study is broad, embracing widely varying social conditions; the deductions, therefore, are not from any one group of patients, living, necessarily, under the same conditions. The method and thoroughness of investigation make the author's conclusions convincing.

Impotency, Sterility, and Artificial Impregnation. By Frank P. Davis, Ph.B., M.D. Second edition. Cloth. Price, $2.25. Pp. 166. St. Louis: C. V. Mosby Company, 1923.

If the reader expects to find scientific dissertation and instruction here he will be disappointed. This is a rather erotic publication which, unfortunately, at times sinks to the level of pornography. The presentation of superstitions and obsolete remedies does not add to its value.

Medicolegal

Testimony from Subjective Examination and Symptoms

(Wells Bros. Const. Co. v. Industrial Commission et al. (Ill.), 137 N. E. R. 791)

The Supreme Court of Illinois, in reversing a judgment that onfirmed an award in favor of an applicant for compensation nder the workmen's compensation act, says that the applicant as injured by being struck on the head, but the details of the ccident did not appear in the evidence. The questions in ispute were as to the period of temporary disability and ermanent disability, if any. Several physicians testified in e case, and the court thinks there was support in the evience for the argument made that considerable of the testiony of the physicians testifying for the applicant was based n a subjective examination, while it might be said also that ome of the testimony of the physicians for the employer was ased on the subjective symptoms as stated to them by the pplicant. This court has more than once held that the testiony of physicians is incompetent which is made after xamination of the applicant with a view to testifying and s based wholly on the physicians' observation of outward anifestations within the applicant's control, such as pressure r twitching of the hands or turning in of the toes. This ourt has also held that, when the physician's statement is ased partly on his own observation and partly on the statement of the case made by the injured person, such evidence s not admissible. Therefore it is clear that the testimony f a physician, so far as he testified that it was based only n the applicant's actions and statements, was inadmissible. he testimony of another physician who based his conclusion s to the applicant's condition partly on the statements of e subjective symptoms made to him by the applicant was bjectionable, since, under the decisions of this court, a physiian is not authorized to base his conclusions as to a person's jury in part on objective symptoms and in part on subective symptoms derived from the patient's statements to the hysician. It was clear from the testimony of the physicians ho testified for the applicant that they had him under their are solely for the purpose of examination to prepare themelves for testifying in his case, and the authorities all agree at the testimony of experts in such cases should not be ased on any subjective symptoms or the statements of the pplicant as to the effect of his injury. However, the porons of the testimony of the physicians which pertained to hysical examinations made by them and which were not ased on the patient's statements might be held competent, s would also their opinion evidently based on their own dgment from the objective examination of the patient.

Proof of Roentgenograms—Conjectures of Experts

(Stevens v. Illinois Cent. R. Co. (Ill.), 137 N. E. R. 859)

The Supreme Court of Illinois, in reversing a judgment ndered in favor of the plaintiff for damages for personal juries, says that the most serious error committed by the ial court in the admission of incompetent evidence was the dmission of a so-called roentgen-ray film which purported show the condition of the plaintiff's skull. A witness entified a film produced in court as one prepared by him, nd testified that it was a roentgen-ray picture of the plainff's skull. Although a roentgenogram produced by roentgen ys cannot be verified as a true representation of the subject, the same way as a picture made by a camera, the rule in gard to the use of ordinary photographs on the trial of a use applies to roentgenograms of the internal structure and ndition of the human body taken by the aid of roentgen ys, and such a roentgenogram, when verified by proof that is a true representation, is admissible in evidence. Like her photographs, they cannot be received as evidence until oper proof of their correctness and accuracy is produced. must be established by competent evidence that the picture rrectly portrays the condition it purports to represent before has any place in the case. Some witness must be able to testify that the picture offered in evidence shows accurately what the witness saw when he looked into the body with the fluoroscope, or he must be able to say that he is skilled in the use of the roentgen-ray machine, and in taking and developing roentgenograms and that he took the picture offered in evidence with the body in a certain position (describing it), with a machine which he knew to be in good working condition and accurate, and that from his experience he is able to say that the picture produced by the machine was an accurate picture of the internal condition of the body. These methods of establishing the accuracy of the picture are not exclusive, but, whatever method is used, its accuracy must be established before it is admitted.

Applying these well-established rules to the facts in this case, it is apparent that the plaintiff failed to establish the preliminary requirements necessary to make the roentgen-ray film admissible. The witness did not state that he saw the condition of the plaintiff's skull, or that the film correctly represented this condition. Nor did he state how the film was taken, or that he had ever had any previous experience whatever with a roentgen-ray machine, or that he had ever made a roentgen-ray photograph, or that he knew anything about how they ought to be made, or that the roentgen-ray machine used by him was accurate, or that it was in working condition at the time the exposure was made, or whether he had ever checked a picture made by his machine with a condition seen by his eye with the use of the fluoroscope, to determine whether the machine accurately portrayed the internal condition of the part of the body under investigation.

The error of admitting this film and the photograph printed from it was aggravated by permitting two physicians to examine the film and the photograph, and then say what diseases and disabilities might possibly result to the plaintiff from the injury to his skull which the roentgen-ray film purported to show. They testified that he might possibly have an abscess of the brain, that there might be an adhesion of the brain to the dura and a consequent lessening of the caliber of the skull, and that epilepsy might result. They were permitted to say, further, that these things might result in his death. It has been repeatedly held by this court that a mere possibility that future pain or suffering may be caused by an injury, or that some disability may result therefrom, is not sufficient to warrant an assessment of damages. Mere surmise or conjecture cannot be regarded as proof of an existing fact or of a future condition that will result. Expert witnesses can testify or give their opinion only as to future consequences that are shown to be reasonably certain to follow.

Must Accept Such Physician as Country Affords—Duty as to Undergoing Retreatment

(H. T. Whitson Lumber Co. v. Upchurch (Ky.), 248 S. W. R. 243)

The Court of Appeals of Kentucky, in affirming a judgment for $10,000 damages in favor of plaintiff Upchurch, says that he was a boy 12 years of age who, while in the employ of the defendant lumber company, had a wheel of a truck run on his left thigh, breaking the bone, and had his foot and ankle on the other leg badly mashed. In consequence, his left leg was bent and shortened by 2 inches, while his right ankle was swollen, the bones of his foot misplaced, and he suffered from fallen arches. The injury occurred at an isolated place near the Tennessee line. Both the boy's father and the company's foreman endeavored to get medical assistance without avail, and finally, at the suggestion of the father, the foreman procured a physician who was not licensed in Kentucky. The physician arrived nine or ten hours after the accident, and, together with a college student, set the limb and dressed the other injuries.

The defendant contended that it was contributory negligence on the boy's part not to have procured another physician. But even an adult is required only to exercise ordinary care and prudence in the selection of his physician, and must accept such as the country affords. Certainly no more could be required of this helpless 12 year old boy, lying crushed and mangled as he was for hours. Moreover, even if the father had been able to procure another physician and negligently failed to do so, this negligence could not be imputed to the boy. In addition to this, the company's foreman was participating in the matter, and not only did not object to the physician procured, but actually sent for him, and the company was in no position to complain.

Two officers of the company testified that they visited the boy's parents, and in his presence proposed to send him to a hospital for retreatment, and stated that the company would pay his expenses, or that they would have a surgeon treat him at home. This treatment was outlined by three physicians, who testified that the fractured limb could be rebroken and straightened, making it just a little shorter than the other leg, or that, by breaking it and grafting a bone on it, it could be extended to its original length; that the ankle and foot could also be treated, and that, while they could not be fully restored to their normal condition, the boy's injuries as a whole could be reduced to such an extent that there would be practically no physical impairment of his power to earn money; that this operation would be attended with slight risk and but little pain. They admitted, however, that it would require the administration of anesthetics, an expensive operation, and quite a long time spent in the hospital. The boy and his father and his mother, on the other hand, denied that these officers made them any such propositions for surgical treatment or that they refused to accept it.

It may be considered as a general proposition of law that, when a person claims damages resulting from the negligence of another, and it is shown that by a practical treatment he can reduce his injuries or secure relief from them without serious danger to himself, it is his duty to do so, or to have his damages minimized in proportion to the amount his injuries would have been reduced by such treatment, less the cost of treatment and compensation for the pain occasioned thereby; but this court is not aware of any decision in which it has been held that such a course is a condition precedent to a recovery of damages. At any rate, one is not required to take the risk of a serious surgical operation for the benefit of the wrongdoer, and his failure to do so does not reduce his verdict to merely nominal damages. Indeed, it has been held that under such circumstances a refusal to undergo a serious and critical surgical operation could not be considered in mitigation of damages.

Nor does the court think that under the circumstances the verdict was excessive. Issues of fact were raised which were submitted to the jury, and it was the province of the jury to determine as to the advisability of a surgical operation and its attendant risks, as well as to the result to be obtained thereby, and this court is not prepared to say that the verdict strikes one at first blush as being a result of passion or prejudice.

Opinions of Medical Men Under Plea of Insanity

(Anderson v. State (Ala.), 95 So. R. 171)

The Supreme Court of Alabama, in affirming a judgment of conviction of robbery where the defendant pleaded "not guilty by reason of insanity," says that under that plea the issues presented gave much latitude both to the defendant and to the state to introduce evidence of the defendant's acts, declarations, and conduct, not only at the time of the offense, but prior and subsequent thereto. The opinions of medical men, under a plea of insanity, are by no means binding on juries even when such experts have had ample opportunity to observe the character and phenomena of the defendant's disease, such opinions being admitted to be weighed with the other evidence; and, if the whole evidence does not clearly prove to the reasonable satisfaction of the jury that insanity (such as is recognized to excuse crime) existed at the time the act was done, the jury may find the defendant guilty, if the other facts warrant that verdict, although the medical witnesses are of the opinion that the prisoner was insane at the time of the commission of the offense. Under the issue of "not guilty by reason of insanity," and when on the trial material evidence pro and con is introduced, there are presented opposing presumptions on a subject-matter involving the application of common knowledge, as to which expert and nonexpert witnesses may testify. Such being the character, extent, and opposing presumptions of the testimony in this case, a jury question was presented. The burden of proof imposed by the law on a defendant under a plea of insanity in criminal prosecutions is that the same shall be clearly proved to the reasonable satisfaction of the jury.

Liability for Needle in Body After Operation

(Sellers v. Noah (Ala.), 95 So. R. 167)

The Supreme Court of Alabama says that in this case, which was transferred to it from the court of appeals, plaintiff Noah was awarded a judgment for damages, which is affirmed, against the defendant, a surgeon, who, it was charged, breached his contract with the plaintiff in performing an operation for appendicitis, the alleged breach consisting in leaving a needle or a portion of a needle in the plaintiff's body. The counts of the complaint declared on the breach of the surgeon's contract. They were not in tort; the reference to negligence therein being but descriptive of the method or means whereby the contract was breached. This construction of the counts confirms the correctness of the trial court's action in eliminating the plea of the Alabama statute of limitation of one year, applicable to actions ex delicto (for torts or wrongdoing). In operating on or in treating a patient, a surgeon's duty is to bring to the service and to exercise such reasonable care, diligence, and skill as physicians and surgeons in the same general neighborhood, in the same general line of practice, ordinarily have and exercise in a like case. Neither a physician nor a surgeon is an insurer of the successful issue of his treatment or service. He is responsible either on contract or in tort for failure to meet the exactions of the duty stated.

When a surgeon performing an operation leaves in the body of his subject, after closing the wound, a foreign substance that causes injury or damage to the subject, the burden of proof passes to the impleaded surgeon to show that he exercised the stated reasonable and ordinary care, skill and diligence in respect to the operation on his subject, including the process of closing the wound. In this case there was evidence directed to showing that a needle or a part of a needle was left in the body at the time the defendant operated on the plaintiff for appendicitis, and that it worked out about three years later, meantime causing the plaintiff pain and physical disability, and that the place on the surface of the plaintiff's body where the needle appeared, and from which it was removed, was very near, if not at, the point at which the incision was made by the surgeon. There was also evidence to the contrary; but if the jury concluded that the needle was left in the body of the plaintiff by the surgeon at the time of the operation, the burden of proof passed to the surgeon to show that the needle's presence was not due to the absence of reasonable and ordinary care, skill and diligence on his part. Both of these inquiries of fact were seriously contested in the evidence, and it was the jury's province to solve them.

In accordance with the evidence for the defendant that in the operation the defendant used no such needle or part of a needle as that which the plaintiff contended worked out of his body near the place of incision, the defendant requested, and the trial court refused, several instructions predicating the defendant's nonliability if the jury found that the thus hypothesized fact was true. Those requests for instruction would have invaded the jury's province to conclude on the issues of fact. A surgeon may omit the discharge of or violate the duty the law imposes on him by permitting, through the absence of requisite care, diligence or skill, a foreign substance to enter or remain in the body of the subject of his operation. The fact, if so, that the defendant used in this operation no such needle was, of course, a circumstance directed to showing no breach of the defendant's contract in the premises; but it did not conclude against the probability that, if this needle or part of the needle did enter the plaintiff's body through the incision or in the process of performing the operation, its presence in the plaintiff's body was not to be otherwise accounted for; as, for instance, through this needle's being attached to or commingled with material or appliances used by the surgeon in performing the operation.

Society Proceedings

AMERICAN PEDIATRIC SOCIETY

Thirty-Fifth Annual Meeting, held at French Lick Springs, Ind., May 31-June 2, 1923

The President, Dr. L. Emmett Holt, New York, in the Chair

Allergy to Cow's Milk in Infants with Severe Malnutrition

Drs. Oscar M. Schloss and Arthur F. Anderson, Boston: An investigation was undertaken to determine, if possible, whether the absorption of unaltered protein takes place in cases of atrophy. In eighty of the ninety-eight cases of atrophy observed, the blood contained precipitin for cow's milk. Precipitin was not present at all times in each individual case, but when present was usually marked. It was also possible to demonstrate that, in some of the cases in which precipitin was present in the blood, the anaphylactic antibody was also present. By means of injection of the patient's blood, it was possible passively to sensitize guinea-pigs to cow's milk. In confirmation of previous work by various observers, it was possible to demonstrate by means of precipitin and anaphylactic tests the absorption of unaltered or partly altered cow's milk protein during the course of diarrhea. In some such cases, precipitin occurred ten days or more after the absorption of unaltered protein. The investigation demonstrated the presence of precipitin and anaphylactic antibodies in the blood of atrophic infants. It is impossible at present to determine whether the presence of these reaction bodies, caused by the absorption of unaltered protein, has any definite and practical clinical bearing.

Vitamin Content of Breast Milk

Drs. Frederic W. Schlutz, C. C. Kennedy and L. Palmer, Minneapolis: Our investigations show that breast milk contains both fat-soluble vitamin A and water-soluble vitamin B, but it seems to contain less vitamin B than cow's milk and seems to be richer in vitamin A than in vitamin B. It seems possible to influence both the A and B factors in breast milk by proper diet. Rats gained in weight and improved in general condition faster on cow's milk than on breast milk. Perhaps, the fact that they took cow's milk easily and breast milk very poorly may explain why they did not thrive so well on breast milk, but the lower vitamin B content of breast milk may have something to do with the results.

DISCUSSION

Dr. Alfred F. Hess, New York: In these tests we are estimating the requirements for rats. It is possible that the requirements may be different for infants.

Dr. E. W. Saunders, St. Louis: There is no matter that needs more attention than the diet of the nursing mother, which, in this country, is abominable and atrocious beyond expression. I have seen more severe cases of rickets in children on breast milk than in those fed any other food.

A Study of Rickets in the Breast Fed

Dr. L. R. De Buys, New Orleans: This study was made on 197 babies. Lack of supervision and care seemed to influence rickets to develop with more intensity. There was no noticeable increase in the symptoms of rickets due to the simple acute illnesses, the numerical order of the child in a family, nor to the number of children in a family. Syphilis was noted in only eight instances. There was no relation between syphilis and the severity of the rickets. The atmospheric conditions during the period of this study showed that the sunshine and the temperature were greater than the normal average and that the precipitation pressure was less than the normal average. The disease was present in 100 per cent. of the cases in this study. It was more marked in the colored than in the white. There was no seasonal peak for any of the symptoms. There was, however, a seasonal peak for the combined symptoms of the disease noted in the month of March. Costal beading was the most frequent symptom. Enlarged epiphyses, cranial bosses, flaring ribs, and craniotabes followed in the order named. Each symptom was more common in the colored than in the white; beading showing the least difference. The difference increased as the frequency of the individual symptoms decreased, with the exception of craniotabes. Rickets should not be looked on as a disease of the second half of the first year, but as a disease which may begin at least shortly after birth.

DISCUSSION

Dr. Alfred F. Hess, New York: It is interesting that these studies made in the South show the same general incidence of rickets as in the North, that is, they show the highest incidence in March. Last year I stated before this society that 50 per cent. of the children in New York, in cases in which the mothers were well fed, showed rickets. This year the investigation was repeated, and it was found that in 33 per cent. of children who were well nourished there were signs of rickets, although the diets of the mothers had been adequate.

Dr. Charles Gilmore Kerley, New York: Many badly nourished babies are brought to me with rickets from too prolonged breast feeding. Babies that have been nursed too long, in addition to bone changes, show secondary anemia, a weakened muscular condition and a nervous instability. I would rather have a child in good condition on cow's milk than anemic on breast milk.

Dr. Henry Heiman, New York: We give orange juice as early as the fourth week after birth, beginning with one drop and gradually increasing the quantity. In that way we probably prevent scurvy and rickets.

Hydrochloric Acid Milk in Infant Feeding

Dr. Harold K. Faber, San Francisco: Within comparatively recent times the use of sour milk for infant feeding has become increasingly popular. There are, however, certain objections to its use which have prevented its general employment for healthy and often for sick infants. Protein milk is difficult of preparation; bacterial lactic acid milk is so acid that often infants refuse it altogether; it is variable in its composition and does not readily lend itself to flexible modification, particularly of its acid and buffer value. In order to overcome these disadvantages, the attempt has been made to modify the reaction and buffer value of cow's milk for purposes of infant feeding by using tenth normal hydrochloric acid (approximately 0.4 per cent.). On the assumption that the ideal buffer value as a formula should approximate that of breast milk, 1 part of tenth normal acid is added to 4 parts of milk, making a so-called 25 per cent. hydrochloric acid milk. The titration curve shows that while the buffer value is not the same as that of breast milk throughout, about the same amounts of acid must be poured out for both by the stomach in order to bring the food to the assumed threshold of acidity for gastric digestion, p_H 5.0. Clinically, this percentage of hydrochloric acid to milk has appeared to give the best results for general use. In preparing the formula, the acid is added last in the cold, while stirring with a glass rod. It should not be warmed above 100 F., or it will sometimes precipitate. It can readily be prepared in the home, since small mistakes in measuring the acid, which is very dilute, are of little consequence. The amount of acid is always calculated from the amount of milk, not from the total formula volume. Whole top milk is used. The reaction of 25 per cent. hydrochloric acid milk (p_H 6.0) is less than that of protein milk (about p_H 5.5) and much less than that of bacterially soured milk (about p_H 4.5). The addition of hydrochloric acid to milk inhibits the growth of bacteria somewhat, so that its keeping properties are increased to some extent. The indications are that hydrochloric acid milk affects favorably the tolerance for fats, even when they have previously been ill borne. Constipation has been exceptional in infants on this milk, and consistently good gain in weight has been the rule. We do not give this milk to infants under 6 weeks of age. This method has the advantage of giving a milk of known and easily controlled acidity which readily lends itself to flexible modification.

DISCUSSION

Dr. David Murray Cowie, Ann Arbor, Mich.: For many reasons milk acidified with lactic acid seems much better and safer than hydrochloric acid milk.

Dr. W. McKim Marriott, St. Louis: In our experience, the optimum reaction of cow's milk at the time it is fed to the infant should be from p_H 4.0 to 4.4. When such a degree of acidity is obtained, the milk will, in the infant's stomach at the height of digestion, attain the value closely approximating that of breast milk. The amount of hydrochloric acid which Dr. Faber adds is not sufficient to bring the milk to this optimum degree. His results show, however, that the action of hydrochloric acid is of value even if this degree of acidity is not reached. In order to attain the optimum, it is necessary to use approximately 60 c.c. of tenth normal hydrochloric acid per hundred cubic centimeters of milk, and this is an excessive amount of acid for the infant's stomach to care for, as the quantity added to a day's feeding would just about double the total acid content of the body which must be cared for by the acid-base regulating mechanism. Hydrochloric acid is not burned in the body; it must be neutralized and excreted. Organic acids have an advantage over hydrochloric acid in that they may be completely burned to water and carbon dioxid and in that way throw no strain on the organism. We have found lactic acid to be as effective in digestive processes as is hydrochloric acid and to have the advantage that it can be added in larger amounts. The amount we have used has been an equivalent of 8 c.c. of lactic acid U. S. P. per thousand cubic centimeters of milk (1 dram to the pint). This is added drop by drop, with stirring, to milk which has previously been boiled and then cooled. Such milk may safely be given undiluted to even premature infants.

Dr. Harold F. Faber, San Francisco: It is not necessary to bring the acidity of the milk to the exact digestive optimum, but simply to add enough acid to lighten the secretory burden of the stomach to a point where it is not excessively difficult for the stomach itself to bring the food to the optimum p_H. I did not mean that p_H 5.0 was the optimum gastric acidity, but it may be regarded as the threshold of acidity for the beginning of digestion. In the earlier cases we used tenth normal acid up to 45 per cent. without unfavorable effects, but in one or two instances, the desired results were not obtained.

An Improved Protein Milk in the Diarrhea of Infants

Drs. Charles Gilmore Kerley and **Howard Reid**, New York: While the use of protein milk has been of much service as a diet for infants with diarrhea, it has failed in many instances, particularly in the very young and delicate whose need of nourishment is the greatest. For several years past we have been feeding malnourished infants most satisfactorily with evaporated milk specially put up. This prescription has customarily been employed in the type of case which is usually given a dried milk or a butter-flour mixture. The butter flour failed absolutely in the malnutrition cases with diarrhea, no matter how the fat and sugar content was manipulated. Hence, a new method had to be devised for this type of cases. In the preparation of the milk, one quart of skimmed milk is boiled for one hour, cooled to 90 F., and divided into two parts. To one part, one-half tube of *Bacillus acidi-lactici* is added, while to the other part is added one-half tube of *B. bulgarici*. Both portions are incubated for eight hours at a temperature of 80 F., then shaken well, cooled and kept on ice. One-half tube is sufficient to inoculate one pint of starter which will be enough for twenty quarts of lactic acid. To prepare the protein milk, one teaspoonful of each culture is added to one pint of evaporated milk and incubated for four hours or to the degree of acidity required. Usually a two hours' incubation is all that is necessary. As a result of the shorter period of incubation, the mixture is more palatable, less acid, and is rarely refused or vomited. A printed slip is placed on every package stating that the bottles containing the food are to be kept immersed in ice; this prevents a further growth of the culture. In none of forty-seven cases so treated did the diarrhea fail to clear up. It is not claimed that the scheme presented is a method of infant feeding; it is a means of temporary feeding for sickly, delicate infants, by which it is possible to give a higher caloric, well balanced ration which the patient is able to utilize.

A Pediatrician's View of the Food Hormone Doctrine

Dr. E. W. Saunders, St. Louis: Of the various designations given to those principles known only by their effect on the human economy, the most appropriate would seem to be that of "Lusk food hormone." I would suggest the possibility of using a positive instead of a negative nomenclature, such as: Food Hormones: I. Osteotrophic; kevatotrophic. II. Orexins, (*a*) neurotrophic, (*b*) microbiotrophic. III. Hematotrophic. In other words, there seems to be ascribed to each vitamin the rôle of presiding over the nutrition of a certain kind of tissue. Again, it may be questioned whether it is correct to speak of the neural avitaminosis as a neuritis. Only those children who are so happy as to be in vital touch with a pediatrician are secure from the ravages of an avitaminosis. The traffic in "devitalized" baby foods continues unabated. Diseases of malnutrition are greatly on the increase. In 1907, a commission empowered to investigate this evil issued a report in which it was reiterated that "fats and green vegetables are sufficient to balance the decorticated rice in the diet." This fallacy continues to be published in almost every book on the subject of nutrition. For experimental animals this statement might hold true, but for the average human being it will not. A vitamin-rich diet, a balanced ration, can practically be constructed only out of natural foodstuffs. The vast superiority of yellow cornmeal over white cornmeal has been a matter of common knowledge for some time, but so far only pigs and cattle have profited by it. Every patent food for babies and all food packages of interstate commerce should be branded with their caloric and their vitamin content.

A Study of Three Hundred Cases of Pertussis

Drs. Charles Herrman and **Thomas Bell**, New York: Females are more frequently affected with pertussis than males. Eighty per cent. of these cases occur in children under 5 years of age, during the summer months when other communicable diseases are at their lowest point. There are cases of pseudopertussis. The term pertussis should be restricted to an acute infectious and communicable disease caused by the Bordet-Gengou bacillus. Pertussis is most communicable in the catarrhal stage; it is usually not communicable after the fourth week. The respiratory complications are the most important; they were present in 58 per cent. of the series; 14 per cent. had a complicating bronchopneumonia. There is no conclusive evidence that pertussis is an important factor in the causation of pulmonary tuberculosis. A positive Pirquet reaction does not become negative during the course of pertussis. The principal aids in the diagnosis of pertussis are the presence of a relative and absolute lymphocytosis in the blood; the presence of the Bordet-Gengou bacillus in the sputum, and a positive reaction to the complement fixation test. The cutaneous tests have not proved of any value. In a series of 297 cases of pertussis, 90 per cent. of the deaths were due to a complicating pneumonia. The mortality in these patients who had pneumonia was 18 per cent.; the mortality of those who had pertussis and measles was 30 per cent. Patients with pertussis should be kept in bed, and, if possible, in the open air. Meteorologic conditions seem to have an effect on the paroxysms, for patients may show changes in the frequency and the severity of the cough from day to day, irrespective of treatment. In the control of the cough, antipyrin fortified by bromids has given the best results. We have not obtained favorable effects from injections of ether or from vaccination. Pertussis vaccine has a specific effect in about one fourth of the cases. When a case of pertussis occurs in an institution for infants and children, it might be worth while to prepare an autogenous vaccine from the first case, to be used for immunizing and therapeutic purposes in the other children. We shall not be able to control the spread of pertussis, or to reduce the great mortality under 2 years of age, until we have a method of immunizing infants against the disease.

DISCUSSION

Dr. Henry Dwight Chapin, New York: If a child is perfectly well between paroxysms, I would not think of putting him to bed, because the child gets better fresh air by going out, especially if he lives in the average tenement. In the acute stage of the disease, it may be well to be a little cautious, but when that is past, the child is better if he is up and about.

Dr. Rowland Godfrey Freeman, New York: Some years ago I made a study of the relation of the incidence of contagious diseases to the school year. There are few contagious diseases in the fall, but they gradually increase toward spring, with the exception of whooping cough, which is very regular throughout the year.

Dr. Harold K. Faber, San Francisco: We have treated twenty-five or thirty cases of whooping cough with the roentgen rays. In four or five cases, there was a very striking and immediate improvement in the cough and diminution in the severity of the paroxysms.

Dr. Julius H. Hess, Chicago: We have treated about twenty cases of whooping cough with the roentgen rays, and have had results such as Dr. Faber has described. I think that we have better results with roentgen rays than with any other form of treatment. Sometimes there is an improvement after one exposure. The results are better if the roentgen rays are not used until the child is in the paroxysmal stage, so as not to interfere with the production of immunity.

Dr. Alfred Friedlander, Cincinnati: The improvement following the use of the roentgen rays in whooping cough is related to lymphocytosis, and this has a relation to the bronchial lymph nodes, because the lymphocytosis disappears after the use of the roentgen rays; this seems to be due to the action of the roentgen rays on the lymph nodes.

Dr. E. W. Saunders, St. Louis: The use of pertussis vaccines has been very disappointing at times, and again the results have been very good. The immunity conferred by the vaccines does not last a year. The introduction of an O'Dwyer tube and its withdrawal has a desensitizing effect. The French use this procedure and after intubation the child no longer has severe paroxysms. In every case of whooping cough, whether the adenoids have been operated on or not, it is important to clear out the epipharynx. This shortens the course of the pertussis.

Bile Pigments and Bile Salts in the Duodenal Juice of Children

Drs. Rood Taylor, Mildred B. Zeigler and A. E. Gordeau, Minneapolis: It may be considered as proved that increased amounts of urobilin or urobiligen in the stools, the urine or the duodenal juice, are significant either of increased blood destruction or of hepatic disease. Twenty-seven duodenal juices from twelve subjects were analyzed. Five specimens were normal, three had varying degrees of malnutrition, one had otitis media, one had rickets, and two had celiac disease. Wide variations in the total bile salts were found, ranging from 18 mg. in a healthy infant of 3 months to 550 mg. in a 2 year old boy with celiac disease. In summarizing the results, it may be stated that the duodenal juice of infants contains a varying concentration of bile salts—from 0.2 per cent. to 5 per cent.; that there is a fluctuating but decided preponderance of glycocholic acid and that the content of bile salts in the duodenal juice is not influenced by celiac disease, nor by the administration of cod liver oil.

Chronic Ulcerative Colitis in Childhood

Dr. Henry F. Helmholz, Rochester, Minn.: Five cases, although different in their mode of onset, when fully developed appeared to be the same. The chronic recurrent dysentery with watery, bloody passages, marked emaciation, persistence of the symptoms in spite of treatment, and the absence of any known etiologic factor, such as *Bacillus dysenteriae*, ameba, *Balantidium coli* or tuberculosis, made a definite clinical entity. Whenever a specific cause can be demonstrated, the condition is usually not considered chronic ulcerative colitis. The ulceration usually begins in the lower portion of the bowel, and in the course of the illness the entire colon is involved; only rarely is the ileum involved. On proctoscopic examination, the ulcers are usually most marked in the rectum and lower sigmoid; in the early cases they are less numerous in the sigmoid. The colon is usually thickened, the surface appearing red, glazed, and with numerous small ulcers. In the severe cases, only small islands of mucosa are left, the entire surface being ulcerated and presenting a granular appearance. The roentgenogram is characterized by marked narrowing and absence of haustrations in the full extent of the involved colon. The stools, usually from five to ten in number, contain considerable mucopus and blood, frequently in clots. Large hemorrhages occur only occasionally in adults, but seem to be more frequent in childhood. If there is no complication, the patients are usually free from fever. Perirectal inflammatory conditions are, as a rule, of very serious prognostic significance. Aphthous ulcers in the mouth are frequently associated in the severe cases. There is a persistence of dysentery in spite of all medical treatment, and absence of any of the usual etiologic factors. Under medical treatment the prognosis is bad. Four of the patients in this series were subjected to operation. In two cases a colostomy was done, in the third an appendectomy and in the fourth an ileostomy (Brown operation) was performed, by means of which the lower bowel could be irrigated constantly with saline solution, and with double opening of the ileostomy no feces reached the colon. Two of the patients are practically well; the other two did not improve in spite of the operation. In cases of this kind, medical treatment, consisting of saline irrigations and large doses of bismuth by mouth, should be tried. If the patient does not improve in the course of six weeks or two months, it is advisable to operate. The Brown operation is unquestionably the operation of choice. It is wise to let considerable time elapse before closing the ileostomy opening. One patient in this series recovered under medical treatment.

Operation of a Breast Milk Dairy

Dr. Henry Dwight Chapin, New York: This paper will be published in full in The Journal.

Hereditary Neurosyphilis

Drs. Philip C. Jeans and Sidney I. Schwab, St. Louis: We have examined the cerebrospinal fluid from 470 patients with neurosyphilis. With two exceptions, all gave positive Wassermann reactions. Of the 470 children, 206 were under 2 years of age and 264 were over 2 years of age. Of those under 2 years of age, the cerebrospinal fluid Wassermann was positive in fifty-six, and eighteen of these showed some clinical manifestation of their central nervous system infection, while thirty-eight were considered as having latent nervous system infection. Of the children over 2 years of age, fifty-four had positive cerebrospinal fluids; of these thirteen had a clinically latent nervous system infection, nine others were latent, except for pupillary changes, while thirty-two had more or less marked manifestations of a central nervous system infection. The conclusion from this study is that from one fifth to one fourth of all syphilitic children show laboratory evidence of nervous system involvement. Pupillary changes were the most frequent of all the nervous manifestations in the older group of children; they occurred in at least 64 per cent. of the older children in this series; similar changes were found rather commonly in the infant group.

A Case of Megacolon

Dr. H. M. McClanahan, Omaha: A child, aged 2 years, came with a history of extreme constipation since birth. The treatment for one year without a single intermission consisted in a daily dose of a teaspoonful of a mixture of equal parts of aromatic cascara and fluidextract of senna. During the last year and a half the child had taken this combination every other night. Each evening an enema of 2 ounces of olive oil was given. Each morning a soapsuds enema was administered from a pint to a quart. This enema was siphoned off by means of a catheter, usually with a fair bowel movement. During the past year the mother had given massage after the enema. During the past three months it had no longer been necessary to use the catheter. The child is now normal for his age and presents a picture of general well-being.

Scorbutus with Exophthalmos

Dr. Percival J. Eaton, Pittsburgh: A child, aged 11 months, ill for the first time, exhibited a peculiar bulging of the eyes, and there were hemorrhagic spots in the lids and orbital region. The typical symptoms of scurvy were present, and, under the usual treatment for scurvy, they disappeared rapidly. The hemorrhages about the orbit were gradually absorbed, but it soon became evident that the child's vision was below normal. Ophthalmologic examination showed increased tension of both globes, with evidences of glaucoma, and vision was probably nil. This condition was doubtless caused by hemorrhages which pushed the eyeballs forward. In time the pupils which had been unequal became constantly equal. The child was taken from the hospital in good condition. It is probable that some other abnormality was present, associated with a subnormal mental condition, perhaps an endocrine imbalance.

Study of Acute Anemias in Infancy

Drs. William Palmer Lucas and Hal Hoobler, San Francisco: The acute anemias which we have studied we have placed in four groups according to the method of their production: (1) mechanical loss of blood; (2) hemoglobin deficiency; (3) destruction of bone marrow; (4) bone marrow and blood stream complex. In the first group, the predominating picture is that of regeneration. Evidence of regeneration begins as early as fifteen minutes after a hemorrhage. The second group is a very large one, found commonly in premature infants, in twins, and in infants of anemic mothers who have had an acute infection during the last few months of pregnancy. The evidences of regeneration are slight, and there is little or no evidence that degenerative processes are going on. In the third group, the blood picture shows that processes of destruction are going on more rapidly than those of regeneration. The bone marrow in these cases shows a partial, or in severe cases, a complete replacement by a yellow, fatty, gelatinous substance (idiopathic aplastic anemia). The fourth group is that in which the blood picture and bone marrow give a complex picture of blood destruction, with definite signs of degeneration and regeneration. If the blood picture is followed carefully, it will give a good estimate of how the process is progressing, of how treatment should be carried on and of prognosis. In these cases, transfusions are of more value than any other type of treatment, except when there is direct blood stream infection. They are of more benefit if given at a time when signs of destruction or beginning hypoplasia or defective functioning of the bone marrow are evident. We have not found transfusion of much value during the period of hyperactivity of the bone marrow. In all cases in which transfusions have been used, we have given small amounts, from 30 to 60 c.c., at short intervals. We believe this is of more value than the usual large transfusions given at longer intervals. Since adopting the method of small, repeated transfusions, our results have been correspondingly better, especially in cases of the second and third groups. Except in cases of the first group, there is no necessity for bringing the blood up to volume.

Kidney Function in Acute Disease

Drs. Herbert B. Wilcox and John D. Lytle, New York: In some textbooks no mention is made of kidney function in the treatment of acute infections. Others state that evidences of serious renal impairment are rarely found in early life. This study makes it clear that in many cases of acute infection there is definite impairment of kidney function which may not be evident clinically. Certain of these cases may go on to actual nephritis. It is, therefore, necessary that kidney function, no less than digestive function, should receive attention in the management of all morbid conditions.

The Manner of the Therapeutic Action in Tetany of Substances Producing Hydrochloric Acid

Dr. James L. Gamble, Boston: The therapeutic efficacy in tetany of hydrochloric acid and of ammonium chlorid has recently been demonstrated. The usual agent, calcium chlorid, is metabolized to a large extent as hydrochloric acid because of the much greater absorption of chlorin than of calcium from the gastro-intestinal tract. Ammonium chlorid, after absorption, is, in effect, hydrochloric acid, owing to the fact that ammonia is conveyed in the body fluids as urea. Thus, all these substances produce an increase in the metabolism of hydrochloric acid. This increase, following usual doses, is of an extent sufficient to markedly reduce the bicarbonate and appreciably increase the hydrogen-ion concentration of the plasma. Both these alterations favor the ionization of calcium. The extent to which the calcium of the plasma is ionized measures its control of neuromuscular irritability. A therapeutic action may, therefore, be assigned to the "acid effect" of these substances as well as to the absolute increase in the calcium of the plasma, usually effected in the case of calcium chlorid and hydrochloric acid. It is obvious that these hydrochloric acid producing substances produce only a temporary therapeutic action.

DISCUSSION

Dr. John Howland, Baltimore: There is clinical evidence for the belief that there may be differences in the ionization of calcium in the various forms of tetany. For instance, in some cases of tetany there is no reduction of the calcium and yet there is a marked increase in the bicarbonate of the plasma. In the nephritis of adults, there is often a reduction of the total calcium to a point as low as in infantile tetany, and yet there are no symptoms of tetany. This is the case when there are evidences of acidosis. It is likely that under such conditions the ionization of the calcium is actually increased. Unless there are differences in the ionization of the calcium, it is difficult always to bring this substance into relationship with the different forms of tetany.

Hypothyroidism: Studies of the Metabolism and Growth, and Effect of Thyroid Treatment

Dr. Fritz B. Talbot, Boston: When I began this investigation, I found that there were no normal figures that could be used for comparison, so I undertook to get normal figures, using the Dubois method for ascertaining linear and surface measurements, and making observations on 250 normal children. Curves were made for different measurements of normal children, from the same group of children whose basal metabolism was used in making normal standards. Measurements were then made on a series of cretins. It was found that the trend as regards the height of cretins was decidedly low. The sitting height of cretins was definitely lower than the curve for normal children. In cretins the length of the leg from the pubic bone to the sole of the foot showed the greatest divergence from that of normal children. This substantiates clinical observations. The length of the arm from the acromion to the tip of the second finger was likewise much shorter than in normal children, again substantiating clinical observations. The circumference of the head of cretins seemed to be large in comparison with that of normal children, but the actual measurements showed that the circumference of the head in cretins is within normal limits. The difference noted in textbooks is only an apparent one and not a real one. It was a surprise to find that the circumference of the chest in young cretins was below rather than above the average for normal children. However, it was not very far from normal. The circumference of the abdomen, again, did not show as much difference as one would expect, but tends to be above rather than below normal. The foot of the cretin is short as compared with the normal average, and there is also a slight difference in the hand as compared with the normal average. As the result of previous work with hypothyroidism in children, the conclusion has been reached that the maximum dose of thyroid is that which will bring the basal metabolism up to the basal metabolism of a normal child of the same age. We give this dose and use the basal metabolism curves as the therapeutic measure of the effect of the gland extract. When the basal metabolism has been kept at the point which has been shown to be normal for the age of the child, the actual curve of growth will approximate the expected curve. There is suggestive evidence that the greatest stimulus to growth does not come until the basal metabolism is up to the expected total for the age.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Hygiene, Baltimore

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Mortality of Early Infancy. L. I. Dublin, New York.—p. 211.
*Suggested New Method for Disinfection of Hides and Skins for Anthrax. H. F. Smyth and E. F. Pike.—p. 224.
*Outbreak of Food Poisoning Traced to Consumption of Egg Salad. C. E. A. Winslow, I. V. Hiscock, O. F. Rogers and E. S. Robinson. —p. 238.
*Growth of Influenza Bacillus. S. R. Damon.—p. 247.
Balantidium from Brazilian Monkey, Cebus Variegatus, E. Geoffr., with Special Reference to Chromosome-Like Bodies in Macronuclei. R. W. Hegner, and F. O. Holmes.—p. 252.
Male Genitalia of Some American Anopheles Mosquitoes. F. M. Root. —p. 264.
Investigations on Control of Hookworm Disease. XIX. Observations on Completion of Second Ecdysis of Necator Americanus. D. L. Augustine.—p. 280.
Effect of Gambusia Affinis on Bacillus Coli Index of Pollution of Water. L. C. Havens and S. A. Dehler.—p. 296.
Experimental Sensitization of Guinea-Pigs to Rebreathed Air. H. Sewall and H. Gutstein.—p. 300.
Investigations on Control of Hookworm Disease. XX. Human Infestation Studies in Porto Rico by Egg Counting Method. G. C. Payne, W. W. Cort, and W. A. Riley.—p. 315.

Iodin Disinfection of Hides Against Anthrax.—The results of the studies described by Smyth and Pike prove (1) the absolute efficacy of iodin as a disinfectant for anthrax; (2) the possibility of the use of iodin in the tanning industry, without the slightest injury to the hides; and indicate two general methods of application, (1) vapor disinfection, (2) (*a*) wet disinfection employing water as a solvent; (*b*) wet disinfection employing an easily volatile solvent, as carbon tetrachlorid or a gasoline-carbon tetrachlorid mixture.

Food Poisoning Traced to Egg Salad.—The outbreak analyzed by Winslow et al., ultimately included fifty-one cases. The symptoms were typical of an acute gastro-intestinal intoxication, namely, headache, abdominal pain, rise of temperature and usually diarrhea. The abdominal pain was griping and severe in eight cases. An equal number of patients suffered from chills and nausea. Two men reported dizziness and two fainted. Muscular weakness and prostration were marked in several instances and loss of weight was noted. In most cases the attack was over in three or four days, although a few of the men were sick in bed for nearly a week with persistent prostration. No fatalities resulted. Of eighteen stools, nine revealed an organism of the paratyphoid B group. Cultural studies, agglutination and complement fixation tests, identified *Bacterium paratyphosum* B.

Growth of Influenza Bacillus.—In Damon's experience it has not been found possible to grow the influenza bacillus on heat killed emulsions or water extracts of mucoid organisms —Friedländer's bacillus and *B. pfeifferi*—or of *B. proteus;* nor has it been demonstrated that an egg medium containing the bodies of *B. phlei* would support continued growth of *B. influenzae.* Damon says that the inclusion of substances found in bacterial cultures that apparently stimulate growth of other micro-organisms, in the class of the so-called vitamins is unjustified. To claim that a growth-stimulating substance found in certain cultures or aerobic soil organisms is a member of the class of vitamins, would seem to be pure assertion.

American Journal of Roentgenology and Radium Therapy, New York

10: 343-418 (May) 1923

Cardiac Pneumofibrosis. G. W. Holmes and D. S. Dann, Boston.— p. 343.
Study of Lobar Pneumonia and Its Pulmonary Complications by Serial Roentgenographic Examination. L. R. Sante, St. Louis.—p. 351.
Prognosis in Tuberculosis of Lungs from Examination by Roentgen-Rays. A. H. Pirie, Montreal, Can.—p. 366.
Enteroliths. W. W. Boardman, San Francisco.—p. 369.
Roentgen-Ray Therapy of Acute Infections of Antrum and Frontal Sinus. J. D. Osmond, Cleveland.—p. 374.
Roentgen-Ray Therapy of Tinnitus Aurium. L. C. Kinney, San Diego, Calif.—p. 378.
Value of Roentgen-Ray Study of Mastoid Disease in Children Under Five. W. A. Evans, Detroit.—p. 382.
Review of Treatment of Hyperthyroidism by All Methods; Summary of Authors' Experience with Roentgen-Ray Therapy. T. A. Groover, A. C. Christie and E. A. Merritt.—p. 385.
Protective Factors in Modern Highline Roentgen-Ray Work. A. Soiland, Los Angeles.—p. 394.
Bacteriology of Irradiated Tonsils. H. J. Ullmann and F. R. Nuzum, Santa Barbara, Calif.—p. 396.
Measurement of Dosage by Means of Ionization Chambers. W. Duane, Boston.—p. 399.
Isodose Charts. O. Glasser, Baltimore.—p. 405.
Immediate Effect of Radium and Roentgen Rays on Enzyme Action. S. C. Roth and J. J. Morton, New Haven, Conn.—p. 407.

American Review of Tuberculosis, Baltimore

7: 141-214 (May) 1923

Reticulum of Lung. I. Its Relation to Early Tuberculous Processes. W. S. Miller, Madison, Wis.—p. 141.
*Studies on Respiratory Organs in Health and Disease. VIII. Method for Quickly Obtaining Percentage of Individual's Theoretical Normal Vital Capacity of Lungs. J. A. Myers, Minneapolis.—p. 161.
*Diagnosis of Doubtful Cases of Tuberculosis by Examination of Bile Obtained Through Duodenal Tube. H. Freed and L. T. Black, Denver.—p. 174.
Differential Diagnosis of Tuberculosis Versus Hyperthyroidism. W. R. Vis, Grand Rapids, Mich.—p. 186.
*Alkali Reserve in Tuberculosis. H. C. Sweany, Chicago.—p. 193.
*Roentgen Ray in Diagnosis of Pulmonary Tuberculosis. H. L. Barnes, Wallum Lake, R. I.—p. 202.
Subsequent History of Children Discharged from Tuberculosis Sanatoriums. A. T. Laird, Nopeming, Minn.—p. 207.

Measuring Normal Vital Capacity.—Myers presents tables and graphic charts from which he says one may quickly obtain the percentage of an individual's theoretical normal vital capacity when only a few simple measurements are known. No mathematical calculations are necessary.

Diagnosing Tuberculosis by Examination of Bile.—In questionable or doubtful cases of pulmonary tuberculosis, in which routine sputum smears have failed persistently to reveal tubercle bacilli, it is recommended by Freed and Black that guinea-pig inoculation be resorted to, using for this purpose sputum and gastric and duodenal contents and bile obtained by means of the duodenal tube and a duodenal douche of magnesium sulphate solution (Meltzer and Lyon). In a series of twelve such cases in adults there were two in which the bile alone was capable of infecting guinea-pigs, while the sputum and gastric and duodenal contents were negative. In the case of seven children in an orphanage, exposed to two fatal cases of severe pulmonary tuberculosis, tubercle bacilli were found in the bile of one of the contacts by this method, thus clarifying and corroborating the clinical and roentgenological findings in these cases. Where the possibility of milk contamination exists this should be guarded against by testing the strain of bacillus found, preferably by rabbit inoculation.

Alkali Reserve in Tuberculosis.—The plasma bicarbonate determination of Van Slyke was performed by Sweany on 262 specimens of plasma from adults having uncomplicated tuberculosis and on 126 specimens of plasma from children. Although the results may be considered negative as far as proving that tuberculosis is accompanied by an "acidosis," yet, Sweany says, there is an indication that the general average of tuberculosis patients have a slight tendency in that direction, and that the careful administration of alkalis, either in the form of food or drugs, will remove one barrier, though slight, from the way of the convalescent patient. Too much protein, therefore, from which amino and other acids are derived would be contraindicated. The administration of acetates, citrates or sodium bicarbonate would be beneficial. A diet with the maximum amount of vegetables and with a limited amount of meats would be preferable to a heavy meat diet.

Value of Roentgen Ray in Diagnosis of Pulmonary Tuberculosis.—A comparison is made by Barnes of roentgen-ray and physical signs in 1,000 cases of pulmonary tuberculosis. Of 592 positive sputum films only five were read as negative to the roentgen-ray and rereading of the films showed that four of the five had slight changes at the apex. Of 592 positive sputum cases, roentgen-ray evidence of involvement of the second apex, unrevealed by physical examination, was shown in 6 per cent. Of 592 positive sputum cases, in 380, or 64 per cent., the roentgen-ray evidence of disease was more extensive than the physical signs; in thirty-six, or 6 per cent., the physical signs were more extensive; and in 176, or 30 per cent., the amount of lung involvement was about the same as indicated by the two methods. Of 310 apexes of negative sputum patients, in which dulness or moist râles had not been found, 40 per cent. showed abnormal roentgen-ray densities. Of 728 apexes of negative sputum patients, showing dulness or moist râles, 36 per cent. were negative to the roentgen ray. In negative sputum patients both dulness and râles were found in 40 per cent., of the apexes showing specks, 39 per cent. of apices showing streaks and 30 per cent. of apexes showing haziness.

Archives of Internal Medicine, Chicago

31: 623-782 (May) 1923

*Value of Phenoltetrachlorphthalein in Estimating Liver Function. G. M. Piersol and H. L. Bockus, Philadelphia.—p. 623.

*Heart in Diphtheria: A Clinical and Pathologic Study. M. Loth, New Haven, Conn.—p. 637.

*Production of Atherosclerosis in Rabbits by Feeding Diets Rich in Meat. L. H. Newburgh and S. Clarkson, Ann Arbor, Mich.—p. 653.

*Presence of Auer Bodies in Leukemic Tissues. M. N. Richter, New York.—p. 677.

*Effect of Splenectomy on Hemopoietic System of Macacus Rhesus. E. B. Krumbhaar and J. H. Musser, Jr., Philadelphia.—p. 686.

*Thoracoplastic Compression of Lung in Pulmonary Tuberculosis. P. K. Brown and L. Eloesser, San Francisco.—p. 701.

*Quantitative Studies in Syphilis from Clinical and Biologic Point of View: II. Normal Arsenic. J. A. Fordyce, I. Rosen and C. N. Myers, New York.—p. 739.

*Uricacidemia: Based on Study of 1,500 Blood Chemical Analyses. H. M. Feinblatt, Brooklyn.—p. 758.

*Accurate Criteria for Differentiating Anemias. R. L. Haden, Kansas City, Kan.—p. 766.

Value of Phenoltetrachlorphthalein in Estimating Liver Function.—Piersol and Bockus present a technic in detail which it is believed will yield information of decided value concerning the functional competence of the liver. In a series of fifty cases, it was found that, in a general way, a delay in the appearance time of the dye was proportionate to a decrease in the output. The estimation of the dye output in two hours is of more importance than recording the appearance time, but we believe both should be considered. In grossly pathologic livers the appearance time of the maximum color was twice as long as that in normal cases (23.2 minutes as compared to 11.6 minutes) and the dye output averaged but one eighth of the output in normal cases (2.71 mg. as contrasted with 22.4 mg.).

Heart in Diphtheria.—The human material studied by Loth was obtained from cases occurring in the New Haven Hospital from 1917 to 1922, inclusive. During these years there were approximately 425 cases of diphtheria in the hospital. Of the total number, sixty-five patients, or 15 per cent., died. Of the sixty-five fatalities, nineteen, or 29 per cent., came to necropsy, and it is from these that the data described were obtained. The case histories and pathologic sections were critically studied in each case. The diagnosis of myocarditis as a cause of death was made clinically in three cases out of seventeen, while endocarditis as an anatomic diagnosis was made in only two cases. With one exception, the patients were all children. Antitoxin was given in fifteen of the seventeen cases, in amounts varying from 4,000 to 50,000 units, in but a single case given before the day of admission. The physical examination of the heart in these seventeen cases revealed enlargement to percussion in four cases. The heart sounds were reported feeble in four cases. Three instances of arrhythmia were observed, a sinus irregularity not respiratory (in a patient of 42), an atypical gallop rhythm, and a typical gallop rhythm. The gross pathologic finding showed dilatation of the right side of the heart in seven cases. This was marked, however, in only one instance. In sixteen of the seventeen cases a terminal bronchopneumonia was found. In six cases there was a fibrinous pleurisy, and in three, an acute cervical lymphadenitis. The heart was examined histologically in all cases. Very few pathologic changes were found. The analysis of the necropsy findings shows that: (1) in no case was there a definite myocarditis, that is, a true inflammatory lesion; (2) the pathologic findings were more or less cloudy swelling and fat accumulation, and slight increase in the number of interstitial cells, being mostly mononuclears. Clinical evidence indicates that a large proportion of the fatalities in diphtheria are due to circulatory failure. Death in these cases is probably referable to injury to the myocardium itself or its conducting system, although experimental evidence points to a serious disturbance in the peripheral vasomotor system. A definite inflammatory reaction (true myocarditis) is only exceptionally demonstrable at necropsy (one out of nineteen cases in the present series). Fat accumulation and cloudy swelling are very regularly seen, but are not more pronounced than in other acute infectious diseases such as scarlet fever, measles and pneumonia. In other words, no specific myocardial lesion has been demonstrated. The injection of lethal or sublethal doses of diphtheria toxin in guinea-pigs produces degenerative changes in the heart muscle similar to those that are encountered in the human heart in fatal diphtheria, but such injections do not induce a true inflammatory reaction.

Experimental Atherosclerosis Produced by Meat Diet.—Experiments made by Newburgh and Clarkson have shown that the prolonged ingestion of excessive amounts of protein by rabbits will result in extensive atherosclerosis of the aorta and several other arteries. The term atherosclerosis is applied only to primary disease of the intima, characterized by fatty degeneration and hyperplasia of the elastic tissue. Study of sources of error has demonstrated that the atherosclerosis found in the rabbits that ate high protein diets was not spontaneous; was not the effect of laboratory environment, age or infection; could easily be distinguished from the spontaneous calcification of the media; and was not caused by the small amount of cholesterol in the diet.

Auer Bodies in Myelogenous Leukemia.—Auer bodies were demonstrated by Richter in microscopic sections of a case that was probably one of acute myelogenous leukemia. They were found within the cytoplasm of atypical myeloblasts, and, in blood smears, in the immediate vicinity of disintegrated cells. Only once was an Auer body seen in a myelocyte. The Auer bodies are not identical in staining reactions with any of the known normal cell granulations, nor with the hyaline bodies (Russell's fuchsin bodies) which were present in the same sections.

Effect of Splenectomy on Hematopoietic System.—The blood pictures of six monkeys were followed by Krumbhaar and Musser over periods varying from six weeks to two years after splenectomy. The response to a hemolytic agent was noted in four splenectomized monkeys and four controls, and the hematopoietic system of eight monkeys and controls was studied postmortem. In *Macacus rhesus,* splenectomy produces an anemia that is much less marked than in the case of dog or man. The resistance of the erythrocytes is increased throughout the period of observation. The number of reticulated erythrocytes is diminished and no signs of a "blood crisis" are to be found. The total leukocyte count is only slightly increased during the first week, but an absolute and relative increase of polymorphonuclears and decrease of small lymphocytes persists for a longer period. The bone marrow is very little, if at all, hyperplastic at early periods after splenectomy; but by the fifth month, cellular hyperplasia is marked and continues so to the latest period of observation (twenty-seven months). The visceral lymph nodes are more prominent after splenectomy, and phagocytic action is more marked. Hemolymph nodes were not found. Therefore, it appears that the transient postsplenectomy anemia results chiefly, or, perhaps, wholly from lessened blood formation: perhaps, due to the loss with the spleen of a substance which normally stimulates the bone marrow. The persistent increased resistance of the erythrocytes is probably one of the most important results of splenectomy from a therapeutic point of view. The histologic changes in the lymph nodes, bone marrow, and Kupffer cells of the liver of splenectomized animals indicate that these organs take over the spleen's share in disposing of effete erythrocytes and their disintegration products.

Thoracoplastic Compression of Lung in Tuberculosis.—There is but one therapeutic agent in the treatment of tuberculosis that has stood the test of all time, and that is rest. That thoracoplasty is to be regarded as an ideal rest to a part that has reached a point where nothing else can affect the process, follows as a logical conclusion, and as the work has progressed in the hands of Brown and Eloesser, it has become more and more plain to them that when a lung is advanced in disease and pneumothorax is tried, thoracoplasty should follow if for any reason pneumothorax does not put the lung at rest. Operative collapse of a tuberculous lung is indicated in mainly unilateral tuberculosis, when an artificial pneumothorax is indicated but cannot be carried out effectively. Chronic fibrous phthisis, with thick pleural deposits and a rigid chest wall, offers the most frequent indication. Operation should be decided on only after close observation and study of each patient, after repeated consultations with a competent internist, and after attempts at compression by means of pneumothorax have failed. The procedure of choice is (*a*) Sauerbruch's total thoracoplasty or (*b*) partial pneumothorax with partial thoracoplasty. Operation should be performed under local anesthesia. Some of the patients will be cured by operative collapse after other treatment has failed.

Normal Arsenic Content of Urine, Blood, Etc.—As a result of the examination of the blood, urine, hair and milk from about 200 subjects, Fordyce, Rosen and Myers state that arsenic is found "normally" in a large number of persons, depending on the character of food, drink, medication and environment. It is absent in persons on a diet restricted in the amount of sweets, vegetables, meat, etc., and it is present in varying amounts in persons applying remedies containing ingredients contaminated with arsenic to inflamed or ulcerating skin surfaces, and to a greater extent in persons receiving arsenic either by mouth or intravenously or connected with the arsenicals in a preparative way. A complete history of the subject is necessary before arriving at a decision regarding the arsenic content of the urine, blood or even of the organs. In the determination of the amount found "normally" in the body fluids the ideal way would be to hospitalize the subject in order to regulate the nature and amount of food ingested and to check up false statements regarding medication. Consideration of the "normal" arsenic is necessary from a medicolegal point of view. This investigation shows that it may be a normal constituent of the body under the conditions studied and that excessive amounts should always be considered with suspicion in patients who present themselves for examination and medication.

Uricacidemia.—A study made by Feinblatt of 1,500 persons with routine blood chemical analyses showed that the great majority of patients with high blood concentration of uric acid but not of urea nitrogen or creatinin exhibited no evidence at all of early chronic interstitial nephritis. The blood uric acid reading is of no value unless correlated with that of urea nitrogen (or total nonprotein nitrogen). A high concentration may be interpreted as a symptom, along with the other manifestations, but is in no sense diagnostic in itself of early chronic interstitial nephritis or any other condition.

Differentiating Anemias by Hemoglobin Saturation of Red Cells.—A study is presented by Haden of the red cell count, hemoglobin in grams per hundred cubic centimeters, volume index, saturation index, the exact volume and the exact hemoglobin content, and the hemoglobin percentage in the red cells of the blood of fifty-two normal men and women, twenty cases of pernicious anemia, twenty-six cases of hemolytic secondary anemia, and eight cases of hemorrhagic anemia. A new index which expresses the hemoglobin saturation of the red cells as compared with the normal is described. In normal blood the red cells are completely saturated with hemoglobin; hence the index is always 1.00. In the twenty cases of pernicious anemia studied, the average volume index was 1.39, the color index 0.81, and the saturation index 0.87. In the eight cases of hemorrhagic secondary anemia studied, the average volume index was 0.77, the color index 0.62, and the saturation index 0.80.

Archives of Surgery, Chicago

6: 661-908 (May) 1923

- *Cystic Disease of Bones: Study of Fifteen Cases. A. P. C. Ashhurst, R. S. Bromer and C. Y. White, Philadelphia.—p. 661.
- *Artificial Nerve Branches for Innervation of Paralyzed Muscles. B. Stookey, New York.—p. 731.
- *Preservation of Facial Nerve in Radical Treatment of Parotid Tumors. A. W. Adson and W. O. Ott, Rochester, Minn.—p. 739.
- *Treatment of Brain Abscess by Induction of Protective Adhesions Between Brain Cortex and Dura Before Establishment of Drainage. C. E. Dowman, Atlanta, Ga.—p. 747.
- Primary Lymphosarcoma of Prostate. D. Symmers, New York.—p. 755.
- *Physiology of Pulmonary Embolism as Disclosed by Quantitative Occlusion of Pulmonary Artery. G. E. Haggart and A. M. Walker, Boston.—p. 764.
- *Studies on Calcification of Callus. E. P. Lehman, St. Louis.—p. 784.
- Study of Diverticulum Formation in Appendix. A. P. Stout, New York.—p. 793.
- Primary Carcinoma of Male Urethra. H. L. Kretschmer, Chicago.—p. 830.
- *Pathogenesis of Peptic Ulcer. J. E. Sweet, L. T. Buckman, A. Thomas and E. M. Bell, Philadelphia.—p. 837.
- Calcification and Ossification of Meninges. A. E. Halstead and F. Christopher, Chicago.—p. 847.
- Twentieth Report of Progress in Orthopedic Surgery. R. B. Osgood, R. Soutter, H. C. Low, M. S. Danforth, H. C. Bucholz, L. T. Brown, M. N. Smith-Petersen and P. D. Wilson, Boston.—p. 858.

Cystic Disease of Bone.—As this paper is virtually a detailed report of cases, an abstract is not possible. The original should be consulted.

Artificial Nerve Branches for Paralyzed Muscle.—When muscular branches are destroyed and nerve suture is impossible, Stookey shows that paralyzed muscle may be innervated by the formation of an artificial nerve branch. When a free nerve transplant is sutured to the nerve trunk and the distal end implanted directly into the muscle, the free nerve transplant serves as a conduction path from the nerve trunk to the muscle. An artificial nerve branch may be made for a muscle from a nerve trunk which normally supplies the muscle; or, if this nerve trunk is totally destroyed, a branch may be made from an adjacent nerve. Thus a muscle may be brought under the domain of a nerve which never supplies it normally; for example, the biceps may be supplied by an artificial branch from the musculocutaneous, or, if the musculocutaneous is destroyed, it may be innervated by an artificial branch from the ulnar or median nerve. Evidence that paralyzed muscles may be neurotized by an artificial nerve branch was shown by electric stimulation of the artificial nerve branch, resulting in a rapid and quick contraction of the muscle, by the normal size and color of the muscle, and by the histologic findings, which revealed normal striations in the muscle fibers. The presence of nerve branches and nerve fibers in the muscle thus innervated is conclusive evidence that neurotization has taken place.

Preservation of Facial Nerve in Operating for Parotid Tumors.—Early diagnosis and early and complete enucleation are advised by Adson and Ott for encapsulated tumors of the parotid gland; but, if metastasis to the gland has occurred, radical removal should be carried out with preservation of the facial nerve. The facial nerve should be sacrificed only if metastasis and necrosis have become so extensive that it is impossible to demonstrate the lines of cleavage.

Treatment of Brain Abscess.—The case reported by Dowman is a typical illustration of what should be expected in most cases of single abscess of the brain, when the abscess can be located with the exploring needle. Large openings into the skull dura with the immediate establishment of free drainage, he believes, are responsible for the majority of poor results in this type of lesion, as the development of meningitis and brain fungus are to be expected under such conditions. If preformed adhesions between the dura and cortex are present, immediate drainage might be effected with safety. Such a condition, however, is rarely encountered, except in cases of abscess following injury caused by some foreign body. If protective adhesions are not already present, they should be induced before free drainage is established. Decompression in cases of brain abscess is particularly to be condemned. As soon as the increased intracranial pressure under such circumstances is relieved by decompression, there is a tendency for the abscess to be dislocated in the direction of the decompression, thereby promoting further destruction of brain tissue, which should not occur if the abscess is drained through a very small opening in the skull.

Physiology of Pulmonary Embolism.—The experiments cited by Haggart and Walker show clearly that a large part of the pulmonary circuit may be blocked without causing a fatality. There is, however, no direct evidence as to the exact amount of obstruction required. Until from 52 to 66 per cent. of the pulmonary circulation is cut off there is no significant variation in the general circulatory condition of the animal. The point at which failure occurs is sharply defined, since beyond this end-point a circulatory collapse is precipitated by a minute increase in the arterial obstruction, but if this is not applied no untoward change results. The condition brought about in these experiments was analogous to pulmonary embolism in man.

Calcification of Callus.—According to Lehman, exposure to sunlight and the addition of cod liver oil to the diet exert no measurable accelerating influence on the calcification of fracture callus in normal rats. The same factors are equally nonoperative under experimental conditions in which such favorable effects might be expected to be intensified.

Pathogenesis of Peptic Ulcer.—The efforts made by Sweet et al. to produce a peptic ulcer by a chronic functional obstruction with stasis were negative. In the consideration of human ulcer, as regards due influence of age, sex, familial tendency and seasonal recurrence, is pointed out the experimental fact that anaphylaxis in the dog presents an intestinal picture practically identical with that produced by the toxin of high obstruction.

Boston Medical and Surgical Journal

188: 755-788 (May 17) 1923

Operability of Prostatic Obstruction. J. D. Barney, Boston.—p. 755.
Surgery and Diabetes. E. L. Young, Jr., Boston.—p. 767.
Early History of Medical Journalism in New England. R. M. Green, Boston.—p. 769.
Health Examinations. D. B. Armstrong, New York.—p. 772.
Trichinosis; Case Reports. J. Garland, Boston.—p. 773.

Colorado Medicine, Denver

20: 87-116 (April) 1923

Pollen and Hay-Fever. Regional Problem. W. V. Mullin, Colorado Springs.—p. 96.
Nephritis in Children. J. L. Schwer, Pueblo.—p. 100.
Intestinal Obstruction. L. I. Miller, Denver.—p. 106.
Diphtheroid Infection of Nose, Throat and Lungs. E. D. Downing, and C. E. Harris, Woodmen.—p. 111.

Illinois Medical Journal, Oak Park

43: 333-408 (May) 1923

Chronic Indigestion in Childhood. J. L. Morse, Boston.—p. 364.
Syphilitic Stricture of Rectum. W. R. Rainey, St. Louis.—p. 370.
Cystoscopy and General Practitioner. F. F. Hess, Chicago.—p. 372.
Case of Family Doctor. E. O. Laughlin, Paris.—p. 375.
Malignancy Infection Versus Heredity. H. B. Flynn, Chicago.—p. 376.
Urologic Problems and Diagnosis. R. P. Kile, Rockford.—p. 378.
*First Daily Hospital Clinic in America for Private Patients. E. Keating, Chicago.—p. 382.
Follicular Eye Affections in Children. J. W. Dunn, Cairo.—p. 384.
Care of Skin. A. W. Stillians, Chicago.—p. 388.
Carbondale Antimalaria Campaign. A. F. Dappert, Springfield.—p. 393.
*Mesenteric Thrombosis: Report of Case with Recovery. C. M. Johnson, Harvard.—p. 400.
Intestinal Stasis. E. E. Poos, Belleville.—p. 402.

Daily Hospital Clinics on Private Patients.—Keating describes the plan of daily clinics for private patients in operation at a hospital which has no dispensary and is not a teaching hospital for undergraduates. The clinic really furnishes a postgraduate course that serves to keep the attending and visiting physicians in touch with the progress of medicine; makes them more alert to the needs of their patients; arouses them to the necessity of routine and careful examinations; causes them to avail themselves of the opportunity offered by the roentgen-ray and clinical laboratory. It has now been in existence for more than two years and has been held every day during that period with the exceptions of Sundays and holidays. With few exceptions, the physicians who talk at these daily sessions have had no experience as teachers in the medical schools. The patients presented are those in their private practice. From time to time the most eminent teachers in the medical profession appear before the clinic and add much to its value by reason of their greater abilities as teachers. Coincident with the establishment of the clinic, the hospital trustees installed at considerable expense a clinical laboratory, and placed in charge of it a competent and well trained physician who is able to render any service that a clinical laboratory is expected to give. The impetus it has given for careful and elaborate studies in diagnosis have made it possible for the hospital to maintain a clinical and roentgen-ray laboratory that could not be operated without the support of the attending physician.

Mesenteric Thrombosis.—A case of mesenteric venous thrombosis is reported by Johnson, in which recovery ensued. The cause is not definitely known, but lead poisoning may have been a factor. Immediate operation, as soon after the onset as possible, with complete resection of the bowel and mesentery involved, with end to end anastomosis, is the treatment recommended.

Johns Hopkins Hospital Bulletin, Baltimore

34: 141-172 (May) 1923

*Carcinoma of Cervix Uteri. K. H. Martzloff, Baltimore.—p. 141. (To be concluded.)
Quantitative Studies with Arsphenamin. I. Colorimetric Method for Estimation of Arsphenamin in Blood and Tissues. A. C. Kolls and J. B. Youmans, Baltimore.—p. 149.
Clinical Study of Ectopic Pregnancy. L. Brady, Baltimore.—p. 152.
*Antiseptic Action of Some Benzyl Compounds. D. I. Macht and J. H. Hill, Baltimore.—p. 154.
*Blood Picture of Uncomplicated Pellagra. Review of Literature. J. G. Huck, Baltimore.—p. 157.
Instrument for Measuring Distortion Due to Divergence of Roentgen-Rays. E. C. Hill, Baltimore.—p. 164.
Production of Kidney Lesions in Rats by Diets Defective Only in That They Contain Excessive Amounts of Proteins. L. M. Polvogt, E. V. McCollum and N. Simmonds, Baltimore.—p. 168.

Carcinoma of Cervix Uteri.—The results of a pathologic and clinical study with particular reference to the relative malignancy of the neoplastic process, as indicated by the predominant type of cancer cell, are reported by Martzloff. The object of this study was to discover, if possible, whether in this large and common group of epidermoid or squamous cell carcinoma of the cervix the histomorphology of the predominant types of cancer cells might signify anything relating to the malignancy of the disease. The study is not completed, hence a résumé of findings is deferred.

Antiseptic Action of Benzyl Compounds.—A bacteriologic study of the following substances was made by Macht and Hill: benzyl alcohol, benzaldehyd, benzyl benzoate, benzyl acetate and a number of natural pharmacologic compounds containing benzyl bodies such as benzoin, balsam of Peru, balsam of tolu and a number of others. Benzyl alcohol, even when diluted with oil, exhibits definite antiseptic properties. A dilution of benzyl alcohol, 1 : 10, was sufficient to kill the organisms after exposure of one minute. Dilutions with oil, 1 : 100 gave no growth after exposure of the bacteria for five hours. Benzaldehyd in dilution of 1 : 10 was also germicidal on exposure for one minute and in dilution of 1 : 100 proved to be even more effective than that of benzyl alcohol, inasmuch as after one hour's exposure only a small number of colonies developed and after three hours there was complete inhibition of growth. Benzyl acetate diluted (1 : 10) gave no growth after one hour's exposure and a markedly reduced number of organisms even with a dilution of 1 : 100. Benzyl benzoate undiluted killed all of the organisms after three hours' exposure and showed slight germicidal properties in dilutions of from 1 : 10. The galenical preparations of benzoin and also balsam of Peru likewise exhibited some antiseptic effect. Tincture of benzoin even in dilution of 1 : 100 inhibited growth of organisms after an exposure of one hour. Similar properties, though to a lesser degree, were shown by oil of cajuput.

Blood in Pellagra.—The blood in ten cases of pellagra at the height of the illness, of twenty convalescent pellagra patients, and five other cases of pellagra at various stages of the disease, was studied by Huck. He found that the differential blood picture in pellagra varies with the stage of the disease, that is, at the height of the disease there is an increase in the lymphoid elements of the blood. In the convalescent stage, when the symptoms have cleared up, there is an increase in the polymorphonuclear eosinophils, as high as 10 per cent. Finally, the differential formula becomes normal when the patient has recovered. The hemoglobin and red blood cells show a slight reduction in most cases, and one can expect to find a normal or a slightly low color index. The leukocyte count remains within normal limits and the platelets are usually normal. No nucleated red blood cells and no basophilia are found. The bone marrow cells were not found in any cases. The eosinophilia suggests infection with intestinal parasites, but repeated stool examinations, by various methods, were negative.

Journal of Bacteriology, Baltimore

8: 197-295 (May) 1923

What Constitutes Efficiency in Research. L. A. Rogers, Washington, D. C.—p. 197.
Studies on Salt Action. VIII. Influence of Calcium and Sodium Salts at Various Hydrogen Ion Concentrations on Viability of Bacterium Coli. C. E. A. Winslow and I. S. Falk, New Haven, Conn.—p. 215.
Id. IX. Additive and Antagonistic Effects of Sodium and Calcium Chlorids on Viability of Bacterium Coli. C. E. A. Winslow and I. S. Falk.—p. 237.
Formol Titration of Bacteriologic Mediums. J. H. Brown, Princeton, N. J.—p. 245.
Clostridium Botulinum. IV. Resistance of Spores to Moist Heat. F. W. Tanner and F. D. McCrea, Urbana, Ill.—p. 269.
Fermentation of Arabinose and Xylose by Certain Aerobic Bacteria. E. B. Fred, W. H. Peterson and J. A. Anderson, Madison, Wis.—p. 277.
Relation Between Chemical Composition of Peptones and Hydrogen Sulphid Production by Bacteria. F. W. Tilley, Washington, D. C. —p. 287.

Journal of General Physiology, Baltimore

5: 521-708 (May) 1923

Physical Chemistry of Proteins. II. Relation Between Solubility of Casein and Its Capacity to Combine with Base. Solubility of Casein in Systems Containing Protein and Sodium Hydroxid. E. J. Cohn and J. L. Hendry, Boston.—p. 521.
*Sensory Adaptation and Stationary State. S. Hecht, Boston.—p. 555.
*Photochemical Basis of Animal Heliotropism. J. H. Northrop and J. Loeb, New York.—p. 581.
Hemostrophic Reflex and Stereotropism in Diplopods. W. J. Crozier and A. R. Moore, New Brunswick, Me.—p. 597.
*Stability of Bacterial Suspensions. VI. Influence of Concentration of Suspension on Concentration of Salt Required to Cause Complete Agglutination. J. H. Northrop, New York.—p. 605.
Comparative Studies on Respiration. XXV. Action of Chloroform on Oxidation of Some Organic Acids. G. B. Ray, Cambridge, Mass.—p. 611.
Id. Production of Carbon Dioxid from Organic Acids in Relation to Their Iodin Absorption. G. B. Ray, Cambridge, Mass.—p. 623.
Composition of Cell Sap of Plant in Relation to Absorption of Ions. D. R. Hoagland and A. R Davis, Berkeley, Calif.—p. 629.
*Effect of Radio-Active Radiations and Roentgen Rays on Enzymes. I. Effect of Radiations from Radium Emanation on Solutions of Trypsin. R. G. Hussey and W. R. Thompson, New York.—p. 647.
Membrane Potentials in Donnan Equilibrium. D. I. Hitchcock, New York.—p. 661.
Valency Rule and Alleged Hofmeister Series in Colloidal Behavior of Proteins. I. Action of Acids. J. Loeb and M. Kunitz, New York.—p. 665.
II. Influence of Salts. J. Loeb and M. Kunitz, New York.—p. 693.

Sensitivity to Illumination.—Experiments are described by Hecht which measure the sensitivity of animals exposed to continued illumination to which they have become adapted. t is shown that the amount of outside light energy necessary o stimulate an adapted animal increases with the intensity f the adapting illumination.

Nature of Heliotropism.—Experiments on the heliotropic rientation of *Limulus* were made by Northrop and Loeb which confirmed Loeb's photochemical theory of animal heliotropism proposed first in 1888 and 1889 in experiments on insects, and later in experiments on other forms of animals.

Salt Concentration Required to Agglutinate Sensitized Typhoid Bacili.—The concentrations of various salts required o agglutinate different concentrations of a suspension of yphoid bacilli sensitized with immune serum have been etermined by Northrop.

Effect of Irradiation on Enzymes.—Qualitative evidence has een found by Hussey and Thompson which suggests that oentgen rays, gamma rays and beta rays produce identical ffects in dilute trypsin solutions.

Journal of Industrial Hygiene, Boston

5: 1-40 (May) 1923

Practical Mental Hygiene in Industry. F. W. Dershimer, Cleveland. —p. 1.
Accidents from Point of View of Workmen's Compensation Act, England. D. A. Coles, London.—p. 8.
Causation of Industrial Accidents. H. M. Vermon, London.—p. 14.
Atmospheric Particulate Matter: 1. Dust. New Apparatus for Determination. P. Drinker, R. M. Thomson and S. M. Fitchet, Boston. —p. 19.

Kentucky Medical Journal, Bowling Green

21: 171-212 (April) 1923

History and Uses of Plaster of Paris. J. Bryan, Lexington.—p. 180.
Form for Periodic Health Examinations. I. Lindenberger, Louisville. —p. 183.
Suggestions to Physicians Holding Child Health Conferences or Seeing Well Children in Their Offices. J. McF. Jennings.—p. 188.
Arthritides. S. J. Meyers, Louisville.—p. 190.
Value of Cystoscope in Diagnosis of Disease in Upper Urinary Tract. C. G. Hoffman, Louisville.—p. 196.
Blastomycosis in Kentucky. S. Graves, Louisville.—p. 199.
Local Anesthetic in Herniotomy. O. Bloch, Louisville.—p. 204.
Practical Hints on Typhoid. W. E. Reynolds.—p. 205.

Maine Medical Association, Portland

13: 217-236 (April) 1923

Cancer Control Problem. E. H. Risley, Waterville.—p. 217.

Michigan State Medical Society Journal, Grand Rapids

22: 227-270 (May) 1923

Acetonemia-Acidosis-Alkalosis. J. P. Parsons, Ann Arbor.—p. 227.
Difficulties in Diagnosis of Right Upper Quadrant Disease with Particular Reference to Gallbladder. C. F. Karshner, Grand Rapids.—p. 232.
Pathology, Diagnosis and Treatment of Acute Mastoiditis. A. R. McKinney, Saginaw.—p. 238.
Preparatory Treatment of Patients for Operations on Gastro-Intestinal Tract. O. H. Hart, St. Johns.—p. 242.
Complications of Pregnancy. C. F. Dubois, Alma.—p. 244.
General Management of Pregnancy and Labor. M. C. Hubbard, Vestaburg.—p. 247.

Porto Rico Medical Association Bulletin, San Juan

17: 77-108 (May) 1923

*Medical Inspection of Children in Porto Rico. A. Fernós Isern.—p. 77.
Microchemical Study of Blood. R. del Valle Sárraga.—p. 87. Cont'n.
Neurosyphilis. Mario Julia.—p. 97.

Medical Inspection of School Children in Porto Rico.—Of 3,000 children inspected in the San Juan district, Fernós Isern states that 64 per cent. were below the standard weight and height for their age. Signs of tuberculosis were found in 1 per cent. Only 12 per cent. seemed free from disease or gross defects of some kind. Inadequate and unsuitable food is evidently responsible for the 64 per cent. below the nutritional standards.

Public Health Journal, Toronto

14: 195-242 (May) 1923

Vitamins from Days of Columbus to Present. F. Royer and J. Lindsay. —p. 195.
Psycho-Analysis; the New Psychology. J. W. Bridges, Toronto.—p. 205.
Early Public Health in Toronto. R. Wilson.—p. 210.
Modern Aspects of Physical Education. G. Barber.—p. 215.
Typhoid Fever at Cochrane. J. W. S. McCullough.—p. 220.

Southwestern Medicine, Phoenix, Ariz.

7: 105-144 (April) 1923

Spinal Cord Tumors. C. W. Rand, Los Angeles.—p. 105.
Extra-uterine Pregnancy; Report of Cases. J. W. Hannett, Gallup, N. M.—p. 120.
Defective Delinquents in Army of Occupation of A. E. F. in Germany. How They Are Treated in Disciplinary School. L. V. Briggs.—p. 131.

South Carolina Medical Association Journal, Greenville

19: 479-506 (May) 1923

Mental Hygiene Public Health Problem. C. F. Williams, Columbia.—p. 482.
Control of Malaria, Medical Profession's Opportunity. C. C. Bass, New Orleans.—p. 487.

Surgery, Gynecology and Obstetrics, Chicago

36: 589-730 (May) 1923

*Prostatectomy. Preoperative, Operative and Postoperative Treatment. H. H. Young, Baltimore.—p. 589.
*Stoffel Operation for Spastic Paralysis: Report of Twenty-Four Cases. C. H. Heyman, Cleveland.—p. 613.
*Analysis of End Results in Thyroid Surgery. C. A. Porter, Boston.—p. 621.
*Method for Localization of Brain Tumors in Comatose Patients. W. E. Dandy, Baltimore.—p. 641.
*Cranial and Intracranial Endotheliomata. Hemicraniosis. W. G. Penfield, New York.—p. 657.
*Renal Function Following Nephrotomy. J. A. H. Magoun, Jr., Rochester, Minn.—p. 675.
Traumatic Asphyxia; with Especial Reference to Ocular and Visual Disturbances. G. J. Heuer, Cincinnati.—p. 686.
*Preliminary Pneumothorax in Lung Surgery. J. Arce, Buenos Aires, Argentine.—p. 697.
Congenital Hypertrophy: Report of Case with Diffuse Neurofibromatosis. W. C. Campbell, Memphis, Tenn.—p. 699.
*Bilharzial Appendicitis. C. H. Bailey and E. A. Bullard, New York.—p. 704.
*Third Omentum. M. I. Bierman and W. M. Jones, St. Louis.—p. 708.
*Endothermy, Surgical Adjunct in Accessible Malignancy and Precancerous Conditions. G. A. Wyeth, New York.—p. 711.
Technic of Enlarged Pyelotomy for Renal Calculi. D. N. Eisendrath, Chicago.—p. 715.
Apron Used in Performing Bowel and Stomach Anastomosis. F. H. Lahey, Boston.—p. 718.
Improvement on Voorhees Bag. E. L. Cornell, Chicago.—p. 718.

Prostatectomy.—This paper presents cumulative evidence as to the efficacy of the perineal operation in the treatment of hypertrophied prostate.

Stoffel Operation for Spastic Paralysis.—From the results obtained by the Stoffel operation in twenty-four cases, Heyman believes that the spastic contractures of the adductors and spastic equinus can be relieved absolutely. While spastic contracture of the fingers and thumb can be relieved, the ultimate function of the hand is not so encouraging as in the lower extremity. This, Heyman believes, is not the fault of the operation itself, but is due to the nature of the extreme complexity of motions required in the normal hand.

End-Results in Thyroid Surgery.—Porter believes that the roentgen rays, through the action on the thyroid and possibly on the thymus, will diminish the risk of operation and will permanently cure certain cases of exophthalmic goiter. On the other hand, in some cases roentgen-ray treatment, though persisted in for as long as two years, has had practically no effect. Surgery promptly cured. If six months' treatment with roentgen rays is not efficient, operation is indicated. The best index of a cure is a permanent reduction of the basal metabolism to normal. Whether the patient will be cured or not depends on the stage of the disease at which treatment is instituted and the degree of irreparable damage which has already resulted. Though ligation and hemithyroidectomy may cure many patients, ultimate subtotal thyroidectomy reduces the metabolism to normal, most quickly and permanently. The psychoses of this disease, which seems frequently to occur in neurasthenic individuals, requires long after-treatment.

Localizing Brain Tumors in the Comatose.—A left craniotomy was performed by Dandy on a patient in the terminal stages of coma from intracranial pressure, presumably due to a tumor or abscess. The sole means of determining on which side the exploration should be made was a Jacksonian convulsion beginning in the right hand. Though considered a most trustworthy localizing manifestation, it proved misleading on this occasion, for at necropsy an abscess was found in the right frontal lobe, i. e., it was homolateral to the side of the convulsion. During the operation, information was gained from the lateral ventricle which led to the adoption of a procedure which Dandy terms "estimation of the cerebral ventricles." Its object is to localize growths in such emergencies. The information leading to this end is derived from a determination of the capacity, location, and intercommunication of the cerebral ventricles, particularly the lateral ventricles. Since this first case, five other patients have been seen in coma from intracranial pressure. In none of them was any information obtainable, either from the history, of friends and relatives, or from the restricted objective examination of the unconscious patient, which was considered of merit in determining the location of the lesion. In four of these patients the lesion was a tumor, and in the fifth it was an acute hydrocephalus of chronic meningitis origin. In the last case, a tentative diagnosis of tumor was made but given up as a result of the "ventricular estimation" tests. Each of the four tumors was correctly localized by these tests and in each instance the tumor was found at operation and removed. Two of these patients succumbed on the following day and the other two, after complete removal of dural endotheliomata, recovered and are now entirely well.

Cranial and Intracranial Endothelioma.—Four hundred and twenty histories of cases, in which the diagnosis of brain tumor had been proved at operation or necropsy, were studied by Penfield and, of these tumors, eleven were found to be associated with a lump on the cranial vault. In one of these eleven cases the lump was soft and could be pressed inward through the skull. This proved to be a sarcoma and could not have been confused clinically with the remaining ten cases, in all of which the lump was quite evidently a bony prominence of the skull. All of these ten cases presented the same pathologic picture and similar clinical histories. Operative removal, when the patient survived the immediate effects, has resulted in cures. In most instances, it should be possible to make the diagnosis before the onset of distressing cerebral symptoms. The characteristic cranial prominence increasing over a considerable period, associated with pain of a stabbing character beneath the tumor, is pathognomonic of the condition. Whatever may be the etiology of these tumors, the cranial prominence is secondary to invasion of the skull by the intracranial tumor. It is incorrect to suppose that the cranial and intracranial tumors are of entirely different nature. They are the same, except that the growth of the former is accompanied by bone formation. It is evident, therefore, that the following hypotheses are incorrect: (1) that a primary thickening of the skull irritates the dura and thus causes the appearance of an intracranial endothelioma, or (2) that some irritation causes the dura to lay down neoplasm on one side and exostosis on the other. It is usually impossible to elicit a history of trauma, and yet the much greater incidence of this type of endothelioma among men than women suggests that trauma may be in some way an etiologic factor.

Renal Function Following Nephrotomy.—Complete nephrotomy, bilateral or unilateral, Magoun states, may be performed in dogs with maintenance of life and renal function. A single kidney may be subjected to nephrolithotomy and maintain sufficient function to support life and health. Secondary hemorrhage is a real danger in complete section of the kidney. Smaller incisions, single or multiple, may be made into the kidney to remove stone, with small risk of secondary bleeding. Generally pelviotomy is the operation of choice in the treatment of renal calculi; however, in selected cases, nephrolithotomy is indicated.

Preliminary Pneumothorax in Lung Surgery.—When a diagnosis of pulmonary affection requiring surgical intervention (most frequently a hydatid cyst) is made, Arce makes a roentgenogram of the thorax and introduces into the pleura of the side affected, a quantity of oxygen, or preferably nitrogen, varying from 300 to 500 c.c. For this purpose one of the types of apparatus employed for the production of artificial pneumothorax in the treatment of pulmonary tuberculosis is used. Generally, three punctures are sufficient, and when finished, another roentgenogram is made which permits of the comparison of the conditions, before and after the formation of the pneumothorax. In this condition the patient is prepared for operation. Arce's experience with preliminary artificial pneumothorax produced by this method has been very encouraging.

Bilharzial Appendicitis.—The preoperative diagnosis in Bailey and Bullard's case was: undeveloped uterus, anteflexed, retrocessed with stenosis of cervix, and chronic appendicitis. The entire mesoappendix and the distal two thirds of the appendix were thickly studded with tiny grayish-white nodules resembling tubercles. The appearance was that of a chronic lesion. The cecum was not involved and areful inspection of intestines, omentum and pelvic organs iled to find any more such lesions. The lumen was empty. licroscopical sections showed very numerous nodular lesions out the size of and very similar in appearance to tubercles. these nodules were seen sometimes one ovum, sometimes x or more, with a very definite cell membrane. These oved to be bilharzia. Only two other similar cases are corded.

Third Omentum.—In two cases seen by Bierman and Jones, ere was an additional omentum much like the greater nentum, but instead of being dependent from the transverse lon it was dependent from the lesser curvature of the omach. No pathologic conditions of any kind were found the upper half of the abdomen. The additional loop of nentum, therefore, was not the result of an inflammatory ndition in which there had been a separation of omentum an attempt to localize an inflammatory process, but peared to be a distinct developmental variation.

Endothermy.—Wyeth describes endothermy as a treatment accessible malignancy which greatly reduces the danger metastasis and the likelihood of recurrence by removing e growth as a necrotic mass instead of as a group of viable lls.

U. S. Naval Medical Bulletin, Washington, D. C.

18: 545-672 (May) 1923

ome Causes of Physical Rejection for Service. D. N. Carpenter and D. Ferguson.—p. 545.
'aval Hospital at San Diego. California. A. W. Dunbar.—p. 557.
dvances Made in Our Professional Work During Past Year. W. D. Owens.—p. 560.
urgical Abdomen. G. W. Shepard.—p. 569.
nternal Derangements of Knee Joint. J. Dunlop.—p. 575.
lyperthyroidism. J. B. Pollard.—p. 585.
'hronic Appendicitis. C. L. Andrus.—p. 589.
aws, Study Based on Over 2,000 Cases Treated in American Samoa. D. Hunt and A. L. Johnson.—p. 599.
Eliminators" in Laboratory Technic. H. E. Harvey.—p. 608.

Eradicating Yaws in Samoa.—In 1921, after a survey of e islands, Hunt and Johnson state it was estimated that ere were, including all stages, 2,500 cases of yaws. A campign was started immediately to eradicate the disease. Over 00 injections of neo-arsphenamin were administered at e Samoan Hospital, outlying dispensaries, and by a party at visited all villages. During the first six months of 22, this campaign was continued and 750 injections of neosphenamin have been administered. Necessary quarantine ws have been enacted. The authors have been unable to use infection through intact skin with the scrapings from yaws lesion. *Spirochaeta pertenue* has been found in the cerated and nonulcerated lesions of the secondary stage. ey have been unable to find *S. pertenue* in the scrapgs from tertiary lesions. They have seen five cases that re caused by the "contact" method of infection. The ssage of the disease in these cases was from the suckling the mother's breast. These mothers all gave a history of ws during childhood. The principal cause of transmission yaws in Samoa is the fly. No permanent immunity is ined by childhood attacks. Hunt and Johnson have on cord many cases of reinfection in the untreated and among se presumable cured. The symptomatology of the disease reviewed. As to treatment: All lesions should be dressed, nature of the dressing depending on the condition of the ion, and the local treatment does not vary from the cepted standard treatment of all similar skin conditions. cal treatment alone has no effect on the general condition. tassium iodid, when indicated, is of great value. Mercury ernally has been thought to do good in some cases. One ection of arsphenamin or neo-arsphenamin is not sufficient effect a cure. Hunt and Johnson have found that at least ee injections of a sufficient amount, over a period of not re than three weeks, will give the best results. The intranous method is the one of choice and should always be ployed whenever possible. Never less than 0.3 gm. of -arsphenamin is given intramuscularly to children when vein cannot be conveniently used, and 0.9 gm. of neophenamin intravenously is the initial dose for the average ult.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

1: 321-352 (April) 1923

Congenital Idiopathic Dilatation of Colon. D. Firth and K. Playfair.—p. 321.
Further Developments in Spectrometric Method of March, Staunig and Fritz, for Determination of Quality of Roentgen Rays. K. Staunig.—p. 328.
Pyelography. J. Thomson-Walker.—p. 334.
Dislocation of Upper End of Fibula Forward without Fracture of Tibia or Fibula. R. H. Sankey.—p. 344.

British Journal of Experimental Pathology, London

4: 37-104 (April) 1923

*Behavior of Platelets in Vitamin A Deficiency; Technic of Counting Them. W. Cramer, A. H. Drew and J. C. Mottram.—p. 37.
Yucatan Elemi as Substitute for Canada Balsam as Mounting Medium. H. W. Southgate.—p. 44.
*Growth and Differentiation in Tissue Cultures. A. H. Drew.—p. 46.
Mode of Production of Bacteriophage. E. H. Lepper.—p. 53.
*Detection of Spirocheta Pallidum. J. E. Barnard.—p. 68.
Etiology of Typhus Fever. J. A. Arkwright and A. W. Bacot.—p. 70.
Brain and Immunity Reactions to Jensen's Rat Sarcoma. W. S. Lazarus-Barlow and R. H. Parry.—p. 80.
*Relative Concentration Ratios of Some Constituents of Urine. S. W. F. Underhill.—p. 87.
*Vascular Changes Affecting Bulbar Nerve Centers. D. T. Barry.—p. 92.

Blood Platelets in Vitamin A Deficiency.—The constant occurrence of a deep thrombopenia in vitamin A deficiency in rats has been confirmed by Cramer et al. A detailed account is given of the technic of platelet counting, with special reference to the microscopic technic required to obtain reliable results. It is shown that with a faulty optical system the platelet count in vitamin A deficiency gives figures which greatly exceed, sometimes to the extent of 100 per cent., those obtained with a correct optical system giving the highest possible resolution. This is due to the fact that in vitamin A deficiency a number of bodies other than platelets but of similar dimensions appear in the blood and are mistaken for platelets when a faulty microscopic technic is employed.

Growth Activating Substances in Tissues.—The substances necessary for continuous growth, which are present in extracts of embryonic tissues, Drew says, are able to pass through a Berkefeld filter. Adult tissues and tumors appear to contain these substances in lower concentration. Tissues and tumors, when grown free from connective-tissue elements, grow as undifferentiated sheets. If connective tissue be added to such growths differentiation sets in. Autolyzed extracts of normal adult tissues contain a growth activating substance which when added to cultures of normal adult cells causes very rapid proliferation. Extracts of tumors, prepared in the cold and not subjected to autolysis, also contain this substance, and tumor cells appearing to be able to form it continuously.

New Method of Detecting Spirochetes.—A method of detecting spirochetes is described by Barnard, which has been found easy in manipulation and constant in results. The only appliance necessary, in addition to the ordinary microscopic equipment for dark ground illumination, is a graticule, which is placed on the diaphragm in the ocular in the same way that an eye-piece micrometer is disposed. The graticule consists of a photographic image with a semitransparent ground on which a number of clear spaces are regularly disposed, so that a large proportion of these spaces are always in the field of view. The purpose is to so arrange matters that each clear circle occupies the same area in the field that would be occupied by a red blood cell. A normal red blood cell should be observed, and if its image exactly fills one clear circle then adjustment is correct. When all is in correct adjustment the spirals to be counted are brighter than those outside the circle and this greatly facilitates the counting. After some little experience it is possible to tell without actual counting whether the required seven coils are within the circle, or, what is equally important, whether more or fewer than this number are there. The method may be applied to other spirochetes of which the spacing of the coils is characteristic.

Concentration Ratio of Urine Constituents.—Underhill found urea and creatinin evenly distributed between plasma and corpuscles in the blood of the cat. After the injection of urea and creatinin into the blood stream the substances may be found equally distributed between plasma and corpuscles, or there may be a greater proportion in the plasma. After the injection of inorganic phosphate and uric acid a larger proportion is found in the plasma relative to the proportion present in the corpuscles.

Vascular Changes Affecting Bulbar Nerve Centers.—Barry asserts that the reflex excitability of bulbar nerve centers differs from their tonic activity, whether natural or induced by reflex excitation. Bleeding up to 40 or 50 per cent. of the calculated total blood affects the first-mentioned less than the second, though both properties depend on a proper blood supply. The vasomotor center is less rapidly affected by change of volume flow and oxygen content than is the cardio-inhibitor center. Both function after excessive bleeding and infusion of gum saline, until the hemoglobin is reduced to about one fifth of the normal amount (80 per cent. of the total blood removed). Loss of blood amounting to 85 or 90 per cent. and brought about by secondary bleeding was not sufficient to cause death of the centers, if not too long exposed to these conditions. The vasomotor center in these extreme conditions is the most susceptible, though there is little difference between it and the respiratory center. The cardio-inhibitor center, though the earliest to suffer, is the most resistant to irreparable damage. Rough handling of the tissues in dissection is a more serious cause of disturbance of reflex responses in the nerve center than a moderate amount of hemorrhage. Gum saline effects recovery of the centers after long periods of exposure to very low hemoglobin content, represented by about 7 or 8 per cent. by volume of corpuscles. For permanent recovery blood is needed in addition for these extreme cases; in lesser degrees of privation, to 12 or 15 per cent. of corpuscles, gum saline alone rapidly effects recovery.

British Journal of Ophthalmology, London

7: 209-256 (May) 1923

Two Cases of Tumor (Glioma; Endothelioma) of Optic Nerve. H. Neame.—p. 209.
Endothelioma of Orbit. F. A. Williamson-Noble.—p. 222.
Ophthalmic History of Samuel Pepys. R. R. James.—p. 231.
Modified Suction Cataract Extractor. R. F. Moore.—p. 235.
New Reduced Eye Adapted to Accommodation. V. C. Verbitzky.—p. 237.
Microphthalmia with Vertical Slitlike Pupil, Opacity of Cornea, and Remains of Pupillary Membrane. W. D. Lawrie.—p. 240.

British Journal of Surgery, Bristol

10: 433-604 (April) 1923

Eponyms: VIII. Pott's Fracture. D'Arcy Power.—p. 433.
*Hyperplasia of Epithelial and Connective Tissues in Breast: Relation to Fibro-Adenoma and Other Pathologic Conditions. G. L. Cheatle.—p. 436.
*Actinomycosis of Right Iliac Fossa. R. St. L. Brockman.—p. 456.
Giant Cell Tumors of Tendon Associated with Xanthelasma. R. Ollerenshaw.—p. 466.
Tumors of Tendon and Tendon Sheaths. St. J. D. Buxton.—p. 469.
Myositis Ossificans and Volkmann's Paralysis: Two Cases Illustrating Rarer Complications of Supracondylar Fracture of Humerus. W. R. Bristow.—p. 475.
Lengthening Tendo Achillis. H. H. Greenwood.—p. 483.
Osteitis Fibrosa. R. L. Knaggs.—p. 487
Chronic Duodenal Ileus: Report of Cases. S. Barling.—p. 501.
Abnormalities of Right Hepatic, Cystic and Gastroduodenal Arteries and of Bile Ducts. E. R. Flint.—p. 509.
Treatment of Acute Appendicitis. R. J. McNeill Love.—p. 520.
*Femoro-Inguinal Operation for Radical Cure of Femoral Hernia. E. W. H. Groves.—p. 529.
Abnormalities of Fixation of Ascending Colon: Relation of Symptoms to Anatomic Findings. A. A. McConnell and T. G. Hardman.—p. 532.
Surgical Treatment of Atonic Dyspepsia. C. A. Pannett.—p. 558.
Case of Diaphysial Aclasis. A. H. Southam and R. S. Paterson.—p. 562.
Clinical Aspects of Bronchial Cysts. H. Bailey.—p. 565.
Spontaneous Rupture of Hydronephrosis. W. Q. Wood.—p. 574.
Obscure Cervical Growth. W. Mercer.—p. 576.
Internal Hernia Following Posterior Gastro-Enterostomy: with Acute Dilatation of Stomach as Sequence to Reduction. W. T. Warwick.—p. 577.
Case of Bilocular Gallbladder. B. W. Rycroft.—p. 579.
Fibroma of Stomach. A. J. Blaxland.—p. 581.

Fibro-Adenoma of Breast.—Cheatle divides fibro-adenomas of the female breast into three classes: (1) the hyperplasia intra-elastica class, which can be subdivided into (*a*) tumors affecting ducts, (*b*) tumors affecting acini, and (*c*) a diffused form affecting ducts and acini; (2) the hyperplasia elastica class, which exists only in the diffused form affecting ducts and acini, and (3) the hyperplasia extra-elastica class, which can be subdivided into (I) pericanalicular and peri-acinous tumors, of which there is (*a*) a localized form and (*b*) a diffused form, and (II) the intracanalicular tumors. Cheatle believes that it is exceedingly rare for carcinoma to originate in a localized fibro-adenoma. He has seen only one example of this occurrence. Unsuspected fibro-adenomata, often only just visible to the naked eye when examining a section of a whole breast, occur in 28 per cent. of all breasts containing carcinoma. The only practical outcome of Cheatle's observations seems to be that it is safer to take away the segment of the breast in which fibro-adenomata grow. The successful removal of a fibro-adenoma by enucleation, he says, is the result of a lucky accident.

Actinomycosis of Right Iliac Fossa.—The present prognosis of actinomycosis of the right iliac fossa, Brockman says, can only be described as gloomy in the extreme. The average mortality of recorded cases of abdominal infection of this nature is somewhere in the neighborhood of 80 per cent. The length of time which intervenes between the first symptoms and death varies from six months to two years. There is no doubt that the life of the patient is of longer duration in those cases in which conservative surgery has played a part. Until the life history of the infecting agent has been worked out more fully, so that measures of prevention may be adopted, the only hope of reducing the present high mortality of this disease must lie in earlier diagnosis and the subsequent possibility of prompt treatment. Four cases of ileocecal actinomycosis are rported.

Femoro-Inguinal Operation for Femoral Hernia.—Groves divides the attachment of Poupart's ligament close to the pubic spine. This gives a clear view of the neck of the sac, which is then opened and its contents dealt with according to their condition. Should resection of the bowel be necessary, this can be done perfectly well by the exposure thus afforded. When the sac has been cut off and its neck ligatured, the femoral ring and canal can be obliterated. The conjoined tendon is defined and sutured to Cooper's ligament and the upper edge of the pectineal fascia. The outer one or two stitches also take up the femoral sheath on the inner side of the femoral vein, so as completely to close the abdominal cavity from the thigh. Poupart's ligament is then laid over the line of suture between the conjoined tendon and Cooper's ligament, beginning from the vein and working inwards toward the spine of the pubis. As the inner attachment of Poupart's ligament has been divided, there is no tension in this structure and it can be made to follow the line of the pubic bone, and the final attachment of its cut end will be about ½ inch further outward than it was originally.

Indian Medical Gazette, Calcutta

58: 193-240 (May) 1923

Beriberi and Epidemic Dropsy Problem. J. W. D. Megaw.—p. 193.
Pharmacology and Therapeutics of Boerhaavia Diffusa. R. N. Chopra, S. Ghosh, B. N. Ghosh and. P De.—p. 203.
End Results in Intra-Capsular Extraction (Smith's). F. F. S. Smith.—p. 208.
Spleen Puncture Findings in Malaria. R. Knowles, H. W. Acton and S. A. S. B. Mohan.—p. 211.
Case of Intestinal Obstruction Complicated by Tetanus. F. J. W. Porter.—p. 213.
Fatal Case of Cerebral Contusion. A. C. Syam.—p. 214.
Cysticercus of Subconjunctival Tissues. R. E. Wright.—p. 215.
Case of Food Sensitiveness. B. M. Chowdhury.—p. 216.
Unusual Infection with Bacillus Pyocyaneus Simulating Leprosy. S. Mallannah.—p. 216.

Journal of Tropical Medicine and Hygiene, London

26: 151-178 (May 15) 1923

Pasteur and His Work Historically Considered. L. W. Sambon.—p. 151.

South African Medical Record, Cape Town

21: 193-216 (May 12) 1923

Psychotherapy. C. M. Murray.—p. 195.
New Landmarks in Public Health. A. J. Orenstein.—p. 203.

Archives de Médecine des Enfants, Paris

26: 65-128 (February) 1923

Tuberculin Reaction in Children. E. Mensi.—p. 65.
*Pirquet Index in Children. Garrahan and Bettinotti.—p. 71.
*Herpes Zoster and Varicella. Condat.—p. 77. Id.—p. 83.
Acute Azotemic Nephritis in Children. Gautier and Guder.—p. 86.
Vaccine Therapy in Streptococcus Nephritis. Pecker and Lamarc.—p. 91.
*Puericulture in Tunis. J. Comby.—p. 93.

Pirquet Index of the Nutritional State.—Garrahan and Bettinotti measured and weighed 203 school children at Buenos Aires. The figures conformed to Pirquet's standards.

Relations Between Herpes Zoster and Varicella.—Condat discusses the alleged proofs of identity of herpes zoster and varicella, and finds that they are far from convincing. She observed one case of herpes zoster which was followed by three cases of varicella in the same family. An exact analysis, however, showed that the infection by varicella could be traced to contact with other children on different Sundays, while the zoster seemed to be just a coincidence. The child with herpes had had varicella before, and was herefore immune to it, but not to herpes.

Puericulture in Tunis.—Comby deals with infant welfare work in Tunis, and reports what has been done. The mor-ality of children among the Arabs of Tunis is 50 per cent.; among the negroes of other French colonies, 75 per cent.

Bulletin de l'Académie de Médecine, Paris

89: 419-450 (April 17) 1923

Treatment of Diabetes. Desgrez et al.—p. 424.
Pulmonary Syphilis in Adults. M. Letulle.—p. 438.
Poliomyelitis from Mushroom Poisoning. Rémond and Colombies.—p. 444.
Pathogenesis of Tuberculous Congestive Abscesses. J. de Ziemacki.—p. 446.

Insulin, Levulose and Dietetic Treatment of Diabetes.—Desgrez, Bierry and Rathery answer Labbé's polemic. They maintain the identity of diabetic acidosis with acidosis of a arbohydrate-free diet, and the difference from the acidosis f fasting. The action of insulin refutes Labbé's opinion hat diabetic acidosis is not due to lack of carbohydrates nd incapacity of the diabetic patient to burn them. A balnced diet is beneficial even during insulin treatment. Levulose is better tolerated than glucose.

Pulmonary Syphilis in Adults.—Letulle draws the attention f clinicians and pathologists to pulmonary syphilis. Every hronic affection of the lungs, whether fibrous or bronchiecatic, may be due to syphilis. It is possible that in the athology of the lungs it plays a part which is as important s in affections of the liver, aorta and heart. In the discusion, E. Sergent pointed to the frequency of the fibrous form f pulmonary tuberculosis in old syphilitics. L. Bernard conrmed this frequent association of pulmonary syphilis and uberculosis, and said that arsphenamin preparations have ften an excellent effect.

89: 451-466 (April 24) 1923

Preventive Protein Vaccination. Arloing and Langeron.—p. 453.
Rarity of Accidental Infection of Guinea-Pigs. Remlinger.—p. 456.
Real Nature of Coxa Plana. Calot.—p. 460.
A New Mercurial Preparation. Spillmann and Douris.—p. 463.

Preventive Polyvalent Protein Vaccination.—Arloing and angeron found that repeated injections of different proteins horse serum, casein, peptone) cause in guinea-pigs a refracry state against subsequent infections with pyocyaneus acilli. This condition is very marked during the first hours ter the protein injection. After forty-eight hours the nimals were, on the contrary, hypersensitive. Later the fractory (or immune) state reappeared. They point to arrelon, Santenoise and Thuillant's experiments, which monstrated that hypervagotonia causes sensitiveness, hypermpathicotonia insensitiveness to chemical poisons. The sucssive phases of tonus of the vegetative nervous system after jections of proteins may account for the results of nonecific preventive injections.

The Great Susceptibility of Guinea-Pigs to Experimental Tuberculosis and the Rarity of Their Contamination in Laboratories.—Remlinger has observed only five instances of spontaneous contamination among thirty-five guinea-pigs kept with other animals with open tuberculous lesions. Fifty-two animals remained healthy for a year, though their food was mixed daily with a dilution of feces from tuberculous guinea-pigs, 50 per cent of which contained tubercle bacilli. Exposure of young animals sucking tuberculous mothers and familial exposure did not change the results. Pregnancy did not seem to affect the course of the disease. These observations show that conclusions concerning the disease in man from observations of tuberculosis in guinea-pigs must be made with great caution.

Real Nature of Coxa Plana.—Calot considers coxa plana one of the radiographic aspects of a special dystrophy of spinal or cerebral origin, which may lead to congenital luxation of the hip joint.

Bulletins de la Société Médicale des Hôpitaux, Paris

47: 459-529 (March 23) 1923

*Desensitization by Cutaneous Reactions. Vallery-Radot.—p. 460.
"Erosive Pluriorificial Ectodermosis." de Lavergne.—p. 462.
*Treatment of Asthma. Trabaud and Charpentier.—p. 466.
*Variations in Vagosympathetic Tonus. Tinel et al.—p. 471.
*Lateral Amyotrophic Sclerosis with Hemiplegia. P. Marie et al.—p. 481.
*Tuberculosis in French Ex-Soldiers. M. Brelet.—p. 485.
Epidemic Encephalitis with Chronic Myoclonia. M. Reh.—p. 490.
Epidemic Encephalitis Following Herpes Zoster. Morel et al.—p. 493.
Atypical Epithelioma of the Bladder. Morel and Tapie.—p. 497.
*Serum Prophylaxis Against Measles. de Jong and Bernard.—p. 500.
*Gonorrheal Arthritis and Arthrotomy. F. Benzançon et al.—p. 502.
*Laryngeal Spasm in Hypervagotonia. Paisseau and Lambling.—p. 507.
*Cervical Spina Bifida Occulta. A. Léri.—p. 509.
Cervicomediastinal Lymphosarcoma. Blamoutier and Quignon.—p. 512.
*Oxygen Therapy. Lian and Navarre.—p. 516.
Subcutaneous Injections of Oxygen. Lian and Navarre.—p. 524.

Desensitization by Repeated Slight Cutaneous Reactions.—Vallery-Radot says that the cutaneous method of desensitization described by him and Haguenau, in 1921, is much simpler than subcutaneous injection of progressively increasing doses of the specific substance. He refers to a patient, subject to severe asthmatic attacks in the presence of emanations from horses, whom he subjected to cutaneous reactions from horse-hair, nearly daily for two months, with success. His experiments show that it is thus possible to desensitize an anaphylactic subject through the repeated application to the skin of minute quantities of the protein to which he is susceptible. The method has been tried with success by others, but it had no effect on one patient sensitive to ipecac, even though he experienced the blood shock with the cutaneous ipecac reaction.

Desensitization by Repeated Cutaneous Reactions in Asthma of Sheep Origin.—Trabaud and Charpentier report a case of asthma recurring at infrequent intervals from the age of 6. Native of a sheep country, the young man one day was employed at a wool carding machine, and in fifteen minutes he was seized with an attack of unprecedentedly severe suffocation. Other attacks followed, and he had to stop this work. During the war he was forced to work for the Germans. He remembered this wool carding machine experience, and he ripped his mattress and buried his head in the wool filling. A few minutes later he was seized with such a violent attack of asthma that he was sent to the hospital. Six months later, having improved, he again resorted to the means that had served him so well before, with the same results, so he was permanently exempted from forced labor for the enemy. Since that time he has been subject to asthmatic attacks of varying severity and at irregular intervals, until given the cutaneous reaction treatment with wool applied to a scarified place on each deltoid region. At the first application, urticaria developed instantly around the area, but soon disappeared. The dyspneic shock followed some hours later. The local and respiratory reactions grew less pronounced, and in two months the asthma seemed to have been entirely cured. He can now handle and sleep on wool without harm.

Cycle of Variations in the Vagosympathetic Tonus in the Erythema of Serum Sickness and Eruptive Diseases.—Tinel, Santenoise and Laurent, after experimenting with twenty-six cases, explain how anaphylactic shock is influenced by changes in the vagosympathetic tonus. There is first an accentuation of the preceding condition and then a more or less complete and durable inversion. In a vagotonic subject, a shock will first produce an accentuation of the excitability of the vagus, and then a reverse, sympatheticotonic condition, during which no new shock can be produced. This sympatheticotonic insensibility seems to be the main element in the nonspecific antianaphylaxis procedures. In a sympatheticotonic subject, on the other hand, vagotonia will appear secondarily. Then the subject becomes sensitive both to a new shock and to the persisting action of the injected substance. This reciprocal action of the tonus on the shock, and of the shock on the tonus, is of fundamental importance.

Anatomic Study of a Case of Amyotrophic Sclerosis with Hemiplegia.—Marie, Bouttier and Bertrand report the necropsy findings in a case of amyotrophic lateral sclerosis in which only one side was affected.

Reflections on Cases of Pulmonary Tuberculosis, Examined by the Board of Review.—Brelet, consulting physician on the board of review at Nantes, in his official report for 1922, and part of 1923, covering 680 examinations, says that about one third of the cases refer to pulmonary tuberculosis. The patients have a tendency to exaggerate the intensity of their symptoms, but when applying for a job on the railroads, or elsewhere, he had noticed that the same men no longer have any lung symptoms. A great number of the men have greatly improved, or are cured. From a military point of view they are definitely discharged and pensioned, but the pension has been reduced as they have improved. If the disease flares up again, they will be entitled to an increase of pension.

Prophylaxis Against Measles by Injection of Serum from a Convalescent.—De Jong and Bernard report a severe epidemic of measles, with two deaths out of seven cases from January 15 to February 9. They injected sixteen children with 2 c.c. of a convalescent's serum on February 13 and 14, with excellent results, only one of the injected children developing measles, and it was mild.

Gonorrheal Arthritis and Arthrotomy.—Bezançon, Weil and Weismann-Netter say that the introduction of new methods of therapeutics, vaccines, serums, proteins, etc., has made us forget the necessity to resort to surgical intervention in certain forms of gonorrheal arthritis. They had a patient who had resisted every kind of medical treatment but recovered rapidly after arthrotomy with evacuation of the joint content, careful exercises, rinsing with ether, and primary suture.

Loss of Consciousness with Laryngeal Spasm from Hypervagotonia.—Paisseau and Lambling say that the hypervagotonia found by Lian and Pinart in their cases confirms the circulation theory. In one of Thermes' cases the heart beat and, in Kurz' case the pulse became scarcely perceptible. In a case here reported it was sufficient to tell the patient to cough in order to see this voluntary effort cause an attack in which the pulse became imperceptible, and this lasted for several seconds after the spasm. In their case it seems more logical to speak of a bronchial than a laryngeal spasm, but whatever the cause of the hypervagotonia, the mechanism of the attacks appeared to be that, owing to the extreme excitability of the vagus, the effort of coughing induced bradycardia of sufficient duration to cause loss of consciousness through cerebral anoxemia, the mechanism resembling that of the vertigo of Stokes-Adams disease.

Cervical Spina Bifida Occulta with Late Manifestations of Occipital Neuralgia and Brachial Paraplegia.—Léri's patient, at the age of 40, developed severe sensory and motor clinical symptoms indicating syringomyelia in the first six cervical segments. Radiography showed a median opening in place of the spinous process of the third cervical vertebra. The opening in the spine itself could not have caused all the various symptoms, but this opening indicated a congenital lesion of the spinal cord, extending beyond the cleft. What was remarkable was the absence of the classical external signs, tumefaction or depression of the skin, and the fact that the congenital malformation had not manifested itself until the age of 40. The woman is now 47.

Intensive Oxygen Therapy by Inhalation Through the Pneumo-Oxygenator.—Lian says that inhalation through ordinary apparatus is too great an effort for the patient, and he receives too small a quantity of oxygen to be of great value in treatment. In addition, the expirations are made, into the receptacle from which the patient inhales, thus vitiating the oxygen. He says that the simple apparatus he describes (with an illustration) allows easy intake of oxygen, and the valve insures expiration into the open air. The pressure of the oxygen regulates the amount which passes into the blood. Intensive oxygen therapy is resorted to, as a rule, only in serious cases of chronic or acute pulmonary affections, or of cardiopathy, and the patient should therefore not be fatigued by respiratory efforts, but should be able to breathe naturally. In cases of cardiac insufficiency and in acute pneumonia, inhalation treatment of thirty minutes at intervals of six hours may be prescribed. The oxygen should be tested before use by applying to it a lighted match, extinguished to a mere spark. In severe dyspnea, inhalation during twenty or thirty minutes, or even during ten or fifteen minutes, through the pneumo-oxygenator, produces remarkable results. He describes also an apparatus for subcutaneous injection of oxygen.

Paris Médical

13: 225-240 (March 10) 1923

Bacillus Proteus. Besson and Ehringer.—p. 225.
*Action of Pituitary Extract in Hemorrhage. Perrin, Hanns and Stefanovitch.—p. 229.
*Complications of Artificial Pneumothorax. Hervé and Roussel.—p. 233.
*Effect of Quinidin on Arrhythmia with Goiter. E. Benhamou.—p. 235.
Labyrinthitis from Inherited Syphilis; Two Cases; Recovery. Predescu-Rion.—p. 236.

Antihemorrhagic Effect of Pituitary Extract.—Perrin and Hanns used the extract of the posterior lobe of the hypophysis intravenously and found its effect on the coagulability of the blood, arterial pressure, and the pulse decided though irregular. The antihemorrhagic action of the extract alters principally the coagulation of the blood.

Complications of Artificial Pneumothorax.—Hervé and Roussel attribute pyothorax to a specific origin, generally perforation of the lung, and seldom to exogenic infection, by pus from a cold abscess in the pleural cavity, or from germs in the blood and lymph. Diagnosis of pulmonary perforation is difficult, the color, fever with great fluctuations, and general collapse being merely presumptive symptoms. The only certain sign is when the manometer falls rapidly to zero; this indicates perforation. The pleural pus should be examined for tubercle bacilli by inoculation of a guinea-pig; this is positive more frequently than direct examination. Resection on both sides gave more favorable results than thoracentesis alone. To avoid the shock of large operations, they divide the intervention into stages, using local anesthesia, with costotomy as low as possible, in order to secure good drainage. They believe the wisest method in the majority of cases is exploratory puncture, autovaccination, simple pleurotomy with drainage, completed by balneotherapy and prolonged solar treatment.

Effect of Quinidin in a Case of Complete Arrhythmia with Large Goiter.—Benhamou reports the case of a woman, aged 45, who in the tenth month of the menopause was for the first time seized with paroxysmal tachycardia which lasted half an hour. She had for some time had a goiter which suddenly increased in size simultaneously with the cardiac crisis and, with the aggravation of the cardiac syndrome, became very large. The asystolia subsided under digitalis; diuresis improved; and the dyspnea became less marked, but the tachyarrhythmia persisted, with no change in the rhythm after eight days' treatment. Then he prescribed quinidin (0.2 gm. of the sulphate three times a day). The heart action improved the first day, and the goiter decreased in size and eventually disappeared.

13: 269-284 (March 24) 1923

Associated Surgery, Roentgen-Ray, and Radium Treatment of Cancer. J. L. Roux-Berger.—p. 269.
*Poisons and the Nervous System. Garrelon and Santenoise.—p. 274
Morphologic Phenomena in Organic Humors. L. Septilici.—p. 279.

Poisons and the Involuntary Nervous System.—Garrelon and Santenoise found reactions to poisons dependent more on individual idiosyncrasy than on the toxicity of the substance used. Experiments showed that in hypovagotonia the organism resists the action of the injected poison more decidedly than in vagotonia, and that the promptness of the shock is in proportion to the tonus of the involuntary nervous system, both with anaphylactic and other poisons, crystalloid as well as colloid. They experimented with a violent crystalloid poison, a zinc cyanid, with and without preceding pilocarpin. Animals, naturally vagotonic, with marked oculocardiac reflex, resisted the action less than naturally hypovagotonic animals with a weak or inverse oculocardiac reflex. The effect evidently depends more on the tonus of the involuntary nervous system at the time the poison enters the circulation than on the amount of the poison administered. "Evidence is accumulating to sustain the assumption of a neurovegetative diathesis."

13: 337-352 (April 14) 1923

Brain Tumor Simulating Epidemic Encephalitis. Claude et al.—p. 337.
*Prevention of Typhoid Fever in Cities. Loir and Legangneux.—p. 339.
*Vitamins in Medical Practice. G. Houlbert.—p. 344.
*Tuberculous Lesions of Mouth. Gamaleia and Morlot.—p. 348.

Prevention of Typhoid Fever in Large Cities.—Loir and Legangneux deal with different causes of typhoid fever in Havre. Twenty years ago almost 300 persons died yearly from typhoid fever in this town. Since then the average is twenty, if epidemics, like the recent one due to oysters, are excluded. Milk, oysters and vegetables are important in the spreading of infection.

Vitamins in Medical Practice.—Houlbert believes that each vitamin enhances the action of others.

Treatment of Tuberculous Lesions of Mouth and Pharynx.—Gamaleia and Morlot recall Jacques' method of treatment with potassium iodid. They report recovery of a girl aged 10 who received from 1 to 3 gm. daily for six weeks. They cauterized the ulcers with a weak solution of lactic acid.

Presse Médicale, Paris

31: 429-440 (May 12) 1923

Suprarenal Insufficiency. E. Sergent.—p. 429.
The Pulse in Aortic Insufficiency. L. A. Amblard.—p. 433.
*Diffuse Peritonitis. L. Sauvé.—p. 435.

Present Conception of Suprarenal Insufficiency.—Sergent has been publishing data on this subject for twenty-five years, but he says now that the interpretation of the facts observed requires revision. Extreme insufficiency of the suprarenals nduces a clinical picture suggesting acute poisoning. Toxic disturbances characterize inadequate function of the supraenals, but this fact has been obscured by the vogue of epinephrin. The acute toxic disturbances are of four types, uggesting acute poisoning, meningitis, peritonitis or cholera. Chronic insufficiency is revealed by hypotension, tendency o bronzing and asthenia in which the muscles show excepionally rapid and intense fatigue when measured with the rgograph or dynamometer. This fatigability is the early hase of what becomes in extreme insufficiency painful ramps, contractures and terminal convulsions. Sergent etracts his former statements in regard to white dermoraphia as a sign of suprarenal insufficiency. He admits hat this was a mistake, but adds that time is confirming more and more his conception of the toxic nature of the isturbances from suprarenal insufficiency.

The Blood Pressure in Aortic Insufficiency.—Amblard warns that normal or high diastolic pressure with aortic nsufficiency is an almost certain sign of a syphilitic basis. Under other conditions, the diastolic pressure is low, and the ifferential tension is never so extreme as in the first ategory.

Acute Diffuse Peritonitis.—Sauvé describes and comments n the revolution in the conception of acute generalized perionitis in the last fifteen years. The classic symptoms of fteen years ago are now recognized as terminal symptoms.

31: 441-448 (May 16) 1923

Indications for Nephrectomy. G. Marion.—p. 441.

Indications for Nephrectomy.—Marion extols the greater reliability of the ureteral catheter findings as compared with the ureosecretory index. If catheterization by the natural route is impracticable, he has always succeeded with it when the bladder was opened.

31: 449-460 (May 19) 1923

*The Pains with Compression of Spinal Cord. J. A. Barré.—p. 449.
*Distress and Obsession. R. Mallet.—p. 451.
*Short Neck. P. Rebierre.—p. 452.
Papaverin to Combat Spasm. L. Cheinisse.—p. 454.

The Pains with Compression of the Spinal Cord.—Barré discusses the significance of pains above and below the lesion, and the interpretation of those for which the cord itself, the sympathetic nerve, or the roots are responsible.

Recurring Distress and Obsessions.—Mallet analyzes a number of typical cases, and emphasizes the importance for the cure of reliance on the physician's moral support. The trouble is not amenable to hypnotism or suggestion, and if psychanalysis is applied, the instincts of self-preservation and association should be considered, rather than the sex instinct. The disturbances are in the sphere of sentiment instead of will. The tendency is to hypersecretion rather than hyposecretion, and rest, even bed rest, may be advisable, with tepid hydrotherapy and Swedish exercises. To advise the patient to "brace up" and seek distractions is asking more than he is capable of. All stimulants should be avoided. In conclusion, Mallet says that further research on shock treatment may aid in treating these conditions which pertain to physiology as well as to psychology. He compares the condition to a grinding machine that is working with nothing to grind.

Short Neck.—Rebierre describes his case as a man without a neck. He presented a heterolateral nervous affection of the right twelfth cranial nerve and of the tenth and eleventh on the left side.

31: 473-484 (May 26) 1923

*Inherited Syphilis and Phenomena of Sensitization. Ravaut.—p. 473.
Hematomas and Abscesses in Rectus Aponeurosis After Laparotomies. P. Bonnet and L. Michon.—p. 477.

Sensitization in Inherited Syphilis.—Ravaut for two years has been calling attention to the frequency of inherited syphilis as a factor in certain cases of eczema, urticaria, asthma, etc., of the sensitization phenomena type. He gives details of eight typical cases. Maternal heredity seems to be most frequent; it often skips a generation, and instances of urticaria, asthma or idiosyncrasies are often found in collateral branches of the family. The manifestations may alternate, running the whole gamut in the patient himself, or through the family. As syphilis is the principal disease which displays such hereditary and familial characteristics, it should be suspected in all such sensitization phenomena. The Wassermann test is not sensitive enough to reveal the inherited taint. The reaction was positive only in 4 of 62 cases in this group; the Hecht test was positive in 20, and the Desmoulières in 40. In 3 cases of psoriasis, the Desmoulières elicited 3 positive reactions while the Wassermann and Hecht were both negative. Desensitization by repeated application of the noxious substance involved or by polyvalent treatment with peptone, sodium salts, autoserotherapy or autohemotherapy answers the purpose, but the effect may be only transient. By treatment of the predisposing inherited taint, the soil becomes modified so that the effect of the desensitization is permanent. The treatment of the mild inherited taint should be gentle and long continued. He alternated tablets of calomel and of neo-arsphenamin, on alternate days, breaking up the tablets to fraction the dose during the day and insure their being dissolved. After three weeks he changed to some desensitizing drug or autoserotherapy. After this combined mild mercury-arsphenamin and desensitizing treatment—all by mouth—the cure seemed to be stable. The discovery of anaphylaxis, the conception of colloidoclasis, have thrown light on the nature of certain disturbances. The predisposition to these disturbances may be in the nervous, endocrine or other system. But this predisposition traced farther back often, but of course not always, leads to inherited syphilis. When this is the case, a simple, mild, but persevering treatment by the mouth may modify conditions so decidedly that, as Ravaut's experience demonstrates, tenaciously rebellious affections may spontaneously subside. In one case the tendency to eczema was promptly cured but the tendency to asthma persisted until the courses of treatment had been resumed from time to time for a year.

Revue de Médecine, Paris

40: 1-64 (Jan.) 1923

*Rôle of the Semicircular Canals. L. Bard.—p. 1.
*Present Status of Syphilitic Disease of the Lung. J. Lecaplain.—p. 28.
Recent Literature on Syphilis. Godlewski.—p. 55. Conc'n p. 121.

The Physiologic Rôle of the Semicircular Canals.—Bard summarizes his extensive research on the general physiology of the sense of gyration. He discusses means for testing the functional capacity of the semicircular canals, and interpreting the findings.

Syphilitic Disease of the Lungs.—Lecaplain remarks that every tenacious bronchitis or lung affection in a syphilitic requires immediate and vigorous specific treatment. Even when the lesion is tuberculous, it may be favorably influenced. Sputum is rarely examined for spirochetes, but diffuse tracheobronchial syphilis may be accompanied by a gummatous lesion in the lung, or sclerosis or mediastinitis. A tuberculous pleurisy may develop on a syphilitic soil. Chronic syphilomas in the lung are more common than acute lesions; sometimes the good general health in spite of symptoms simulating severe pulmonary tuberculosis may suggest the true diagnosis. In one of the two cases described, the first symptom had been pain in the region of the right mamma. Then came cough and dyspnea, both increased by exertion, and worse at night. The physical findings pointed to tuberculosis, but the positive Wassermann reaction and roentgenograms suggested treatment for syphilis; speedy recovery followed, although the Wassermann reaction is still positive, and the physical findings are not normal. The second patient was a man, 'aged 51, with symptoms of a sclerogummatous syphilitic lesion of the lung, with aortitis and mediastinal adenopathy. Specific treatment had a remarkably prompt and complete effect, even the Wassermann reaction becoming negative.

Schweizerische medizinische Wochenschrift, Basel

53: 393-416 (April 19) 1923

*Ossifying Periarthritis of Elbow. H. Vulliet.—p. 393.
*Glucose Treatment in Heart Disease. T. Büdingen.—p. 395.
Pathogenesis of Acute Pancreas-Fat Necrosis. R. Schweizer.—p. 400.
Treatment of Anemias. A. Alder.—p. 403.
*Dry or Irrigation Treatment in Otitis Media? E. Schlittler.—p. 405.
*Formation of Cysts in Spinal Ganglions. T. Watanabe.—p. 407.

Contusions of Elbow and Neoformation of Bone.—Vulliet demonstrates by three clinical histories that slight injuries may cause rapid formation of bone near the elbow, and greatly impair function. He proposes the term: ossifying periarthritis.

Metabolic Treatment of Heart (Cardiotrophotherapy) with Intravenous Infusions of Glucose.—Büdingen recommends infusion of a hypertonic solution of glucose in rheumatic polyarthritis, diphtheria, pneumonia and all postinfectious conditions causing a sensation of precordial pressure.

Dry Treatment or Irrigations with Boric Acid Solution in Otitis Media?—Schlittler prefers Schönemann's dry treatment with insufflations of an antiseptic powder to the irrigation method in inflammation of the middle ear.

Formation of Cysts in Spinal Ganglions.—Watanabe, in forty necropsies of 150, found cysts in the spinal ganglions.

Pediatria, Naples

31: 409-464 (April 15) 1923

Diagnostic Value of Pandy Reaction in Tuberculous Meningitis of Children. U. Provinciali.—p. 409.
*Blood Platelets and Coagulability in New-Born. A. Emmanuele.—p. 422.
Treatment of Hereditary Syphilis in Children. G. Milio.—p. 430.
Raynaud's Disease. C. Gallo.—p. 439.
Urticaria Pigmentosa. G. Sunseri.—p. 445.

Blood Platelets and Coagulability in the New-Born.—Emmanuele found that the number of blood platelets decreases in the first days of extra-uterine life. Premature infants have more platelets. The coagulation time becomes longer with the decrease of platelets. It is shorter in premature births, and longer in infants with hemorrhages.

Policlinico, Rome

30: 329-358 (March 12) 1923

Occult Tuberculous Fever. U. Arcangeli.—p. 329. Cont'd.
Treatment of Oxyuriasis with Arsphenamin. K. Hajós.—p. 334.
*Treatment Before and After Operations. P. Gilberti.—p. 335.
Report on an Antimalaria Campaign Near Rome. O. Ricci.—p. 337.

Treatment Before and After Operations.—Gilberti advises keeping the patient in bed a few days before operation. It may be well to prepare the patient with vaccine or serotherapy, or better yet, the two combined, but he warns that the operation should be planned so it will not come during the few days of the refractory phase that follows the first vaccination. He advises this combination of bed rest, dieting and means to induce antibody production whenever infection or suppuration is suspected.

30: 425-455 (April 2) 1923

*Posterior Surface Sign of Tumors. D. Taddei.—p. 425.
*Addison's Syndrome in Malaria. A. Fulchiero.—p. 426.
Modification of Fehling Test for Sugar. D. Maestrini.—p. 432.
Constipation Calling for Surgical Measures. L. Manginelli.—p. 433. Conc'n.

The Sign of the Flat Posterior Surface with Tumors.—In the differential diagnosis of cold abscesses, benign tumors and cysts, Taddei tries to push the growth to one side and work his finger down to the bone or muscle on which it lies. This is impossible with an abscess, as it is too intimately connected with the tissues beneath to allow being pushed aside. It can be done with a benign tumor, and the posterior surface of the tumor found to be flat as it lies on a flat surface. A cyst is spherical.

Addison's Syndrome in Malaria.—Fulchiero's three patients presented apparently typical Addison's disease, but under treatment for malaria, and epinephrin, the Addison syndrome subsided, except the pigmentation. This persisted practically unmodified.

30: 457-488 (April 9) 1923

Opening Lecture of Dermatology Course. P. L. Bosellini.—p. 457.
*Cinchonin in Treatment of Malaria. P. Filippella.—p. 464.

Cinchonin in Treatment of Malaria.—Filippella gives details of twenty-three malaria patients treated in Carducci's service with cinchonin. In all cases of spring tertian malaria the febrile attacks were arrested by the first doses. It seems advisable to begin with the cinchonin and change to quinin only if this proves ineffectual, unless the symptoms call for very vigorous measures from the first. In one case of mixed spring and tropical tertian malaria, the former was arrested by the cinchonin, but the tropical persisted until quinin was given.

Riforma Medica, Naples

39: 361-384 (April 16) 1923

*Leukocyte Count with Echinococcus Cysts. C. Manassei.—p. 361.
Rat-Bite Disease in Italy. A. Pellegrini.—p. 363.
On Bauer's Interpretation of the Hereditary Transmission of Hemophilia. P. Mino.—p. 371.

Leukocyte Count in Casoni's Intradermal and Pontano's Subcutaneous Reaction in Patients with Echinococcus Cysts.—Manassei injected according to Casoni's method 0.3 c.c. of fluid from the echinococcus cysts of animals intracutaneously and 1 c.c. subcutaneously (Pontano's method). He observed that the eosinophils increased from 1.5 to 6 per cent. after these injections in thirteen patients with echinococcus cysts. In one patient with a suppurating cyst the reaction was negative.

39: 385-408 (April 23) 1923

*Technic for the Wassermann Reaction. N. Pane.—p. 385.
*Blood Grouping. P. Mino.—p. 386.
Mechanism of Formation of Spontaneous Hematomas in Leukemia. G. Jannelli.—p. 389.
Tuberculosis in Infants. A. Muggia.—p. 391.

Nonspecific Wassermann Reactions.—Pane obtained a positive Wassermann reaction in 100 per cent. of twenty-seven cases of syphilis in the tertiary stage when the serum had been freed from complement without heat. On the other hand, the reaction was positive only in 25 per cent. when the serum had been freed from complement by heating to 55 C. for thirty minutes. The reaction was constantly negative when the serum was heated to 65 C. He remarks that the positive response to the test is connected with the presence of some substance which is destroyed by heat, and hence he insists that the test should be applied simultaneously with and without heat to different specimens of the blood serum.

Blood Grouping.—Mino asserts that by artificially increasing the globulin content of a serum we confer on the serum the property of pseudo-agglutination of the erythrocytes. This occurs when the serum naturally shows no agglutinating properties; erythrocytes pile up, but there is no true agglutination. The speed of sedimentation of erythrocytes is highest in serums containing much globulin. But true agglutination is entirely independent of this. All research done with a technic which excludes pseudo-agglutination confirms the accuracy of grouping in four groups and in four groups only.

39: 409-432 (April 30) 1923

Insufficiency of the Left Ventricle. A. Coury.—p. 409.
*Action of the Liver on Fat. F. Galdi.—p. 411.
*Aphasia After Injury of Brain. Fiamberti and Filippini.—p. 416.
Influence of Prohibition in America on Mental Disease and Crime. M. Carrara.—p. 418.

Action of Liver on Fats.—Galdi presents evidence that it is possible to reveal insufficiency of the liver in respect to fats by the precipitation when 2 or 3 drops of blood serum are dropped into a 5 per cent, neutral solution of glycerin. A whitish cloud forms in their wake, like a spiral of smoke, which gradually settles to the bottom as a flaky precipitate. This test differs entirely from the test for blood dust, both in the mechanism of its production and its significance.

Aphasia from Injury of Brain.—The motor aphasia developed immediately after a stab wound at the foot of the third left frontal convolution. Three days later came facial paralysis and other symptoms of hematoma, but these retrogressed after a decompression operation. The aphasia persisted for months and only slowly subsided.

Revista de Medicina y Cirugía, Havana

28: 257-298 (April 10) 1923

Classification of Gastro-Intestinal Disturbances in Infants. A. Aballí.—p. 257. Cont'd.
*Sympathetic Ophthalmia. Rodolfo and Rodolfo Julio Guiral.—p. 278.

Sympathetic Ophthalmia.—This article reports the complete cure of sympathetic ophthalmia in more than twenty cases seen in a year and a half. Treatment was with parenteral injection of the patient's own serum, according to Escomel's method of "integral autoserotherapy," except that the serum was not heated. The injections were made every day or second day, the dose 3 c.c. of the autoserum. The number of injections required varied; the improvement in the eye first affected is a good gage of the number required. The success of this autoserotherapy sustains the assumption of an anaphylactic basis for sympathetic ophthalmia. This assumption is further sustained by the fact that the patient seems to become immunized under the influence of the autoserotherapy, so that further operations or trauma on either eye fail to induce sympathetic ophthalmia afterwards.

Prensa Médica Argentina, Buenos Aires

9: 907-930 (April 10) 1923

*The Liver in Pulmonary Tuberculosis. P. J. Hardoy.—p. 907.
*Tuberculous Mastoiditis. A. Tarasido.—p. 912.
*Preparation of Tuberculous Labyrinth. R. Podestá.—p. 917. Cont'n.
*Technic for Biopsy. S. Mazza and M. Balado.—p. 919. Cont'n.
The Liver in General Asthenia. M. J. Barilari and D. Cifone.—p. 924.

The Liver in Pulmonary Tuberculosis.—Hardoy concludes from his experience that the functional capacity of the liver is the main element in the prognosis of pulmonary tuberculosis of every form and degree. It is also an indispensable guide in treatment; it would be a gross error to advise forced protein feeding or alcohol for patients with defective liver functioning. The use of drugs should also be based on the liver findings. He gives details of a number of cases to sustain these assertions; the urine was tested for urobilin and urochromogen, salts and bile pigments, and for glycuronuria by the Roger-Chiray test; while the blood was tested by the bleeding time, residual nitrogen and digestive hemoclastic crisis. He was surprised at the large proportion of positive responses to this last test in the tuberculous. The previous condition of the liver seems to be what determines the form and severity of the tuberculosis. In the torpid, nondestructive form, the liver is generally nearly or quite sound. The liver findings may vary from day to day in proportion to the flaring up of a tuberculous process.

Tuberculous Mastoiditis.—Tarasido reports two cases in children, aged 5 and 6. The disturbances had persisted after an ordinary mastoid operation, but a second more complete operation, which confirmed the tuberculous nature of the chronic process, brought about complete recovery. In both cases the mastoiditis had followed whooping cough.

Anatomic Specimens of the Labyrinth.—Podestá extols the advantages of Popoff's method of coating the membranous labyrinth with liquid petrolatum to protect it while the bone is being decalcified with acid. Perfect specimens of the internal ear can thus be obtained.

Biopsy.—The testes are discussed in this instalment of Mazza and Balado's long, profusely illustrated study of the technic for and the interpretation of the findings when fragments are excised for examination.

9: 931-956 (April 20) 1923

*Uricacidemia as Index of Kidney Function. C. Bonorino Udaondo and G. P. Goñalons.—p. 931.
Treatment of Neurosyphilis. Mariano Alurralde.—p. 933.
Catgut Made in Argentina. S. Mazza and M. Balado.—p. 940.
*Calcium Chlorid in Serositis. A. Navarro.—p. 948.

Uric Acid Content of Blood as Index of Kidney Function.—In the six cases of glomerular nephritis investigated, the uric acid content of the blood ranged from 0.056 to 0.175, with an average of 0.093 instead of the normal range from 0.03 to 0.05. The retention of uric acid did not parallel that of urea, which averaged 0.27. The cholesterol was within or close to normal range.

Calcium Chlorid in Treatment of Serositis with Effusion.—Navarro gave a thorough trial to calcium chlorid as advocated by Blum in treatment of tuberculous pleurisy with effusion. In 40 per cent. of his five cases the result was ideal; in 40 per cent. it was good, and in 20 per cent. not much benefit was apparent. The patients were on a salt-poor diet, and the drug was given in ten or fifteen teaspoonfuls during the day, each representing 1.5 gm. of calcium chlorid, at intervals of one and a half or two hours. His formula was: calcium chlorid and soluble starch, each 30 gm.; lemon jelly 100 gm. and distilled water, 20 gm. The best results were noted in the more acute cases. The suppression of thirst which is one of the features of this treatment seems to indicate important modification of metabolism of water. The absorption of the effusion is a kind of autoimmunization which has a decided curative influence, while it avoids the danger of infection from without which is liable when the effusion has to be tapped. About 75 per cent. of the effusion was absorbed in five or ten days, but the remainder took about three to six weeks.

Semana Médica, Buenos Aires

1: 729-780 (April 19) 1923

Opening Lecture of Pathology Course. J. J. Vitón.—p. 729.
Automatic Gag and Tongue Holder. L. Samengo.—p. 734.
*Venous Thrombosis from Overexertion. O. Ivanissevich.—p. 738.
Blocking Nerve to Upper Jaw. J. Ubaldo Carrea.—p. 744.
*Hypernephromas. R. G. Cabred.—p. 747.
*Glycosuria and Glycemia in the Pregnant. S. E. Bermann.—p. 764.
Mitochondria Considered as Bacteria. A. L. Herrera.—p. 772.

Venous Thrombosis from Overexertion.—A young woman applied for relief from pains in the humeral vessels, subacute edema of the entire arm, and slight cyanosis. The vein in the upper arm and axilla was palpable as a hard cord. The condition had developed during the ten days after severe physical exertion in using the right arm. The same clinical picture was presented a few months later by a man aged 53 after a similar overexertion. A sharp pain in the anterior wall of the right axilla was the first symptom. It did not spread, and soon subsided, being followed by a sensation of heaviness and numbness in the whole arm. Recovery in both cases was soon complete under rest, iodids and hot fomentations. In another case a hematoma developed in the scrotum after lifting a heavy weight. The diagnosis at first had been strangulated hernia, but the hematoma continued to spread toward the hypogastrium and iliac crests. It stopped spreading the fourth day, and five days later the vaginalis was punctured and the fluid aspirated was injected subcutaneously. The man was discharged much improved six days later. In another case, the man, aged 52, felt a sudden pain in the scrotum on lifting a weight, and a hematoma developed. with evidences of rupture of a vein which compelled operative treatment.

Hypernephromas. — This long illustrated study of these tumors is based on twelve cases. Cabred asserts that this type of neoplasm has probably been mistaken for a true kidney tumor in many recorded cases. Certain epitheliomas, adenomas and the majority of endotheliomas are true hypernephromas. Benign or malignant, they form the great majority of kidney tumors.

Alimentary Glycosuria in the Pregnant.—Bermann found that ingestion of 100 gm. of glucose almost always induced glycosuria in the pregnant. This is more frequent and more constant in the first and third three months of the pregnancy. In the thirty women examined, the glycosuria was moderate and did not persist for more than a week after delivery. The sugar content of the blood does not rise unless there is concomitant liver or endocrine derangement.

Deutsche medizinische Wochenschrift, Berlin

49: 467-500 (April 13) 1923

Pathology and Treatment of Kidney Disease. Umber.—p. 467. Conc'n.
*Therapeutic Significance of Thymus. Boenheim.—p. 469.
Analysis of Roentgen Pictures of Chest. G. Herrnheiser.—p. 472.
Treatment of Syphilis with Bismuth. H. T. Schreus.—p. 473.
*Treatment of Epidemic Encephalitis. Buss.—p. 476.
Psychotherapy of Asthma. E. Marx.—p. 477.
Treatment of Asthma. A. Pritzel.—p. 478.
*Infant Feeding. A. Japha.—p. 479.
Ascaridiasis in an Infant. H. Bischoff.—p. 479.
Surgery of Tonsils. G. Finder.—p. 481.
Report of the Official Commission on Friedmann's Vaccine.—p. 483.
Treatment of Whooping Cough. A. Schmuckler.—p. 484.
Determination of Nitrogen in Urine and Blood. F. Utz.—p. 485.
Stethoscope for Korotkow's Determination of Blood Pressure. J. Bamberger.—p. 485.
A Cannula for Punctures. L. Mendlowicz.—p. 486.

Therapeutic Significance of Thymus in Internal Medicine.—Boenheim recommends treatment of goiters (including exophthalmic) .with a combination of iodin and thymus preparations. Thymus increases the appetite in tuberculous patients.

Treatment of Epidemic Encephalitis with Acriflavine.—Buss reports perfect results with intravenous injections of acriflavine in nine cases of encephalitis, including a case of postencephalitic parkinsonism. He injected daily 5 to 10 c.c. of a 0.5 per cent. solution for six or eight days. His patients were all women. He is chief of the St. Joseph-Stift at Bremen.

Infant Feeding. — Japha finds that the use of so-called minimal feeding can lead to wrong treatment. There must be individualization; the feeding should be optimal, not minimal. Albumin milk is an excellent remedy in diarrhea.

49: 501-534 (April 20) 1923

*Physiologic Importance of Brain-Stem. R. Magnus.—p. 501.
Epidemiology of Sleeping Sickness. F. K. Kleine.—p. 505.
*Quinin Resistant Lipases in Human Blood. H. Simon.—p. 506.
Function of Kidney in Nephrolithiasis. J. Rummelsburg.—p. 507.
Contralateral Dry Pleuritis with Spontaneous Seropneumothorax. E. Basch.—p. 508.
*Scarlet Fever as an Anaphylactic Phenomenon. S. Meyer.—p. 509.
*Diagnosis of Echinococcus Disease. Blumenthal and Unger.—p. 512.
Limits of Error of the Spectrometric Method of March, Staunig and Fritz in Roentgenology. K. Staunig.—p. 514.
Further Experiences with Linser's Injections in Syphilis. R. Abimélech.—p. 515.
Dermatological Diagnosis. M. Joseph.—p. 516. Cont'n.
Diffuse Carcinosis of Pia Mater After Operation of Carcinoma of Stomach. J. Alsberg.—p. 518.
*Oscillatory Determination of Blood Pressure. Engelen.—p. 519.
Determination of Blood Volume Before, During and After Delivery. W. Neubauer.—p. 520.
Medical Aspects of the Proposed German Criminal Law of 1919. Weygandt.—p. 521.

Significance of Brain-Stem for Tonus of Muscles and Position of Body.—Magnus describes the results of his method of investigating the function of the central nervous system: instead of removing parts starting from the cortex, he proceeds proximately from the medulla oblongata.

Clinical Use of Quinin Resistant Lipases in Human Blood.—Simon found lipases resistant to quinin not only in affections of the liver, but also in other patients. Rona's investigations on different lipases of blood are only an experimental basis for further researches.

Scarlet Fever as an Anaphylactic Phenomenon.—Meyer believes that streptococci are not the direct cause of scarlet fever. They act only as sensitizers and provokers of an anaphylactic shock. Eosinophilia is one of his reasons for this assumption.

Serologic and Clinical Diagnosis of Echinococcus Disease.—Blumenthal and Unger describe their technic, and mention especially the necessity of a negative control with a strongly positive syphilitic serum. Eosinophilia with negative complement fixation speaks against the echinococcus.

Supramaximal Amplitudes in Oscillatory Determination of Blood Pressure.—Engelen finds that the supramaximal oscillations of Pachon's tonometer are a good indication of the energy of contractions of the left ventricle.

Klinische Wochenschrift, Berlin

2: 669-724 (April 9) 1923

*Breathing Function, Chest and Constitution. L. Hofbauer.—p. 669.
Dyspnea in Cardiac Pulmonary Stasis. W. Frey.—p. 672.
Roentgenologic Diagnosis of Duodenal Ulcers. H. H. Berg.—p. 675.
*Hypersensitiveness of Micro-Organisms. Schnabel and Kasarnowsky.—p. 682.
Significance of Cells of the Walls of Vessels in Pathology. G. Herzog.—p. 684. Cont'd.
Influence of Chronic Treatment with Arsenic on the Respiratory Metabolism. P. Liebesny and A. Vogl.—p. 689.
Intubation of Duodenum. H. Kahn.—p. 692.
Action of Parenteral Injections of Blood and Organ Emulsions from Animals Irradiated with Ultraviolet Rays. E. Tryfus.—p. 694.
*Chlorin and Phosphoric Acid Ion and Spasmophilia. Röckemann.—p. 695.
*Action of Ferments. R. Ehrenberg and E. Loewenthal.—p. 696.
Simple Method for Determination of Alveolar Carbon Dioxid Pressure. J. Holló and S. Weiss.—p. 697.
Necrosis of Skin After Repeated Injection of Diphtheria Antitoxin. C. Hegler.—p. 698.
*Diagnosis of Primary Polycythemia. F. Gaisböck.—p. 699.
Pancreatic Extract in Diabetes. A. Grevenstuk.—p. 704.

Breathing Function, Chest and Constitution. — Hofbauer believes that the "phthisic habitus" is due to an inherited insufficiency of breathing. The abnormal length of the lumbar part of the spine in these subjects is not due to increased growth, but is caused by a disproportion with the inhibited development of the thoracic part. Unilateral respiratory insufficiency causes scoliosis. Correct breathing prevents these abnormal conditions, and should be taught in schools.

Hypersensitiveness of Micro-Organisms in Infected Mice.—Schnabel and Kasarnowsky experimented on mice infected with pneumococci and injected with weak solutions of ethylhydrocuprein. In analogy with Schnabel's results in vitro the strains cultivated from the animals showed a marked oversensitiveness toward the drug. The most striking results were obtained with cultures taken about three hours after inoculation. In the cultures taken after twenty-four hours, the strain was less sensitive than the untreated control. The sensitiveness was specific, since the strains were rather more resistant against mercuric chlorid than the controls. These experiments may be valuable for the theory and technic of chemotherapy.

Mutual Relations Between Chlorin and Phosphoric Acid Ion and Their Significance for the Problem of Spasmophilia.—Röckemann observed in an infant edema and tetany after injection of phosphates. The spasms stopped with the disappearance of the edema.

Action of Ferments.—Ehrenberg and Loewenthal bring new examples of the synthetic phases during trypsin digestion. Some experiments seemed to indicate that trypsin may become more specific for the protein it acts on during protracted digestion. This may be of importance for the explanation of d'Herelle's phenomenon.

Diagnosis and Treatment of Primary Polycythemia.—For this diagnosis, Gaisböck requires an absolute increase in erythrocytes—including increased total volume of blood. The best treatment is irradiation of bones. Irradiation of spleen and liver is of no use. The therapeutic and the toxic doses are not far apart.

Medizinische Klinik, Berlin

19: 487-522 (April 15) 1923

*Edema in Pregnancy. L. Adler.—p. 487.
Determination of Guilt in Apparently Unknown Cause of Roentgen Injuries. H. Holfelder.—p. 491.
*Management of Weak Infants. P. Grosser.—p. 495.
Organic Injury of Nervous System from Lightning. Herrmann.—p. 497.
Roentgen Treatment of Lymphogranuloma. F. Kanzow.—p. 498.
Combined Alternating Treatment of Syphilis of Prostitutes with Neo-Arsphenamin, Silverarsphenamin and Mercury. Brinckmann.—p. 500.
Ascarid in the Abdominal Cavity. F. Freudenthal.—p. 501.
Fornet's Tuberculosis Reagent. Kellner.—p. 503. Comment. Christensen.—p. 503.
Death from Pneumonia Not Due to Injury. H. Engel.—p. 504.
Dysmenorrhea. E. Runge.—p. 506.
Survey on Gynecology. W. Liepmann.—p. 509.

Edema in Pregnancy.—Adler deals with the different causes of edema in pregnancy. If due to acute nephritis, the pregnancy need not be interrupted. In chronic nephritis, it is permissible to try to carry the child to term with a diet poor in chlorids. If the symptoms become more severe (increase of edema, headaches, etc.) therapeutic abortion is indicated. Affections of the heart, except mitral stenosis with beginning edema, are not an indication for abortion if they can be successfully treated. Extensive local edema of the external genital organs should be treated by scarifications.

Management of Weak Infants.—Grosser is opposed to the use of three times diluted milk in new-born, as well as to half-milk with only small addition of sugar. Weak children need human milk.

Mitteil. a. d. Grenzgeb. d. Med. u. Chir. Jena

36: 1-150, 1923

*Origin and Structure of Gallstones. B. Naunyn.—p. 1.
*Pneumoventriculography in Brain Disease. W. Denk.—p. 9.
*Spontaneous Recovery from Subacute Atrophy of Liver. H. Brütt.—p. 29.
Gastroscopy. W. Sternberg.—p. 41.
*Elimination of Salt and Water in Stomach Affections. E. F. Schlesinger.—p. 47.
Skin Reaction and Complement Fixation in Actinomycosis. J. Walker.—p. 55.
Importance of Spastic Conditions in Gastro-Intestinal Pathology. J. Kaufmann.—p. 96.
Elimination of Water in Abdominal Affections. Gundermann and Düttmann.—p. 113.
Parasitic Etiology of Goiter. Wegelin.—p. 134. Reply. L. Merk.—p. 139.
Frequency and Cause of Primary Carcinoma of the Lungs. P. Hampeln.—p. 145.

Production of Gallstones.—Naunyn presents further evidence of infection as the primary incentive to gallstone production, especially in the intrahepatic ductlets.

Encephalography in Diagnosis of Brain Affections.—Denk has insufflated air or oxygen into the spaces of the central nervous system in thirty-two cases for diagnostic purposes. His two fatalities convinced him that it is safer under certain conditions to insufflate the air or oxygen directly into the ventricle rather than by lumbar puncture, when the cerebrospinal fluid is under high pressure. In these circumstances, he advises puncturing the ventricle first, and thus relieving the pressure, before attempting to inject oxygen by lumbar puncture.

Subacute Atrophy of the Liver.—Brütt cites from the records two cases of recovery when the symptoms had indicated atrophy of the liver, and adds a personally observed case to the list. The age in the three cases ranged from 18 to 26. There does not seem to be any essential difference between chronic atrophy of the liver, ordinary cirrhosis and syphilitic cirrhosis. Treatment can be only symptomatic. With coincident syphilis, arsphenamin must be given cautiously, as instances are known in which acute atrophy of the liver developed in connection with a course of arsphenamin treatment. The shock from even an exploratory laparotomy may be more than the patient can stand.

Elimination of Salt and of Water in Disease of the Stomach.—Schlesinger's findings were irregular, and without diagnostic import.

Münchener medizinische Wochenschrift, Munich

70: 451-484 (April 13) 1923

Treatment of Malignant Tumors. E. Kreuter.—p. 451.
Dangers of Roentgen Treatment and Their Prevention. Sippel.—p. 455.
Roentgenologic Castration in Men. E. Markovits.—p. 457.
Measuring of Wave Length of Roentgen Tubes for Treatment. P. P. Gotthardt and A. Wertheimer.—p. 459.
Assisting in Operations. E. Lexer.—p. 460. Idem. A. Krecke.—p. 461.
*Treatment of Tuberculosis by Pneumothorax. Unverricht.—p. 461.
Adhesions After Gynecologic Laparotomies. Haug and Heudorfer.—p. 463.
Intrapleural Chemotherapy of Pulmonary Tuberculosis. P. Heilmann.—p. 468.
Atypical Coloboma of Iris in Father and Congenital Aniridia in his Children. Velhagen.—p. 469.
Moistening, Warming and Washing of the Anesthetizing Vapors. H. v. Baeyer.—p. 470.
Reducing Scale of Roentgenogram. Stumpf.—p. 470.
"Meinicke's Reaction for Serodiagnosis of Syphilis." E. Meinicke.—p. 471.
*Early Diagnosis of Carcinoma of Tongue. W. Kümmel.—p. 471.

Observations and Results of Treatment of Pulmonary Tuberculosis by Pneumothorax.—Krecke reports 40.2 per cent. clinical recoveries and 50 per cent. deaths among seventy-seven well-to-do patients. From the poorer classes treated in the dispensary, 32.3 per cent. recovered clinically and 59 per cent. died from tuberculosis. Bacilli disappeared from the sputum in 38 per cent. of the first group, and 29 per cent. of the second.

Early Diagnosis of Carcinoma of Tongue.—Kümmel emphasizes the necessity for palpating the tongue, because the tumor may be under the mucosa. Soft fibromas or lipomas are not as hard as cancer, and have definite limits. Some epitheliomas may have also sharp limits, but they are usually ulcerated. A submucous tumor in the middle line on the base of the tongue may be a goiter. Tuberculosis, syphilis and actinomycosis may simulate a cancer, especially before ulceration. A syphilitic gumma is very important for diagnosis because of its curability. Yet he warns against considering a slight amelioration after treatment as a proof of the syphilitic nature of the tumor. Combinations also occur. Great pains are typical in deep carcinomas. Carcinoma developing from leukoplakia is not very obvious, but should be easily diagnosed, if the physician would think of the possibility. Decubital ulcers must have their cause in rough teeth; they disappear with removal of the cause.

Wiener klinische Wochenschrift, Vienna

36: 303-320 (April 26) 1923

Gonorrhea of Urethra and Bladder in Women. R. Franz.—p. 303.
Abdominal Stasis. L. Hess.—p. 306. Cont'd.
Clinical and Morphological Types of Goiter. E. Gold and V. Orator.—p. 309.
Action of Sodium Chlorid. M. Engländer.—p. 310.
*Rectal Ulcer. W. Zweig.—p. 310.
Alleged Malpractice in Complete Rupture of Uterus. J. Reder.—p. 311.
General Comment on the Preceding Article. L. Knapp.—p. 314.

Rectal Ulcer.—Zweig observed five cases of bleeding ulcer of the rectum after influenza. Rectoscopy is essential for diagnosis. The treatment consists in enemas of gelatin or olive oil, with some antiseptic.

Zentralblatt für Gynäkologie, Leipzig

47: 657-704 (April 28) 1923

*Pregnancy with Cancer of the Uterus. B. Schweitzer.—p. 657.
Criticism on the Kjelland Forceps. K. Fink.—p. 668.
Statistics of Febrile Abortion. F. Peyser.—p. 684.
Old and New Views on the Birth Mechanism. H. Sellheim.—p. 691.
"Twisting of Ovarian Cysts on Their Axis." Pulvermacher.—p. 699.
Significance of Corpus Luteum for Female Organism. J. Novak.—p. 701.

Pregnancy with Cancer of the Uterus.—Schweitzer has had the unusual opportunity of observing 11 cases of cancer associated with pregnancy: Young women are not subject to cancer, as a rule, and elderly women do not become pregnant. His patients had borne from 3 to 14 children, an average of seven. The pregnancy with cancer followed very soon after a previous pregnancy. In 6 of the 11 cases, hemorrhages were first observed during the pregnancy. In spite of this fact, Schweitzer thinks that in the majority of the cases the cancer was primary and the pregnancy secondary. Cancer in pregnancy produces very slight hemorrhages; they may even be entirely lacking. The early symptoms referred to by Zweifel deserve careful attention—a yellow discharge and hemorrhages after coitus or lavage. During labor, as the cancer tissue is not elastic, dilatation of the cervix is difficult. The result will depend on the size of the cancer. During the puerperium, there is danger of pyogenic infection owing to the highly virulent streptococci in the cancer. The growth of the cancer seemed to be accelerated by the pregnancy but the malignancy was not increased. Cancer during the puerperium is much less amenable to curative treatment than cancer in pregnancy. Cancer is diagnosed much more frequently during the first year post partum than during pregnancy. The prognosis in cancer with pregnancy is always grave, for both mother and child. Sarwey's early figures showed 43.3 per cent. mortality, but with the Wertheim operation they were only 7.5 per cent., though Aulhorn figures 10 per cent. In Schweitzer's 8 cases in which operation was performed a primary cure was effected—in 6 by the Wertheim operation. The earlier the operation during pregnancy, the better the final results. In operable cancer of pregnancy, an immediate radical operation by the Wertheim method or by the combined Wertheim-Zweifel procedure is indicated. Irradiation should also be considered, especially, prophylactic postoperative irradiation. Irradiation of a uterine cancer causes hardening of the cervix, which necessitates delivery by cesarean section.

Casopis lekaruv ceskych, Prague

62: 165-192 (Feb. 17) 1923

J. Hnatek. Obituary. Libensky.—p. 165.
Contamination and Self-Cleaning of Rivers. M. Kredka.—p. 167.
*Tight-Rope Walking Gait in Hysteria. K. Henner.—p. 170.
Mixed Ovarian Neoplasm. O. Bittmann.—p. 172.
Epidemic of Hemeralopic Xerosis of Conjunctiva. M. Bondy.—p. 177.
Climate of Dubrovnik. V. Naprstek.—p. 179.
Twort-d'Herelle Phenomenon. J. Cancik.—p. 183.
New Opinions About Menstruation. J. Pazourek.—p. 186.

Tight-Rope Gait in Pithiatism or Simulation.—Henner observed in several hysteric patients that their way of walking was peculiar: They put the heel of one foot in front of the toe of the other, and the steps were faltering. The impression was that of a person walking on a tight rope. He proposes this as a name for the sign, and points out that persons with organic disturbance impairing the gait usually walk with a broad base to maintain their balance.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

1: 1613-1724 (April 21) 1923

*Eunuchoidism from Dermoid Cyst. M. Elzas.—p. 1614.
Present Status of Insulin. A. Grevenstuk et al.—p. 1630.
*Herpes Zoster and Chickenpox. C. De Lange.—p. 1634.
Citrate Solution Must Be Neutral for Transfusion. Tervaert.—p. 1640.
*Differential Diagnosis of Meningitis. D. J. Beck.—p. 1641.
*Differential Diagnosis of Smallpox. J. Kuiper.—p. 1644.
Acute Necrosis of Pancreas in Parturient. Klumper.—p. 1655.

Eunuchoidism from Dermoid Cyst.—Elzas successfully removed the dermoid cyst from the mediastinum of the man, aged 28. It measured more than 6 by 8 by 11 cm. and seemed to consist mainly of ovarian tissue. The eunuchoid development was evidently due to the internal secretion of this teratoid tissue as masculine characters developed after its removal, hair on the body and beard, but the genital organs have shown no change. In the sixty-nine cases of dermoid cysts in the mediastinum which he has found on record, the teratomas seem to have started to grow at puberty. In his case, the biologic test for echinococcus cyst was positive at first, but veered to negative after expulsion of a few ascarids.

Herpes and Varicella.—De Lange found the complement fixation test with varicella antigen positive in a child with herpes zoster and in two with varicella, while it was negative in healthy controls and in a case of lingual herpes. The cases all occurred in one month in an institution. Further tests with a less concentrated extract of varicella crusts all gave a negative response. She concludes that herpes zoster can be induced by varicella virus, and cites instances of nervous complications of varicella which confirm its affinity for the nervous system.

Differential Diagnosis of Meningitis.—Beck declares that lymphocytosis is always accompanied by a pronounced Nonne reaction in tuberculous meningitis.

Smallpox.—Kuiper remarks that the Netherlands has been free from smallpox for three years but adds that this is more from luck than wisdom. The differential diagnosis is described.

1: 1725-1840 (April 28) 1923

*Writing of Medical Articles. G. van Rijnberk.—p. 1729.
The Hospital and Its Medical Staff. D. Schoute.—p. 1732.
The Physiologic Phenomena During Myoclonia. L. J. J. Muskens.—p. 1737.
*Heredity from Standpoint of Psychiatry. J. Lobstein.—p. 1753.
*Opposition to Irradiation of Myoma. L. F. Driessen.—p. 1760.
Case of Diabetes with Insulin Treatment. L. Polak Daniels and J. Doyer.—p. 1766.
Ileus with Necrosis from Impacted Piece of Orange Peel. D. Meyer Levy.—p. 1775.
Consultation Dispensaries for the Tuberculous. J. Lankhout.—p. 1791.
Adenoma Sebaceum. W. L. L. Carol.—p. 1811.

The Writing of Medical Articles.—Previous instalments of van Rijnberk's advice to medical writers were summarized, April 28, 1923, p. 1280.

Heredity in Mental Disease.—Lobstein reports dementia praecox in four boys and one girl of a family of seven children. The two other children died before puberty; preceding generations did not present exceptional prevalence of mental affections.

Radiotherapy of Uterine Myomas.—Driessen extols the advantages of roentgen-ray treatment for myomas of moderate size. He has applied it in 56.4 per cent. of his 314 cases since 1914. Operative measures were advised in 21 per cent. and there have been no deaths.

Ugeskrift for Læger, Copenhagen

85: 387-404 (May 31) 1923

Sterilization of Rubber Gloves, etc., by Formaldehyd-Vacuum Method. L. E. Walbum.—p. 387.
Arc Light Treatment of Dermatitis. S. Lomholt.—p. 390. Conc'n.
*Insulin for Scandinavian Countries. A. Krogh.—p. 392.
*Intravenous Injection of Camphorated Oil. Fabricius.—p. 393.
Periodic Paroxysmal Tachycardia. E. Lassen.—p. 395.
The Sickness Insurance Law. K. K. Steincke.—p. 397.

Insulin Production in Denmark.—Krogh says that the highly developed swine industry has given Denmark natural advantages for insulin production, since a uniform pancreas material can be obtained under veterinarian control in a way that practically excludes infection. The difficulty in using swine pancreas, because of the large fat content and extremely potent trypsin, has been practically overcome, and production of insulin on a large scale at the insulin laboratory will begin as soon as the necessary technical equipment has been installed. The price at the factory has been tentatively fixed at 20 Danish øre (about 5 cents) per Toronto unit. Hagedorn is still in charge of the laboratory, and insulin enough to treat one patient has been offered to seven leading specialists in the three Scandinavian countries, with promise of more later; six have accepted the offer. His experiences with insulin treatment have been very encouraging. The attempts to use fish pancreas proved disappointing; it seems to be impossible to procure fish glands in sufficient regular quantities, and in a condition rendering them fit for producing insulin.

Intravenous Injection of Camphorated Oil.—Fabricius-Møller shows by report of two deaths that intravenous injection of camporated oil is not free from danger. A woman, aged 55, who, about three weeks before had undergone an operation for gallstones, developed phlebitis with dyspnea, and was given a subcutaneous injection of 1 c.c. camphorated oil, and an intramuscular injection of 0.5 c.c. of a digitalis extract, followed by intravenous injection of the same amounts of camphorated oil and the digitalis, and soon thereafter by the death of the patient. Necropsy showed a large embolus in the pulmonary artery with fat emboli in the lung tissues, proving that even so small a quantity of camphorated oil may cause many kinds of emboli with occlusion of capillaries. The condition of the other woman, aged 31, was serious. After intravenous injection of 5 c.c. of camphorated oil the pulse improved, but in eleven hours the lung capillaries were full of fat emboli, and necropsy showed edema of the lungs attributed to the oil injection, the stethoscope before the injection having shown normal conditions in this respect.

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GASTRIC ULCERS

LEWIS GREGORY COLE, M.D.

NEW YORK

Articles from the pens of gastro-enterologists who have written most voluminously on this subject admit the difficulty of making a positive diagnosis of gastric ulcer, and they look and long for a test, such as the Wassermann, which will give an accurate diagnosis of gastric ulcer; but they shut their eyes to the roentgen-ray, which, if properly employed, would give them a diagnosis far more accurate than the Wassermann is for syphilis, and would not only give a diagnosis of ulcer per se but would determine the type of ulcer.

The literature is full of articles quoting remarkable percentages of cures of gastric ulcer by some particular "ulcer cure." If no reliable means of accurately diagnosing gastric ulcer exists, what proof is there that one has really cured a gastric ulcer? How does one know that one has not simply relieved a pylorospasm, which is the gastric manifestation of some organic lesion at a distant point, or caused the temporary remission of symptoms which regularly occurs even without treatment? The acid test, described later, should be applied to these cases of reported cures of gastric ulcer.

The inaccuracy of the diagnosis of gastric ulcer based on clinical symptoms and gastric analysis as described in the textbooks of that day was the subject of one of the last addresses given by Rodman before the American Roentgen Ray Society in 1916.

Sir J. Berkeley Moynihan, in delivering the Carpenter Lecture at the New York Academy of Medicine, Oct. 20, 1920, attacked these subjects more boldly than any one had previously dared. Speaking of the diagnosis and treatment of gastric ulcer, he said:

> I believe that error has crept in upon this subject to a degree which is even now quite inadequately recognized; that for many of the statements, which readily find acceptance, and that for much of the treatment, to which the patients are still submitted, there is no real foundation in adequate knowledge.

Here Sir Berkeley Moynihan gave a simile which, unfortunately, was eliminated from his published article. Evidently impressed by the chaos in the streets of "the City," he said:

> Today I watched with interest men with crow bars and axes tearing down old buildings in order that new modern sky scrapers may be built on the solid foundation. So tonight we must tear down the old and inadequate diagnosis and build a new one on a firmer foundation. . . . The literature of the subject is illimitable; it is in medicine as in finance, much paper and much poverty may coexist. Much dross has been foisted upon us as pure gold, and we have meekly accepted it as such because of the high authority or the specious phrases of the writer.
>
> As on the finger of a throned Queen
> The basest jewel will be well esteemed,
> So are those errors that in them are seen
> To truths translated and for true things deem'd.
>
> All that has been written requires, I think, the most ruthless scrutiny in the light of the new truths disclosed by the work of the surgeon and of the radiographer. Heartless as it may appear, I venture, with diffidence but with hope, to suggest that complete reconsideration of this subject by physicians may be undertaken. [He further says:] If my own experience can be taken to have a representative value it is true to say that in more than half the number of cases in which the diagnosis is made in everyday practice, and by the ordinary methods, it is inaccurate. [Again he says:] The radiographic method is, in the expert's hands, the one certain method of diagnosis and is now an indispensable addition to the older and less accurate methods of inquiry.

Such statements as these from so great an authority as Sir Berkeley Moynihan, quoted and requoted, cussed and discussed as they were, have gone a long way toward tearing down the old, ramshackle methods of diagnosis and establishing a new method on a firm foundation of pathology as observed roentgenographically and surgically.

The early history of the roentgenologic diagnosis of gastric ulcer is most interesting. In the very early days of the development of roentgenology, Hemmeter did some notable work on this subject. Part was experimental work on dogs and rabbits; he also made some observation on the human subject. This article was read and in the hands of the publisher prior to any work published in Germany, and Dr. Hemmeter has letters acknowledging his priority in this line of work.

He stated that experiments on dogs, rats and rabbits demonstrated conclusively that a lesion of the gastric mucosa which extends to the muscularis could be made visible by the roentgen-ray method, and that bismuth in sufficient quantities would stick to the base of an experimental gastric ulcer and be visible for twenty-four hours, if no food was given.

The experimental surgical work was done by Frank Martin, and reported as follows: "Frank Martin cut a ring about 1 cm. wide out of the gastric mucosa, carrying it down to the circular layers of the muscularis, and he then covered this with a thin layer of bismuth subnitrate and closed the wound. The ring was visible twenty-four hours later in one case and thirty hours in another."

These experiments led him to conclude that bismuth subnitrate would adhere to the surface of an ulcer, and that this could be detected roentgenographically.

That this observation was to a certain degree correct was shown by the works of Haudek, who maintained that the bismuth would collect in a pouch or niche. This method of diagnosis was followed quite enthusiastically for a time by many roentgenologists, but failure to differentiate such flecks of bismuth in the crater of an ulcer from retention of bismuth in a normal cap or a small residue of bismuth in the stomach or duodenum led to so many erroneous diagnoses that the roentgenographic diagnosis of gastric ulcer fell into disrepute. Thus it was with difficulty that the medical profession was later convinced of the accuracy of the more extensive serial method of examination.

The various methods available to the general practitioner, namely, objective and subjective symptoms, gastric analyses, string tests and microscopic examination for blood, should be used to their utmost, but each must be accorded only that value which the test of time has allotted it. Unquestionably, all of these methods are of value in determining that there is some organic lesion or functional derangement of the stomach, cap or gallbladder. But we must ask ourselves with what degree of certainty it is possible to differentiate organic lesions from functional disorders by the use of one or all of these clinical methods combined. Is it possible even to divide the cases into organic or functional groups solely on the clinical evidence?

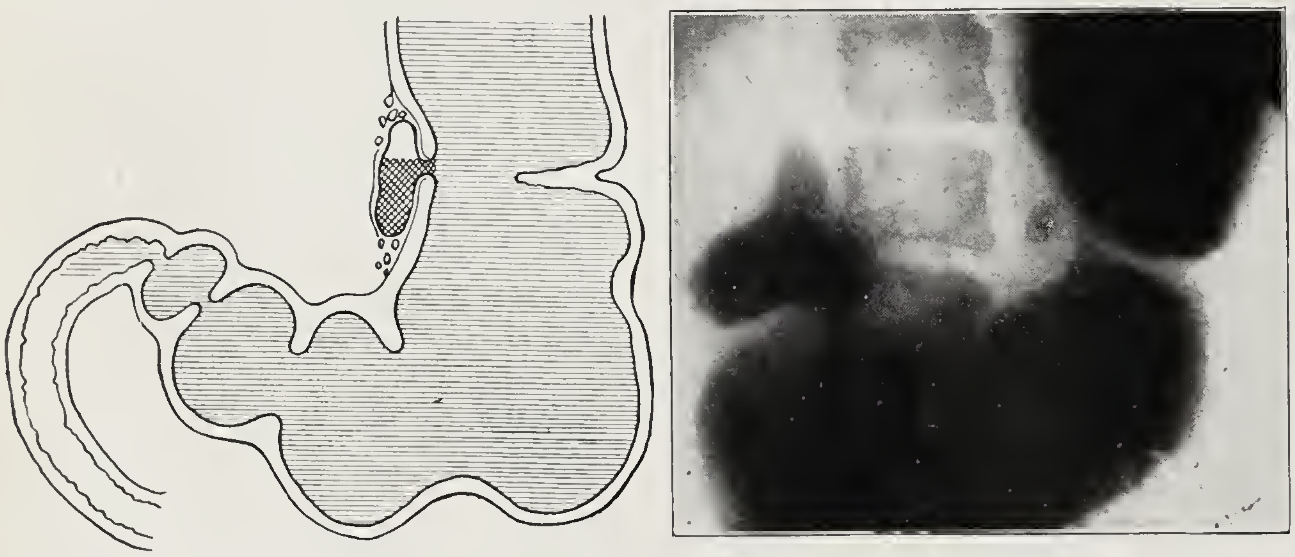

Fig. 1.—Penetrated or penetrating (considering adjacent viscera) or perforated (and walled off) or letter-box (Moynihan) type of ulcer. The ulcerating area in the gastric wall is small and deep, extending through all the coats of the stomach, and then expands into a larger pouch, which is walled off by adhesions. There may or may not be a sulcus opposite the ulcer. The line drawing accompanying each roentgenogram shows two approximately parallel lines, one representing the inner surface of the stomach, which the roentgenologist shows, and the other the outer surface, which the surgeon sees. The characteristic types of craters are shown by the cross checking; the induration surrounding the crater is shown by the small circles.

The clinical manifestations of the various types of gastric disease, functional derangement and reflex gastric symptoms are so complex and frequently display such similarity that they cannot be differentiated with any degree of accuracy. Indeed, it is even difficult to divide them into two important groups, viz., organic and functional. The organic group might be considered a surgical group, and embraces cancer, gastric and postpyloric ulcer, and cholecystitis; whereas the functional disorders, such as gastralgia, hyperchlorhydria and pyloric spasm, should be considered the medical group.

So much confusion has existed concerning the term "spasm" of the stomach that a discussion of this condition would not be amiss at this point. This term spasm, as applied to the roentgen-ray findings of the stomach and especially connected with gastric ulcer, has not been clearly defined, and has led to much confusion. Some roentgenologists apply the term spasm to a deep sulcus on the greater curvature of the stomach opposite the site of an ulcer on the lesser curvature. This has become such an important part of an ulcer symptom complex described by some observers that too often it is considered pathognomonic of gastric ulcer; but, as Carman so well stated referring to this type of spasm, "Spasm may arise from interior causes (lesions of the stomach) in which case it facilitates the diagnosis or, on the other hand, it may proceed from exterior influences and act as a hindrance to the roentgen-ray diagnosis [of gastric ulcer] by its persistence."

I believe that this sulcus on the greater curvature, diagnosed by many as spasm, is not in the majority of cases due to spasm but is caused by a cicatricial contraction of connective tissue in the muscular, mucosal and submucosal coats of the stomach, and that it has often been diagnosed as spasm because this sulcus is not observed at operation in cases in which it was definitely shown fluoroscopically or roentgenographically. This condition will be considered later, in the study of the scars of gastric ulcers. In the minds of the general roentgenologist or the clinician, various types of spasm or pylorospasm have not been differentiated from one another. This subject has been considered in a previous article, and therefore I will now simply mention the types of spasm, in the order of their most frequent occurrence: (1) prepylorospasm, involving the pars pylorica; (2) pylorospasm, involving the pyloric sphincter; (3) post pylorospasm, involving the cap; (4) cardia spasm, involving the cardiac orifice, and (5) a narrow sulcus in the pars media.

DEFINITION OF SPASM AS OBSERVED ROENTGENOGRAPHICALLY

I shall not attempt to dictate to others how they shall use the term spasm. But in order that my conception of the term may be understood, I must define it rather briefly because the roentgen findings indicative of spasm and its differentiation from organic lesions of the stomach have been described in previous articles.

Spasm may be shown in the roentgenogram in three ways:

1. By the contents of the pars pylorica, pars media or cap being expelled from the lumen of that portion of the tract by its muscular action in the vast majority of a series of plates made at different times with the patient in various postures. For example, if seven out of ten films showed the barium expelled from the lumen of the pars pylorica, such a case would be reported as presenting a seven-tenths degree of active spasm.

2. By the permanent diminution of the lumen of the stomach and possibly of the cap due to the persistent habitual contraction of the muscular coats, even though the contraction is absent or is controlled by an antispasmodic during the roentgen examination. This is evidenced by the appearance of the rugae in the involved area, and is similar to the contraction of the psoas muscle in the tuberculosis of the spine causing flexion of the thigh.

3. Possibly by a thin, narrow, persistent, nonprogressing sulcus on the greater curvature near the cardia; but, I believe, in most cases this is an organic lesion and not a functional spasm.

METHODS OF STUDYING THE PATHOLOGY OF GASTRIC ULCER

There are three methods: (1) necropsy, (2) biopsy, and (3) roentgenology.

The actual study by inspection, palpation and microscopic examination of the specimen as obtained by necropsy might be considered the method *par excellence;* but, in view of the rapid changes that occur in the wall of the stomach as a result of digestion of the mucosa by the gastric secretion immediately after death, and owing to the fact that we can study only one stage of development of the ulcer, usually the terminal stage, it gives one a misconception of the size and characteristics of the ulcer during the greater period of its existence, and makes the method less valuable than one would first think. Certainly, photographs of the specimens of gastric ulcers give one a very poor conception of the ulcer as it really exists in the living subject.

The study of gastric ulcers by inspection and palpation during an operation, and a microscopic examination of a removed section of the stomach, eliminate many of the disadvantages of necropsy findings; but this method, too, has its disadvantages. The knowledge gained by inspection, and particularly by palpation, which is the more important, is limited in its dissemination to the operator and perhaps to one or two assistants. Descriptions of what he sees and feels are unsatisfactory.

In those cases in which a gastric resection, or, possibly an excision, is performed, a very few persons may examine the pathologic specimen while fresh, and before changes have resulted from the gastric secretion, and a great amount of valuable data may be thus obtained. But the data apply only to those cases in which the ulcer is of relative large size and associated with sufficiently severe symptoms to demand surgical relief.

Here, as in the cases of necropsy, only one stage of the ulcer can be studied.

By means of serial roentgenograms with examination frequently repeated, one can study the gross pathology of gastric ulcer; the size and shape of the crater; the amount of induration surrounding it; its location in the stomach, and its increase or diminution in size during periods of exacerbation or recession of symptoms, and determine whether any cases of simple gastric ulcer ever become malignant. Therefore, one can by this method obtain greater knowledge concerning the gross pathology and the natural course of the disease than by either or both of the previously mentioned methods.

The visual conception of a gastric ulcer in the mind of physicians has been and will be molded more by the observation of roentgenograms than by all necropsies and operations they have seen or will see.

METHODS OF RONTGEN-RAY DIAGNOSIS OF GASTRIC ULCER

Three distinct methods have been employed in the roentgen-ray diagnosis of gastric ulcer: (1) a fleck of bismuth subnitrate remaining in the crater of an ulcer; (2) symptom complexes, and (3) morphologic changes in the wall of the stomach.

1. A fleck of bismuth subnitrate remaining in the crater of an ulcer or adherent to its surface forms the basis for a method of diagnosis of gastric ulcer advocated by Hemmeter; but as this is of more historical interest than practical value, it was described in the paragraph on history.

2. The symptom complex method was originated on the continent, and was almost universally used both in Austria and in Germany as a means of diagnosing gastric lesions prior to the advent of the war, and is sometimes referred to as the continental method. Attempts were made by advocates of this method to classify subjective and objective symptoms, gastric analysis, string test, and the size, shape and position of the stomach, and particularly the emptying time of the stomach, as observed fluoroscopically, into a group of symptoms known as symptom complexes.

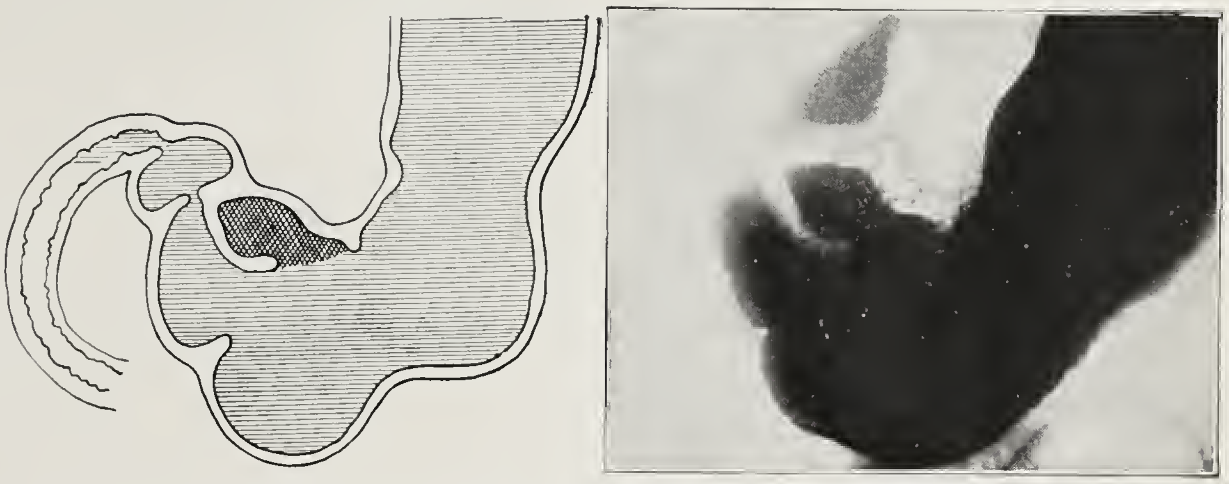

Fig. 2.—A burrowing ulcer penetrates the inner coat and burrows along toward the pylorus between the inner and outer coats of the stomach. The crater has the shape and appearance of a tongue.

These, as their name indicates, were merely sets of symptoms, some of which were recognized by fluoroscopy.

Holzknecht, Haudek, Kreuzfuchs, Strauss, Immelmann and many other German and Austrian roentgenologists have each compiled a symptom complex of his own. These differ from one another to such a degree that it is very difficult to recognize that they apply to the same pathologic condition. Each of these was undoubtedly of value in the hands of its compiler, but there is such a great variation that one would be at a loss to know which particular symptom complex to follow.

Carman was the greatest advocate of this method in this country, and he compiled a group of symptoms and signs with additional fluoroscopic findings which he referred to as "roentgen signs," of which the spasm or sulcus is an important factor. But I believe that at present he is depending less on the signs and more on direct evidence of morphologic changes in the wall of the stomach as observed either fluoroscopically or roentgenographically.

I myself feel that the diagnosis of gastric ulcer should rest on a firmer foundation than that of spasm or symptom complexes.

3. The direct method, which is sometimes referred to as the "American," in contradistinction to the continental, is based on the observation of morphologic changes in the wall of the stomach. These deformities are very often recognized by means of fluoroscopy or single plates, but the most accurate method of detecting these lesions is by means of serial roentgenography.

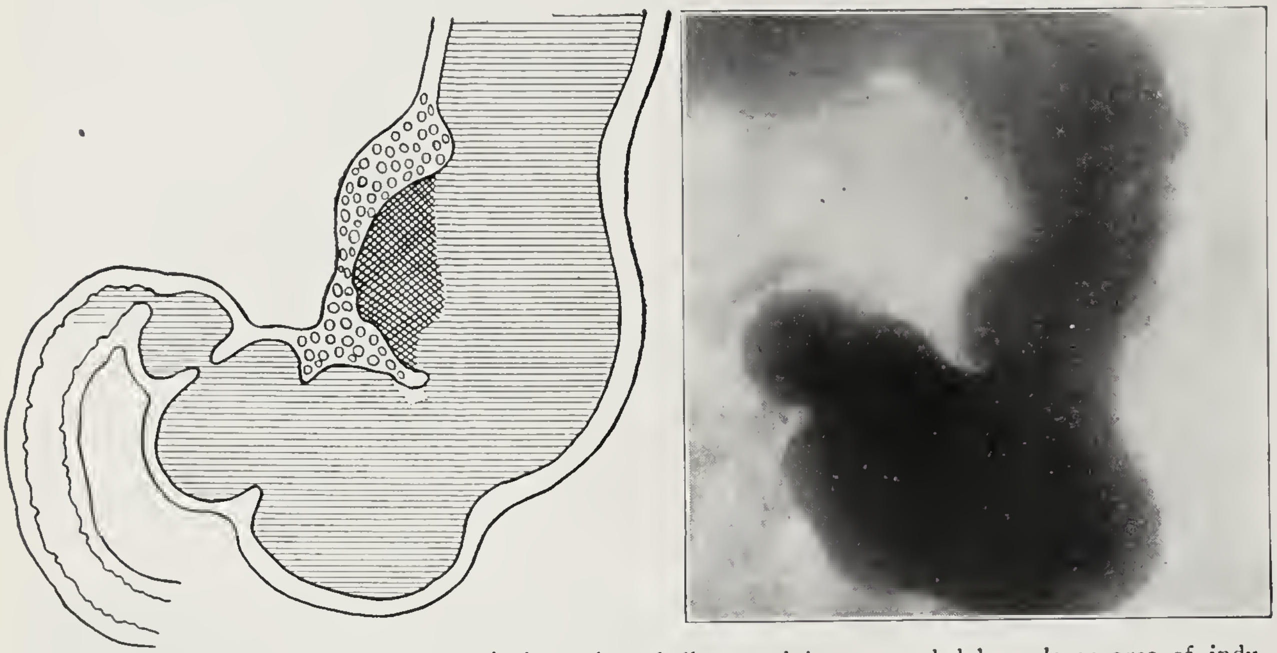

Fig. 3.—Florid ulcer: The crater is large but shallow, and is surrounded by a large area of induration. These ulcers closely resemble an ulcerated carcinoma.

The observation of morphologic changes in the wall of the stomach by means of serial roentgenography is the one firm foundation on which to build the roentgen-ray diagnosis of gastric ulcer. Anything less than this, such as symptom complexes, gastric spasm, and rapid or slow gastric evacuation, is as shifting sand, and a diagnostic structure builded on such a foundation is bound to fall.

If pathologic (that is, morphologic) change in the wall of the stomach is going to be the solid rock foundation on which to build the roentgen-ray diagnosis, then we must carefully consider the manner in which the ulcer involves the gastric wall and the adjacent viscera.

There are five or six types of ulcer which vary so much that no single description could be given that would accurately describe all of them.

The following are the six types of gastric ulcer: (1) deeply penetrating; (2) burrowing; (3) large, shallow, florid; (4) small, round or oval; (5) mucosal or submusocal, and (6) healed (*a*) with gross hour-glass contraction, and (*b*) with slight dimpling of the mucosa.

DEEPLY PENETRATING ULCER

The roentgenologic literature is full of descriptions of fluoroscopic findings and roentgen-ray illustrations of the first group of ulcers—deeply penetrating ulcer (if one is referring to the adjacent viscera) or penetrated ulcer (if one is referring to the gastric wall).

The type of penetrated gastric ulcers in which there is a hole through the gastric wall, with the adjacent viscera sufficiently adherent to the peritoneal surface of the stomach to prevent a general peritoneal infection, or when a pouch is formed in adjacent viscera, has been graphically described by Haudek:[1]

> The radiological signs of a penetrating gastric ulcer are: (1) a patch or streak of bismuth, isolated from the mass of the bismuth meal, or branching out from it, usually at the lesser curvature and in the pars media of the stomach; (2) a gas-bubble at the summit of this isolated patch; (3) retention of the bismuth persists for a considerable time in this region; immobility of the bismuth patch, which is not influenced by palpation or pressure.
>
> I have given the designation "nischensymptom" or "diverticulum symptom" to the complex of symptoms indicating a callous penetrating ulcer. These are as follows: (1) a diverticular projection from the stomach, bismuth shadow at the lesser curvature; (2) the immovability of this diverticular shadow under palpation; (3) the presence of bismuth remains in the diverticulum; (4) the presence of a hemispherical gas-bubble above the bismuth patch; (5) the sharply defined drawing in of the greater curvature, causing the so-called hour glass contraction; (6) displacement of the pyloric portion of the stomach to the left, especially noticeable in males, with a nearly vertical position of the lower part of the greater curvature; (7) marked diminution of the motility of the stomach; (8) antiperistalsis of the stomach; (9) the presence of a tender spot acutely sensitive to pressure, giving a sensation of resistance, situated above the umbilicus, in the region of the left rectus muscle. This is frequently, but not always, associated with ulcer of the body of the stomach.

Haudek's description of this type of ulcer has been quoted quite fully because his name has been justly associated with the niche he so graphically described.

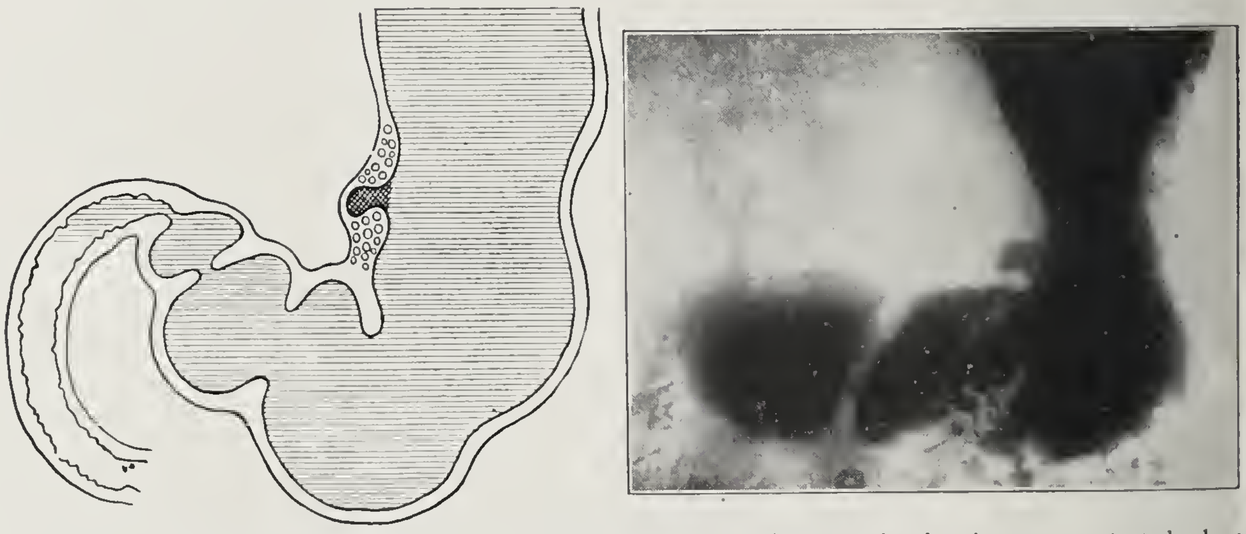

Fig. 4.—Small round or oval ulcer (with fairly deep crater); may develop into a penetrated ulcer (Fig. 1) or it may become the burrowing type (Fig. 2), or it may heal, as in Figure 8.

But the term Haudek's niche has since then been incorrectly applied to small, superficial craters or morphologic changes in the wall of the stomach without the other gross changes in the contour or position of the stomach, and Hemmeter described this years before.

This type of ulcer is readily recognized either fluoroscopically or on a single plate, and the findings in the majority of these cases are so self-evident that even a

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1. Haudek: Wien. med. Wchnschr., 1913, No. 48.

tyro would interpret the illustration as an organic lesion of the stomach and, if he had read the literature on the subject, as gastric ulcer.

Moynihan, from surgical observation, very graphically describes the advanced ulcer of this type, which penetrates into the adjacent viscera or underneath the liver, as a "letter-box type of ulcer."

Moynihan says that, looking at these ulcers from the inside of the stomach, one can put two or three fingers in this letter-box crater for almost their entire length.

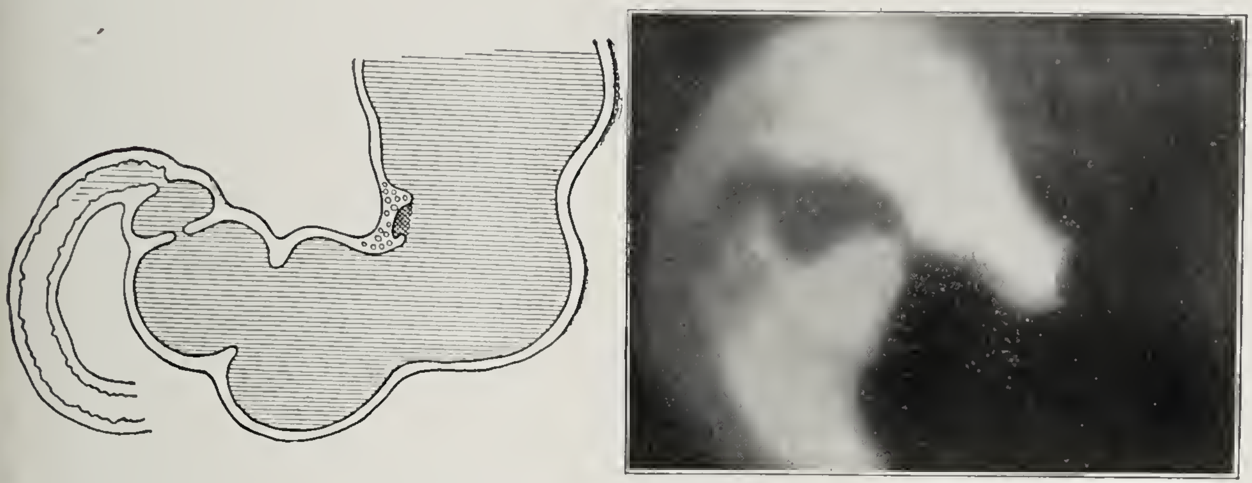

Fig. 5.—Small round or oval ulcer, with shallow crater.

This penetrating type of ulcer, compared with the other types, is of far greater frequency in the surgical clinics or hospitals where the easily diagnosed cases are sent for surgical relief, than they are in the routine practice of the physician, gastro-enterologist or roentgenologist.

BURROWING ULCERS

Burrowing or stripping ulcers are those which burrow toward the pylorus between the mucous and serous coats of the stomach, stripping one coat from the other; and the barium-filled crater has the appearance of a long tongue.

This type of ulcer, which burrows along between the coats of the stomach, must not be confounded with the penetrating ulcer, which is penetrating into adjacent viscera or under the liver.

Some one has stated that "craters always burrow toward the pylorus because of the propulsive force of the gastric peristalsis." When the tip of the tongue of the crater reaches the pyloric ring, it can progress no farther because of the anatomic structure, and it presses on the pyloric sphincter and causes an organic stenosis, with corresponding gastric retention. Cases with as long a tongue as the one shown in Figure 2 are comparatively rare, but the tendency to burrow is evidenced in many cases if one looks for it.

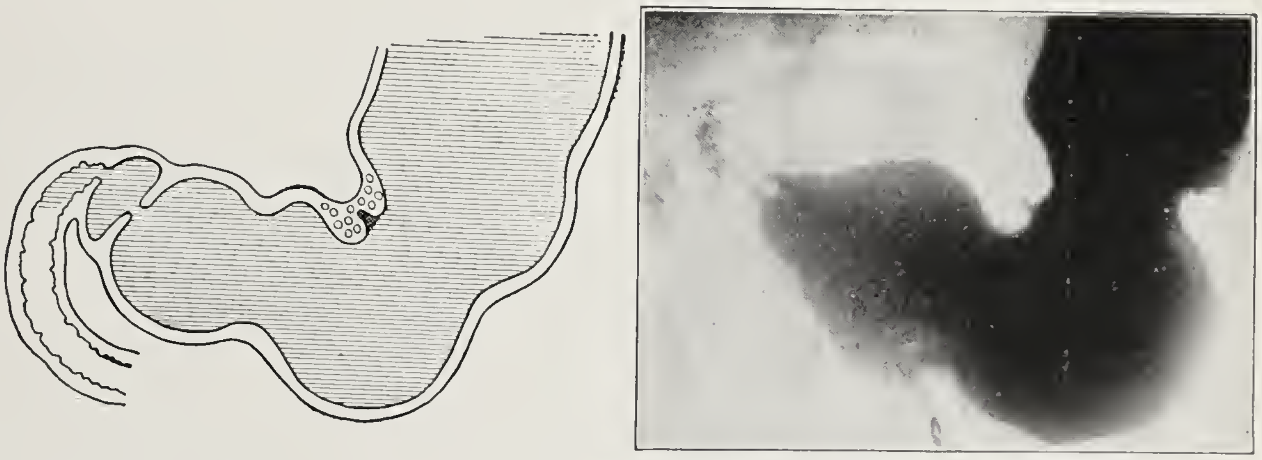

Fig. 6.—Small round ulcer: Ulcers of this type may fold together and form a slitlike ulcer, as a fissure.

I was present when this patient was operated on. Surgical exploration revealed an indurated mass involving the pars pylorica. The stomach was free from adhesions, and was freely movable. The stomach was not opened except after the clamps were applied for the purpose of doing a gastro-enterostomy. By inspection and palpation, it was impossible to establish the character of the pathologic changes. As the condition of the patient did not justify its resection, no microscopic examination was made. Therefore, surgical exploration did not reveal the characteristics of this type of ulcer. Consequently, this case illustrates how much more valuable is the roentgenogram than surgical exploration in the study and classification of gastric ulcer.

A gastro-enterostomy was performed, and the patient improved remarkably, gaining 15 or 20 pounds (7 or 9 kg.), but the deeply burrowrowing crater was left, and it was apparently too deep to heal, and the patient subsequently died as a result of the lesion. Here we have an excellent example of the roentgen indication for the type of surgical procedure indicated; but this aspect has been discussed elsewhere.[1]

LARGE, SHALLOW, FLORID ULCERS

Gastric ulcer with a large crater and extensive induration spreading over a large portion of one surface or curvature is a type readily recognized by fluoroscopy, single plates or serial roentgenograms. The difficult problem in this type of lesion is to determine whether it is a large, florid, nonmalignant ulcer, or an ulcerating area in a large carcinoma.

The term "large" as applied to the crater is relative and indefinite. The Mayos have arbitrarily selected 2 cm., or the size of a quarter-dollar, as the distinguishing line between a large and a small crater, and I am willing to accept this.

There has been some controversy concerning whether gastric ulcers frequently become malignant, and it centers entirely around this type of ulcer; the compromise has been made on the cases in which the crater is as large as a quarter, or larger.

In 1920, in an article on the question of whether gastric ulcers frequently become malignant, I mentioned that with gastric lesions of this type, the roentgenologist could not determine whether it was a large, florid, nonmalignant ulcer with induration, or an ulcerating area in a large cancer. I also stated that the surgeon could not determine this by inspection and palpation at the time of the operation, and that in many cases pathologists would differ after a microscopic study of the removed section. Therefore, surgical removal of these lesions, whether malignant or not, was indicated in all cases in which such removal was possible.

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[1] Cole, L. G.: Article read before the Canadian Medical Association in June, 1922, to be published.

In my series of cases, 60 per cent. of this type of ulcer were proved malignant and 40 per cent. nonmalignant; but as this type of ulcer formed less than 10 per cent. of all gastric ulcers diagnosed by serial roentgenography, approximately only 5 per cent. of gastric ulcers were apparently malignant. My own belief is that these are ulcerating carcinomas rather than carcinomatizing ulcerations.

In Figure 3, the large shallow crater is readily recognized in the single print illustrating this type of ulcer, but the amount of induration surrounding this crater can be determined only by serial roentgenography. That part of the gastric wall which is infiltrated with small round cells and connective tissue is rendered less pliable than the normal gastric wall, and therefore the peristaltic waves as they progress toward the pylorus are obstructed, and this involved portion of the gastric wall outlined by the barium in the stomach has constantly the same shape throughout, and, when the roentgenograms are matched over one another, the involved area corresponds absolutely.

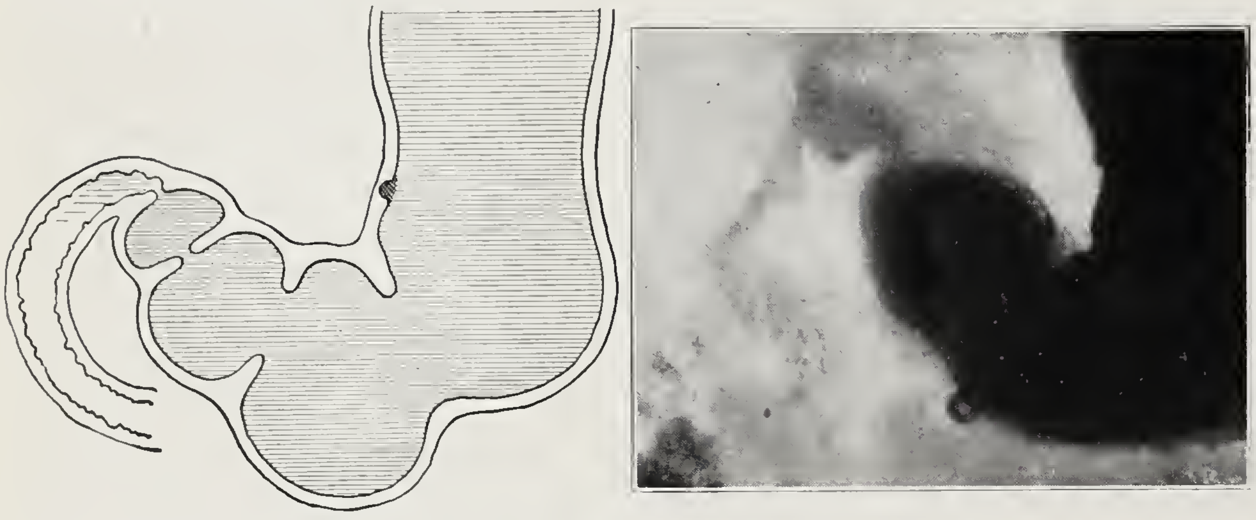

Fig. 7.—Small superficial mucosal or submucosal ulcer.

SMALL, ROUND OR OVAL ULCERS

The crater in this type of ulcer is small in diameter compared with those just described, averaging about 1 cm. in diameter, and they are shallow compared with the penetrating ulcers described as Type 1. The ulceration has destroyed the mucosal, submucosal and muscular coats, and involves the peritoneal coat to the extent of producing a localized peritonitis with adhesions to the adjacent viscera, but without penetrating these viscera.

The amount of induration surrounding these ulcers varies considerably. In those with little or no induration, the ulcer is more likely to increase in size and depth. When the ulcer is circumscribed by a well defined area of induration and connective tissue, progression is slow, and retrogression often ensues.

The more extensive of these ulcers so closely resemble the penetrating type of ulcer that differentiation may be difficult either roentgenographically or surgically. The less extensive ones so closely resemble the mucosal and submucosal ulcers that there is a question whether they should be considered in the same or a different classification. In fact, mucosal, submucosal, small, round or oval ulcers and penetrating ulcers are probably different stages of the same ulcer; but the clinical and surgical significance of these is so different that one is justified in making a rather artificial differentiation between the types.

MUCOSAL AND SUBMUCOSAL ULCERS

In mucosal and submucosal ulcers, the crater is even smaller and shallower than in the small, round ulcer, and the induration is so slight that it is often not detected by surgical palpation or inspection.

The surrounding stomach wall is so pliable that ulcers near the sulcus of the angle may fold on themselves and form a slitlike ulcer similar to a fissure in ano, and can be detected surgically only by opening the stomach and examining the mucosal surface.

The small, round ulcers and the mucosal or submucosal ulcers may be shown in the prone posture and not in the erect or oblique films, or vice versa. They may be shown in the films made immediately after the ingestion of the barium meal, or not until the two hour period, or vice versa.

These types of ulcer escaped detection by the roentgen-ray method until rather recently. Carman, in 1914, referred to this particular type of ulcer, and stated that when such ulcers existed there was very little hope of showing them roentgenographically. In 1915, I demonstrated this type of ulcer, and I note that in Carman and Miller's latest book they show this type of ulcer.

In these cases the stomach is singularly free from the gross deformities referred to in the previous types of ulcer: there is no deep sulcus on the greater curvature opposite the ulcer; the stomach is freely movable and not adherent to the under surface of the liver; in many cases the deformity is so slight that it can be differentiated from a double peristaltic sulcus only by the use of serial roentgenography and matching each film of the series over the other. These types of ulcers are far more frequent than all other types combined. After learning to recognize these, I found six such ulcers out of thirty-six consecutive gastric examinations. These ulcers occur most frequently on the lesser curvature above the sulcus of the angle, or about half way between the pylorus and the esophagus.

It is not strange that these types are not diagnosed fluoroscopically; and even when the characteristic findings are present in the films, they are frequently overlooked and not diagnosed as ulcers. In my experience, particularly at the office, the percentage of small, round and mucosal ulcers is far greater than all other types combined. This is directly at variance with the statistics of the large clinics and hospitals, in which the percentage of penetrating and large florid ulcers is far greater than that of the small, round mucosal ulcers.

This is accounted for in two or three ways.

1. The patients presenting themselves at the large surgical clinics and hospitals for surgical procedure have had severe or prolonged symptoms, many of the cases having been diagnosed by fluoroscopy or single plates. Therefore the severe and easily diagnosed cases have been sorted out and the patients sent to the hospitals and clinics.

2. Exactly the opposite condition exists with my series. At least one half of them have been examined roentgenographically before the patients came to me, and all the gross and easily diagnosed lesions have been sorted out, and I see only the cases in which pathologic changes are not easily found.

In other words, the surgeon and the hospital get the cream of the gastric ulcers, and we have the skimmed milk from which to get our nourishment.

3. There are no adhesions and very slight infiltration in the small, round and mucosal ulcers, and therefore they are not diagnosed by the surgeon by inspection and palpation of the gastric wall. If there is no such evidence, the surgeon rarely opens the stomach and examines its inner wall. Therefore, he fails to detect many ulcers of the fourth and fifth types at the time of operation.

Healed Gastric Ulcers.—Does a gastric ulcer cease to be a gastric ulcer when it is healed? This is an academic question that is open to discussion.

Many ulcers that have healed give characteristic deformities of the lumen of the stomach, readily recognized by means of the roentgen ray. Therefore whether we decide that they are ulcers or are not ulcers, we must consider their roentgenologic appearance.

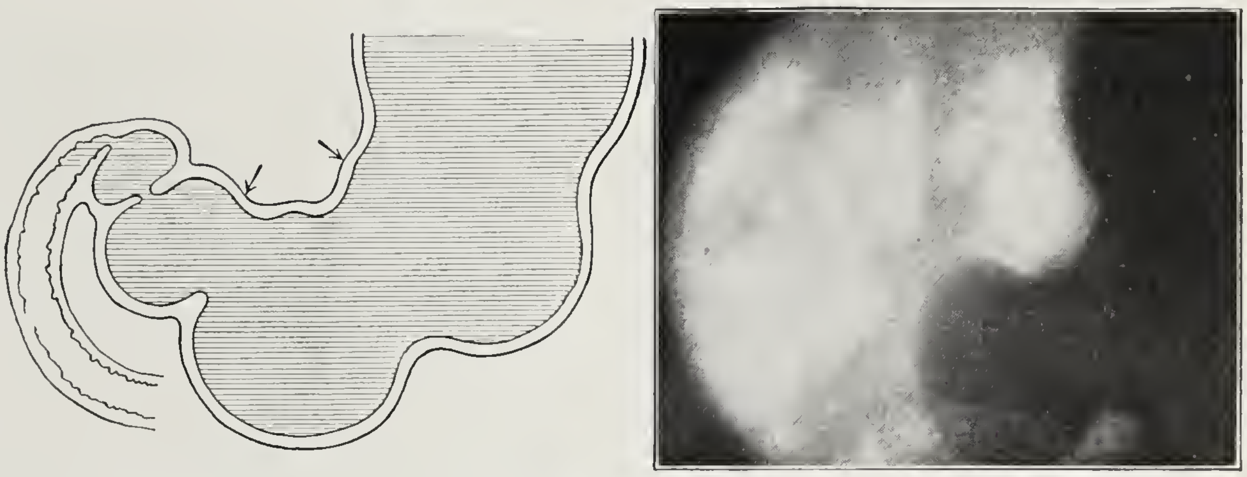

Fig. 8.—Healed gastric ulcer, with no crater, and without gastric deformity: lack of pliability of lesser curvature between the arrows.

That ulcers really do heal is evidenced by roentgen-ray, surgical and necropsy findings. These vary from the gross, time-honored hour-glass deformities, which every medical student knows, to the small, slight scars which pass unobserved by the pathologist unless he is looking for them and is trained to see them like the so-called lucky man who finds four leaf clovers.

Hour-glass contraction of the stomach is an old, familiar, textbook term and a condition readily recognized roentgenologically, either fluoroscopically or roentgenographically. This condition deserves special attention because there is much confusion regarding the recognition. I think that more discredit has been cast on the roentgen-ray methods of examination because of errors in the interpretation of findings that were suggestive of hour-glass contraction of the stomach that could not be detected at operation than any other thing. Part of these errors were due to improper interpretation of findings and part were due to lack of diligence on the part of the surgeon in not discovering the lesion at the operation. The subject of spasmodic hour-glass contraction of the stomach has been much overworked to shield both the roentgenologist and the surgeon in these cases of unsuccessful effort or lack of diligence.

The roentgenographic findings in true hour-glass contraction of the stomach are very characteristic. It may occur as a deep sulcus in the greater curvature in conjunction with a definite crater on the lesser curvature. This condition is described earlier in the chapter.

Roentgenograms made with the patient in both the erect and the prone position are necessary for a diagnosis of this condition. In the erect position the opaque meal may have completely gravitated into the lower pouch, so that the upper does not show. With the patient in the prone posture, the lower part of the upper pouch may lie over the upper part of the lower pouch, so that the sulcus does not show, or so that it resembles only a peristaltic sulcus. For the foregoing reasons, it is necessary to make the examination with the patient in both positions.

The true hour-glass contraction without active ulcer is usually the result of the cicatricial contraction of connective tissue which at some previous time ruptured certain layers in the muscular coat of the stomach, with a production of connective tissue; and as this connective tissue contracted into a circular scar, the lumen of the stomach became greatly diminished, like a narrow ring. In such cases the rugae in both the upper and the lower pouches have a normal appearance, and the area of constriction between the upper and the lower pouches is too narrow to be a malignant growth. Figure 9 graphically illustrates this type of case. The roentgen-ray findings were characteristic of an hour-glass stomach, and both the general practitioner and I were convinced of the diagnosis. The surgeon was one who would not even look at the "pictures" after the roentgen-ray examination had been made; he said he did not believe in roentgenographic diagnosis, and that if there was an hour-glass stomach he would find it at operation. The abdomen was opened and the stomach inspected, but no deformity or pathologic change was observed, and the surgeon had his innings in expressing his contempt of the roentgenologic examination without reserve, but his time was short. The general practitioner, who was present, was so sure of an hour-glass contraction that he finally persuaded the surgeon to open the stomach, and there he found a contraction of the mucous and muscular coats which was so tight that he could not get the tip of his little finger through it. The serous coat was apparently not involved, and formed a smooth surface over the constricted area much as it forms a smooth surface over the pyloric sphincter.

I have always appreciated the persistence of the general practitioner in that case who prevented one more case from going down on record as a spasmodic hour-glass contraction, and also prevented erroneously reporting a roentgenologic error.

There are, however, many instances in which a splenic sulcus or a deep peristaltic wave on the greater curvature has been interpreted as an hour-glass stomach. A splenic sulcus is a deep contracture in the extreme upper end of the greater curvature which is not the result of a genuine organic constriction. Whether this constriction is purely spasmodic and therefore a true spasmodic hour-glass stomach, or whether it is due to the prolapse of the pyloric end of a cowhorn type of stomach which causes a buckling of the greater curvature, I am unable to state; but I am inclined to the latter view.

Spasmodic hour-glass stomach probably does exist, but great care should be observed to determine that the contraction is not a splenic sulcus or a deep peristaltic wave.

Typical hour-glass contraction of the stomach, due to a narrow band of cicatricial scar tissue which has contracted and separated the stomach into two more or less evenly divided pouches, is a pathologic finding which has long been considered pathognomonic of an old healed gastric ulcer. If the contraction is due to a narrow band of cicatricial scar tissue, the space between the pouch will be very narrow, in which case the question of the process being malignant is relatively nil. If, however, the constriction is due to an indurated mass which separates the stomach into two distinct pouches, and if this induration is relatively wider and shallower compared with the narrow band, the question of malignancy may be considered.

Dimpling of the Mucosal Coat.—With the healing of small, round and mucosal ulcers which occur only in the mucosa and submucosa, without destruction of the muscular coat, there is no gross deformity of the stomach, and all that remains is a small, shallow dimple with a slightly diminished pliability of the gastric wall, and the peristaltic wave becomes shallow and broad as it passes over the scar of the healed ulcer. The first case of this type that I saw I failed to recognize as a healed ulcer, and advised surgical procedure founded on the commonly accepted theory that 68 per cent. of all gastric ulcers become malignant.

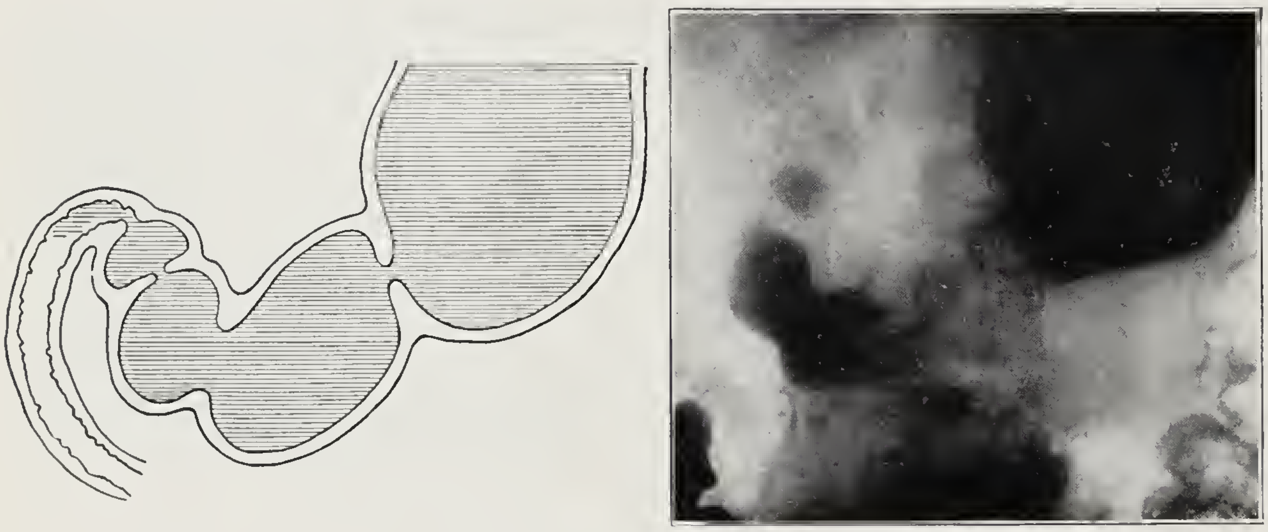

Fig. 9.—Healed gastric ulcer, with characteristic hour-glass contraction of the stomach.

At the operation, nothing could be seen on the gastric wall; but by careful palpation at the point indicated by the roentgenogram, one could detect a small area of thickening. This area was a small, white dimple or scar, and inspection and microscopic examination proved it to be the scar of a small healed ulcer. Since then I have noted these small ulcers. They heal either as the result of medical treatment or after a gastro-enterostomy, and they result in this small characteristic dimple, which is readily recognized by means of serial roentgenography.

SUMMARY

Need of a method for accurate diagnosis of gastric ulcer is acknowledged by all. Inaccuracy of clinical symptoms and gastric analysis is conceded. Gastric ulcer can be diagnosed by means of the roentgen ray as definitely as a fracture of an extremity, and, if properly employed, is far more accurate for ulcer than the Wassermann test is for syphilis. Moyhihan says, "Fifty per cent. of diagnoses of gastric ulcer by ordinary methods are erroneous," and the roentgen ray "is now an indispensable addition."

Early history of roentgenologic diagnosis of gastric ulcer is interesting in that an American investigator originated the method, the general idea being that the method originated in Germany.

The five different types of "spasm" are: (1) prepylorospasm, involving the pars pylorica; (2) pylorospasm, involving the pyloric sphincter; (3) post-pylorospasm, involving the cap; (4) cardia spasm, involving the cardiac orifice, and (5) a narrow sulcus in the pars media.

Spasm of the stomach is manifested in three ways: (1) direct evidence of the spasm; (2) distortion of the rugae, and (3) deep sulcus opposite the crater.

The methods of studying the pathologic changes of gastric ulcers are: (1) necropsy, (2) biopsy and (3) roentgenogology. The limitations of the first two methods are apparent. The scope of the third is unlimited, and the operation is relatively simple. By serial roentgenology with examination frequently repeated, one may study the gross pathologic changes of gastric ulcer, the size and shape of the crater, the amount of induration surrounding it, its location in the stomach, and its increase or diminution in size during periods of exacerbation or recession of symptoms, and may determine whether any cases of simple gastric ulcer ever become malignant.

Different methods of employing the roentgen ray in the diagnosis of gastric ulcers are (1) a fleck of bismuth subnitrate or barium remaining in the crater of an ulcer; (2) symptom complexes, and (3) morphologic changes in the walls of the stomach. The first two are unreliable, and the last is accurate, as the pathologic change in the wall of the stomach can be definitely shown; it is on this, and this only, that the diagnosis can be accurately made.

There are six types of ulcer:

1. The deeply penetrated type involves all the coats of the stomach and is shown in the roentgenogram by definite signs. It is easily diagnosed. Early roentgenologic literature is limited to descriptions of this type of ulcer. It is the type most frequently seen in clinics and hospitals.

2. The burrowing ulcer burrows toward the pylorus between the mucous and serous coats of the stomach, stripping one coat from the other. It must be differentiated from the penetrated ulcer.

3. The large, shallow, florid ulcer is easily recognized, but difficult of determination whether it is nonmalignant ulcer or ulcerating carcinoma. The distinguishing line between large and small craters is 2 cm. In cases in which the crater is as large or larger, frequently the surgeon during the operation, or the pathologist on sectioning the specimen, is unable to

determine whether the lesion is or is not malignant. In my series of cases of this type of ulcer, 60 per cent. were malignant, and 40 per cent. nonmalignant. But this type of ulcer formed less than 10 per cent. of all gastric ulcers diagnosed. Hence approximately 5 per cent. were apparently malignant, and I believe that most of these were ulcerating carcinomas from the beginning of the lesion.

4. Small, round or oval ulcers have small craters which involve the mucosal, submucosal and muscular coats, sometimes causing a localized peritonitis with adhesions to adjacent viscera but without penetrating the viscera.

5. Mucosal and submucosal ulcers have small, shallow craters often not detected by surgical palpation or inspection. Types 1, 4 and 5 are very similar, in fact, probably stages of the same ulcer; but they differ so much in clinical and surgical significance that they must be differentiated. This is the type of ulcer that is most frequent and most likely to be missed roentgenologically and surgically.

Many ulcers leave a scar, so that the roentgenologic appearance must be considered. Results of healed ulcers vary from a small, slight scar which will pass unobserved unless diligently sought for, to the gross hour-glass deformities familiar to every medical student.

Hour-glass deformity is frequently misinterpreted by both surgeon and roentgenologist. Films made in both the prone and the erect positions are necessary for diagnosis. A splenic sulcus or deep peristaltic wave on the greater curvature is frequently interpreted as hour-glass constriction. Spasmodic hour-glass stomach probably exists, but is very rare.

Dimpling of the mucosal coat resulting from the healing of a small, round or mucosal ulcer is due to scar tissue and should be interpreted as such, and is not a basis for surgical procedure, though it may have been advised on the erroneous conclusion that 68 per cent. of all gastric ulcers become malignant.

103 Park Avenue.

Foreign and Native Parentage in Greater New York.—The New York Census Committee, established in 1919 to obtain speedy tabulation of the 1920 census, has become a permanent organization and is engaged continuously in analyzing the population of the city. Dr. Haven Emerson is chairman of the committee, which has recently published a study of the parentage of the citizens of Greater New York. It was found that Queens leads in the percentage of children of native parentage, while Manhattan has the largest proportion of children of foreign parentage. The figures are as follows: The ratios per thousand under 20 years of age, born of native parentage, are for the boroughs: Queens, 528; the Bronx, 510; Brooklyn, 456; Richmond, 442, and Manhattan, 365.

HIGH VOLTAGE ROENTGEN-RAY THERAPY

CONCLUSIONS DRAWN FROM THE TREATMENT OF THREE HUNDRED CASES *

SHERWOOD MOORE, M.D.
ST. LOUIS

The subject of high voltage roentgen-ray therapy as usually dealt with by radiotherapists is for those engaged in that variety of work. In consequence, it is likely to be most confusing to those not so engaged, since questions involving physics, technic, etc., usually comprise a large part of its discussion. Even radiotherapists are not in unison concerning the value, immediate and remote, of high voltage roentgen-ray therapy, while as to the conditions in which it should be used, their views often widely diverge. Since those engaged in this activity are confused as to its value, how much more must this be the case with the physician who is called on to advise a patient in the matter? As I had had the opportunity of applying this variety of irradiation to an extensive series of cases over a year's period of time, it occurred to me that the observations and impressions gained in this way might prove of interest and value to others. In this communication adherence to observed fact will be maintained as far as possible, and theory, speculation and quotation avoided. Technic, methods and reference to the physics of radioactivity will be introduced only to the degree necessary to a clear exposition of the subject, the object being so to present the application of high voltage roentgen-ray therapy that the reader may form his own conclusions as to the desirability of employing it. In doing so, many old facts and observations will be restated in an attempt to bring them into relation with this new method.

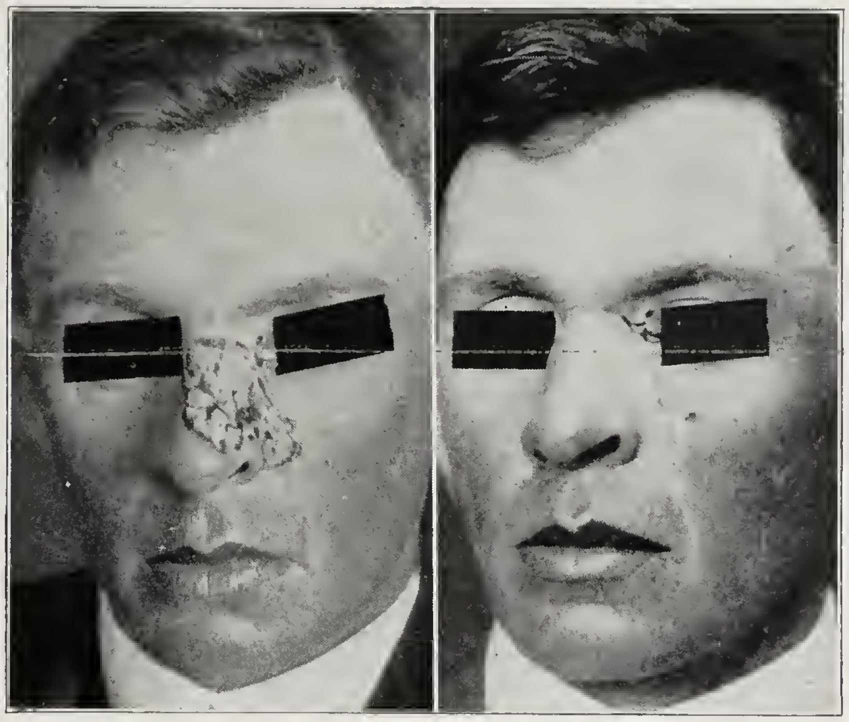

Fig. 1.—Result of superficial treatment in basal cell epithelioma: active nodule remaining on cheek because of insufficient irradiation; condition same in inner canthus, with the additional influence of movement of the lid; similar persistence doubtless takes place in deeper lesions.

Since discussion of high voltage roentgen-ray therapy practically resolves itself into a consideration of its employment in the treatment of malignant disease, other conditions in which it has been used will be dismissed with brief mention.

Ninety-five nonmalignant conditions have been treated during the past year, of which number thirty-seven can be considered as experimental; i. e., there was no particular reason to suppose that radiotherapy would produce any favorable effect. Fifty-eight were conditions in which radiotherapy has proved its worth, among which were thirteen leukemias, three lymphatic, ten myelogenous; one Hodgkin's disease; one polycythemia; thirteen thyroid cases, and seventeen uterine myomas, fibroids and hemorrhage at the menopause. In the leukemias, results with the more powerful machine were secured with greater certainty, in less time, and with the same degree of effectiveness for the different types of the disease, than we would anticipate under older methods. Ultimate results in leukemia will doubtless be the same under the two methods of treatment, as the disease, not the treatment, seems the determinant of the outcome. The case of Hodgkin's disease was far advanced, and death intervened before the treatment was completed. The case of polycythemia was unaffected by treatment. With the uterine cases, our experience was the same except that results, when obtained, were more certain and more easily and speedily secured. The same general statement applies to the thyroid cases. In brief, the experience indicates that we possess a more efficient and more certain remedial agent for the treatment of nonmalignant conditions than was the case with older methods.

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* Read before the St. Louis Medical Society, April 17, 1923.

* From the Actinographic Laboratory, Washington University Medical School.

With these remarks, the nonmalignant group on which work was done can be dismissed and attention turned to the malignancies and their treatment. I shall deal not only with the high voltage roentgen-ray method of treating malignant disease, but also with the unfortunate tendency, which seems to be very prevalent, to discredit this method; unfortunate, because it does accomplish so much in an otherwise therapeutically sterile field—that of advanced malignancy. A discussion of high voltage roentgen-ray therapy, furthermore, necessitates some consideration of all radiotherapeutic agents of either natural or artificial origin, both because of their close physical relationship and for the additional reason that correct use of one implies a similar employment of the other.

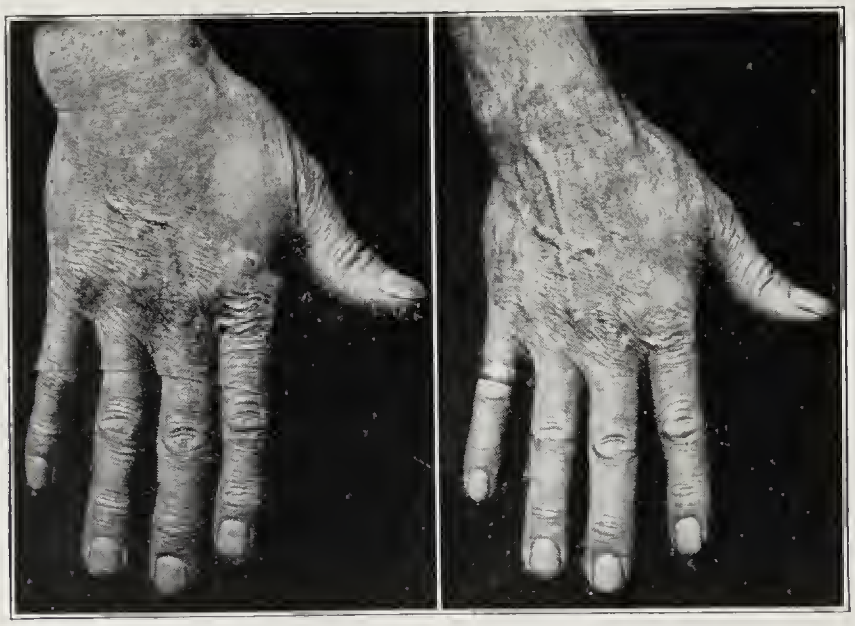

Fig. 2.—Deep effect that is obtainable in basal cell carcinoma of the skin; treated through 10 cm. of water; this has been done successfully in several other cases.

HIGH VOLTAGE ROENTGEN-RAY THERAPY

Among other properties of roentgen rays is that of causing the death of animal tissues exposed to their action, provided the intensity is sufficiently great. Various tissues are variously susceptible to this action, the susceptibility apparently decreasing with increased specialization of the cells of the tissue in question. Brain is the tissue most resistant to radiation. Tumor tissues show this susceptibility to radiation to a greater degree than do normal tissues, and in this fact lies the theory and practice of radiotherapy. It is generally stated that the more embryonic the cell type of a tumor the more sensitive the tumor is to the action of rays. I believe that this sensitivity follows the rule of specialization laid down above; i. e., the less specialized the cell type of the tissue in which a tumor originates, the greater its sensitiveness. If this is true, then it follows that different tumors succumb to different intensities of roentgen rays, and observation indicates that this is precisely what occurs. Granted this fact, however, I do not believe that the cancer dose, ovarian dose, etc., of certain German writers[1] is to be accepted as final. To assume that a certain intensity of radiation is lethal for a given neoplasm imposes the condition that such radiation be equally and evenly distributed throughout the growth; otherwise the theory falls to the ground.

To secure this uniform intensity throughout a growth, many complex difficulties must be overcome, and at the present stage of development in radiotherapy it is doubtful whether they can be even recognized. In the first place, the extent of a tumor and its limits can at best be only guessed at. Even were these factors known, there still remain those of the density, bulk and conformation of both the tumor and the overlying structures, which factors must have the effect of causing an enormous variation in intensity of an agent that so rigidly follows the law of squares and the exponential law of ray absorption. Having their deleterious effect on normal as well as on neoplastic tissue, it follows that the intensity of rays necessary for the production of a lethal effect on the latter must injure the former to a high degree. If, then, the condition of lethal intensity is not met in a tumor, the cells of the latter are left in surrounding injured tissues, which possess but an impaired resistance to the proliferation and growth of such cells. Observation leads me to believe that this frequently takes place in radiotherapy; i. e., that tumor cells are left in a medium peculiarly suitable for their growth, and that this is the explanation of the stimulating effect on cancer growth that one so frequently hears attributed to the therapeutic ray (Fig. 1). Furthermore, excluding cases that are beyond repair, it is a reasonable explanation of the failure of radiotherapy to assume that it follows on the nonfulfilment of the foregoing conditions.

Among radiotherapists the intensity of ray that brings about the disappearance of tumor tissue is generally known as the "lethal" intensity, or dose. Since this word has been used and will appear again, it seems advisable to point out that "lethal effect" is to be sharply distinguished from necrosis. Though the latter sometimes follows irradiation, necrosis and subsequent sloughing are, as a rule, to be avoided as being undesirable. Satisfactory tumor regression is best secured in the absence of sloughing. Since this is the case, it follows that the adjacent circulation has an important part in the involution of irradiated tumor tissue. From this the further conclusion can be drawn that irradiation and local circulation are interdependent in successfully effecting regression of tumor tissue.

APPLICATION OF RADIUM

Since lethal intensity implies the delivery of uniform homogeneous radiation, the question arises as to how this is to be secured, what source or sources of radioactivity are to be employed. For this end no general rule can be either made or applied; sufficient to say that for correct radiotherapy both radium and roentgen radiation must be employed as complements to each other, choice depending on whether central, peripheral or a combination of the two methods of application are to be resorted to and whether irradiation is or is not to be confined to a limited area.

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[1] Kroenig and Friedrich: The Principles of Physics and Biology of Radiation Therapy, English edition by Henry Schmitz, New York, Rebman Company, 1922, p. 196.

The difference in the radiations of radium and high voltage roentgen rays is of academic rather than of practical importance, as ultimately the soft, corpuscular rays absorbed produce therapeutic effects; i. e., there is no selective action of rays of various wave lengths on tissues; effects are due to the quantity absorbed.

The application of radium by implantation into a tumor has what to me seems a serious drawback, the ill effect of which I believe I have several times witnessed, in that it necessitates a mechanical disturbance to which rapidly metastasizing tumors should never be subjected. Application to surfaces or to hollow organs is free from this objection. As to crossfire methods of radium applications and surface applications to deep-seated lesions, the powerful roentgen ray seems to me to insure more homogeneity of ray and uniformity of intensity than does radium. There is the additional advantage that it does not carry a like hazard to those engaged in the work. Further, few clinics and fewer individuals can afford the large quantity of radium necessary for this method of application.

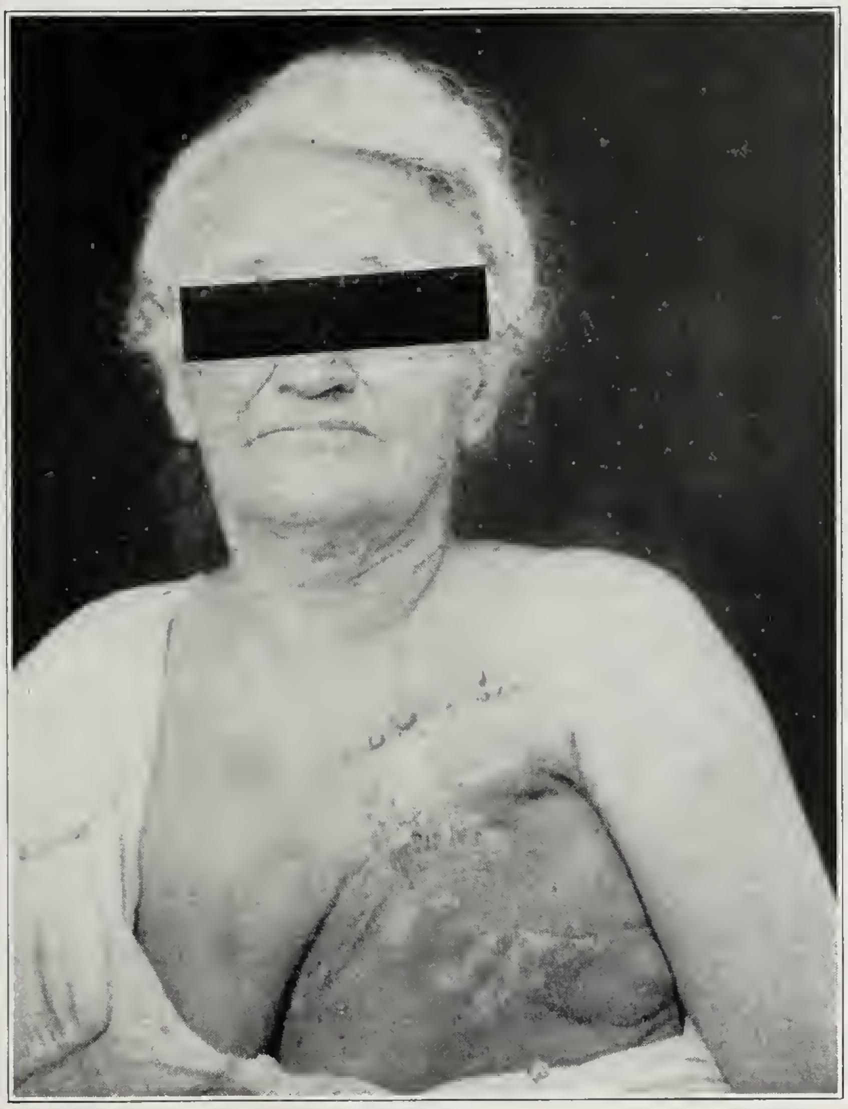


Fig. 3.—Appearance of recurrent nodules in spite of intensive roentgen-ray therapy. The explanation is to be found in the fact that insufficient rays were absorbed locally.

A word in regard to the older, less powerful roentgen-ray machine: It is as useful now as it formerly was, and for superficial lesions is still the instrument of choice; not, however, from any quality of ray that it emits, but for the fact that it produces *sufficient* intensity superficially. High voltage roentgen-ray machines will do exactly the same if correctly employed for that purpose (Fig. 2).

Even a casual reading of the literature of the past and present dealing with the treatment of cancer leaves the impression that "cure" has engrossed the minds of workers in this field to such a degree that it may perhaps have led them away from the true explanation of the etiology of cancer and thence from its eradication.

PRESENT METHODS OF TREATMENT

No discussion of a single phase of the treatment of malignant disease is desirable unless a general survey of the entire field is steadily held in view, in order that every phase may be kept in correct perspective and proper values assigned to all phases of such treatment. Briefly stated, the treatment of cancer at the present time consists in preventive measures, which are largely, if not entirely, concerned with the correction or removal of conditions or lesions in which cancer is known from experience to occur; in remedial measures after cancer has developed, and, lastly, in palliation when the foregoing are impossible of application. Excepting radiotherapy, all these measures are destructive, and as is the case with destructive measures, they introduce the problem of their worth. Consideration of the treatment of cancer raises the question of why and in what way it destroys life. Queries in this direction lead one immediately into a maze of complexities. So intricate is this that only these aspects will be referred to, viz., the relatively small amount of attention given the question, the inconclusive nature of such knowledge as exists as to the pathologic physiology of neoplasms and their effect on the host, and the slight evidence, growing slighter, that cancer per se causes death. The evidence points to the conclusion that cancer gives rise to conditions that lead to this outcome; of itself it does not cause death. Therein lies the best point of attack on the cancer problem, for it seems ultimately to lead in the direction of bringing the natural processes of the organism to combat the disease.

Prolonged observation of many cancer patients convinces me that a good constitution is the best defense the individual can present against cancer. Conditions known as "low degree of malignancy," scirrhous, chronic cancer, and the behavior at times of other types lead me to believe that their favorable course (type for type) is due to characteristics of the host in which they occur and not to inherent peculiarities of the cancer. Not only do I believe this, but I believe, further, that study of these characteristics of the host will lead to the discovery of their nature and a method of developing them for the purpose of combating the disease. In any case, until cancer therapy is placed on some such rational basis, its result will comprise a large proportion of failure. Until it is proved not to be the case, radiotherapy must be considered as having its action in this direction.

VALUE OF SURGICAL PROCEDURES

As to the value of surgical procedures in malignant disease, it is the custom to measure it in terms of subsequent longevity. This standard has as its advantages the fact that it is applicable to any series of cases and has been universally employed. Against such a method of appraisal is the fact that it takes no account of the duration of life that might have obtained in the absence of surgery. To illustrate, let me cite such cases as that of a gastric cancer, originally inoperable, being treated with the roentgen ray seven years after confirmation of the diagnosis; of a cancer of the breast in which the patient applied to a clinic eighteen years after the onset of symptoms; and of a melanoma recurrent nine years after operation. The truth is that life duration after operation in malignancy might indicate several things or their reverse. If the duration is long and the patient never has a recrudescence (assuming a correct clinical and histologic diagnosis), it indicates more than anything else a localized disease; if short, it indicates that the foregoing did not obtain. In any case, this standard is not a true method of evaluation, since it tells nothing in regard to what is accomplished in the matter of comfort and general well-being for the patient.

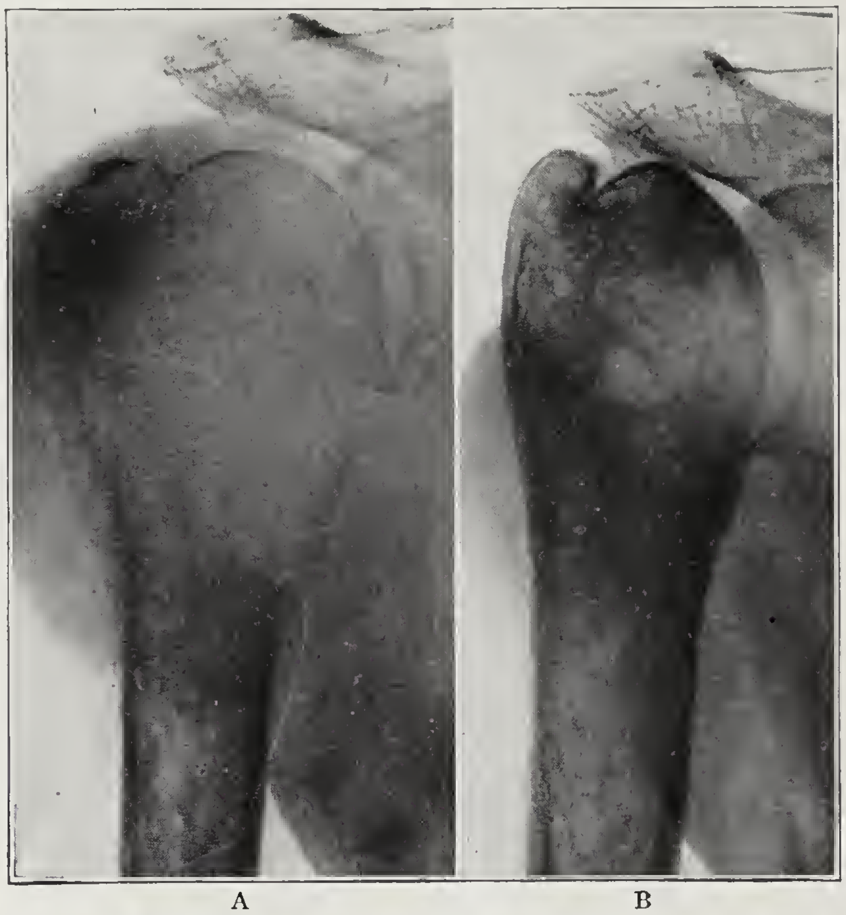


Fig. 4.—Metastatic carcinoma of head of humerus: *A*, June 15, 1922; *B*, March 9, 1923.

QUESTION OF THE STIMULATION OF TUMOR GROWTH

It is frequently charged that radiotherapy stimulates and spreads cancer growth, and it is my desire to refute this, if possible. I do not see that there is foundation for this charge. In the first place, cancer patients, and particularly those undergoing high voltage therapy, are today subjected to a scrutiny hitherto unknown to such patients. The natural consequence is that metastases and widespread extensions are being discovered that formerly escaped notice. This closer observation is almost always subsequent to the institution of radiotherapy. Ergo, intensive growth in cancer is the result of radiotherapy! I have had some rather startling experiences in this direction. I say startling for the reason that in the past I have made a practice of roentgenographing bones which are the seat of pain, and also the chest in persistent cough, dyspnea or what not, to obtain information in regard to metastases. In the main, this is quite satisfactory and it is astonishing how great a number of these will be uncovered. However, one will be even more astonished by the results of roentgenographic search of cancer patients lacking symptoms other than those of the cancer. Physical examination of the seat of a cancer, with palpation of the lymphatic drainage and biopsy, will not suffice to judge the question of extension, and especially of metastasis. Taken alone, they certainly are not sufficiently delicate to determine the choice of a method of treatment.

Of equal importance with the roentgenographic study of a patient with cancer is the greater care in studying the history and symptoms of the patient. As bearing on this point, the following cases can be considered, all inoperable prostatic cancers.

The first patient had marked vesical symptoms with much lumbar and sacral pain. Roentgenograms of the latter regions showed evidence of metastasis to the spine. The patient experienced wonderful local improvement under high voltage roentgen-ray therapy, with much gain in weight and strength for a time, after which his general condition grew worse and he could not return for treatment. On discussing the case with the patient's son, I elicited an unmistakable history of persistent afebrile hemoptysis, antedating the development of vesical symptoms sufficiently marked to bring the patient to the genito-urinary surgeon.

The second patient was referred with a hard, nodular, fixed prostate and severe pain in the lumbar spine. Roentgenograms of the latter revealed such extensive involvement that it was thought of interest to roentgenograph the entire skeleton. It was a surprise to find practically the whole skeleton proximal to the elbow and knee the seat of metastases. Later this patient suffered intensely from bone pain for which the roentgen ray gave almost complete relief. He died as the result of a fractured femur, in the production of which metastasis undoubtedly played a part. Before coming to us, this patient had undergone severe instrumentation and prostatic investigation. Did this produce the wide dissemination?

The third patient had a cancerous nodule in the skin of the flank antedating both radium implantation and roentgen-ray therapy. Irradiation was followed by great relief of local symptoms, but the general condition became steadily worse, and on return for his second series of treatments, a roentgenogram of his chest showed widespread pulmonary metastasis. It is of interest that bone metastasis in this case was never discovered.

The fourth patient, as a result of an accident, had occasion to have his skull roentgenographed to determine the presence of fracture. The calvarium showed signs sufficiently suggestive of metastatic carcinoma to lead to the roentgenographing of the whole skeleton. Characteristic appearances of carcinoma were found in the pelvis and lumbar spine. These findings led to prostatic examination, which warranted a clinical diagnosis of carcinoma of the prostate.

These four cases are dealt with rather fully, as I believe they illustrate the type which gives rise to the statement that roentgen-ray treatment stimulates cancer spread and growth. Consideration of these four cases leads me to one conclusion: Of the measures employed in the diagnosis and treatment of prostatic cancer, no one can be singled out to bear the odium of being the disseminator of cancer. There is one great lesson to be learned from them, and that is that similar cases should receive closer study both by roentgenograms and by other means than it is the accepted practice to accord them. I would apply this statement to all patients harboring a malignancy. I believe, further, that similar observations can be made on other types of malignant disease arising in other organs.

That roentgen rays do occasionally have a beneficial effect on parts of the body remote from those under treatment is an old observation and points to a constitutional effect. However, there is a surprising lack of evidence pointing to the existence of a "stimulated" protective mechanism in malignant disease, after irradiation. Two cases in the last year showed this general effect. One was a case of mycosis fungoides, in which there was a clearing up of all lesions on the head, neck and extremities, while the trunk alone received rays. In the other case, one of acute leukemia with menorrhagia, in which one ninth of an ovarian dose was administered, the white count dropped from 90,000 to 2,900 cells per cubic millimeter in a few days. On intra-uterine radium application, it went as low as 500.

To sum up: The question of the stimulation of tumor growth after administration of roentgen rays is one requiring proof to substantiate this assertion frequently heard. I have yet to see a case of malignant disease brought into intensified growth through radiotherapy when contributory factors could be excluded. Surgical operation in unsuitable cases with incision through involved tissue, alteration of the circulation in a part, etc., was present, but most frequently the trauma due to the insertion of radium needles was the attendant injury. I have frequently seen a malignant process intensified and spread following such use of radium in needles in insufficient quantity, and I have always considered that it was the mechanical injury from the procedure that was at the bottom of such unfortunate occurrences. It is admitted that intensive growth does take place following, and even in the course of, administration of radiotherapy (Fig. 3), but it is not the result of the ray alone. I do not wish to be guilty of sophistry, for the final effect is the same; the apparent stimulation, however, is the result of decreasing with roentgen rays the already impaired local resistance.

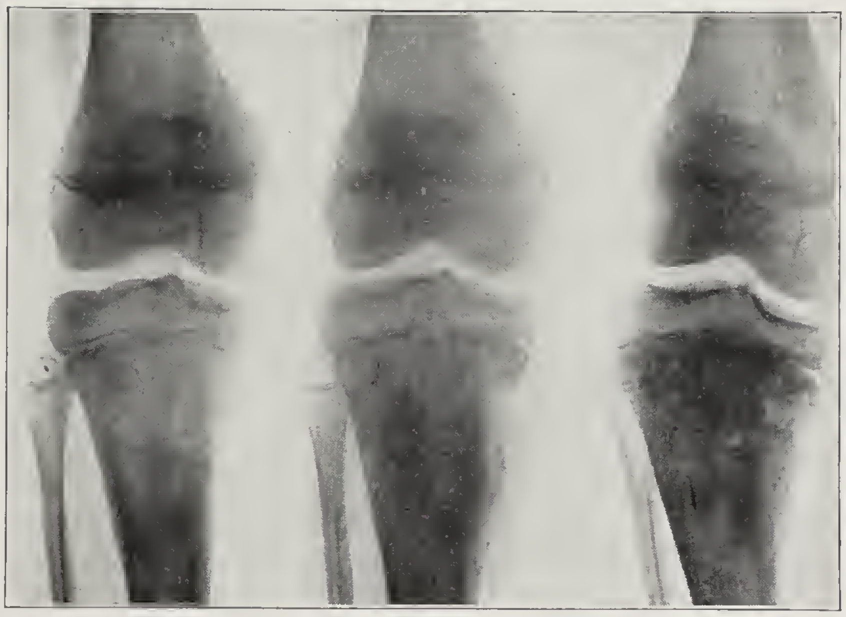


Fig. 5.—Round cell (?) sarcoma of head of tibia: *A*, Feb. 2, 1922; *B*, April 13, 1922; *C*, April 11, 1923.

WHAT CAN BE ACCOMPLISHED BY APPLICATION OF RAYS

There are many theories advanced to explain the modus operandi of the action of radiotherapy in the human body. None of these are free from objection, and the various hypotheses are characterized by an ingenuity that is in excess of the exact knowledge of the behavior and action of rays in the organism. In its present stage of development, I believe it is wiser to confine our explanation of the mechanism of the action of rays to the few facts that are known and avoid theorizing. The point that we are interested in is more a question of what we can accomplish by the application of rays and in what class of patients its use is desirable.

As has been remarked, I have yet to see malignant disease stimulated by radiotherapy when other factors could be excluded. Inoperable cases that have not been meddled with prior to coming for radiotherapy have, in my opinion, never shown what could be considered stimulated growth. The part that the circulation plays in tumor growth is demonstrated in cases of cancer of the breast and uterus during lactation and pregnancy. There is a further parallelism to be drawn from the behavior of these organs. Tumors arising from them during the period of their physiologic activity, i. e., before the menopause, average a more rapid rate of growth and a higher resistance to radiotherapy than they do subsequent to that event. Reasoning from this, I believe it can be stated that the greater the physiologic activity of an organ which is the seat of a malignancy, the greater the rate of progression in the latter, just as it is the more resistant to radiotherapy. I do not believe that cancer of the alimentary tract is less amenable to this form of treatment either through greater resistance of its cells or through the difficulty of irradiating them, but rather because the parts cannot be put out of function. Some corroboration of this is found in the occasional long survival of patients with short circuited intestines and colostomies, without any radiotherapy.

Aside from its alleged injuriousness through stimulating malignancy, the employment of high voltage roentgen-ray therapy is deprecated because of its supposed bad general effect as exemplified by roentgen-ray sickness. It has been my experience that this has been much overestimated, as to both the degree of severity and the frequency of occurrence. No one denies its occurrence; however, by distributing the dose over a period of time, this bad effect can be largely eliminated. As to other immediate bad effects, the few that have occurred have been too transient to cause concern, too fleeting to allow of an opinion to be formed. Necessarily, the time is not sufficiently long to allow of the formation of an opinion as to remote bad effects.

Of the total cases treated, 243 were malignant, of which fifteen were in patients to whom immediate postoperative radiation was administered for prophylactic purposes, and 205 were carcinomatous. Of the 227 malignancies, only two could be considered operable in the sense that complete extirpation could be assured with a fair degree of certainty. One was an amputation which was refused (Fig. 5), and the other was an extirpation which was refused on account of the infirmities of age. The mortality, as far as we could ascertain it, has been seventy-six, and I believe that this figure is far too low. Treatment was not refused a patient, no matter how extensive the disease, so long as there was some prospect of adequately irradiating the involved regions. I do not believe that in the case of those dying, the roentgen ray contributed to that end except in six cases, in one of which I believe that death followed an excessive dose.

Observations on the blood, metabolic rate and urinary output have not been as generally applied as is desirable; however, enough were made to allow of the conclusion that changes so shown were inconstant and of minor degree under the method employed in using the ray.

Although it is the logical development of the older method of roentgen-ray therapy, the new high voltage machine, because of its greater efficiency, can be considered as a new therapeutic instrument. However, it appeals to me as being an addition to and not a replacement of any agency at present used in the treatment of malignant disease. I will not give further figures or opinions as to the worth of this method of treatment, except to state that the palliation the patients experienced was well worth the laborious endeavor. Further, it seems fully as valuable therapeutically as the methods of treating the degenerative diseases. A few illustrations are shown demonstrating actual change that can take place under administration of deep therapy.

CONCLUSIONS

1. All methods of treatment of malignant disease are in need of critical examination.
2. Such treatment needs better coordination between surgical and radiotherapeutic measures and a better understanding between surgeons and radiotherapists.
3. Patients in the malignant ages should be more closely studied, both in regard to the possible existence of neoplasm and in regard to its extent.
4. Patients with widespread extension and metastases should have less surgery and more radiotherapy.
5. More and closer clinical observation and a better follow-up system is a most urgent need in the management of cancer patients. At present there is a disproportion between the time and energy expended on laboratory and clinical studies of malignant disease, respectively.
6. Every effort should be made to place the treatment of malignant disease on the more rational basis of using the natural resistance of the body to combat the disease. The analogy of the treatment of pulmonary tuberculosis suggests itself.

Accurate Observation.—No one who pauses to reflect can fail to admire the master minds of medicine, who, by simple signs and statistics, not only interpreted many disease processes correctly, but on them built an admirable system of diagnosis. Nothing can be substituted for the power of accurate observation, either at the bedside or in the laboratory. Nevertheless, it happens that many phenomena of the circulation, normal and abnormal, remain undetected by our unaided senses. Consequently, various instrumental methods have been introduced which supplement our direct observations either by recording the functions of the circulation graphically or by translating them into numerical terms which the mind can more definitely grasp.—Wiggers: Circulation in Health and Disease, Philadelphia, Lea and Febiger, 1923.

ENDAMEBA HISTOLYTICA IN SEMINAL FLUID IN A CASE OF AMEBIC DYSENTERY *

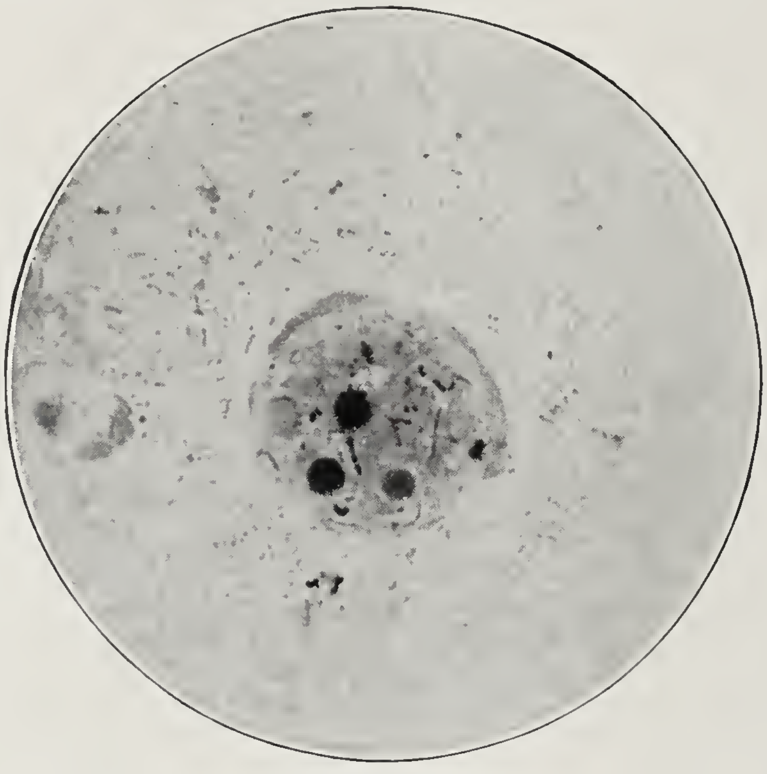
LAURENCE E. HINES, M.D.
CHICAGO

The first and only recorded instance of localization of *Endameba histolytica* in the genital organs of man was made by Warthin,[1] who found amebas after death in the testis and epididymis of a man with chronic amebic dysentery. In the case reported here, *Endameba histolytica* was found, during life, in the seminal fluid of a man suffering with chronic amebic dysentery.

REPORT OF CASE

Since 1915, a chauffeur, aged 28, has had three or four attacks of diarrhea yearly. In the attacks, which last from one to three weeks, he usually has five or six copious, sour, gas-riddled, mushy stools daily; marked flatulence; slight tenderness over the descending colon; marked nervousness; weakness, and malaise. Fermentative colitis, gas bacillus colitis and nervous diarrhea had been diagnosed, but he did not improve with the usual diets.

Ten years ago, he had an attack of gonorrhea that appeared to be cured in three months. During the first attack of diarrhea, which occurred two years later, a creamy-white urethral discharge developed and persisted for a year. In recent years, a slight "gleety discharge" has been present every morning; the amount is not increased when he has diarrhea, but before and during the attacks he complains of a feeling of fulness and pain in the perineum, often referred to the glans penis. He occasionally has pain after urination, but no polyuria. Smears of the urethral secretion in recent years have revealed no gonococci.


Ameba in smear of seminal fluid, showing inclusion of erythrocytes and eccentric nucleus; × 1,000.

When he entered St. Joseph's hospital, Feb. 15, 1923, he was pale, nervous and underweight. He complained of weakness, diarrhea, slight abdominal pain, and pain in the perineum. There was definite, localized distention over the descending and ascending colon, and marked borborygmi. Blood examination gave 4,200,000 erythrocytes, 18,200 leukocytes, 75 per cent. hemogloblin, 70 per cent. polymorphonuclears, 26 per cent. mononuclears, and 4 per cent eosinophils. Wassermann tests of blood serum and spinal fluid were negative. A specimen of fresh, warm stool, collected after the administration of 2 ounces of magnesium sulphate, revealed erythrocytes, leukocytes and motile *Endameba histolytica*. The bacterial flora, determined by methods recently described by me,[2] was proteolytic in type, with large numbers of *B. welchii*. He was treated with subcutaneous injections of emetin hydrochlorid, emetin bismuth-iodid by mouth and quinin enemas. There was slight improvement temporarily, but he had another attack of diarrhea, April 1, and amebas were again found in the stools. He now complained of severe pains in the perineum, and rectal examination by Dr. C. M. McKenna revealed slightly enlarged and extremely tender seminal vesicles. The vesicles were massaged, and the semen was collected and

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* Aided by a grant from the Fenger Memorial Fund.

* From St. Joseph's Hospital and John McCormick Institute for Infectious Diseases.

[1] Warthin, A. S.: The Occurrence of Entameba Histolytica with Tissue Lesions in the Testis and Epididymis in Chronic Dysentery, J. Infect. Dis. **30**: 559 (June) 1922.

[2] Hines, L. E.: Intestinal Flora in Diarrhea, J. Infect. Dis. **32**: 280 (April) 1923.

immediately examined on a warm slide. Numerous pus cells, gram-positive cocci and bacilli, and amebas similar to those found in the stools were present. There were no amebas in the urine from either kidney, obtained by urethral catheterization. Despite vigorous emetin treatment and local treatment of the seminal vesicles, the amebas are still present in the semen but absent from the feces.

CHARACTERISTICS AND SPECIES OF THE AMEBAS

At the first examination of the stools, nonmotile bodies, about 15 microns in diameter, with two and four round nuclei, were observed; also smaller nonmotile bodies with clear cytoplasm and eccentrically placed spherical nuclei; and actively motile bodies, about 25 microns in diameter, with granular cytoplasm and indistinct, eccentric, spherical nuclei. In some of the latter bodies, erythrocytes and large and small vacuoles were present.

The semen was not examined before the paient had received 12 grains of emetin. No amebas with the active motility observed in the organisms in the feces were present, but large, granular, ovoid bodies, with spherical nuclei were observed to throw out pseudopodia of clear ectoplasm while the body itself remained stationary. In one instance, the pseudopodia were seen to envelop a spermatozoon. These bodies, like the larger ones found in the stools, contained erythrocytes, vacuoles and small granules. Many small nonmotile forms with clear cytoplasm and round eccentric nuclei were also present.

Dobell,[3] who has studied so extensively the life history of the pathogenic *Endameba histolytica,* believes it is safe to assume that an ameba containing erythrocytes is *Endameba histolytica.* He also ascribes considerable importance to the projection of pseudopodia of ectoplasm from a stationary body, in differentiating the pathogenic from the nonpathogenic forms. He believes that this movement is seen only in amebas which are, in some degree, degenerated. It is possible that the emetin therapy, previous to examination of seminal fluid, accounts for the degenerated forms in this case.

The characteristic annular nucleus was not clearly observed in smears stained with iron hematoxylin, Giemsa stain and eosin methylene-blue. The small bodies without cytoplasmic inclusions, found both in feces and semen, are characteristic of precystic forms; the bodies with four nuclei are cysts, and the motile granular forms with inclusions of red corpuscles and spermatozoa fulfil the requirements of active *Endameba histolytica.*

As the seminal vesicles were enlarged and tender, and no demonstrable changes were present in the prostate gland or testes, this case might be regarded as one of amebic dysentery with amebic metastasis to the seminal vesicles.

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[3] Dobell, C.: The Amebae Living in Man, 1919.

ROENTGENOLOGIC DIAGNOSIS OF CARCINOMA OF THE TAIL OF THE PANCREAS

THOMAS SCHOLZ, M.D.
AND
FELIX PFEIFFER, M.D.
NEW YORK

The clinical picture in cases of carcinoma of the tail of the pancreas is so ill defined that a correct clinical diagnosis is made rarely, if ever. Any contribution tending to aid in the diagnosis of this type of cases, therefore, should be welcome.

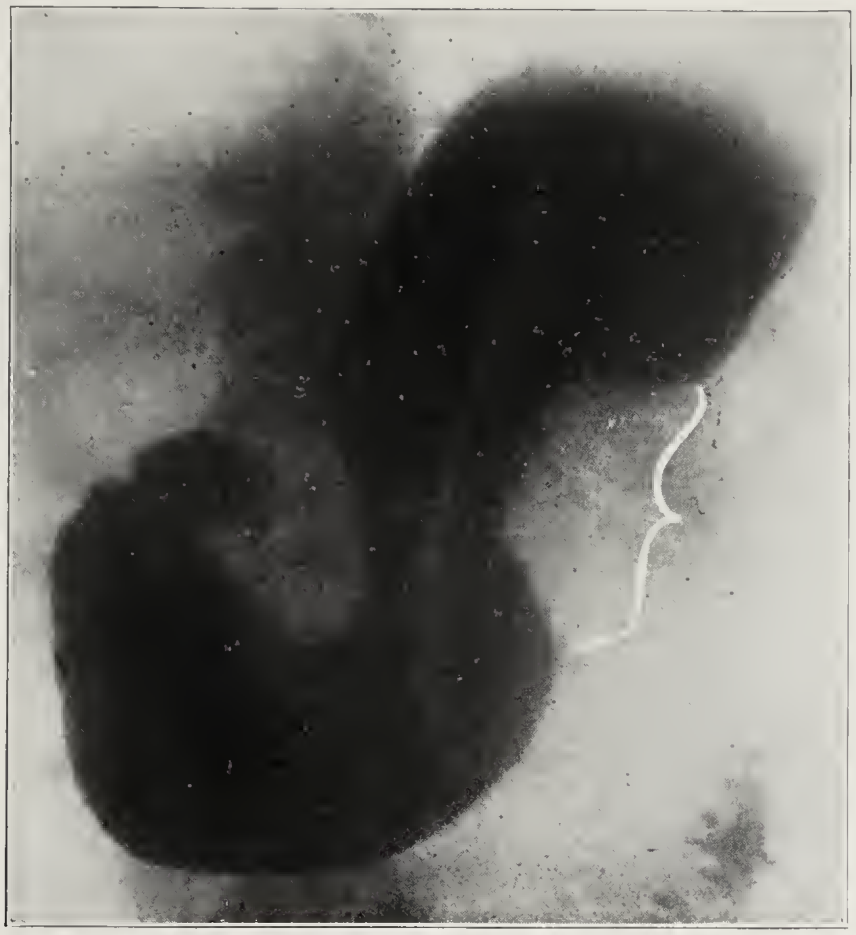

Fig. 1 (Case 1).—Large irregular defect at middle of greater curvature.

The two cases of carcinoma of the tail of the pancreas here reported present interesting features clinically as well as roentgenologically. Both cases have been observed for a long period of time, and both came to operation. It will be seen that in the first case the roentgen-ray findings have been misinterpreted, while in the second case, as a result of our experience gained in the first case, the possibility of carcinoma of the tail of the pancreas was considered roentgenologically.

The roentgen-ray findings in both instances were so characteristic of gastric malignancy that a definite diagnosis of carcinoma of the stomach appeared justified. The clinical findings, on the other hand, were not very typical of any organic lesion of the stomach; in fact, there were, in the clinical picture of these two cases, several points which spoke against such a diagnosis.

An analysis of the two cases will show that the radiodiagnostic mistake could have been avoided, if the roentgen-ray findings had been interpreted under full consideration of all the clinical points. It is a mistake generally made when what is considered a "classical" roentgen-ray find is allowed to brush aside any objecting clinical consideration.

REPORT OF CASES

Case 1.—*History.*—A married woman, aged 44, in comfortable circumstances and without active occupation, came under observation, Feb. 5, 1920, complaining of a progressive loss of flesh and strength, with frequent attacks of diarrhea. The family history presented nothing of interest. The patient's mother died of cardiorenal disease at the age of 50. Aside from an attack of malaria, the patient's health had always been remarkably good. Growth and development were normal. Constipation, for which she used laxatives, had existed for years before her present illness. Her habits were good; she was a light eater, but rarely ate any uncooked foods.

About one year previously, she noticed a marked change in her digestive functions; certain foods disagreed with her, causing looseness of the bowels. She attributed this to worry about her brother, who had been drafted for service in the navy. Six months later, she consulted a physician, who treated her for nervousness and biliousness, and put her on a very restricted diet. From this time on, she noticed a gradual loss of weight, and until she consulted us, she had lost 30 pounds (13.6 kg.) and was very feeble. Believing that the strict diet might have caused the loss of flesh, a liberal diet was ordered, and her weight taken at intervals, for two weeks. It was found that her weight continued to diminish, but that her digestion was remarkably good. No disturbance after meals or any other gastric distress occurred except after taking milk or ice cream, when she noticed a looseness of the bowels; this was overcome, in the case of the milk, by boiling it.

Her only complaints at this time were lassitude, weakness and continued loss of flesh.

Examination.—The patient was poorly nourished, with very little adipose tissue and with flabby muscles. She weighed 120 pounds (54 kg.), 30 pounds below the average. The temperature was normal. The skin showed a peculiar bronzing; the sclerae were not jaundiced. The lungs and heart were normal. Examination of the abdomen revealed no abnormality. The liver, gallbladder and spleen were not enlarged. The stomach and intestines were carefully palpated for tumors and tenderness, but nothing could be found.

The urine, gastric contents and feces were normal. Blood pressure was 100 systolic and 70 diastolic.

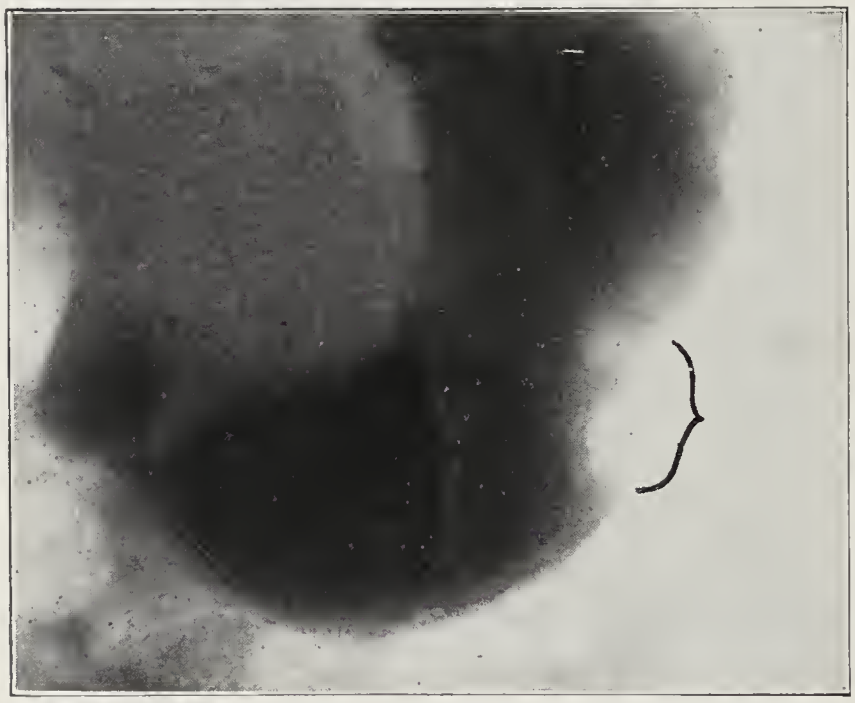

Fig. 2 (Case 2).—Small irregular defect of the greater curvature.

March 9, a roentgenogram revealed a large irregular filling defect involving the middle third of the greater curvature of the stomach. The defect was permanent and did not change on palpation. There was no peristalsis along the involved area. On deep digital examination under the guide of the fluoroscope, marked tenderness was elicited over an area corresponding to the gastric defect. The other parts of the digestive tract failed to present any gross pathologic changes. Confirmatory reexamination showed exactly the same findings. The roentgen-ray diagnosis was malignancy of the middle third of the greater curvature of the stomach (Fig. 1).

Clinically, an intra-abdominal neoplasm was suspected. Its location, however, could not be definitely determined. It was pointed out that the clinical picture was not very characteristic of a gastric neoplasm, yet on the strength of the definite roentgen-ray findings, the roentgen-ray diagnosis was accepted as evidently correct, and exploratory laparotomy was decided on.

Operation and Result.—An operation, performed, April 7, revealed a large carcinoma involving the tail of the pancreas and spreading into its body. There were many adhesions between the tail of the pancreas and the corresponding portion of the stomach. After the adhesions had been separated, it was found that there was no involvement of the stomach by the carcinomatous process in the pancreas. No further surgical procedure was undertaken, and after a five weeks' stay in the hospital, the patient returned home.

Two months later, the patient developed jaundice, which was permanent and progressive. Shortly after the gallbladder became enlarged, the stools were pale, and itching developed. At no time was sugar found in the urine. In August, pain developed, and a tumor in the epigastrium became palpable. The patient died, November 8, almost two years after the appearance of the first symptoms.

Case 2.—*History.*—F. M., a man, aged 54, married, a traveling salesman, seen, May 16, 1921, complained of loss of weight and weakness. The family history showed nothing of interest; the previous personal history was negative, except that he was a heavy eater and a very heavy smoker. No history of venereal diseases was elicited.

About sixteen months previously, the patient began to tire very easily. He was unable to do the same amount of work as he had done before, and was losing his business initiative. Being a very stout man, he ascribed his complaints to overweight, and therefore decided to reduce. During the following three or four months, he lost 38 pounds (17.2 kg.), while his condition gradually became worse. The appetite remained good all that time, and the bowels were regular.

During the following time, he continued losing weight gradually, though he had stopped dieting and ate as much as he liked. Several physicians treated him for nervousness and dyspepsia, without any apparent success. The patient had so far lost about 49 pounds (22.2 kg.). The appetite and bowels still remained normal. There was no pain.

Examination.—The patient was tired looking; he was of moderate height, and appeared much older than he said he was. He apparently had lost considerable weight, but still looked quite well nourished. The skin was extremely pale. There were no abnormal findings in the chest. Examination of the abdomen revealed a slight, localized tenderness on deep pressure over the left hypochondrium. No tumor masses were felt.

Examination of the urine showed a slight trace of albumin, no sugar and no other abnormality. Gastric analysis revealed: total acidity, 45; free hydrochloric acid, 20; no blood; string test, negative; feces, normal; no blood. The blood picture was that of marked secondary anemia. A Wassermann reaction was negative. The blood pressure was systolic, 105; diastolic, 75. The temperature was slightly subnormal. The weight was 142 pounds (65 kg.).

Roentgenograms taken May 26, 1921, revealed a small, irregular outline defect involving about 2½ inches of the middle portion of the greater curvature of the stomach. The defect remained constant during the entire duration of the fluoroscopic examination, and was seen on all the gastric plates, not changing its location or its appearance. Digital manipulation under the guide of the fluoroscope revealed marked definite localized tenderness over the gastric defect. The other parts of the gastro-intestinal tract failed to present any gross pathologic changes (Fig. 2).

The case being very obscure clinically, the roentgen-ray findings were gladly seized upon as the solution of the diagnostic problem, especially in view of the fact that the roentgen-ray evidence appeared to be of an absolutely definite character. It was noted, however, that the apparently small extent of the neoplastic involvement of the stomach was in disproportion to the long duration of the patient's complaints, and that at the same time there was complete absence of direct gastric symptoms. Remembering our previous similar case, the possibility of a carcinomatous involvement of the tail of the pancreas was also taken into consideration. Operation was decided on.

Operation and Result.—A tumor of about the size of a hen's egg and occupying the tail of the pancreas was revealed. The middle portion of the stomach was firmly adherent to the tumor mass. The stomach was separated from the tumor with great difficulty. Outside of a slight erosion of the gastric wall, there was apparently no carcinomatous involvement of the stomach itself. There was evidence of infiltration of the middle portion of the pancreas, and marked glandular enlargement. The incision was then closed.

The patient improved after the operation remarkably, gaining in weight and strength, so much so that the correctness of the surgical diagnosis was doubted.

About three months after the operation, the patient began to complain of pain in the epigastrium. This pain was constant, varying little in intensity. Six weeks later, attacks of sharp, sometimes excruciating, abdominal pain began to appear, lasting from five minutes to half an hour, coming on from one to three times a day, usually being associated with diarrhea. Still later, icterus made its appearance. The skin, formerly white, became yellow-brown, so that the patient at times was taken for a negro. Loss of weight and strength and finally also of appetite was progressing. At the same time, a palpable tender mass appeared in the midgastric region. The patient died, March 12, 1922, about twenty-five months after the onset of the clinical symptoms.

COMMENT

It is comparatively seldom that a roentgenologist has an opportunity of making roentgenologic observations in cases of carcinoma of the pancreas, because this condition constitutes only about from 1 to 1.5 per cent. of all the carcinoma cases. If the lesion involves the head of the pancreas, we may, in well developed cases, obtain a characteristic roentgenologic picture, showing a marked outward bulging of the entire course of the duodenum, sometimes giving more or less marked outline defects of the pyloric portion of the stomach. If the lesion involves the corpus of the pancreas, we may obtain quite typical outline defects of the body of the stomach. Pancreatic cysts may cause marked displacement of stomach or colon. All such conditions have repeatedly been observed and diagnosed roentgenologically by us, as well as by many others, and the cases on record are numerous.

Outline defects along the upper and middle portions of the greater curvature of the stomach, due to extrinsic causes, may be produced, aside from the condition described in our cases, by accumulation of a large amount of gas within the splenic portion of the colon, by a large hydronephrosis of the left kidney, by a large tumor of the splenic portion of the colon, or by certain pathologic conditions of the spleen. Such instances are not rare and present no great differential diagnostic difficulties.

Roentgenologic observations in cases of carcinoma of the tail of the pancreas appear to be extremely rare. In fact, there seems to be, aside from our two cases, only one other somewhat similar case on record, namely, that of Schlesinger.[1] He mentions as an important differential diagnostic point that the defect in the greater curvature of the stomach caused by a carcinoma of the left portion of the pancreas remains stationary on repeated roentgen-ray examinations made at certain intervals, while a defect caused by a carcinomatous involvement of the stomach itself is found to be enlarging steadily. This is true. However, in cases in which a definite roentgenologic opinion is expected after the first examination, it seems to us that, as an important differential diagnostic point, an obvious disharmony between the roentgen-anatomic and the clinical findings in this type of case should be considered. Thus, in our first case, if the apparent extensive localized involvement of the midgastric region shown by the roentgen rays really had been due to gastric carcinoma, one should have expected that such a lesion, after being in existence for twelve months, would gradually have produced by that time definite gastric symptoms, evidence of hemorrhage, and probably also a palpable tumor.

In the second case, there is an obvious disproportion between the duration of the symptoms and the apparent extent of the anatomic changes, as demonstrated by the roentgen rays. The symptoms had been in evidence for sixteen months, and yet the roentgen-ray examination revealed only a small defect at the middle portion of the greater curvature of the stomach. In gastric carcinoma with symptoms for sixteen months, one would expect a much more extensive involvement of the stomach. At the same time, one would be justified in expecting, in such a case in which the lesion evidently was at the middle of the greater curvature, definite gastric symptoms, of which there were none.

That, clinically, a lesion of the pancreas was not suspected is not surprising, as in carcinoma of the tail of the pancreas, as long as the lesion is confined to the tail, there are no characteristic clinical symptoms. Later on, after the process has invaded the corpus and head of the pancreas, the well known typical symptoms are apt to develop.

An interesting clinical point should be mentioned with regard to the first case. Schmidt[2] has stated that bronzing of the skin in pancreatic lesions is always accompanied by sugar in the urine (bronze diabetes), this being due to an interstitial inflammation of both the pancreas and the liver. We should like simply to place on record as an exception to this rule our first case, in which there was a most characteristic bronzing of the skin without sugar in the urine at any time, and we reserve the right to discuss the clinicopathologic theories involved in this case at another occasion.

CONCLUSIONS

In carcinoma of the tail of the pancreas, roentgen-ray examination may furnish important diagnostic information.

Roentgenologic examination reveals a permanent, irregular outline defect at the middle portion of the greater curvature of the stomach.

Such an outline defect, though usually characteristic of, and interpreted as, neoplasm of the gastric wall, may sometimes be correctly recognized as being due to carcinoma of the tail of the pancreas, if the interpretation of the roentgen-ray findings is guided by a full and proper consideration of the clinical aspect of the case.

The main differential diagnostic feature in such instances is an obvious disharmony between the roentgenologic and the clinical manifestations, the latter showing a striking lack of direct gastric symptoms.

Urgent call is made for a closer cooperation between clinician and roentgenologist, and an interpretation of roentgen-ray findings along clinical lines—in short, for clinical roentgenology, because we sincerely believe that in clinical roentgenology lies the further development of radiodiagnostic possibilities.

858 Lexington Avenue—943 Madison Avenue.

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[1] Schlesinger, E.: Roentgendiagnostik der Magen- und Darmkrankheiten, Berlin, Urban & Schwarzenberg, 1917, p. 210.

[2] Schmidt, Adolph: Erkrankungen des Pancreas in Kraus, F., and Brugsch, T.: Spezielle Pathologie und Therapie innerer Krankheiten, Berlin, Urban & Schwarzenberg, 1921, p. 14.

RECIPROCAL RESPONSIBILITY OF THE HEALTH OFFICER AND OTHER PUBLIC OFFICIALS *

OSCAR DOWLING, M.D.
NEW ORLEANS

Our social organization may be aptly compared to an intricate mechanical device, the efficient function of which depends on the coordination of its component parts. It is true that a machine and society are actuated differently; on the one hand, we have a controllable physical force as the *vis a tergo;* on the other, the physical plus the intangible psychic impulse.

Theoretically, society should function smoothly; as a fact, society is not a perfect organization, nor will it ever be. It is an expression of the public ideals, and it changes with the changing concepts and standards of the public mind. "The old order changeth, giving place to new." Among the public officials whose duty it is to strengthen and improve the social order there are few on whom the responsibility rests so heavily as on the health officer.

We have arrived at the understanding that health is fundamental. This means that public health is primarily concerned with the eradication of disease; and, further, in order to accomplish this purpose, it must assume the burden of combating ignorance, vice, crime, poverty—in fact, every condition inimical to an ideal environment for the proper development of the human being.

We have learned that the health of the community is an index to the progress and the happiness of its citizens. The intelligent immigrant now looks into the health statistics of a country before he seeks a new home; the life insurance company investigates before opening an office. "What of the schools?" used to be the stock inquiry; we now ask, "What are the death, birth and morbidity statistics?" as well as "What are the educational facilities?"

The reciprocal responsibility implied for excellence in the service of society holds good for all state commissions, bureaus and boards. The authorities or organizations which should reciprocally cooperate with these official bodies are those inherent in government, and the relation of the executive, legislative and judicial divisions of government to these state departments is clear.

Needless to say, the activities of any public service board should be free from political influence. The ideal condition, so far as such is obtainable, would be to have the service divorced entirely from all interference on the part of those persons holding positions by virtue of their political affiliations. A health board or any other public board, hampered by political machinations, is a travesty on efficiency. Discord and lack of harmony among the members and employees is the immediate and direct result. Aside from internal disruption, which is a corollary of outside interference, there is the more important result of the loss of usefulness in the service to the public. Therefore, to insure a maximum of efficiency, the appointments should be made solely on a basis of merit and fitness, and the term of office determined by results.

Cooperation presupposes an understanding by the legislative division of the government. Without pertinent, adequate laws, the regulation of public health matters is almost as impossible as when the politician meddles with the internal affairs of its organization.

In order to get the necessary legislative enactments, the people's representatives must be conscientious and well informed, or at least open minded to the appeals of those best qualified to know the subject. Unfortunately, it is too often the case that the majority allow themselves to be led by a few who, for personal or party ends, divert or nullify efforts toward needed legislation. There are objectives which are impossible of attainment without sufficient funds, but in nearly every state a practical health program with objectives defined and scientific proof of their practicability cannot be made effective because of a short-sighted policy as to the wisdom of this form of expenditure.

Every two years, or in some states annually, many statutes are passed and promulgated, often contradictory in phraseology and construction. Their enforcement seems not to disturb the public conscience. Laws without enforcement may have some educational value, but for practical purposes they are worthless. The psychology of making too many laws and not enforcing them is not quite clear. I do not know whether, knowing they will not be enforced, we pass them, or pass them, knowing that that will be the end. But it would seem that an enlightened judiciary would give heed to these measures which meet a social reform; doubtless, in many instances, they do, but there seems a singular lack of appreciation of the importance of those which are fundamental to the promotion of health. I think nearly every state in the Union has enacted an adequate vital statistics law; many, if not all, have the necessary officers and appointees to make the law effective, but through lack of understanding of the value of vital statistics to the state, neither the courts nor the public demand enforcement. Only thirty-four states are in the registration area for deaths; only twenty-three, for births. This indicates how imperfectly the law is obeyed or enforced. Physicians themselves refuse to meet the requirements of the government in giving the necessary data. If physicians fail to realize the reason for these records, why should we expect the district attorney to prosecute, even when there are flagrant violations of the law? The curtailing of appropriations may, under certain conditions, be excusable, but there cannot be any reasonable excuse why reasonable laws should not be enforced.

Among the institutions which have a reciprocal responsibility, the university and medical college stand preeminent. We are largely dependent on our medical schools for leaders and workers in social welfare, certainly for leaders in public health. Standardization of curriculums of all medical schools is evidence of our realization that there should be no B and C classifications, but that all medical schools should have the A rank. In foreign countries there are no B and C medical schools.

I might mention, in passing, that a knowledge of vital statistics, the sociological aspect of disease, prenatal and postnatal care in relation to eugenics, housing conditions, principles of sanitation and other subjects important to the health of the people would be of enormous value both to the practitioner and to the health officer. These should be taught in an adequately equipped and managed department of public health and hygiene. There are a number of universities, notably those of the Eastern states, which are beginning to appreciate the necessity of properly teaching the broad subject of hygiene in all its phases. So far, because it is a too recent innovation, we note but few of the results of this undergraduate, postgraduate or special training.[*] But the need is acknowledged, and before many years, the great influence which persons so educated will have in the direction of health and welfare departments will be apparent. The intimate connection with the medical school which offers this departmental course is clear. Cooperation between the two on the basis of mutual understanding is imperative to the success of both.

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* Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

Volunteer health organizations have their responsibility. With a reciprocal attitude, they are valuable adjuncts to the activities of the health officials, and, if the program is suggested by the health authorities, they may be eminently useful. But there must exist a mutual appreciation of the functions and prerogatives of both, and an acknowledgment by these auxiliary bodies of the right of domination in health activities by the state board.

What is true of these state officials, medical schools and volunteer bodies is also true of municipal and county officials. I believe that when this is understood the state health authorities will be informed by the municipality or county of any movement to improve the sanitation of the unit and, after a survey, the state authority will decide the health work most desirable at the moment. We can conceive of a situation wherein control of specific disease—malaria, for example—might be a greater good to the community than the installation of a water plant or an improved system of sewerage or garbage collection. An investigation by a trained force would show that community the relative values of these different improvements, and indicate which would at that particular moment bring the most desirable returns.

Official cooperation is one of two of the fundamental principles underlying successful public health work. The other, which is of equally great importance, is public confidence. When the public attitude toward health measures is either passive or indifferent, it is impossible to do more than hold what has been gained.

Scientific facts on which health work is founded are as certain as those which lie at the basis of astronomy, for example. Both are the practical development and application of fundamental scientific principles and, however divergent in most respects, the physical laws which are operative in one are wholly applicable to the other. The realm of hygiene to which preventive medicine belongs is very great. Public health work is but the objective application of the principles, and these truly natural laws are as immutable as is the law of gravitation. That they may be subject to different interpretation does not in any way modify their activities; the result is the same regardless thereof. Hence the futility of the mental process of the obstructionists to health measures, whose chief arguments are that medical facts are theories and, as such, are subject to change with the seasons. I need hardly mention the great difficulty of convincing officials and the public that yellow fever and plague are insect-borne diseases, and that they could be completely eradicated by preventive measures. Strange as it may seem, there are many who still doubt the rôle of the mosquito and the fly in the transmission of malaria and typhoid. Incalculable misery and loss of life have resulted from this attitude of hostile skepticism on the part of both officials and public alike.

The great problem is how this scientific knowledge of the cause and prevention shall be brought to the public comprehension in assimilable form. Bitter experience has been the method heretofore. In fact, it seems to be necessary for thousands of lives to be sacrificed before a skeptical public can be convinced. The reason for this is apparently that words produce but a fleeting impression on the human mind, even though they contain the wisdom of the ages, while an experience, and especially a disagreeable experience, leaves a psychic scar which is indelible. We try to teach adults with but mediocre success; therefore, the hope, to my mind, lies in training the child during the impressionable age. I can see no reason why the principles of preventive medicine should not be taught in a modified form and in an interesting fashion throughout the whole school life. I am convinced that many children now teach their parents some of the fundamental rules of cleanliness and sanitation. In my opinion, much could be accomplished in this way toward the eradication of the acute infectious diseases, including, above all, malaria and hookworm infection.

It is my opinion, too, that the introduction of rational sex education into the schools would go far toward the prevention of misery and degradation which so often are the accompaniments of venereal disease. There is no doubt that, were such instruction logically and tactfully carried on, it would react favorably on the eugenics of the race. But all this requires cooperation on the part of others, and cooperation presupposes understanding. It is the understanding which is deficient.

Public officials are responsible to the public, in theory at least. Usually, the public concerns itself little about its officials; as a rule, it seldom knows of but few of them unless the latter have for one reason or another occupied a prominent place in the public eye. The public, too, is prone to forget, and so long as affairs progress passably well no one bothers much about public officials, having too many other things to attend to. That this indifference is more apparent than real, and that the public has at least a subconscious interest becomes promptly manifest in times of stress and calamity. In such an emergency, the public official who does not measure up to the proper stature in popular opinion receives unqualified condemnation; his responsibility to the people will become manifest with drastic suddenness. The health officer of a state, parish or municipality carries a burden of responsibility which at times is even greater than that of the chief executive. To appreciate this point, one need only recall how acutely this burden was realized during the great influenza epidemic. It is to the health officer, and to him only, that the masses look in times of such calamities; the other authorities become the mere executors of his policies.

If this could be transmuted into an all-time interest and a popular support of health measures which are so far-reaching, health work would become more effective, and the more effective, the more it would be appreciated. History shows that social movements always begin at the top. Through the ages, many reforms, political, social and religious, have begun in the universities. If the powers that be, officials of departments of state—executive, legislative and judicial—presidents of universities, deans of medical colleges and presidents of volunteer organizations, would come to an understanding, then public education in public health would follow, and public support, financial and moral, would be assured.

ABSTRACT OF DISCUSSION

Dr. C. W. Garrison, Little Rock, Ark.: In order to control and prevent communicable diseases, we must recognize that the enforcement of isolation and quarantine regulations is a means of last resort—in other words, the last line of defense. Public health is challenging the health officer of today to initiate a program of right living, involving both eugenics and environment. Public health is as distinctly a branch of medicine as is surgery or obstetrics, and a health officer should not only be as highly trained technically in his specialty as the surgeon, but should possess unquestionable honesty, adaptability, courage, leadership and diplomacy. At present the public mind is somewhat confused as to the issue. There is competition between the cults and isms, and public health, but not until the practice of medicine for gain is eliminated from public health work, as with the part-time health officer, will there be a complete understanding. Complete official cooperation and public confidence, the two fundamental factors enumerated by Dr. Dowling as being necessary to success in public health work, will not obtain until this prerequisite is achieved, and, in addition, the education of the organized medical profession to its proper relation and responsibility, not only to the individual, but to the general public as well. A medical student should be taught that, when the state issues him a license or permit to practice medicine, it carries with it a duty and an obligation to obey the laws governing the practice of medicine and public health. Existing treaties between our government and other nations provide for the reciprocal notification of vital statistics. When the medical schools and the medical profession measure up to these reasonable legal standards, it will not be difficult to disseminate scientific knowledge in assimilable form, and secure full public support for the betterment of social welfare.

Dr. S. W. Welch, Montgomery, Ala.: I am very glad that Dr. Dowling brought into distinction the reciprocal relations of the municipal and the state and county authorities, with that of the health officer in the promotion of public health. We cannot get anywhere in America without dealing with politics. I heard a new definition of a politician sometime ago: a man who had succeeded in putting over a proposition which the other fellow had been trying to put over throughout his entire life and did not have sense enough to do. There are two classes of politicians in America. First, there is the politician that uses the people and handles the people for his own selfish purposes and to promote his own selfish end. The other type is the man who uses people and things to put over the great things of life. The health officer is supposed to be in the last class, and the office holder is supposed to be in the first, though there is not always such a sharp division between the two. When the health officer can convince the man who has high purposes to put over that the way to put those high purposes over is to do things which the public needs to have done for itself, then the reciprocity is complete. If we carry home the fundamental idea of the reciprocal relations of the two classes of officials, the one using the people to serve and the other using the people to be served, and when the man that is undertaking to serve will convince the fellow that wants to be served that it is the thing to do, then we have accomplished great purposes.

Occupation and Tuberculosis.—Many occupations in which the mortality from tuberculosis is high are not in themselves conducive to tuberculosis, but are occupations in which employees are underpaid or overworked, or which are sought by the physically unfit, the improvident, or persons ignorant or careless of the measures necessary to keep healthy. Outside of certain dusty occupations, the lowest tuberculosis mortality is found among the callings which are characterized by comfortable living and moderate exertions.—F. C. Smith, *Public Health Rep.* **38**:781 (April 23) 1923.

EPIDEMIOLOGY OF COLDS IN INFANTS

STUDIES ON RESPIRATORY DIVISION: XII [*]

WALTER FRITZ WINHOLT, M.D.
AND
EDWIN OAKES JORDAN, Ph.D.
CHICAGO

The degree of infectivity of the common cold has never been definitely ascertained. Indeed, the share of any outside infecting agent as a determining factor has often been questioned, and stress laid instead on temporary lowering of resistance, protein sensitization and similar factors. The ordinary method of establishing transfer of infection by tracing a new case to contact with a preexisting case is obviously difficult to apply to adult colds because of the numerous contacts that the average adult has in everyday life. It was thought that a study of colds in infants in whom contacts are fewer and comparatively easily traced might afford data of some value.

During the months of October and November, 1921, and January and February, 1922, careful records were obtained on the occurrence of colds among babies between the ages of 1 month and 2 years brought to infant welfare conferences in Chicago. Five hundred cases of colds were studied, a control series being provided by taking a similar record on a normal baby every time a cold record was taken. The term "cold" as used in these records includes such descriptive terms as coryza, rhinitis, "cold in the head," "nose-cold" and "running nose," but not tonsillitis, pharyngitis or "sore throat."

Table 1.—*Incidence of Colds in Infants Among Families with Other Members Affected*

	Mother with Cold		Father with Cold		Other Members of the Family with Cold	
	No.	%	No.	%	No.	%
Babies with colds	142	29	30	6	118	23
Babies without colds	66	13	33	6	81	16

There was a distinct history of a cold in some member of the family in 290 of the 500 families in which the baby had a cold, but in only 180 of the families to which the normal babies of the control series belonged. That is, 58 per cent. of the babies having colds at the time they were brought to the infant welfare stations had presumably been more or less in contact with other cases of cold in their respective families, while only 36 per cent. of those without colds had been subject to similar contact. The greater frequency of colds in babies in families in which some other member was suffering or had recently recovered from a cold was substantiated by the figures presented in Table 1.

These figures seem to indicate that in families in which there are babies with colds there is much more likely to be a history of cold in the mother than in families in which the babies are free from colds, but that the occurrence of a cold in the father is not manifestly related to a cold in the baby. In families in which members other than the mother or father, presumably in most cases other children, have colds, babies with colds are somewhat more numerous than babies without colds. The relatively close and prolonged association of mother and baby may account for the observed differences. So far as these facts go, they distinctly favor the view that at least some types of common cold are due to contact infection.

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[*] From the Department of Hygiene and Bacteriology, University of Chicago.

[*] Read before the Section on Diseases of Children at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

The age distribution of the babies with colds and babies without colds was not markedly different, as shown in Table 2. A somewhat larger proportion of the older babies (over 10 months), fall in the "cold" series, but the difference is not great.

Table 2.—*Age Distribution*

	Babies With Colds		Babies Without Colds	
Age	No.	%	No.	%
From birth to 2 months	9	1.8	13	2.6
From 2 to 4 months	42	8.4	64	12.8
4 to 6 months	80	16.0	83	16.6
6 to 8 months	82	16.4	95	19.0
8 to 10 months	72	14.1	68	13.6
10 to 12 months	65	13.0	57	11.4
12 to 14 months	45	9.0	42	8.4
14 to 16 months	31	6.2	23	4.6
16 to 18 months	24	4.8	16	3.2
18 to 20 months	23	4.6	11	2.2
20 to 22 months	8	1.6	15	3.0
22 to 24 months	19	3.8	13	2.6

The difficulty of determining by questions the exact date of the initial exposure and the onset of symptoms makes any opinion regarding the length of the incubation period largely conjectural. Nevertheless, certain facts obtained suggest a short period of incubation. In the 290 instances in which the baby had a cold, and in which there was also a history of a cold in other members of the family, colds were still in progress in 224 cases at the time the baby was brought to the infant welfare station; in eighteen, the family cold was just terminating; in four, it had ended two days before; in nineteen, from two days to a week; in twenty-five instances, information could not be obtained. The onset of colds in the family was given as stated in Table 3.

If data were available, the most definite information regarding the incubation period could be obtained from the history of a single exposure to an outsider. Only twenty-seven such instances appear in our records, the baby's cold developing after one day in eight cases; two days in seven cases; three days in four cases; after a "few days" in four cases; one week in three cases, and two weeks in one case.

Table 3.—*Colds in the Family*

Number of Days Before the Baby Showed Signs of Cold	
One day	31 families
Two days	21 families
"A few days"	69 families
From seven to ten days	96 families
Two weeks	48 families
Longer than two weeks	11 families
No information	14 families

These figures again suggest that the incubation period of colds is very short. The value of such records is limited, however, since a contact with an outsider suffering from a cold which is followed by a cold in the baby is more likely to be remembered than exposure not followed by a cold. The recent occurrences of this sort are more likely to be remembered than the remote. The history of family exposure is perhaps, after all, more significant.

There is a general impression that babies that are breast fed have a greater resistance to infection than those fed artifically. On this point the data given in Table 4 were obtained.

It must be remembered that age differences and other factors are concealed in these figures. It should be stated in this connection that the babies brought to the welfare station are fed, when 6 months old, cereal in the form of farina or oatmeal, in addition to the breast milk. The figures given do not warrant the conclusion that breast fed babies are as susceptible to infection with colds as those artificially fed. It is possible that a greater resistance in breast fed babies is more than neutralized by the close association with the mother.

Table 4.—*Resistance of Breast Fed and Artificially Fed Babies*

	Breast Fed	Artificially Fed	Mixed Breast and Artificial Feeding
Babies with colds	211	182	107
Babies without colds	228	207	61

The main function of the infant welfare conferences where these facts were collected is the care of well babies, the primary object being proper feeding. Babies with various ailments are, however, occasionally brought to the station. While the data on ailments coincident with colds are therefore very scanty and have to do largely with chronic conditions, they are somewhat suggestive (Table 5).

The table shows that such a condition as umbilical hernia, which is not closely related to the vitality of the child, is evenly distributed between the two groups, while other conditions, such as severe eczema, rickets and athrepsia, which presumably affect resistance or indicate a general lowering of resistance, are present in the babies with colds in much higher proportion than in the babies without colds.

Table 5.—*Ailments Other Than Colds.*

	Babies With Colds	Babies Without Colds
Umbilical hernia	3	3
Severe eczema	6	3
Heart lesions	2	1
Athrepsia	10	1
Syphilis	2	1
Rickets (extreme cases)	6	3
Anemia	2	1
Diarrhea	3	1

SUMMARY

1. Records of 500 babies with, and 500 without, colds showed that the occurrence of colds in these infants was accompanied by a relatively high proportion of colds in the respective families.

2. The existence of a cold in the mother of a baby was accompanied by a cold in the baby in a disproportionately larger number of cases.

3. The general resistance to such exposure seems, however, quite high. Exposure to mothers' colds has occurred in nearly half as many cases of babies without colds as of those with colds.

4. The findings suggest a relatively widely disseminated virus of low infectivity, since babies with colds and babies without colds had been equally exposed to the colds of the father alone. Apparently the average contact exposure necessary for infection exceeds that ordinarily obtaining between father and baby.

5. The incubation period of colds is probably very short. Nearly all the babies' colds which were contracted after exposure within the family showed

symptoms before the preceding patient's cold had disappeared.

6. Coincident ailments, indicating lowered resistance, especially those of deranged metabolism, were much more common in babies with colds than in those without colds.

25 East Washington Street.

ABSTRACT OF DISCUSSION

Dr. F. P. Gengenbach, Denver: I want to ask Dr. Winholt whether his figures on the relative resistance of the breast fed and artificially fed babies actually represent the number of babies who are breast fed—whether he kept track of the percentage. Can you tell us what percentage of the breast fed babies developed colds that were exposed to colds?

Dr. W. F. Winholt, Chicago: In the figures, the age element was omitted. Also, on account of the various methods of feeding, I do not believe I can answer the question.

CHRONIC CARBON MONOXID POISONING *

ANFIN EGDAHL, M.D.
GRAND FORKS, N. D.

The tragic results of acute carbon monoxid poisoning are so manifest, and the clinical aspects have been so thoroughly studied, that nothing will be said about this phase of the subject. Chronic carbon monoxid poisoning, on the other hand, although for a long time recognized, has not been given the attention it deserves by the medical profession; and, without a doubt, a considerable number of ailments and indispositions, not severe enough to be considered seriously, occur every year in a community that may be directly due to this ubiquitous gas, so characteristic of twentieth century civilization.

The Ohio State Department of Health [1] reported eighty-one cases of carbon monoxid asphyxiation, with thirty-four deaths, during the first ten weeks of the past winter. If this is true of carbon monoxid asphyxiation, how many are the cases of moderate and mild degrees of poisoning which are not reported or even suspected? That the number is large there can be no doubt. How great a rôle it plays as a predisposing factor to the development of other diseases it is difficult to say; that it is important would seem at first thought to be evident. It has been suggested that chronic poisoning increases the susceptibility, especially to pneumonia.

Wharen,[2] who has been making a study of the subject from an engineering standpoint, has found carbon monoxid present in unlooked for places and at times in surprising amounts. The following are some of his more striking findings; the iodin pentoxid method was used in making the determinations:

1. In a large repair garage, with no motors running for six hours: on the main floor, from 0.1 to 0.2 per cent.; in the repair shop, from 0.2 to 0.3 per cent.
2. In a gas engine laboratory, from 0.2 to 0.3 per cent.
3. In a large boiler room using coal for fuel, 0.2 per cent.
4. In a forge shop: before starting the ventilating fans, 0.4 per cent.; after starting the ventilating fans, 0.2 per cent.
5. In a laboratory after using sixteen Bunsen burners for two hours, 0.1 per cent.

These are the more striking findings, but here are some more which are quite significant: A street car heated with a coal stove, 0.05 per cent.; a furnace room of two houses, 0.1 per cent. and 0.15 per cent. In one of these, a defective breeching was found, which readily explained the result.

Wharen has also shown, after a careful experimental study, that stoves and furnaces can be a source of carbon monoxid in appreciable amounts. A reading as high as 0.2 per cent. was obtained in a room of 400 cubic feet with an improperly arranged draft. The same reading was obtained with a lid partly open. According to his results, any fuel is a possible source.

The literature is full of curious sources of poisoning, as, for example, a defective automobile heater allowing the exhaust gas from the muffler to leak into the car; and smoke from a neighboring chimney blowing into a bedroom. The importance of these findings is evident when it is realized that 0.05 per cent. in the air, when breathed for some time, will produce symptoms, and 0.2 per cent. is dangerous. However, there is evidence to show that some persons are decidedly susceptible to the gas and also that a certain degree of resistance will be established after repeated exposures to moderate amounts.

The air of the canyon-like streets of our larger cities during automobile traffic has been shown to contain an appreciable quantity. Haldane [3] found 0.066 per cent. on the platform of a station in London. He recommends that there should never be more than 0.02 per cent. of carbon monoxid when exposure is necessary for several hours; for exposures of less than an hour, 0.05 per cent. would not be objectionable.

Henderson and Haggard [4] state that exposure of about forty-five minutes to an amount of 4:10,000 is perfectly safe and will not cause discomfort. Haldane, through personal experience, has shown that 0.045 per cent. in air will cause no symptoms in four hours; but on exercise at the end of this period, panting and slight palpitation of the heart was noticed. In another experiment, a blood saturation of 14 per cent. was found after inhaling air containing 0.027 per cent. of carbon monoxid for three and one-half hours. Here also no symptoms were noticed except shortness of breath and palpitation on exercise. In evaluating these results, it should be kept in mind that about one half of the carbon monoxid of the inspired air is absorbed, except toward the last, when saturation is approached, with consequent slowing up of absorption. The rate of absorption and the time required for symptoms to appear is proportional to respiratory exchange, and is shortened by the increased breathing of exertion. Haldane [5] found that symptoms do not become appreciable during rest until the blood is one-third saturated, but this does not hold true if exercises are taken. Death takes place in dogs after a percentage of about 84 has been reached, if pure carbon monoxid and air have been inhaled. However, death will take place at a lower saturation, approximately 72 per cent., if illuminating gas is used, showing that there are other toxic substances present. Henderson [6] makes the sig-

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* Read before the Section on Practice of Medicine at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

[1] Carbon Monoxid Asphyxiation, J. A. M. A. **80**: 1408 (May 12) 1923.

[2] Prof. G. B. Wharen, of the Department of Mechanical Engineering, University of North Dakota, will report his results in a paper on ventilation to be published later.

[3] Haldane, quoted by Henderson, Yandell; and Haggard, H. W.: J. Indust. & Engin. Chem. **14**: 235 (March) 1922.

[4] Henderson, Yandell; and Haggard, H. W.: The Physiological Principles Governing Ventilation When the Air is Contaminated with Carbon Monoxid, Indust. & Engin. Chem. **14**: 234 (March) 1922.

[5] Haldane, quoted by Henderson and Haggard (Footnote 4).

[6] Henderson, Yandell; and Haggard, H. W.: J. Indust. & Engin. Chem. **14**: 235 (March) 1922.

nificant statement that, as the symptoms of carbon monoxid poisoning are due to oxygen depreciation, it is safe to assert that even a somewhat greater saturation of the blood lasting only a short time would involve less physiologic ill effect than a prolonged period involving nearly full equilibrium in 1 : 10,000 of air.

What are the effects of repeated exposures to small or moderate amounts of carbon monoxid? Abundance of opportunities for exposure are offered in our various industries and also in homes, as Wharen has shown.

Headache, nausea and vomiting are evidences of an advanced degree of blood saturation, approximating at least 30 per cent. In the literature, a multitude of symptoms of varying degrees of importance are mentioned; tingling and twitching in the limbs; irritability; numbness of various parts of the body; feeling of weight in the chest; rigidity of the fingers and toes; attacks of shivering; extreme thirst; craving for sugar; various subjective heart symptoms, as labored beating; distress or pains referred to the heart, and respiratory distress. Objectively, there have been described pallor, loss of flesh, red patches on the cheek bones, shiny, glittering eyeballs, enlarged pupils and irregular pulse without manifestations on electrocardiograms. It has been suggested that the cardiac symptoms are due to vascular spasm. Luden,[7] who has described in detail the symptoms of poisoning, mentions the interesting point that the so-called coal-gas headache does not yield to the usual headache remedies, as acetylsalicylic acid and amidopyrin.

Six patients under my observation, on being questioned with regard to their symptoms, all mentioned that they did not feel well before the onset of headache. Four of these men were engaged in active physical work, and they noticed that their first symptoms were an ill-defined feeling of indisposition, lack of energy, palpitation of the heart and shortness of breath; in other words, conditions well described by the term fatigue. The beginning anoxemia could well explain these manifestations. One of the remaining two complained of a cold with a bronchial cough; the other, a blacksmith, of dizziness on stooping. All six patients later developed the characteristic headache and also gastric symptoms.

Three of these patients showed a red blood count above 6,000,000 and an eosinophilia of 5 per cent.; the other three, a count between 5,600,000 and 5,950,000, but a normal eosinophilic count.

To determine what effect small repeated inhalations of carbon monoxid would have on the body tissues, six guinea-pigs were exposed to air containing 0.1 per cent. of carbon monoxid for one hour. This was repeated daily for a week. A red blood count of the six animals at the end of the week averaged 6,700,000; the degree of blood saturation was between 25 and 30 per cent. Neither nucleated red cells nor other unusual cells were found. The only abnormal finding was an increase in the number of erythrocytes; blood chemistry examinations were negative. A necropsy performed on two of the animals showed nothing beyond evidence of an increase in the activity of the bone marrow.

As all the guinea-pigs had lost from 2 to 6 gm. in weight over a period of two weeks, it occurred to me to see whether an increased susceptibility to infection had developed. Two were inoculated intraperitoneally with a 1 c.c. suspension of tubercle bacilli of the human type, and one control animal with an equal amount. The two others were inoculated with *Staphylococcus aureus*, and likewise one control with a similar amount. The administration of carbon monoxid was continued as before.

At the end of six weeks the three inoculated with *B. tuberculosis* were killed and a necropsy was performed. One of the guinea-pigs subjected to carbon monoxid had a widespread infection involving practically every organ; the other one, similarly exposed to carbon monoxid, had a moderately widespread involvement, particularly noticeable in the spleen. The control animal had a moderate involvement of the peritoneum and a slight involvement of the spleen.

The results of the inoculation with the staphylococcus yielded less significant results. One of the guinea-pigs exposed to carbon monoxid died first, showing a well developed peritonitis. The control died next, showing a moderate degree of peritonitis; the last guinea-pig, which had also been exposed to carbon monoxid, showed at necropsy a well developed peritonitis and splenic tumor. The two animals subjected to carbon monoxid both showed more extensive lesions than the control.

It is well known that these tests are too few to form a basis for important conclusions; nevertheless, it appears to me that they are significant, and in the light of what is already known about the action of carbon monoxid on the body, and especially on the blood, it has seemed that chronic carbon monoxid poisoning produces a condition comparable to that of fatigue, resulting in lowered vitality and consequently a lowered resistance to disease, which may be the result of a recent infection or the flaring up of an old focus. The same increase in blood lactic acid is seen in the anoxemia of carbon monoxid poisoning as is seen in fatigue from exercise. Apfelbach[8] reports a decrease in strength in workers exposed to carbon monoxid gas.

Another point to be emphasized is that we should not wait for the classical symptoms of headache, nausea, vomiting and dizziness, indicating a saturation of 30 per cent. or more before suspecting poisoning. There are certain symptoms already mentioned above that make their appearance earlier; some are more or less equivocal, to be true, but nevertheless, when taken together with other factors in the history as occupation and manner of living, are significant and will lead the physician to make the necessary blood tests which are so helpful in making a diagnosis, if made shortly after exposure. I have found, in addition to the spectroscope, the Katayama[9] test, the tannin[10] test, and Haldane's method[11] very satisfactory, the latter revealing a saturation as low as 0.03 per cent. A polycythemia, especially if associated with eosinophlia, is significant of chronic poisoning. The Bureau of Mines has recently perfected an instrument which will indicate the presence and degree of saturation of carbon monoxid in the blood.[12]

CONCLUSIONS

1. As the chances for exposure to carbon monoxid are so great, it would be well for the physician to keep in mind the possibility of chronic poisoning when a

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[7] Luden, G.: Chronic Carbon Monoxid Poisoning—Its Immediate and Subsequent Manifestations, Med. Med. 3:6 (Feb., March) 1921.

[8] Apfelbach, cited by Kober and Hansen: Diseases of Occupation and Vocational Hygiene, p. 73.

[9] Kober and Hansen: Diseases of Occupation and Vocational Hygiene, p. 62.

[10] Hawk: Physiological Chemistry, Ed. 4, p. 216.

[11] Bull. 42, Department of the Interior, Bureau of Mines, p. 20.

[12] Science 57:16 (June 1) 1923.

patient presents himself with ill defined symptoms which cannot be explained otherwise.

2. Repeated exposures to carbon monoxid, but not in sufficient degree to cause acute poisoning, will cause symptoms similar to the results of fatigue, and can be explained by lowered amount of oxygen in the blood.

3. Just as a state of continued fatigue, so will a state of chronic carbon monoxid poisoning lower the resistance to various infections, or favor renewed activity of an old process.

4. When there is a possibility of exposure to carbon monoxid, it would be well to make a blood test. By the use of various simple laboratory tests, it is possible to diagnose an early, or a presymptomatic stage of chronic poisoning and ward off the possibility of serious results.

5. Preventive medicine has here a new field. Carbon monoxid poisoning is no longer confined to certain industries: the chances for poisoning are universal.

THE USE OF ANTISERUMS IN THE TREATMENT OF DISEASE *

FREDERICK P. GAY, M.D.
NEW YORK

Thirty-five years have elapsed since Hericourt and Richet demonstrated the fact that the serum of dogs that had been actively immunized against a certain staphylococcus had, by transfusion, the property of curing otherwise fatal infections due to this organism in unprepared rabbits. This important principle of transferred or passive immunity has since that time been repeatedly demonstrated experimentally in connection with many other pathogenic bacteria and their toxins. It is fortunate that the first complete study of passive immunity by Behring and Kitasato was with the soluble toxins of the tetanus and the diphtheria bacillus, so that the results, not only experimentally in animals but also in the treatment of human disease, were so unequivocal that the study of the principles and practice of serum therapy has never since languished. And yet in the intervening thirty-three years, no other such striking instances of serum therapy have been encountered, no other so nearly perfect a remedy as diphtheria antitoxin has been discovered. Indeed, when one views in the aggregate the enormous mass of work that has been done in this tridecennial period, and glimpses the extraordinary technical and theoretical advances that have occurred in bacteriology and immunology, the practical results of serum therapy are, at first glance, discouraging.

Yet it is in no spirit of discouragement that I approach this difficult attempt at appraisal and the still more hazardous attempt at prophecy. If one admits that there is work for the theorist, it seems to me that nowhere is his help of more avail than in the welter of assertion pro and con in each particular problem of serum therapy. It is evident that the eventual establishment of the value of each antibacterial serum depends, and will depend, on the data collected and evaluated by clinicians, but I cannot admit with Sheara that correct evaluation at any given stage in the development of the use of an antiserum rests with the practitioner. If personal and often limited experience is fallacious anywhere, it is in this realm. With the increasing subdivision of labor, it is now rare indeed, and advisedly so, that the producer of a new antiserum is the one who employs it in the treatment of human beings. It is increasingly more difficult for him who has the human responsibility to keep abreast with bacteriologic and immunologic theory, to grasp and follow the chance experimental lead that may yield a modification of practical importance. The more correct, though temporary decision, then, as to the actual value of combating any bacterial infection by the use of an antiserum must, until general acceptance is arrived at, lie in literary evidence rather than personal experience, and literary evidence must be read in the light of a thorough understanding of the principles involved.

With the discovery of tetanus and diphtheria antitoxins in 1890, the problem of combating bacterial infections might have seemed essentially settled. All that seemed necessary was, first, to find the particular etiologic agent involved in each disease entity; secondly, to isolate it in pure culture; thirdly, to hyperimmunize an animal of convenient size with this culture or its products, and, lastly, to employ the serum of this actively immunized animal in the neutralization of the infectious agent in the naturally infected individual. Instances began to multiply in which this schematic procedure could be carried out in experimental animals.

In the next bacterial disease that was intensively studied by Pfeiffer and others, Asiatic cholera, it seemed that soluble exotoxins, similar to those produced in diphtheria and tetanus, were not primarily involved. The progress of infection with the cholera spirillum under the artificial condition of animal experimentation was found to be due to multiplication of the organism in the form of a septicemia, with toxic symptoms that seemed due secondarily to the terminal and incidental disintegration of the cholera organisms. An antiserum was prepared that rapidly provoked this disintegration—in other words, which contained what we now know as a bacteriolysin. This and other antiserums were soon shown to contain a host of other antibodies with specific action on the bacterium which gives rise to them; substances or properties that clump the bacterium in question (agglutinins); others which precipitate their extracts (precipitins); substances which unite with the bacterium to form an alexin (complement) fixing complex (sensitizers); and substances which render the bacterium in question more readily ingested by the phagocytes (opsonins, tropins).[1] Such studies, which still continue actively and fruitfully, have given us our factual basis and theories of infection and immunity. Among other things, we have come to recognize that certain antiserums are anti-infectious or antibacterial rather than antitoxic; that is, they act directly on the bodies of bacteria rather than to neutralize their products. The knowledge of these antiserums has established the firm basis of serum diagnosis. But only one of the many antibacterial serums that have been produced can be confidently asserted to have taken its place in the category of diphtheria antitoxin as an assured curative agent in human disease.

Let me at once present my promised appraisal of the actual curative value of antiserums (antitoxins and antibacterial serums). I limit the discussion to treatment as against prevention, and omit serums that have been used in the treatment of bacterial diseases in animals.

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* Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

[1] I do not wish to discuss here the individuality or the possible identity of these substances.

I have, for convenience, divided antiserums into four categories in respect to their value in treatment: (1) antiserums of undoubted value; (2) antiserums of probable value; (3) antiserums of possible value, and (4) antiserums of no proved value.

ANTISERUMS OF UNDOUBTED VALUE

Diphtheria Antitoxin.—There is no longer any dispute as to the curative value of diphtheria antitoxin, provided it is of standard potency as tested by a standard method, that it is administered early in the disease, and in severe cases is given in large doses intravenously. It may advantageously be concentrated. The death rate from this disease in twenty of the largest cities of the world (Park) has dropped from 66.9 per hundred thousand in 1890, to 19 in 1905. The normal mortality of from 35 to 40 per cent. in untreated cases falls to 7 or 8 per cent. (i. e., to one fifth) in all cases irrespective of time of treatment, and in cases treated on the first day, the mortality is negligible.

Antimeningococcus Serum.—The correct employment of an antimeningococcus serum of corresponding immunologic type has reduced the normal mortality of from 65 to 80 per cent. to from 15 to 30 per cent. in all stages of the disease.

ANTISERUMS OF PROBABLE VALUE

Tetanus Antitoxin.—This is of great value in prophylaxis, but less so in treatment. It may be estimated, however, that early, large and repeated intraspinal and intravenous injections reduce the mortality in treated cases about 20 per cent.

Anticobra-Venin.—This apparently enables those who have been bitten by *Colubridae* to resist otherwise fatal amounts of neurotoxin if administered early (Calmette).

Antianthrax Serum.—There is considerable evidence that an antiserum to *B. anthracis* notably reduces the mortality in the more generalized and severe type of human infection due to this micro-organism. Sclavo reduced the mortality in 164 treated cases from a normal of 24 per cent. to 5.3 per cent.

Antidysentery Serum.—This appears to be useful in infections due to the Shiga-Kruse variety of dysentery bacillus, if serum is prepared to contain both antitoxins and bacterial antibodies.

ANTISERUMS OF PROBABLE VALUE

Antipneumococcus Serum.—The recognition of at least four types of the pneumococcus by Neufeld, Dochez and Gillespie, and others has led to correct type diagnosis in each case of this disease and the use of a corresponding antiserum. There is no claim that results of importance have been attained with any but Type I infections (Cole and associates). It is certain that the mortality of treated Type I cases in the Rockefeller Hospital has been very low, but the question has arisen as to whether the mortality from this type does not vary markedly from year to year. Thomas, Locke and others have failed to obtain any striking curative results with Type I antiserum.

Botulism Antitoxin.—Experimentally in animals, this antitoxin is of marked value. It has not been tried in any considerable number of human cases. The necessity for injection before symptoms are evident would limit greatly its practical usefulness. The existence of at least two antigenic varieties of *B. botulinus* further complicates the problem.

Antigangrene Serum (Antitoxin for gaseous gangrene).—The varieties of anaerobic bacteria concerned in the gaseous gangrene of wounds renders appropriate serum therapy difficult. Recent experiences by French authors with a polyvalent serum designed to include antibodies for the ordinary wound bacteria seem encouraging.

Antiplague Serum.—A potent antiplague serum is produced with difficulty. Recent results in Queensland and in Cuba indicate that a proper serum given intravenously markedly reduces the otherwise appalling mortality in this disease.

Anticholera Serum.—For many years, no significant results were obtained with antiserums to cholera. The recognition by both French and German bacteriologists that the cholera vibrio produces a soluble toxin, and the utilization of this toxin as well as the bacteria themselves in immunization, has given an antiserum which in recent epidemics, particularly in Russia (Salimbeni), has seemed very efficacious.

Antigonococcus Serum.—This is alleged to be of value in systemic and metastatic complications of gonorrhea, and in conjunctivitis.

Antiserum for Yellow Fever.—Noguchi reports favorable results in the early treatment of yellow fever by means of an antiserum to *Leptospira icteroides*, the presumable causative agent in this disease.

Antipollen Serum.—Antiserums to pollens which cause hay-fever have been used with palliative effect, but no alleged permanent benefit.

Serum of Recovered Scarlet Fever Patients.—Beneficial results have been claimed.

Serum of Recovered Poliomyelitis Patients.—There is some evidence that this serum, when obtainable, is of value in treatment (Amos and Chesney, 1917). An antistreptococcus serum has also been employed in this disease, but the relation of this microorganism to poliomyelitis is by no means generally accepted.

ANTISERUMS OF NO PROVED VALUE

In the category of antiserums of no proved value are listed antiserums, often with many variations in their methods of production for the specific micro-organism in question, which have failed to establish a claim to therapeutic efficiency.

Antityphoid Serum.—There have been no claims of any usefulness except with serums produced by Chantemesse and by Rodet, whose results have failed of corroboration.

Antistreptococcus Serum. — There is nothing approaching acceptable evidence of the successful treatment by serum of any of the streptococcal infections, except possibly in the complications of scarlet fever (Moser). Many definite reports of failure to produce results are available.

Antituberculosis Serum.—Many varieties of antituberculin and antibacterial serums have been tried. The claims of Maragliano are definitely disproved, and the antitoxin of Marmorek, although it received some casual approval, has never been accepted as of value.

This personal appraisal of serum therapy cannot, I believe, be accused of overenthusiasm. It is purposely made as conservative as possible. If my estimate is correct, there are only two antibacterial remedies of a specific sort that have been discovered in thirty-odd years, and the discoveries of these two were twenty years apart. It is certain that even diphtheria antitoxin and the antiserum for meningococcus can be perfected in their preparation and in method of administration. The survey of the other less successful attempts at serum therapy is, however, I feel, in no way discouraging, though progress has certainly been slower than might have been anticipated. And yet the results accomplished, such as they are, far outweigh the effort expended. I interpret the present status of serum therapy as a stimulus to renewed and increased investigation in bacteriology and immunology.

LINES OF INVESTIGATION ALONG WHICH PROGRESS HAS AND WILL BE MADE

It is clearly evident that, with our increasing knowledge of bacteriology, each micro-organism, particularly in its pathogenic attributes, is, in a way, a law unto itself. A set of conditions operative with one variety of bacteria, and even with a single type of a given bacterial species, may not be true with any other. Knowledge of the natural laws that have been found to be operative in one infection, and in resistance to it, although they serve as a guide in studying another infection, may actually blind us temporarily to the essentially different features of the new infection that we are considering. There is need, then, of repeatedly considering each problem afresh, with all experimental resourcefulness gained from other experience, but without too definitely preconceived notions of what will be found.

Mode of Infection.—We are continually recasting or modifying our ideas as to how any given pathogenic micro-organism produces the sum total of its harmful effects. Does a given bacterium produce its effect largely by intoxication as does the diphtheria bacillus, and is this intoxication under the actual condition of growth in the animal body due to the liberation of a soluble toxin, or of a so-called "endotoxin"? And what is the nature of an endotoxin? Is it simply a toxic disintegration product of protein of nonspecific nature, or is it endowed with specific properties of origin, as is the case of an exotoxin? Or does the micro-organism produce its results by simple multiplication? It is evident that there are toxic substances formed in the body which cannot ordinarily or readily be produced in a culture medium. This is true, for example, of the cholera vibrio, and recent advances in producing an effective anticholera serum, if they are corroborated, are based on the utilization of this soluble toxin in immunization. Infections produced experimentally in animals, although of the greatest value, are not the parallel of what occurs in the human body. Again, the cholera vibrio, which produces a banal septicemia in a guinea-pig, does nothing of the sort in man. Here, studies of the infectious diseases of animals, with the possibility of reproducing such infections experimentally in the very animal which is the natural sufferer from the disease in question, are of great value.

It is evident, then, that a correct estimate of the relative importance of the intoxication and the infection produced by each micro-organism is essential in producing the corresponding antibodies in a serum designed to combat it.

Bacterial Types.—Much recent progress that has been made in serum therapy has been dependent on the recognition that there are a number of types or varieties of many bacterial species, all of which, although they may differ quantitatively in their effects, produce the same disease. This has been definitely shown to be true in the case of meningococcus infections, and the recognition of this fact has given the successful results that are at present obtained. A similar variety of types is known to exist in the pneumococcus, although here the recognition of type varieties has not, as yet, yielded striking practical results, for other reasons of many of which we are at present unaware.

Any eventually successful antiserum for streptococcus infections must at least include antibodies that correspond to the antigenic type of streptococcus concerned in the particular case to be treated. A truly polyvalent serum should contain antibodies to all types of streptococci, and it is probable that not all types are as yet recognized. Methods for the rapid diagnosis of types, which are already available in connection with the pneumococcus and the meningococcus, should be developed with organisms like the streptococcus and *Bacillus botulinus*, if it is found that a monovalent serum is better than a polyvalent, as may prove to be the case.

Methods of Immunization and Production of Antiserum.—Great advances have been made in hyperimmunizing animals for the purpose of producing an antiserum. These advances include the choice of route of inoculation and the spacing of injections; which also bears on the rapidity of production of the antiserum. The material used for immunization, in other words, the bacteria and bacterial products employed, is of great importance. Should organisms as they grow in artificial mediums be utilized, or should their soluble products alone be employed? Would it be better to use a "humanized" culture contained in the blood or pus from a fresh human lesion? Should cultures with virulence increased by passage through animals be employed? These are all questions that have arisen with an organism like the streptococcus, and never entirely answered even for this micro-organism, to say nothing of other bacteria.

The animal to be chosen for the production of antiserum is another matter that has not been so fully considered as it deserves. We have, perhaps, erred in choosing large animals for the mere fact that more serum can be obtained from them. It might be better, perhaps, as Kyes has suggested in the case of antipneumococcus serum, to use an animal naturally resistant to infection, the hen, for instance, in order to produce more potent antibodies.

Concentration of Antibodies.—The concentration of antibodies increases the potency of an antiserum, makes it possible to inject relatively larger amounts of the essential material with less inconvenience, and avoids or minimizes the toxic substances present in any foreign protein. Both chemical methods (diphtheria antitoxin (Gibson) and specific methods of precipitation (Gay and Chickering; Huntoon, with antipneumococcus serum) may be utilized to bring about this result.

The Essential Factors Concerned in Natural and Acquired Resistance.—The great and deserved emphasis that has been laid on the discovery of the various antibodies in immune serum has perhaps led us too far away from the consideration of the importance of cellular participation (Metchnikoff) in all processes of resistance, both natural and acquired. We judge that the eventual disposal of micro-organisms in the body usually depends on cellular activity, although it may be enormously influenced by the properties of serum. Recently, the importance of the fixed tissue cells (Kyes) of the clasmatocytes (Gay and Morrison), as well as of the polymorphonuclear leukocytes, has been attracting interest. There are instances of solid protection from bacterial diseases, notably typhoid fever, which are not associated with the presence of antibodies in the recovered individual and must, therefore, be due to some newly acquired property of resistance resident in the body cells. It is by no means clear what effect a complete recognition of the importance of the cells, as against fluids of the body, will have on passive immunization, but one can at least conceive of immune-cell-extract therapy, in perhaps a new sense.

Route of Administration of Antiserum.—One of the most definite lines of progress in serum therapy has been in the recognition of the importance of putting the serum where it will do the most good; in other words, at the point of localization of the infection under consideration. It is certain that the success of serum therapy in meningococcus infection has been due largely to the intraspinal injection of the serum, or, in certain cases when the micro-organism is found in the circulating blood as well as in the meninges (Herrick), to combined intraspinal and intravenous injections. Whatever increasing success has been obtained in the therapeutic use of tetanus antitoxin has depended on the more or less successful attempt to break or forestall the combination between nerve cell and tetanus toxin by a similar utilization of these two routes of inoculation.

Serum therapy, in spite of its thirty-five years, is yet in its infancy as a science. Its coming of age will depend not only on the continued labor of bacteriologists, immunologists and clinicians, but more than all on those of them who, although aware of tradition, constantly visualize their problems anew.

437 West Fifty-Ninth Street.

ABSTRACT OF DISCUSSION

Dr. Walter V. Brem, Los Angeles: Dr. Gay does himself an injustice by calling himself a theorist; there are theorists and theorists, and Dr. Gay is a practical theorist when he draws such practical conclusions as he has drawn in laying this matter before us. The final decision about biologic preparations must be made by investigators and not by general practitioners. I have been in close touch with the practical aspects of this matter. Many general practitioners do not even know the distinction between a vaccine and a serum, and the term "vaccine" or "serum" has been applied to such products as arsenical solutions for the treatment of syphilis. I was discussing vaccines with a physician and arguing for their guarded use, and the physician with whom I was talking said that he had such a great faith in them that when he gave a patient a dose of vaccine and had a little left over he took it himself. The difficulties are due to the fact that a great many men who are using these biologic preparations are not familiar with the natural course of disease, uninfluenced by treatment. They must treat patients; they must give something. The patients demand it, and the medical profession, being human, is eager to believe that the remedies they administer are the remedies that are causing the beneficial results. We know that most infectious diseases are self-limited. When the biologic preparations are used and the patients recover, it is difficult for one not to believe that the preparation did it. Many of us fall prey to the fairy tales told by the commercial houses in their advertisements, and those who are not on their guard can be readily deceived. We must remember that immunity to the infectious diseases, with only a few exceptions, is probably a cellular immunity, due to cellular reaction, and the antibodies produced in the serums are not often considered in the immunity process. For instance, in typhoid fever in human beings we frequently meet bodies present which will dissolve the typhoid bacilli, like sugar. These are present very largely in normal persons, and yet human beings have typhoid fever. On the other hand, rabbits, which are highly immune to fever, have no living substance in their blood, even after vaccination, while, on the other hand, they will have complement fixing bodies in high concentration, and human beings who recover from typhoid have practically no complement fixing bodies, or they arise in a slight degree.

Dr. J. C. Geiger, Washington, D. C.: Dr. Gay has mentioned treatment by botulism antitoxin. There is no doubt, as far as experimental purposes are concerned, that in the laboratory we have antitoxin that protects our animals 100 per cent., provided it is given at the same time as the toxin. But there is a limit to this of which I have some evidence, but which I should not perhaps reveal at this time, as it is the laboratory information of another man. There is not unlikely a limit to the time at which botulism antitoxin may be given effectively after the toxin. That limit is around twenty-four hours. The incubation limit of botulism cases is from twenty-four to forty-eight hours. There is another danger. Dr. Gay has brought up the question of types. Curiously enough, in a recent survey of a certain district of the United States we ran into a ranch which had had five outbreaks of botulism on it, and in every instance everybody on the ranch had died. The soil of the ranch contained type B botulinus. The food from the ranch, which was grown on the ranch, was type A. There are some very anomalous data. The result of some experimental work will soon be published on that point. I have had unfortunate experiences with most cases of botulinus antitoxin—100 per cent. mortality. But that does not do away with the use of the antitoxin. I do not think we are justified in calling cure due to antitoxin if we have not used the antitoxin within forty-eight hours.

CLINICAL STUDIES OF QUINIDIN

JAMES G. CARR, M.D.
CHICAGO
AND
WALTER H. SPOENEMAN, M.D.
ST. LOUIS

This paper embodies the results of the study of sixty-one cases of auricular fibrillation treated with quinidin sulphate in the wards of the Cook County Hospital.

To the sixty-one patients under observation, seventy courses of quinidin were given. The patients ranged in age from 25 to 79. Twenty-five of the patients were under 40. In thirty-three cases the heart disease was of the rheumatic type, and in sixteen, of the arteriosclerotic; in the others, various etiologic types were represented. The duration of the heart disease ranged from a few weeks to many years; as to the duration of the fibrillation, we have no data of value.

Four conditions governed us in the selection of cases. 1. Compensation was present at least to such a degree that the patient had no edema and could be up and about the ward without dyspnea. No patients were given the quinidin in the presence of manifest heart failure. 2. No patients were accepted for treatment who gave a history of having had symptoms justifying the probable diagnosis of former emboli. 3. Patients with mental symptoms, which are not uncommon in old arteriosclerotic patients, were not given quinidin. 4. No patients are included in this series in whom the cardiac condition was only an incidental complication in the course of some other disease. It follows almost as a corollary of the first condition that most of the patients received digitalis prior to the administration of the quinidin. The patients were confined to bed during the course of the treatment.

PATIENTS IN WHOM NORMAL RHYTHM WAS RESUMED

In one patient included in the series, the heart resumed normal rhythm before the quinidin was given. Originally proved to have auricular fibrillation, he was sent for a confirming electrocardiogram on the morning of the day on which it was planned to begin treatment. After his return to the ward, the initial dose of quinidin was given; shortly thereafter it was reported that the last electrocardiogram showed sinus rhythm. The case is cited in some detail, since it illustrates how the fibrillating auricle, perhaps even in cases of fairly long duration, may spontaneously resume the normal rhythm. With the omission of this case from further consideration, we have sixty cases in the series. In two instances, the rhythm became regular, but the electrocardiogram showed flutter, with regular block. Normal rhythm was resumed in seventeen, or 28.3 per cent., of the sixty cases. Of the patients more than 40 years of age, nine, or 25 per cent., showed resumption of the normal rhythm; of those under 40, eight, or 32 per cent., became normal. Six, or 18.3 per cent. of the thirty-three cases classed as rheumatic, returned to sinus rhythm. Of the arteriosclerotic group, sixteen in all, seven, or 43.8 per cent., returned to normal rhythm. It will appear later that this difference in response between the two groups was essentially reversed so far as clinical benefit to the patients was concerned. One hypertensive case and three of undetermined etiology made up the rest of the group.

Five of the seventeen patients have maintained the normal rhythm for three months or more. One is known to have been normal for eight months; when last seen, the rhythm was still normal. This patient had a long and stormy period in the hospital before the quinidin was used. The clinicians who have seen her recently have not agreed as to the measure of clinical improvement resulting from the restoration of the normal rhythm. It is our conviction that the persistence of the normal rhythm has been of real benefit to this patient, aiding materially in the maintenance of fairly good compensation. Another of these five, seen five months after the restoration of sinus rhythm, still had the normal rhythm, but was not compensated. The other three are distinctly better, and apparently this improvement is largely due to the persistence of the normal rhythm. Somewhat more than one sixth of the group showing restoration have thus shown incontestable clinical improvement over a period of three months subsequent to the resumption of sinus rhythm. Two of these cases had so-called "rheumatic hearts"; in the third case, the etiology was undetermined. Of the other patients with a return of normal rhythm, one, with an old rheumatic heart, is known to have been normal at the end of one month and to have expressed himself as feeling better than he had for a long time. He was especially gratified by the disappearance of the sensations associated with the cardiac irregularity. Another patient was found with normal rhythm and in generally good condition after sixty-nine days. In six of the seventeen patients, therefore, the return to sinus rhythm may be regarded as quite worth while; these patients have been improved by the quinidin.

Of the other ten patients, one was seen twelve days after the resumption of sinus rhythm, at which time she was feeling very well. In a second patient, the fibrillation returned after four days, although she was taking 3 grains (0.2 gm.) of quinidin twice a day; she was put on 5 grains (0.3 gm.) three times a day, and two days later the normal rhythm was again resumed. Six weeks later she returned to the cardiac clinic with fibrillation. A third patient was readmitted to the hospital with fibrillation, forty-eight hours after his discharge. Another, a young woman who left the hospital against our advice, since we felt that she was unable to undertake her household duties, was seen some six weeks thereafter by a visiting nurse, who reported that this was the sickest heart patient she had ever seen. One elderly woman returned for examination after fifty days, at which time sinus rhythm was still present. Twenty-three days thereafter, she was readmitted with fibrillation and decompensation. After three days of treatment with digitalis, she was put on quinidin, with the restoration of normal rhythm after another three days. Fibrillation was apparent again four days later, and twelve hours subsequently, a hemiplegia developed; shortly thereafter, she died. Two other patients are known to have died; one developed an embolus of the right leg while he was taking quinidin, whereupon the drug was stopped; two days later the rhythm became normal. There was, however, no improvement in his condition, and ten days afterward he died. Since the embolus occurred before the restoration of sinus rhythm, it is hard to prove any relationship of cause and effect between the quinidin and the embolus. The other man was given quinidin and digitalis simultaneously; after seven days, sinus rhythm appeared. Very soon he went home, against the advice of the house physician; four days later he attended the cardiac clinic, at which time his general condition was better than at the time of discharge. He was advised to continue the small doses of quinidin, but the digitalis was stopped. Early the next day he died suddenly; necropsy was not performed. Assuming that the patient already mentioned as having been found very sick did not recover, four of the seventeen patients have died. Three patients of the group have been entirely lost to us.

PATIENTS IN WHOM NORMAL RHYTHM DID NOT RETURN

Of the forty-three patients who did not return to normal rhythm, six are known to have died; thirteen have been under treatment in the hospital following readmissions, and one is still in the hospital, never having recovered sufficiently to permit of his discharge. In attempting to estimate the relative status of the patients in the two groups (one made up of the patients who resumed normal rhythm, and the other of those in whom fibrillation persisted), it must be borne in mind that of the four deaths among those who resumed normal rhythm, one was due to embolism which occurred after the return of fibrillation, and the other resulted from gangrene of the leg, which began before fibrillation had been succeeded by sinus rhythm. It is fair to omit these cases altogether in undertaking a comparison of the two groups. Of the group with the persistence of fibrillation, five, or 11.8 per cent., have died. This does not include one patient whose death may have been the result of the quinidin; of fifteen who resumed sinus rhythm, two, or 13.3 per cent., have died. Of thirty-seven patients who did not resume sinus rhythm, fourteen are known to have required further hospital care; this amounts to 37.8 per cent. Of the other patients who resumed normal rhythm, we have been able to follow ten; of these, only two, or 20 per cent., have returned to the hospital for treatment. Certainly, we have here presumptive evidence that the restoration of the normal rhythm does favor the maintenance of compensation without added danger to the patient.

UNTOWARD EFFECTS

The introduction of quinidin as a remedy for auricular fibrillation and other cardiac arrhythmias has provoked much discussion regarding the toxic effects of the drug. These toxic effects may be roughly grouped as (1) the minor toxic effects commonly produced by quinin; (2) emboli; (3) rapid ventricular rate, and (4) sudden death.

Minor toxic effects were observed in nine patients of our series. These manifested themselves as dimness of vision, spots before the eyes, weakness, tinnitus, nausea and headache. The appearance of such symptoms was the signal for the discontinuance of the drug. In only two cases did the symptoms show themselves with any severity; in one, "the patient showed toxic symptoms, vomiting, headache and ringing in the ears"; in another, "the patient complained of dizziness, palpitation, diplopia and dimness of vision." In four of the cases, attempts were again made after a few days to administer the quinidin, but in every instance similar symptoms appeared. The dosage necessary to produce such results varied widely; one patient had taken 6.2 gm. in the course of a week before the symptoms were observed; another patient, shortly after the test dose of 3 grains (0.2 gm.), showed the most severe symptoms observed in the patients of this group.

Strictly speaking, emboli and the rapid ventricular rate are not "toxic effects," but are rather untoward features associated with the therapeutic action of the drug. Four patients in this series showed signs of embolism during the treatment or shortly thereafter; in no case did the embolus follow the onset of sinus rhythm. One patient complained of pain in the right leg on the fourth day of treatment, after he had taken 3.4 gm. of quinidin; the drug was stopped; two days later it was noted that the leg was very blue, cyanotic and cold; on the same day (two days after the quinidin was stopped), sinus rhythm was resumed. The rhythm remained normal, but the patient's general condition did not improve, and nine days subsequent to the restoration of normal rhythm, he died. We have already discussed, at length, the history of another patient who died a few hours after the reappearance of fibrillation following three days of normal rhythm. In a third patient, embolism of the left leg occurred on the third day of treatment without the appearance of sinus rhythm. The quinidin was stopped. Death occurred nine days later from a pulmonary embolus, demonstrated at necropsy. The fourth patient died, with the symptoms of pulmonary embolism, four days after the course of treatment with quinidin had been finished. In one other patient who did not return to normal rhythm, a pulmonary embolus was diagnosed, but there was some doubt as to the certainty of the diagnosis. One man, who had been given a course of quinidin in July without success, was brought to the hospital in September with cerebral embolism; the fibrillation was still present. As we have indicated in the statement of the conditions which governed our choice of cases, we respect the prevalent opinion as to the danger of embolism as a sequela of successful quinidin therapy to such an extent that we refused to use the drug in any case in which there was a history of a prior embolus, yet we do not feel that the question of the relationship of quinidin therapy to the production of emboli is settled, however attractive the theoretical basis for such a relationship may be. In our own minds, there is a very grave doubt that the occurrence of embolism subsequent to the use of quinidin is more frequent than as a complication of heart disease in general. When figures covering many more cases than are here reported are available, and when such figures are compared with those showing the incidence of embolism in heart disease irrespective of treatment, we shall be able to reach a conclusion as to the real danger of embolism as an accompaniment of quinidin therapy.

A rise in the ventricular rate has been noted by many observers, and often is so marked as to make the further administration of the drug inadvisable. In making our observations, we stopped the drug when the rate went above 130. In thirteen of the patients in our series, this rapid acceleration of the rate appeared. In five instances, a second attempt was made to give the quinidin; in two of these, the quinidin was given alone and the rate quickened as with the first attempt; in three instances, digitalis was given with the second course of quinidin; in one case, the ventricular rate was accelerated as before; in a second, the rate did not become rapid, but the fibrillation was unchanged; in the third, the combined use of the two drugs was followed by the return of sinus rhythm. In connection with the subject of cardiac rate, it is interesting to note that in two instances the rate was not over 70 throughout the course of the quinidin, and in two other instances it was not over 80. In fourteen of the seventeen patients returning to normal, the rate, after restoration, was not over 80.

Overshadowing, in interest and importance, the other untoward effects of quinidin is the occasional occurrence of sudden death, of which instances have been reported by various observers. In our series there was one case which must be discussed in this connection. The patient was a woman, aged 39, who had a double mitral lesion, with a history of scarlet fever in childhood and of rheumatism eight years before coming under observation. Decompensation was marked on admission. She was given 20 minims (1.25 c.c.) of tincture of digitalis three times a day for seven days. At this time her dyspnea was less marked, the edema of the ankles had disappeared and the liver was much smaller than before; the apical rate was 72; there was no pulse deficit, and the blood pressure was systolic, 148, and diastolic, 84. After the digitalis had been stopped for one day, quinidin was given in two doses of 3 grains (0.2 gm.) each, one at 10 a. m., and one at 4 p. m. At 6 p. m., the patient became cyanotic and dyspneic, and the pulse was weak; a digitalis preparation was given intravenously, and the pulse improved. Her condition was fair during the evening. About 2 a. m. she suddenly became much worse, and died before the house physician reached the ward. However strongly we may feel that the whole course pictured here might have occurred with any person sick of heart disease, we must admit that the symptoms described came on very soon after the second small dose of quinidin, and that the onset of serious symptoms was followed in a few hours by the death of the patient. Moreover, one of our patients resumed sinus rhythm after having received only 6 grains (0.4 gm.) of the quinidin, and another, shortly after the administration of 3 grains (0.2 gm.), showed vomiting, headache and dizziness, with a rise of the ventricular rate to 140. The electrocardiogram taken after the first dose of quinidin showed a definite bigeminus in the first lead; no ectopic beats were seen in the other two leads. The question arises as to the effect of quinidin on a heart already showing early signs of digitalis intoxication. A definite and continuous coupling was not present. We have used digitalis and quinidin together without ill effect; yet the appearance of this tendency to coupling reminds us of a case without fibrillation in which quinidin was given because of numerous ectopic ventricular beats. Soon after this man's admission, digitalis was stopped because of a coupled rhythm. After twenty days, digitalis was started once more, this time in doses of 10 minims (0.6 c.c.) three times a day, and continued for nine days. A test dose of quinidin was given on the last day of digitalis administration; for two more days the quinidin was given in doses of 5 grains (0.3 gm.) three times a day. On the second day, after 30 grains (2 gm.) had been given, a complete bigeminus appeared, and the quinidin was stopped. These cases suggest that in cases in which digitalis intoxication has shown itself by heightened irritability of the cardiac muscle, quinidin given simultaneously or shortly after the digitalis has been stopped may be dangerous.

EFFECT OF QUINIDIN ON BLOOD PRESSURE

An attempt was made to follow the effect of the quinidin on the blood pressure. In twenty-five cases (excluding those with a pressure of 160 and over), eighteen showed differences in the systolic pressure, before and after the use of quinidin, of 16 points or less. In auricular fibrillation, in which condition the determination of the blood pressure is notoriously inaccurate, such a difference is entirely without significance. In these twenty-five cases, the average systolic pressure before the use of quinidin was 127; after its use, 123. In one case, the pressure fell during the treatment 40 points; in another, 38. In nine cases with pressures over 160, the average pressure before quinidin was 190; after quinidin, 171; in seven of the ten cases, there was a fall of 10 points or more. In five other cases, the pressure was estimated by the method of James and Hart; the mean systolic pressure rose 8 points in one case, 2 in another; it fell 2 points in one, 5 in a second and 10 in a third. Study of the pressure in the cases which resumed sinus rhythm was without significance.

DOSAGE

In the administration of the quinidin, the course was always begun with small doses to test the patient's susceptibility to the drug. The test dose consisted of two doses of 3 grains (0.2 gm.) each, given at intervals of four hours; if no untoward symptoms appeared, the real therapeutic attempt was started the following morning. Various schemes of administration were employed. Through three days, 5 grains (0.3 gm.) was given three times a day; then for four days, 6 grains (0.4 gm.) was given three times a day; twenty patients were started thus, of whom five resumed sinus rhythm; one of these patients had two courses of treatment, returning to normal both times, once after six days and once after four; one returned to normal after taking 6 grains (0.4 gm.) of quinidin, and another after three days of the treatment; the other two returned after four and seven days, respectively. In five patients, the course was varied so that after three days, the dose was made 5 grains four times a day for two days, and then 5 grains six times a day for two days; all five were given the full course; two resumed normal rhythm, and a third showed regular rhythm, the result of flutter with a regular block. In ten patients, the quinidin was given in doses of 6 grains five times a day over a period of from four to six days; one patient took 13 gm. in seven days without result or unfavorable symptoms; two of the patients in this group returned to normal, one after two days, and one after five days; in two cases, the quinidin was stopped because of the rapid ventricular rate, once after four days, and once on the second day. In the other cases, the method chosen was varied for different reasons, especially because of the early onset of normal rhythm or of toxic symptoms. Two of this group of cases deserve particular mention; one was given, in his second course of treatment, 19.6 gm. of quinidin in twelve days, with the development of a regular rhythm which was due to flutter with regular block. Three months later, another attempt to restore the normal rhythm was made. After 2.6 gm. had been given, the quinidin was stopped because the rhythm was regular; again flutter with block was discovered; the quinidin was continued, and five days later, after he had taken 6.6 gm. more of quinidin, sinus rhythm appeared. Since then this patient has taken quinidin continuously, for a short while in doses of 5 grains twice a day, but during most of the time he has received a single daily dose of 5 grains. He still has sinus rhythm. The other case of especial interest was that of a young man whose record was placed at our disposal after his course of treatment had been carried out. His is the only case in the series which was not under our immediate care. This man was given, over a period of three weeks, 23 gm. of quinidin, without therapeutic result or untoward symptoms.

SIMULTANEOUS USE OF QUINIDIN AND DIGITALIS

The question as to the advisability of the simultaneous use of quinidin and digitalis has not yet been settled. By many, such practice is regarded as unjustifiable; by others, it is commended.

In six of our cases, digitalis was given throughout the course of the quinidin therapy; in two of these, sinus rhythm was restored; in not one did any serious symptoms appear, though in one instance we were unable to use as much quinidin as we wished because of the repeated occurrence of headache. In three of the cases, digitalis was given along with a second course of quinidin after the first course of quinidin had been stopped because of a rapid ventricular rate. In one of these cases sinus rhythm was resumed with a rate of 90; in a second, the fibrillation persisted, but the rate did not quicken, and in the third, the rapid rate again necessitated the discontinuance of the quinidin. Of thirteen patients in the series who received no digitalis prior to the use of the quinidin, only one resumed normal rhythm. We are of the opinion that no contraindication to the combined use of these drugs is proved, though, as has been stated, in the presence of digitalis toxemia, our observations have led us to believe that the administration of quinidin may be dangerous.

CONCLUSIONS

1. Of sixty-one cases in the series one resumed normal rhythm before treatment, leaving sixty cases of auricular fibrillation treated with quinidin; seventeen, or 28.3 per cent., resumed sinus rhythm. So far as we know, these results are the poorest that have been reported. Practically all of the patients in this group were "old cardiac" patients, many of whom had been treated several times for broken compensation. Our results lend some support to the prevalent theory that

quinidin is more likely to cause resumption of normal rhythm in those cases in which the fibrillation is of recent onset.

2. The rheumatic cases, though not more likely to return to sinus rhythm, did show a greater tendency to maintain the restored rhythm, and to be benefited, clinically, by the change.

3. The most striking feature in the successful use of quinidin is the subjective relief experienced by the patient; many of these patients immediately expressed their pleasure in no longer feeling the annoyance caused by the irregularity. We believe that this subjective relief offers the most certain indication for the use of quinidin, and that those patients, in particular, who are troubled by the irregularity should be given the benefit of quinidin therapy.

4. Though our series is small, we are of the opinion that the restoration of the normal rhythm is often of real value to the patient as an aid to the maintenance of compensation. Under proper conditions, quinidin offers enough hope of relief to warrant its continued use, though the treatment of auricular fibrillation had better not be undertaken outside a hospital until the routine of safe treatment is more carefully worked out.

5. We do not believe that patients with fibrillation of long duration must be denied the possible benefits of quinidin therapy, simply because the condition has existed for a long time.

30 North Michigan Avenue—1502 St. Louis Avenue.

DIET IN THE TREATMENT OF BALANTIDIUM COLI INFECTION

J. L. GREENE, M.D.
AND
F. J. SCULLY, M.D.
HOT SPRINGS, ARK.

In the treatment of *Balantidium coli* infection, less attention has been given to diet than to other measures. However, the patients who were given a special diet have done so well that it has prompted us to report our results so that a wider usage of the diet will demonstrate its value.

For many years *Balantidium coli* has been considered as only a rare parasitic invader of mankind, but reports indicate that it is more common than is generally supposed. While the cases reported have been largely from the tropics, a number have been observed in the Southern states, and, what is important, cases have been noted in the Northern states as well. For this reason, *Balantidium coli* infection can no longer be considered a local or regional problem, but one which concerns the whole country.

Balantidium coli is a unicellular flagellate inhabiting the colon and capable of invading the layers of the intestinal wall. It is very actively motile, and when once observed under the microscope it is not difficult to recognize. The infection is transmitted through contaminated food and drinking water. Apparently close association with pigs seems to have an important etiologic bearing.

The parasite was first described by Malmsten[1] in 1857, who observed it in two cases of diarrhea. Since then about 175 cases have been reported in the literature, most of them occurring in foreign countries. The first case noted in this country was reported by Mitter[2] in Iowa in 1891. Since then about twenty-five other cases have been noted. In the Southern states, isolated cases have been reported by Bel and Couret,[3] Deadrick,[4] DeBuys,[5] Young and Walker,[6] and Nisbet,[7] and three cases each by Gray[8] and by the Rockefeller Sanitary Commission.[9] In the Northern states, single cases have been noted by Mallory,[10] Van Wart,[10] Jennings,[11] Sistrunk,[12] Smithies,[13] and Manlove,[14] and four cases were recently studied by Logan.[15] This would indicate a rather widespread distribution.

In the warm countries the infection is more acute, with a more rapid and often fatal course. In colder regions the chronic form is more frequently seen, often existing for years, with alternating periods of constipation and diarrhea. There is no doubt that many such cases are overlooked, first, because parasites are not suspected and therefore not looked for, and secondly, because of faulty technic in examination of the feces.

It has been shown by Strong and Musgrave,[16] Bel and Couret,[3] DeBuys,[5] and by Bowman[17] that *Balantidium coli* can no longer be considered a harmless accidental invader of the intestinal tract, as was thought by Döflein[18] and other early observers, but a parasite capable of producing serious effects, which in the late stages do not readily respond to treatment. Considerable attention has been given to a consideration of its morphology,[3] growth and transmission,[19] and to the pathologic alterations it produced in the intestinal tract.[17]

Until recently, therapeutic measures have consisted mainly in the use of drugs by mouth and of enemas to rid the intestine of the parasites. From the large number of different drugs advocated for this purpose it is apparent that no single one is especially efficient. Calomel, phenyl salicylate, ipecac, emetin and thymol have been tried by mouth with varying results, while local treatment by enemas of protargin mild (argyrol), salicylates, tannic acid, and quinin have given no better effects. Most of the drugs ordinarily employed against intestinal parasites are without effect on *Balantidium coli.* This is probably due to the fact that the parasites penetrate the intestinal wall and also because encysted forms develop, which are more resistant. However, beneficial results have been reported with arsphenamin by Logan,[15] with ipecac by Barlow,[20] Steyrer [21] and Brenner,[22] with emetin by Axter-Haberfeld [23] and Cordes,[24] with thymol by Bassler,[25] and with benzyl benzoate by Haughwout and Domingo.[26] On the other hand, other investigators [27] have not been able to confirm these results. So far there is no known specific remedy.

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[17] Bowman, F. B.: The Pathogenesis of the Balantidium Coli, J. A. M. A. **57**: 1814 (Dec. 2) 1911.

[18] Döflein, F.: Die Protozoen als Parasit und Krankheitserreger, Jena, 1901.

[19] De Buys, L. R. (Footnote 5). Klein, E.: Paramecium Coli and Trichomonias in Sewage, Brit. M. J. **2**: 1852 (Dec. 26) 1896.

Only a few writers mention diet in the management of their cases, and they have noted it only incidentally to their treatment with drugs. The diet in Steen's [28] case consisted of milk and gruel, while Nisbet in his case allowed a more liberal diet of milk, eggs, scraped beef, toast and cereals. Eastman [29] remarked that these cases do not handle starches and sweets well, but do better on broiled steaks and concentrated foods. Apparently there is no more uniformity in dietetic management than there is in the various drugs employed. With these few exceptions, the other observers have evidently considered the diet as only of secondary importance. As a matter of fact, we did not realize its importance ourselves until we had treated our first patient for some time along the lines suggested by other writers before placing him on a special diet. After observing how successfully this method was in this case, we tried it in our next cases with equally good results.

Our routine in these cases was very simple. The patient was given 2½ quarts (2.5 liters) of whole milk during the day. This was divided so that small portions were given at regular intervals. After several days the milk was supplemented by the addition of one or two soft eggs. In our cases, the action of the bowels became normal within a week's time. The only drug used was bismuth subnitrate in 15 grain (1 gm.) doses during the first day or two to relieve the cramps and to check the diarrhea. Later, when the bowels became sluggish, stewed fruits were given. This diet was continued until the feces were free from *Balantidium coli*, when it was gradually increased until the patient was taking a full diet.

Our cases responded very promptly with this plan. The routine was not difficult to follow and did not create any such discomfort as resulted when the various colonic irrigations and injections were employed. The patient was soon made comfortable and there was a rapid improvement in the general condition. This was probably due to the freedom from pain, with its consequent interference with rest and sleep, and to the relief from the exhaustion incident to the marked loss of fluids from the body. The distressing cramps and tenesmus cleared up in a few days, and the stools soon became more normal in character. The parasites disappeared from the stools in twenty days in the first case, and in eight days in the second case. Repeated examinations made later have shown no recurrence.

It is difficult to explain why the milk diet should be so beneficial in these cases. Apparently it produces a medium which is not favorable for the existence and growth of *Balantidium coli;* at the same time it furnishes fluid which the body needs badly, and it is nonirritating to the inflamed intestinal mucosa.

REPORT OF CASES

Case 1.—W. B., a man, aged 59, a native of Arkansas, seen, June 29, 1920, complained of attacks of diarrhea which had been present at intervals since 1915. He had noted distress after eating, and for the preceding two months there had been a watery diarrhea. He had lost considerable weight and had become quite weak.

On examination, the patient appeared very anemic and emaciated. The physical findings were negative except for a marked general tenderness of the abdomen.

Laboratory examination of the urine disclosed a few granular casts but no albumin; the blood showed 50 per cent. hemoglobin, 1,900,000 red cells and 8,600 white cells; the differential count gave 67 polymorphonuclears, 4 large lymphocytes, 29 small lymphocytes and 2 normoblasts. The feces were watery and contained great numbers of *Balantidium coli.*

The patient was put to bed in the hospital and the following plan started: Five grains (0.3 gm.) each of phenyl salicylate and tannin albuminate were given by mouth. Twice a day the colon was cleansed out with saline solution, and 8 ounces (235 c.c.) of a 5 per cent. protargin mild solution was given as a retention enema. This had to be stopped at the end of four days on account of the irritation of the colon. For the next three days, sodium salicylate solution was employed, using 8 ounces of a 1 : 1,000 solution. This also proved irritating, and the bowels would no longer retain the solution. The feces were largely mucus and contained large numbers of the parasite.

The patient was then allowed to go home, and was advised to go on a soft diet. On his own initiative, he restricted himself to 2½ quarts of whole milk a day. By August 21, he was feeling much better. The diarrhea was less marked, and he felt stronger. The feces still contained *Balantidium coli*, but in fewer numbers. By August 30, the bowels had become quite sluggish, and stewed fruits were advised with relief. September 10, the feces were free from *Balantidium coli.* The patient looked much better. His color tone was improved, and he had gained in weight. The blood showed 75 per cent. hemoglobin, 3,500,000 red cells and 7,500 white cells. The differential count gave 69 polymorphonuclears, 5 large lymphocytes and 26 small lymphocytes. No normoblasts were noted. Later examinations of the feces have failed to reveal any recurrence of the parasites. The patient has continued to improve, and his health is better than it has been for years.

This case showed a marked anemia, which evidently was associated with *Balantidium coli* infection. Such an anemia was also noted in a case by Jennings.[11] Several years ago, Glaessner [30] found a hemolytic toxin in *Balantidium coli,* which probably plays a part in the production of the anemia. Recently Logan [15] reported four cases associated with an anemia of the pernicious type. Marked anemias have also been noted by Schwartz [31] in other intestinal parasites.

Case 2.—Mrs. W. M., aged 61, a native of Arkansas, seen Nov. 1, 1920, complained of gastro-intestinal irritation which had developed after a visit in the country in May. She noted a marked watery diarrhea with considerable tenesmus. The diarrhea was periodic, and the present attack had been present for two weeks.

The patient was fairly well nourished. The physical findings were negative except for some slight abdominal tenderness.

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[26] Haughwout, F., and Domingo, E.: Protozoologic and Clinical Studies on the Treatment of Protozoal Dysentery with Benzyl Benzoate, II, Treatment of a Case of Acute Balantidiosis, Philippine J. Sc. **16**: 633 (June) 1920.

[27] Dutcher, B. H.: The Failure of Emetine Hydrochloride but the Apparent Success of Salvarsan in a Case of Balantidiosis, Am. J. Trop. Dis. **2**: 663, 1914-1915.

[28] Steen, P. H.: Balantiditis, Ugesk. f. Læger **83**: 662 (May 19) 1921.

[29] Eastman, J. H., in discussion of the article by Nisbet (Footnote **7**).

[30] Glaessner, K.: Balantidium Coli, Wien. klin. Wchnschr. **20**: 750 (June 13) 1907.

[31] Schwartz, B.: Hemolysins from Parasitic Worms, Arch. Int. Med. **26**: 431 (Oct.) 1920.

Laboratory examination revealed the urine normal; the blood showed 80 per cent. hemoglobin, 4,300,000 red cells and 9,200 white cells. The differential count gave 71 polymorphonuclears, 5 large lymphocytes, 19 small lymphocytes and 5 eosinophils. The feces showed a considerable number of *Balantidium coli.*

The patient was sent to the hospital and placed on the milk diet, with the addition of the bismuth subnitrate during the first two days. The diarrhea checked up rapidly; in fact, the bowels became so sluggish by the eighth day that stewed fruits were given. By November 8, the feces were free of the parasites, and later examinations failed to show a recurrence.

The second case was not as advanced as the first and did not show such marked symptoms. However, we believe that the course of the infection was cut short by the use of the milk diet.

Case 3.—W. B. D., a boy, aged 11, a native of Arkansas, seen, June 22, 1921, complained of recurrent attacks of sick stomach with nausea and headache. The bowels were constipated.

The patient appeared to be in good health. The physical findings were negative. Laboratory examination showed the urine to be normal; the blood showed 85 per cent. hemoglobin, 4,500,000 red cells, and 10,800 white cells. The differential count gave 50 polymorphonuclears, 44 small lymphocytes, 3 large lymphocytes and 3 eosinophils. The feces showed many *Balantidium coli* organisms.

The patient was placed on the milk diet and returned home. December 29, he had his next observation, and reported that the bowels were acting better and that the attacks of headache were less frequent. A feces examination detected no parasites.

Case 4.—H. C. B., a youth, aged 18, a native of Arkansas, seen, Oct. 27, 1922, complained of nervous attacks and occasional periods of intestinal discomfort, which had been present during the preceding three months.

The patient was well nourished. Physical findings were negative. Laboratory examination showed the urine to be normal. The blood showed 4,800,000 red cells, 8,200 white cells and 90 per cent. hemoglobin. The differential count gave 55 polymorphonuclears, 30 small lymphocytes, 8 large lymphocytes and 7 eosinophils. The feces showed many *Balantidium coli* organisms.

The patient was placed on the milk diet and advised to take a mild laxative once a week. He returned home and was again seen, December 2, and stated that he felt better and had gained 10 pounds (4.5 kg.). There have been no nervous attacks since his last observation. A feces examination showed no parasites.

The last two cases show only a mild chronic infection and give more nervous symptoms than localized intestinal irritation. After a clearing up of the infection, there was improvement in the general health, with relief from the nervous trouble.

Although only four cases are presented here, we believe that the diet is a valuable agent in combating the infection. It is certainly much simpler and more easily employed than the various colonic irrigations and injections which have been used. It is worthy of a trial in these cases, which are probably more widespread than is generally supposed.

301 Dugan Stuart Building.

Duration of Protective Power of Antityphoid Vaccination.—That the typhoid vaccination received in the Army had a distinct protective power even two or three years later, when the men had returned to civil life, was clearly shown recently in a typhoid epidemic of several hundred cases in Salem, Ohio. Out of 210 ex-service men in Salem, only three, or 1.4 per cent., contracted the disease, whereas out of the female population of the same age group 12.5 per cent. contracted it.—T. G. Hull, *Pub. Health Rep.* **36**:2315 (Sept. 23) 1921.

TIME REQUIRED FOR DISAPPEARANCE OF INTRADERMALLY INJECTED SALT SOLUTION

PRELIMINARY REPORT OF OBSERVATIONS, WITH SPECIAL REFERENCE TO CASES OF EDEMA *

WILLIAM B. McCLURE, M.D.
AND
C. A. ALDRICH, M.D.
CHICAGO

If 0.2 c.c. of an 0.8 per cent. aqueous solution of sodium chlorid is injected intracutaneously in a normal child, a circumscribed snow-white elevation, in which the pores are accentuated, is immediately produced at the point of injection. Although the extreme whiteness disappears in from one half to one minute, the elevation persists for a considerable time. In some instances there is an area of erythema about the raised area which usually disappears in a few minutes.

It occurred to us that a study of the time required for the disappearance of the elevation, which we assume to be largely the injected salt solution, might give an indication of the tissue's avidity for water. We tested this out in a number of normal and diseased persons, most experiments being carried out under the observation of two.

TECHNIC

Two-tenths cubic centimeter of an 0.8 per cent aqueous solution of sodium chlorid is injected intracutaneously under aseptic precautions. Duplicate injections are made about 2 cm. apart either in the forearm or in the leg, or in both. In the forearm the flexor surface is used, and in the leg, either the inner surface of the calf or the lateral side of the anterior surface of the leg. The needle is inserted sufficiently superficially so that the lumen is visible through the skin. The end-point of the disappearance of the elevation can best be determined by palpation unassisted by inspection, since color changes seen about the point of injection may cause confusion. It is necessary to disregard the very small traumatic elevation that is occasionally produced just where the needle enters the skin. This may persist after the large elevation, due to the injected salt solution, has disappeared.

Salt solution is injected rather than water for two reasons: (1) It is isotonic, and (2) the injection of distilled water is extremely painful.

Table 1.—*Control Cases*

	Age			Average Disappearance Time in Minutes *		
Case	Yrs.	Mos.	Diagnosis	Arm	Leg	Pitting
1	1	2	Fracture	56±	62±	None
2	2	...	Postoperative appendicitis	66+	65+	None
3	4	...	Preoperative knock-knee	69±	....	None
4	4	6	Preoperative circumcision	58	58±	None
5	6	9	Fracture	50	83±	None
6	8	...	Fracture	74+	72+	None
7	8	8	Fracture	74	94±	None
8	9	6	Fracture	68	103±	None
9	13	...	Head injury	70±	68+	None
10	Adult		Normal	80±	....	None
11	Adult		Normal	60+	....	None
12	Adult		Normal	70	....	None

* The plus sign indicates still palpable; plus-minus, still slightly palpable.

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* From the Otho S. A. Sprague Memorial Institute Laboratory of the Children's Memorial Hospital.

In carrying out the experiments, it is noted that the duplicate elevations in the same part disappear practically simultaneously. Any marked deviation from this is readily accounted for by a difference in the depth of the two injections. Practice has enabled us almost completely to eliminate this difficulty. Although the duplicate elevations in the same part disappear almost simultaneously, frequently there is a difference in the disappearance time in the arm as compared with the leg in the same individual.

The group of cases in Table 1 is given as a basis for comparison with results found in the pathologic cases. These patients were apparently normal except for the condition noted under "diagnosis." Several normal adult cases are also included. It is seen that the raised area produced by the injected salt solution persisted at least fifty minutes in every case.

PATHOLOGIC CASES

Various pathologic conditions showed decided reduction of the disappearance time, as compared with control cases. This is especially true in children who have a demonstrable edema. In these cases the disappearance of the elevation is at times very rapid. Table 2 records examples of cases of edema.

Table 2 shows that the disappearance of the raised area produced by injection of the salt solution is decidedly more rapid in cases of edema than in the controls of Table 1. The disappearance time is roughly in inverse ratio to the degree of the edema at the area of injection. Attention is especially directed to the fact that in regions in which there is no edema that can be demonstrated by pitting, the disappearance is also more rapid than in the controls.

Table 3 records the results of tests made in Case 13 at intervals during a considerable period.

It is seen in Table 3 that, in a general way, the disappearance time decreases as the edema and the pathologic findings in the urine increase. At no time, even in the absence of pitting, did it come close to the time for the control group in Table 1. The gain and loss of body weight, in conjunction with the degree of the pitting, are given as an evidence of increased and decreased water retention. From March 28 to April 13, the increase of weight was evidently due to normal tissue increase, since at this period the patient was doing better, and the edema, as determined by pitting, was decreasing.

Table 2.—*Cases of Edema*

			Arm			Leg			
				Average Disappearance Time			Average Disappearance Time		
Case	Age in Yrs.	Diagnosis	Pitting	Min.	Sec.	Pitting	Min.	Sec.	Urine
13	10	Nephritis	Slight	14	50	Slight	7	45	Albumin +++; casts; R. B. C.
14	8	Nephritis; endocarditis	None	38	..	Slight	10	..	Albumin +
15	10	Decompensated heart	None	1	8	Marked	..	35	Albumin +++; occas. R. B. C.; no casts
16	6	Endocarditis; anemia	None	30	..	Slight	17	..	
17	2½	Anemia; leukemia?	Very marked	..	20*	Extreme	..	3*	Albumin, trace
18	2½	Pyonephrosis; anemia	None	30	..	Slight	15	..	W. B. C. ++; albumin, trace

* Approximate: the disappearance was too rapid to time accurately.

COMMENTS

It is not our purpose in the present paper to discuss the physical or chemical factors which account for the difference in time required for disappearance of the elevations produced by the injected salt solution. We wish to call attention principally to the marked increase in rapidity of disappearance in cases of demonstrable edema, and also to the fact that in the same patients the disappearance time is considerably less than in the controls, even in the parts in which pitting is not present. From the later observation it would seem that this test may be of value in determining the so-called pre-edematous state of the tissues.

Table 3.—*Observations in Case 13*

	Arm			Leg				
		Average Disappearance Time			Average Disappearance Time			
Date, 1923	Pitting	Min.	Sec.	Pitting	Min.	Sec.	Urine	Weight of Patient in Pounds
2/21	None	5	55	Marked	3	5	R. B. C. ++++, Alb. ++, W. B. C. +, casts ++	..
2/22	....	..	..	Less marked	5	..	Alb. +++, casts ++, R. B. C. ++	..
2/23	None	8	..	Less marked	11	5	Alb. +++, casts ++, R. B. C. ++	2/24, 61
2/26	....	..	..	Marked	8	35	Alb. +++, casts ++, R. B. C. ++	..
2/27	None	4	30	Marked	7	..	....	62
2/28	....	..	..	Marked	6	10	....	63
3/ 2	None	8	20	Marked	3	55	Red	62½
3/ 6	....	..	..	Less marked	7	35	Red.; Alb., 14 gm. per liter	60
3/13	....	..	..	Definite	7	50	Much less blood	56
3/19	....	..	..	Slight	15	15	Alb., 0.75 gm. per liter 3/16	50¼
3/23	....	..	..	Slight	10	35	Albumin, trace	50
3/28	....	..	..	None	27	15	Albumin +	48
4/ 6*	....	..	..	Slight	26	45	Albumin +	50¼
4/13	....	..	..	None	24	45	Albumin, trace	50
4/24	Slight	14	50	Slight	7	45	Alb. +++, casts, R. B. C.	..
5/16	Slight	28	10	Slight	13	40	Albumin ++	58¼
5/24	None	37	..	Slight	34	..	Albumin +	57¾

* In this case, 0.1 c.c. injections were used previous to April 6.

We plan to make a fuller report at a future date. We have also under consideration the testing out of solutions of different concentration and of different constitution, and the application of the test to cases showing dehydration.

The results so far obtained suggest that this test may be of value: first, in the detection of disturbed water balance in the tissue, and, secondly, as a means of following the progress of a case in which the presence of such a disturbance has been established.

THE KAHN PRECIPITATION TEST FOR SYPHILIS *

JANET A. HOLMES

ST. LOUIS

The Kahn test was made on 1,000 patients in the Wassermann Laboratory of the Washington University School of Medicine. With the close cooperation between the laboratory and the clinic, we had most favorable conditions for an investigation of the test.

Our procedure was to select 1,000 cases, including clinically positive and negative cases, doubtful cases, and a large number of cases under long continued treatment—in short, the general assortment that comes to a large dispensary. On each of these one thousand serums, we made a Wassermann and a Kahn test, and compared the results with each other and with the clinical findings.

The routine Wassermann test in use in the laboratory employs 5 per cent. sheep cells and amboceptor and complement in dilution according to daily titration. Before each day's test, amboceptor and complement are titrated, the last tube showing complete hemolysis being considered the unit tube, and two units being used in the test proper. The primary incubation is carried on in the water bath at 37 C. for one hour. The secondary incubation is for fifteen minutes, provided all serum, antigen and negative control tubes show complete hemolysis within that period. Experience has shown, on comparison with clinical findings, that this technic gives us the most reliable Wassermann results.

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* From the Department of Internal Medicine, Washington University Medical School.

The question, then, was whether the Kahn test could compare favorably with our routine Wassermann test.

In the precipitation test, we followed exactly the method outlined by Kahn,[1] using 0.3 c.c. of patient's serum inactivated, and 0.05 c.c. of antigen-saline mixture. We used both the cholesterin and the plain alcoholic antigens, finding the alcoholic antigen valuable for much the same reasons that it is valuable in the Wassermann test. The accompanying tables show the results in the 1,000 cases.

Table 1.—*Comparison Between Wassermann and Kahn Tests in One Thousand Cases*

Wassermann ....neg. Kahn ....neg.	681
Wassermann ....pos.* Kahn ....pos.	223
Wassermann ....pos. Kahn ....neg.	25
Wassermann ....neg. Kahn ....pos.	71
Total	1,000

* Any difference in degree of positiveness negligible.

Table 1 shows a discrepancy in the results in only ninety-six cases, or an agreement between the two tests of 90.4 per cent. Table 2 concerns the ninety-six cases in which the discrepancy occurred.

Table 2.—*Discrepancy in Results Occurring in Ninety-Six Cases*

Wassermann ....pos. Kahn ....neg.	Diff. of 3+...5 cases	Def. pos. hist. 3 cases No pos. hist... 1 case Questionable ..1 case		
	Diff. of less than 3+........20 cases			25
Number showing definite positive history			9	
Diagnoses of cases not showing positive history:				
Pregnancy			4	
Tuberculosis			2	
Malaria			1	
Diagnosis doubtful			9	
			16	
Wassermann .....neg. Kahn ....pos.	Diff. of 4+...3 cases	Def. pos. hist. 2 cases No pos. hist.. 1 case		
	Diff. of 3+..10 cases	Def. pos. hist. 10 cases		
	Diff. of less than 3+........58 cases			71
Number showing definite positive history			49	
Diagnoses of cases not showing definite positive history:				
Pregnancy			5	
Tuberculosis			2	
Arthritis			2	
Epilepsy			1	
Asthma			1	
Diagnosis doubtful			11	
			22	

CONCLUSIONS

The results in the 1,000 cases show a very close correlation between the two tests, with the balance in favor of the Kahn, the Kahn test showing a greater sensitivity, especially in treated cases. The Kahn test has the further advantage in that anticomplementary serums give a normal reaction in the precipitation test. Attention, however, should be drawn to the fact that in the Kahn test it is necessary that all serums be absolutely clear. Any fat, for instance, in the serum makes a reading practically impossible, and even slight hemolysis of the serum makes reading difficult. The necessity for care in the mixing of antigens to prevent spontaneous precipitation in nonsyphilitic serums must not be overlooked. But, as the case stands, the outlook for the Kahn test seems most favorable, and with more work on the standardization of antigens, we may hope in the future for a test that will relieve the laboratory of the intricacies of the Wassermann reaction.

5338 Enright Avenue.

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[1] Kahn, R. L.: A Simple Quantitative Precipitation Reaction for Syphilis, Arch. Dermat. & Syph. **6**: 332 (Sept.) 1922.

THE ETIOLOGY OF ECLAMPSIA

HISTORICAL AND CRITICAL NOTES

REUBEN OTTENBERG, M.D.
NEW YORK

The recent important contribution of McQuarrie[1] on the toxemia of pregnancy suggested, as an explanation of this condition, the accidental transfusion of incompatible blood between mother and child as the result of a fortuitous opening in the placenta between the two circulations. Examining 180 women and their new-born infants, McQuarrie found that toxemia occurred sixteen and one-half times more frequently when the maternal and fetal bloods were incompatible than when they were in the same iso-agglutination group. More than 70 per cent. of the cases of toxemia (all forms included) occurred in the small group in which there was interagglutination between maternal and fetal blood.

The work was of particular interest to me, because in 1911 I worked on the same idea, and was about to publish a preliminary communication on it (my article having already been approved by Professor Gies and Dr. Mandelbaum, in whose laboratories I was working) when, on reviewing the literature, I came across a paper written in 1905, by Dienst,[2] which set forth the same theory and gave vastly more evidence to support it than I had. Dienst came to his work particularly well prepared, since, in 1902, he had published an extensive monograph on the pathogenesis of eclampsia.[3] In his work of 1905, Dienst injected methylene blue solution with very slight pressure into the umbilical artery or vein of the still attached placenta of 160 women at the end of childbirth. Thirty-two of these women (20 per cent.) showed considerable methylene blue in the urine, which Dienst interpreted as meaning a communication between the circulations of mother and child.

Dienst examined the blood of 118 of these mothers for agglutination or hemolysis when mixed with the blood of their own children. In twenty-four of these cases, the mother's serum agglutinated or laked the red cells of the child. Of these twenty-four, fifteen had perfect placentas (no blue in the urine), and not one of these showed any albuminuria or eclampsia. On the other hand, among this twenty-four with incompatible blood, there were nine who showed blue urine, and of these nine, seven had actual eclampsia and two had albuminuria.

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[1] McQuarrie, Irvine: Bull. Johns Hopkins Hosp. **34**: 51 (Feb.) 1923.

[2] Dienst, Arthur: Zentralbl. f. Gynäk. **29**: 353 (March 25) 1905.

[3] Dienst, Arthur: Archiv. f. Gynäk. **65**: 368-464, 1902.

In one necropsy on a woman who died of an eclamptic convulsion during labor, Dienst was able to inject methylene blue under low pressure into the umbilical artery of the still attached placenta, and after injection of only a few cubic centimeters, to see the blue solution flow freely out of the uterine and ovarian veins.

He says, "Eclampsia is nothing but a transfusion of incompatible blood of the child into the mother's circulation as a result of a communication between the two"; also, "The necropsy findings in animals transfused with foreign blood resemble those of eclampsia to a hair." He also pointed out that the same process might go on in the child as in the mother if the mother's foreign blood penetrated to the child. More than 50 per cent. of the children of eclamptic mothers die; and as Dienst himself had pointed out in his previous monograph, the lesions are the same as those of the mother, essentially, "universal thrombosis." Furthermore, Dienst demonstrated hemoglobinuria during the convulsive stage in patients with eclampsia.

He pointed out also that his theory explained the often lightning-like suddenness of the attack, the usual time of onset at the beginning of rhythmic contractions of the uterus, the relatively more frequent occurrence of eclampsia in cases of narrow pelvis and in primiparas, because of more powerful uterine contractions, as well as the greater frequency of albuminuria and eclampsia with twins. In the case of twins, the placenta is larger and there is opportunity for a lesion of the placenta after the birth of the first child.

Dienst tested the strength of the agglutinins and hemolysins present and found them to increase greatly in strength in the four to nine days after childbirth in those patients with eclampsia who recovered. He failed to do the same on normal women whose blood had antibodies for the red cells of their children. This, although Dienst does not directly say so, is rather strong evidence that blood was actually transfused from child to mother. He also pointed out that, if thrombi failed to form in the kidney, there might be no albuminuria in eclampsia (and this is known to occur).

A few weeks after Dienst's publication, Liepmann[4] published a violent attack on Dienst's theory. In view of what we know today, most of Liepmann's arguments about the "biologic monstrosity" of thinking that a child's blood ever could be foreign to its mother's appear rather absurd. It should be remembered that at that time the heredity of the iso-agglutinins and agglutinogens had not yet been described. Liepmann, however, pointed out certain facts which weakened the force of Dienst's methylene blue experiments, namely, that the (presumably) normal placenta is not entirely impervious to methylene blue, since Sicard and Mercier had shown that, if methylene blue is injected subcutaneously into mothers before parturition, it may appear in the child's urine.

To this article Dienst replied vigorously a few weeks later,[5] basing his reply partly on the pathologic findings by Schmorl, in eighty-three cases of eclampsia, of placenta cells in the lungs. Dienst also said that the liver of a rabbit, dead after numerous injections of human blood, showed lesions which could not be distinguished from those of eclampsia.

Except for this attack by Liepmann, Dienst's work seems to have attracted extraordinarily little attention, and presently to have been forgotten altogether by those who wrote on the subject. This was partly due to the fact that Dienst himself, in 1908, retracted his idea and substituted for it another.[6] The reasons for abandoning this idea were that he had found an eclamptic mother whose serum failed to agglutinate her child's red cells, and had found one placenta in a case of eclampsia (among a large number) which was completely intact and microscopically normal. As against his original theory, he also cited Hitschmann's famous case of eclampsia with a decidual mole of five months' standing, and Kroemer's similar case of a three months' decidual mole. His new theory was based on the findings of increased fibrinogen and fibrin ferment in the blood of the mother. What causes this increase he does not explain. He does not seem at any time to have thought of the possibility that the child's blood serum might agglutinate or lake its mother's red cells.

On account of finding Dienst's articles, I abandoned my publication of 1911, and determined to attempt to produce the lesions of eclampsia experimentally. This led to two publications[7] in 1915. While interesting lesions were found, they were chiefly in the kidneys rather than in the liver, and did not especially resemble the extensive thrombotic lesions of true eclampsia. On looking back at these experiments now, however, it is clear that not too much in the way of lesions should have been expected, because the extremely crude and laborious technic of direct artery to vein transfusion (this was before the invention of the citrate and of the syringe methods) made it impossible to do very frequent transfusions of small amounts of blood between incompatible animals of the same species. I have tried continuous mutual transfusion by parabiosis with anastomosis of the superficial jugular veins, but have found this experiment mechanically too difficult. Such experiments have been successfully carried out by Hotz,[8] but, unfortunately, without reference to blood incompatibilities.

The clinical picture of incompatible transfusion and the pathologic findings of intravascular agglutination and hemolysis resemble the toxemia of pregnancy only to a certain degree. It is evident that the conditions under which the lesions are produced in pregnancy are peculiar. Since the observations of Dienst and of McQuarrie have so conclusively proved that there is some connection between toxemia and the blood incompatibilities of mother and child, it is necessary to find an explanation of the differences found. It seems most probable that these are due to the fact that mother and child are continuously united and that, an opening once established, there is a more or less constant leakage of blood in one direction or the other. If any biologic difference exists at the beginning, it becomes steadily accentuated by the process of immunization. That such immunization is sure to occur is shown by the fundamental experiments of Ehrlich and Morgenroth;[9] as well as by numerous experiments of von Dungern and Hirschfeld,[10] Hadda and Rosenthal,[11] and by my experiments.[7] That these experimental conclusions can safely be transferred to human beings follows from clinical experiences with blood transfusion of incompatible blood which show that these transfusions lead to great increase of already present antibodies or to the development of latent antibodies.[12]

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[4] Liepmann: Zentralbl. f. Gynäk., 1905, No. 15, p. 481.

[5] Dienst, Arthur: Zentralbl. f. Gynäk., 1905, No. 21, p. 651.

[6] Dienst, Arthur: Arch. f. Gynäk. **86**: 314, 1908.

[7] Ottenberg, Kaliski and Friedmann: Experimental Hemolytic and Agglutinatic Transfusions, J. M. Res., 1915, p. 141. Ottenberg and Thalhimer: Studies in Experimental Transfusion, ibid. **33**: 213, 1915.

[8] Hotz: Deutsch. Ztschr. f. Chir. **104**: 603, 1910.

[9] Ehrlich and Morgenroth: Ueber Haemolysin, III Mittheilung, Berl. klin. Wchnschr., 1900, No. 21.

[10] Von Dungern and Hirschfeld: Ztschr. f. Immunitätsforsch. u. exper. Therap. **4**: 531, 1909-1910.

[11] Hadda and Rosenthal: Ztschr. f. Immunitätsforsch. u. exper. Therap. **16**: 524, 1913.

Moreover, the observations of Davis,[13] of Masson,[14] and of Shawan,[15] that skin grafts "take" in individuals of the same blood group as the skin donor, but fail to take when the blood serum of the patient is agglutinative to the red cells of the skin donor, indicate clearly that the group differences apply not only to red cells but also to other body cells. There has as yet been no demonstration of any effect of iso-antibodies on visceral tissues, but there seems every likelihood that if iso-antibodies are injurious to red cells and to skin cells, they must also, like hetero-antibodies, have effects on other body cells. Some of the organ damage in pregnancy toxemia may be due to this direct effect, on organ cells, of the increased antibody content which occurs as the result of mutual immunization.

One other point seems worth considering, namely, the reason for the preponderant localization of the hyaline thrombi, with their resultant parenchymatous degeneration, in the liver. Probably several factors are involved. Pearce,[16] in discussing the liver necroses produced by hemagglutinative serum, suggests that the tendency of the hyaline thrombi to form especially in the liver is due to the slowness of the portal circulation. Of great importance is probably the mechanism of the so-called "specific endothelial opsonins" of Manwaring and Fritschen.[17] These authors showed that if the liver of an immunized animal was perfused with an emulsion of the specific bacteria to which the animal had been immunized, the endothelial cells of the liver would take up enormously larger numbers of bacteria than were taken up by other tissues of the body of an immune animal or by the liver of a nonimmune animal. There is little reason to doubt that such a mechanism as this applies to red cells as well as to bacteria. The liver, with its elaborate structure of phagocytic endothelial cells (Kupffer's cells), bears the chief burden, in all hemolytic processes, of metabolizing and excreting the products of hemolysis.

In spite of Dienst's abandonment of his original theory, I have always believed it to be correct, and to offer the most plausible explanation of eclampsia. It is perhaps fortunate that McQuarrie, whose recent observations do so much to support this theory, was not aware of the previous work, since it might have discouraged him, as it did me. Dienst's objections, however, do not now seem very strong. One intact placenta is not conclusive; a small opening might easily have healed over and the symptoms been produced by blood cells which had previously passed through it, but which only slowly consolidated into hyaline thrombi. A similar explanation, of course, is necessary in the relatively rare cases of eclampsia occurring after labor. It must be remembered, further, that most of the toxic symptoms are due to organ degeneration, which is only a late result of the thrombus formation. With regard to the cases of placental mole, it is not astonishing, since this tumor is known to invade the blood stream, that in rare instances thrombi should form in distant organs and simulate the lesions or symptoms of eclampsia. At any rate, these cases deserve careful reexamination. The occasional failure to find antibodies in the mother's serum for the child's cells is also not conclusive, since either (1) the antibodies may have been in the child's serum, or (2) the antibodies present may have been absorbed by the excess of red cells—an occurrence which I [18] demonstrated in an incompatible tranfusion in 1911.

I wish to offer several suggestions which I have not the facilities for investigating myself. It seems within the range of possibility that, in the presence of any of the warning signs of toxemia, a direct examination of the mother's blood by a suitable technic might reveal the presence of microscopic clumps of agglutinated red cells, or might reveal phagocytosis of red cells (first shown by Hopkins [19] to occur in incompatible transfusions).

Finally, it seems possible that several other unexplained diseases, particularly the jaundice of the newborn, and perhaps even certain cases of hemorrhagic disease of the new-born, may be due to the same cause, accidental placental transfusion of incompatible blood. (Incoagulable blood with intestinal hemorrhage resulted in one of my dog experiments.)

15 West Eighty-Ninth Street.

THE INCREASED INCIDENCE OF ORGANIZING PNEUMONIA

PRELIMINARY COMMUNICATION

DOUGLAS SYMMERS, M.D.
Director of Laboratories, Bellevue and Allied Hospitals
AND
ARTHUR M. HOFFMAN, M.D.
Pathologic Intern, Bellevue Hospital
NEW YORK

The condition known as organizing pneumonia is not commonly encountered at necropsy, and is almost never recognized in the living patient. It is characterized by the transformation of intra-alveolar exudate into connective tissue. Buhl and Delafield maintained that it represents an independent inflammatory disease of the lungs; Charcot, Coupland and Kidd that it is a phase in the evolution of lobar pneumonia. It is of greater clinical importance than is generally accorded it, partly, we believe, because it provides an anatomic basis for the otherwise vague state known as "unresolved pneumonia," and for at least some of those cases of pulmonary fibrosis which do not appear to be tuberculous and which are now frequently ascribed to syphilis, in spite of the fact that syphilis of the lungs is so rare as to constitute a pathologic curiosity.

In a review of 125 cases of lobar pneumonia seen at necropsy in the pathologic laboratories at Bellevue Hospital during an unselected interval of two and one-half years, organizing pneumonia occurred four times—an incidence of 3.2 per cent. Over a period of four months ending in May, 1923, there were seven examples of organizing pneumonia among thirty-four cases of lobar pneumonia—an incidence of 20.6 per cent. It is apparent, therefore, that in the latter part of last winter the condition became distinctly more frequent than it had been in previous years. In a series of forty cases of lobar pneumonia, McCrae found symptoms of delayed resolution in between 3 and 4 per cent. Therefore, the incidence of unresolved pneumonia as encountered clinically, and of organizing pneumonia as met at necropsy, in ordinary circumstances, is practically identical. Furthermore, in view of the fact that the clinical signs of unresolved pneumonia are not to be distinguished from those of organizing pneumonia, the assumption appears to us to be justified that they represent one and the same process.

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The symptomatology of organizing pneumonia is that of lobar pneumonia with delayed resolution. It commences with chills, followed by rapid rise of temperature, which in most cases rarely exceeds 104, and in some cases may not pass 100. There is cough; the sputum is sometimes rusty, occasionally mucopurulent, at other times bloody. Frequently there is a stitch in the side, and physical signs of fibrinous pleuritis. The latter may be succeeded by those of effusion. Examination reveals signs of consolidation of the lung as customarily encountered in lobar pneumonia. Crisis may occur at the expected moment, or lysis, or neither may take place. In any event, the physical signs of consolidation persist or become modified to suit changing conditions in the lung or pleura, depending on the extent and distribution of the connective tissue. The temperature often pursues an intermittent course. The duration of the process varies from six or eight days to two months, one of Delafield's cases lasting for sixty-one days, another, sixty-two. Of the seven fatal cases encountered during the past winter at Bellevue Hospital, one was of fourteen days' duration, two of fifteen days', two of seventeen days', and in two no history was obtained.

Anatomically, the process may involve one or more lobes diffusely. As a rule, however, the distribution is patchy, the individual patches varying in size from one to several centimeters. The earliest stages are marked by congestion of the lung; the cut surface is of velvety smoothness, and scattered over it are numerous minute whitish or grayish white specks. The involved area is somewhat leathery or rubbery in consistency. At this stage, histologic examination shows congestion of blood vessels; in the alveoli are plugs of smooth, pinkish staining material, representing hyalinized fibrin. In some instances, the fibrinous plugs extend from one alveolus into the next, thus assuming an hour-glass shape. Still other alveoli are consolidated by polymorphonuclear leukocytes, fibrin being conspicuous by its absence, and the lumina of the smaller bronchioles are similarly occupied. The second stage is characterized by diffuse or patchy consolidation, the consolidated areas being grayish or grayish red, and firm. Histologic examination shows variable numbers of fibroblasts growing into and replacing the fibrinous plugs in the alveoli, the fibroblasts being arranged in parallel formation or in semilunar fashion. The third stage is marked by replacement of the fibrinous plugs by rounded or oval collections of fibrillar connective tissue. In occasional cases, the lung presents solitary or multiple cavities filled with pus. The pleura may be free or greatly thickened, sometimes producing flattening or retraction of the chest wall. In one of our cases, practically the whole of the lower lobe of the right lung was covered by pleura thickened by fibrous tissue to the extent of about 1.5 cm., and the lung presented a half dozen or more small abscess cavities.

It is evident, therefore, that the condition is anatomically and histologically distinct from the ordinary chronic interstitial pneumonia of syphilis, tuberculosis and the like, since the connective tissue replacement is almost exclusively confined to the intra-alveolar spaces. The weight of evidence, both clinical and otherwise, appears to us to favor the view that the condition is not an independent disease entity, but is to be expected in a certain proportion of all cases of lobar pneumonia, and that its existence should be suspected whenever the physical signs of consolidation persist beyond the usual time.

In view of the noticeable increase in the incidence of the condition as encountered at Bellevue Hospital last winter, it is reasonable to expect, we think, that next winter will probably reveal cases in excess of customary experience. The Bellevue Hospital cases are now being made the subject of detailed investigation, the results of which will be published later.

Clinical Notes, Suggestions, and New Instruments

A MULTIPLE ELECTRICAL STETHOSCOPE FOR TEACHING PURPOSES

PRELIMINARY NOTE

Richard C. Cabot, M.D., Boston

For many years I have tried to find some device whereby both instructor and student might hear exactly the same chest sound at the same time. I have used stethoscopes with a large bell and several pairs of ear-pieces, but with these the sounds are much weakened, and the number of students that may use them is limited to ten or less.

In 1904, I tried to design a mechanism whereby, with the aid of levers tapping on drums, and of organ bellows connected with a megaphone, the sounds of the heart and lungs might be imitated. In 1906, I demonstrated such a device at the time of the American Medical Association session in Boston.

In 1911, and in later years, reports were current that heart sounds could be passed through a telephone. I was fortunate enough to enlist the interest of an expert in telephone work, who adapted and brought to the Massachusetts General Hospital a machine with which we were able to transmit the normal heart sounds through wires of considerable length. But we were never able to exclude adventitious sounds or to hear the fainter cardiac murmurs and breath sounds. We dropped the attempt, and after the war I reverted to devices for imitating the chest sounds artificially—but without much success.

During the first two weeks in June, 1923, in a course in physical diagnosis given at the Massachusetts General Hospital, under the Harvard Courses for Graduates, I have seen my aim accomplished. As the result of some three years of experimentation, an electrical apparatus has been perfected whereby the heart and lung sounds can be perfectly reproduced and distributed—certainly to seventy-five students simultaneously, and presumably to a much larger number. The device is based (I am told) "on the amplification of variations in an electrical current by the three element vacuum tubes which have become familiar in radio receiving. Three stages of amplification are used, with a delicate electromagnetic transmitter and an individual receiver for each listener." This instrument was designed and very generously lent for experimental purposes by the New York engineering department of the Western Electric Company.

After an exhaustive test on about 250 patients with various forms of heart and lung lesions, I believe that this machine is equal in every way to the usual form of stethoscope. Indeed, it is possible to adjust it so that the sounds are distinctly louder than those heard either with the Bowles or with a bell-shaped chest piece, an obvious advantage in teaching the beginner and one which, with further work, may lead to earlier or more accurate diagnoses. The quality of the sounds and murmurs has in practically all cases been indistinguishable from that heard with the ordinary stethoscope alone. The "frying" noises due to the amplifying tubes, which are at times so prominent in an imperfectly designed radio set, have been reduced to an almost inaudible minimum, and do not interfere with the normal or pathologic chest sounds.

Perhaps the most severe tests of a device for auscultation may be found in the faint, low-pitched, mid-diastolic murmur of mitral stenosis, and in the shower of fine inspiratory râles following cough in incipient pulmonary tuberculosis. These were clearly heard by means of the electrical stethoscope in all cases in which they were heard with the ordinary stethoscope. All the more familiar heart murmurs, bronchial, bronchovesicular and cog-wheel breathing, the increased transmission of spoken and whispered voice over consolidated areas, and pleural rubs as well as the normal heart and lung sounds, were correctly transmitted.

It was also found possible to take the amplifier to the hospital wards and transmit the chest sounds over a cable about 600 feet in length down to the instruction amphitheater. In this way, the chest sounds of pneumonia patients, decompensated cardiac patients, and others too ill to be moved were made available for large classes as they have never been before, to my knowledge.

The advantages of such an apparatus for teaching purposes are very great. Chief among these is the simultaneous hearing of the identical sound by instructor and students. Immediate comment is possible, followed by the student's immediate attention to the feature commented on. Another advantage is the economy of time and strength for both patient and teacher. By methods previously used, it was difficult to give satisfactory instruction in classes of more than six or eight. This device has been very successful for seventy-five, and there is no electrical reason why three or four times that number should not be taught in one class.

It is, of course, impossible to give in print any proof of the accuracy with which the sounds are reproduced. Perhaps the best evidence is the fact that this particular class in physical diagnosis, composed of seventy-five graduate physicians, voted, after trying the instrument, to spend their time exclusively in the use of the electrical apparatus, rather than to attempt to examine the patients individually with their own stethoscopes.

I hope that in the immediate future the details of the apparatus may be published, and that arrangements may be made for its use in medical teaching at other medical schools and hospitals.

METHYLENE BLUE AS A STAIN FOR ULCERS AND ABRASIONS OF THE CORNEA *

A. G. Fort, M.D., Atlanta, Ga., and William Jerome Knauer, M.D.,
Jacksonville, Fla.

Methylene blue will stain an ulcer or abrasion of the cornea in a solution as low as 0.4 per cent., and this is an ideal solution to use. Its staining qualities are practically instantaneous, and require no irrigations to produce its staining effect. It is easily seen. It is nonirritating in 0.4 per cent. solution if made up in physiologic sodium chlorid solution. It is easily procured and easily made up. It is an antiseptic. A one ounce bottle of a 0.4 per cent. solution, including bottle, cork, label and medicine dropper, costs less than 5 cents.

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* From the ophthalmologic clinic, Grady Hospital (col.) Atlanta, Ga. Ga.

Five Diseases Cause Half of Deaths.—According to the state registrar of vital statistics, five diseases are responsible for about half the deaths in Ohio each year. In 1922, heart disease caused 9,656; cerebral hemorrhage, 6,708; pneumonia, 5,968; cancer, 5,552, and tuberculosis, 5,130, the last one being the only one showing a decrease. Although the total, 68,019, was somewhat larger than the previous year, the rate remained the same, 11.3 per thousand.

New and Nonofficial Remedies

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application. W. A. Puckner, Secretary.

POLLEN PROTEIN ALLERGENS-SQUIBB (See New and Nonofficial Remedies, 1923, p. 241).

The following products have been accepted:

Ash Pollen Allergen-Squibb; Hickory Pollen Allergen-Squibb; Honeysuckle Pollen Allergen-Squibb; Maple Pollen Allergen-Squibb; Oak Pollen Allergen-Squibb; Pine Pollen Allergen Squibb; Poplar Pollen Allergen-Squibb.

Prepared by the method given for Corn Pollen Allergen-Squibb (New and Nonofficial Remedies, 1923, page 241).

ANIMAL EPIDERMAL EXTRACT ALLERGENS-SQUIBB (See New and Nonofficial Remedies, 1923, p. 241).

The following products have been accepted:

Beaver Fur Allergen-Squibb; Chamois Skin-Allergen-Squibb; Civet Cat Fur Allergen-Squibb; Fox Fur Allergen-Squibb; Kolinsky Fur Allergen-Squibb; Leopard Fur Allergen-Squibb; Mink Fur Allergen-Squibb; Muskrat Fur Allergen-Squibb; Mole Fur Allergen-Squibb; Opossum Fur Allergen-Squibb; Persian Cat (Angora) Fur Allergen-Squibb; Pony Fur Allergen-Squibb; Racoon Fur Allergen-Squibb; Seal (Alaskan) Fur Allergen-Squibb; Seal (Hudson) Fur Allergen-Squibb; Sheep's Wool Allergen-Squibb; Skunk Fur Allergen-Squibb; Squirrel Fur Allergen-Squibb.

Prepared by the method given for Burro Dander Allergen-Squibb (New and Nonofficial Remedies, 1923, page 242).

FOOD ALLERGENS-SQUIBB (See New and Nonofficial Remedies, 1923, p. 242).

The following products have been accepted:

Apricot Allergen-Squibb; Butterfish Allergen-Squibb†; Cocoa Allergen-Squibb‡; Cocoanut Allergen-Squibb‡; Cottonseed Allergen-Squibb‡; Duck Allergen-Squibb†; Fig Allergen-Squibb*; Flaxseed Allergen-Squibb‡; Ginger Allergen-Squibb*; Goat Allergen-Squibb†; Guinea-Hen Allergen-Squibb†; Hay (Alfalfa) Allergen-Squibb*; Huckleberry Allergen-Squibb*; Lemon Allergen-Squibb*; Olive (ripe) Allergen-Squibb‡; Paprika Allergen-Squibb‡; Pineapple Allergen-Squibb*; Pheasant Allergen-Squibb†; Pumpkin Allergen-Squibb*; Rabbit Allergen-Squibb†; Scallop Allergen-Squibb†; Sea-bass Allergen-Squibb†; Smelt Allergen-Squibb†; Sole Allergen-Squibb†; Tea Allergen-Squibb*; Tobacco Allergen-Squibb*; Vanilla Allergen-Squibb§; Whiting Allergen-Squibb†; Yeast Allergen-Squibb*.*

Products marked * are prepared by the method given for Apple Allergen-Squibb (New and Nonofficial Remedies, 1923, page 245).

Products marked † are prepared by the method given for Beef Allergen-Squibb (New and Nonofficial Remedies, 1923, page 245).

Products marked ‡ are prepared by the method given for Almond Allergen-Squibb (New and Nonofficial Remedies, 1923, page 244).

§ Vanilla Allergen-Squibb is made by the following method: The residue obtained by evaporating an 80 per cent. alcoholic extract of vanilla bean, is re-extracted with a dilute alkaline 10 per cent. salt solution, filtered, the filtrate dialyzed free from salt and the dialyzate precipitated with acetone and the precipitate dried with acetone.

POLLEN EXTRACTS-ARLCO (See New and Nonofficial Remedies, 1923, p. 237).

Pollen Extracts-Arlco are marketed in sets of five vials representing graduated concentrations, namely, 1 : 10,000, 1 : 5,000, 1 : 1,000, 1 : 500 and 1 : 100, respectively; also in concentrated solution in capillary tubes for diagnostic tests, each tube containing extract sufficient for one skin test. For hospital use, the diagnostic solution is supplied in 1, 2 and 3 cubic centimeter containers.

The following products have been accepted:

Arizona Ash Pollen Extract-Arlco; Arizona Cottonwood Pollen Extract-Arlco; Arizona Walnut Pollen Extract-Arlco; Bermuda Grass Pollen Extract-Arlco; Burr Ragweed Pollen Extract-Arlco; Burroweed Pollen Extract-Arlco; California Mugwort Pollen Extract-Arlco; Carelessweed Pollen Extract-Arlco; Carpet Sage Pollen Extract-Arlco; Greasewood Pollen Extract-Arlco; Hill Sage Pollen Extract-Arlco; Johnson Grass Pollen Extract-Arlco; Mexican Tea Pollen Extract-Arlco; Mountain Cedar Pollen Extract-Arlco; Orach Pollen Extract-Arlco; Pigweed Pollen Extract-Arlco; Prairie Ragweed Pollen Extract-Arlco; Russian Thistle Pollen Extract-Arlco; Sage Brush Pollen Extract-Arlco; Sea Blite Pollen Extract-Arlco; Shad Scale Pollen Extract-Arlco; Western Ragweed Pollen Extract-Arlco; Wild Sunflower Pollen Extract-Arlco.

Prepared by the method given for Pollen Extracts-Arlco (New and Nonofficial Remedies, 1923, page 238).

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SATURDAY, JULY 28, 1923

SMALLPOX IN GREAT BRITAIN

Smallpox is an eternally vigilant teacher which may be counted on to emphasize the lesson of preventive medicine; this by serious example whenever people become careless and fail to avail themselves of proper vaccination. As related by our London correspondent in this issue, British authorities are becoming exceedingly anxious over the smallpox situation. The Ministry of Health has issued an official statement to the public placing part of the blame for the severity of the epidemic at Gloucester on the local health officer, who refused to admit the presence of smallpox in that city until too late to check the outbreak in its incipience. Even when the Ministry of Health sent a special investigator, the local officer refused to accept the diagnosis of smallpox. Finally a still higher officer was sent, a house to house canvass was made, and the existence of epidemic conditions was established beyond dispute. A special hospital was then set up and special vaccinating stations established, and the Ministry of Health reports that the situation is fairly well in hand, though there is urgent need of vaccination of the population.

Reading between the lines in this account of the outbreak in Gloucester, where the cases reported for four weeks in June were 27, 51, 78 and 90, respectively, one can realize what difficulties the health officer must have had in controlling the disease in that community. Gloucester has long been a hot-bed of antivaccinationists, and apparently learned nothing from its epidemic of some fifteen years ago. It is, moreover, the home of the notorious antivaccinator and antivivisector Hadwen. The incessant activity of this fanatical and misguided agitator and his followers made difficult the enlightenment of the public and the establishment of proper sanitary precautions. In fact, Hadwen went so far as to insert advertisements in the press, denying that smallpox was present in the community.

As might have been expected, the rapid growth of a focus of smallpox, such as occurred in Gloucester, was reflected throughout the rest of England. For the country as a whole, the figures for the four weeks of June were 67, 77, 140 and 131, and practically every sanitary district was affected to some extent. As is pointed out by the Ministry of Health in its bulletin, the vaccination of infants has decreased in Great Britain from a percentage of 70.9 of births in 1907 to 38.3 in 1921. In view of the rarity of revaccination among the adult civil population, the Ministry of Health "regards the situation with concern and holds the view that there is distinct risk of an outbreak of serious character." The ministry concludes its statement by again urging revaccination on the entire public; it points out that vaccination can be obtained free of cost by application to the public vaccinator in each area, and that there is plenty of fresh vaccine lymph available for all needs.

In this connection it is also interesting that Dr. W. W. Keen of Philadelphia, one of the strongest supporters of rational methods of preventing smallpox and a strong opponent of the efforts of Hadwen against animal experimentation, should have been in England at this particular time, attending the International Congress of Surgeons. With his usual untiring efforts in behalf of scientific medicine, Dr. Keen contributed to the London *Times* a strong statement on American experiences with vaccination, and contradicted flatly the assertion of Hadwen that vaccination is "pouring filth into the blood." In the same issue in which the letter of Dr. Keen was published, the *Times* welcomes the announcement of the Ministry of Health editorially and calls its readers' attention particularly to the letter of Dr. Keen: "We hope," says the *Times,* "that the Ministry of Health will not cease to preach the orthodox doctrine, and that the medical profession, whose members, it must be admitted, have had in recent years very little to encourage them voluntarily to become in this respect sanitary evangelists, will not cease from putting the remedy, and the meaning of the disease, before the populations to which they minister. The argument in favour of general vaccination is manifold. In the first place, vaccination prevents the spread of the disease. Secondly, it prevents the consequences of the disease; which are death and deformity, the throwing, very likely, of young children, whose parents die of the disease, upon public charity, and the expenditure of money on the measures of disinfection and isolation which have to be taken when an outbreak or even a single case occurs. It is an antisocial act to refuse to be vaccinated, and for the obstinacy of the recalcitrant not only the recalcitrant, but also the community has to pay. We see no reason, therefore, why vaccination should not be made, as it once was, a matter for rigorous compulsion. The community has a right to protect its pockets and its peace of mind as well as the bodies of those who compose it. We are glad to see from its statement that the Ministry of Health has arranged to provide local officers of health with the best medical assistance at its command for the diagnosis of the disease. The organization seems to be excellent, but the real way to suppress smallpox is not to diagnose and to treat it, but to stamp it out and prevent its recurrence by the creation of a healthy and conscientious public opinion in favour of vaccination. In the last resort, unless the health conscience of the nation is clean its continued immunity from a preventible scourge will remain, as it is at present, uncertain."

VITAMIN STORAGE IN THE BODY

There is at present a fairly general acceptance of the view that the vitamins cannot be synthesized by animal tissues; consequently we are dependent on extraneous sources of these food factors. While it is commonly asserted that the vitamins are indispensable essentials for nutrition, it must be frankly admitted that there is considerable uncertainty involved in the evidence at present available. One species of animal will apparently thrive on a food mixture which leads promptly to deficiency symptoms in another. For example, the rat, which has been employed so widely in recent years for experimentation in relation to dietary essentials, may grow well on diets which speedily lead to scurvy in the guinea-pig, even under comparable hygienic and environmental conditions. Scurvy has not been elicited by experimental means in either the dog or the rat. Man and the monkey, like the guinea-pig, are peculiarly susceptible to the lack of the antiscorbutic vitamin. In respect to rickets, man, the rat and the dog all seem to be affected by the lack of the antirachitic "principle" contained in cod liver oil as well as many natural foods. On the other hand, human beings do not frequently, if ever, show the ophthalmias that are so characteristic of a regimen deficient in vitamin A, in the case of various other species.

How are such seemingly conflicting facts to be reconciled with any hypothesis of the indispensability of the vitamins for well-being? The foremost suggestion is that not all of the now recognized types are essential to all species of animal organisms. So far as has been ascertained, vitamin B seems to be required in some measure by all; but there are indications of very unlike needs not only of vitamin C—the antiscorbutic factor—but also of vitamin A.[1] This is perhaps no more surprising than the marked differences in the susceptibility of various species to certain infections, and their variable equipment of protective "immune bodies." The possibility that some species are able to synthesize vitamins to a degree impossible for others has little to commend it; in fact, it seems contrary to all biologic probabilities.

New light has been thrown on the questions at issue by the demonstration that the fat-soluble vitamins, at least, can be stored in some measure in the body. Consequently, individuals may continue for some time to thrive on a diet admittedly poor in these food factors. According to the studies of Steenbock, Sell and Nelson[2] of the University of Wisconsin, the liver appears to be an important center of this storage, varying in its content of the fat-soluble vitamin with the ration fed. An organism may thus become so enriched through an earlier dietary regimen that it can continue in health for some time on the "accumulated surplus." The Wisconsin biochemists, applying their new observations to human physiology, point out that clinicians have frequently commented on the fact that few, if any, authentic cases of ophthalmia due to vitamin deficiencies have been reported for man. Evidence has even been offered in THE JOURNAL[3] showing the lack of symptoms in a number of children receiving a diet of skimmed milk for months. Here, we are now reminded, undoubtedly two factors were operative: in the first place, skimmed milk is not entirely devoid of fat-soluble vitamins; and, in the second place, considerable amounts may have been drawn from stored reserves. These findings afford another illustration of how proper living helps to fortify us against exigencies that may come without anticipation or defense. Like our "infectious past," our "nutritive past" may mean much for future welfare.

FACTORS IN THE REGULATION OF RENAL ACTIVITY

One of the inevitable physiologic necessities of everyday life is the elimination of the waste products of metabolism. The function of the lungs in the removal of the gaseous component, carbon dioxid and water, appears to be a relatively simple physicochemical process. The excretion of the nitrogenous metabolites, notably the end-product urea, through organs highly specialized for this purpose, has long appeared to be more complicated in character. The average diet of the human adult includes approximately 100 gm. of proteins which ultimately give rise to 30 gm. or more of urea to be disposed of by the kidneys in each twenty-four hours. What are the conditions that determine its elimination? The answer to this question furnishes a very important part to one of the most significant chapters in physiology. It also affords the basis for deciding wherein some of the pathologic manifestations of the renal structures consist. Failure to eliminate urea in a normal manner is inevitably a menace to the bodily welfare; a measure of the defect in function may be important from both a diagnostic and a prognostic standpoint. Even moderate delay in the excretion of urea may be of unfavorable portent.

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[1] Emmett, A. D., and Peacock, G.: Does the Chick Require the Fat-Soluble Vitamins? J. Biol. Chem. **56**: 679, 1923.

[2] Steenbock, H.; Sell, M. T., and Nelson, E. M.: Fat-Soluble Vitamine, XI, Storage of the Fat-Soluble Vitamine, J. Biol. Chem. **56**: 327, 1923.

[3] Hess, A. F., and Unger, L. J.: The Clinical Rôle of the Fat-Soluble Vitamin: Its Relation to Rickets, J. A. M. A. **74**: 217 (Jan. 24) 1920.

For some time it has been clearly demonstrated that one determining factor in the rate of urea elimination is the concentration of this nitrogenous waste product in the blood. As the latter rises, the output in the urine always increases if the kidneys are intact. One would also expect that the amount and the quality of the urea-secreting tissue of the kidneys play some determining part. That this is indeed the case has lately been demonstrated in the department of medicine at the Stanford University Medical School, by Taylor, Drury and Addis,[1] working with the aid of the Committee on Scientific Research of the American Medical Association. They conclude that the rate of urea excretion, though influenced within certain limits by a great variety of factors, is primarily controlled only by the concentration of urea in the blood and the size of the kidneys, so that, under certain conditions, when the effect of variation in blood urea concentration is excluded, the rate of urea excretion varies in direct proportion to the weight of renal tissue. Under suitable conditions, the rate of urea excretion continues to increase with every increase in the concentration of urea in the blood until general toxic symptoms develop, so that the ratio between the rate of urea excretion and the blood urea concentration remains approximately constant at all practicable levels of blood urea concentration. The order of magnitude of this ratio, however, is regulated directly by the size of the kidneys. In applying these new facts to the individual, the San Francisco clinicians have observed that body surface area shows a more constant relation to the kidney weight than does the body weight. Kidney size, therefore, can be most advantageously estimated from the body surface area, a measurement made familiar in recent years in connection with the study of basal metabolism.

AUTOMATIC AND REFLEX FACTORS IN THE MAINTENANCE OF BLOOD PRESSURE

The automatic character of a number of the bodily functions is often pointed out as a strikingly unique feature of the human mechanism. Foremost in this respect are the respiratory movements and the beating of the heart. Given a suitable nutrient medium well supplied with oxygen, the heart can continue its rhythmic contractions with regularity even when all connection with the rest of the organism has been severed. The respiratory center also can act automatically under conditions which preclude the effect of afferent impulses to stimulate it. Under such conditions, the cells in the medulla that control the act of respiration seem to be wholly dependent on chemical stimulation, particularly the carbon dioxid of the blood, for their activity. Many other functions of the organism, on the other hand, are responsive to impulses from without; that is, they exhibit what is called a reflex function. This is true of most of the movements of the skeletal muscles; they react in response to a reflex stimulus.

Blood pressure is dependent on the activity of the heart and the condition of the blood vessels. Is its maintenance, so important to physiologic well-being, a reflex or an automatic function? This question has recently been asked by Tulgan [1] of the Department of Physiology at Columbia University College of Physicians and Surgeons. Pike and Coombs [2] of the same institution have expressed the conclusion, with respect to the nervous mechanism of respiration, that while it is undoubtedly true that the respiratory center may act automatically under certain conditions, its normal activity is not wholly automatic but is partly reflex. That is, if afferent impulses from certain sensory fields are prevented from reaching the central cells of the medulla (as can be done experimentally by sectioning the vagi and the dorsal roots of the spinal nerves) respiration does not cease but continues in a modified form.

Essentially the same statement, we are now assured by the recent investigations of Tulgan, can be made in regard to the central cardiovascular mechanism. If all the cardiac nerves are severed, the blood pressure does not drop to zero, but is maintained at a certain level which is not the same as that observed when these nerves are intact. Despite this apparent automatism, however, reflex impulses coming through the nervous system play an important part in the proper regulation of the cardiovascular system. Its responses seem to be guided, in fact, by two antagonistic mechanisms, a cardio-inhibitory nervous mechanism and one of a cardio-accelerator type, both of which, through the algebraic summation of their effects, act in the interests of the organism under ordinary conditions. The first mechanism, in Tulgan's opinion, is concerned with preventing the heart from overwork, and in giving the heart musculature a sufficient period of rest for its metabolic repair. The second mechanism is intimately concerned with the maintenance of a certain level of blood pressure adequate for bodily welfare. Under ordinary conditions of rest, an "automatically maintained" blood pressure may suffice without discomfort; but whenever exertion is called for, the advantages of the influences that are exerted through reflex channels on the blood pressure sustaining mechanism become apparent.

The human organism cannot be regarded merely as a combination of simple automatic devices. It is peculiarly sensitive to modifying influences of both chemical and nervous character.

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[1] Taylor, F. B.; Drury, D. R., and Addis, Thomas: The Regulation of Renal Activity, VIII, The Relation Between the Rate of Urea Excretion and the Size of the Kidneys, Am. J. Physiol. **65**: 55 (June) 1923.

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Current Comment

THE VISIT OF PROFESSOR PAWLOW

Dr. Ivan Pawlow, known to practically every physician in the world for his research in physiology, spent three weeks in the United States. We copy under General News in this issue of The Journal an account of his visit and departure, as given by the New York *Times*, July 20. It was his original intention to visit America, to see the scientific institutions of this country and to give lectures before scientific societies as a method of paying, in part, the expense of his trip. He was accompanied by his son, who is professor of physics in the University of Petrograd. Even the Soviet Government, which, it is understood, has not been particularly kindly to the old scientists of Russia, contributed fifteen hundred dollars toward the expense of his travels. Evidently all of the plans went awry so far as this country is concerned by the stealing of his money in New York; and so far as his attendance at the Physiological Conference in England on July 23 is concerned, by the action of the British Consulate in refusing to visé his passport. Professor Pawlow had thousands of friends and admirers in the medical profession of this country, and it is to be regretted that it was not generally known that he was here so that something could have been done to help him. As he returns to his home, one wonders whether the distinguished 75-year-old scientist will be more astonished by the apparent lawlessness of America or by the rigid governmental technicalities of Great Britain.

CONTRACEPTION: A BRITISH DISCUSSION

The fifth international neomalthusian and birth control conference was held in London in July, 1922. At that time the economic and sociological questions underlying birth control were extensively discussed, and a special meeting was devoted to a consideration of scientific methods of contraception. This and numerous other conferences on the subject in European countries indicate that the problem is a pressing one for those nations in which the increase in population and the smallness of territory make the matter of the food supply and the future development of the people a serious one. It seems to have become a matter of immediate concern in the British Isles, where the territory is limited by natural boundaries and where these problems have become intensified during and since the war. It is presumably for this reason that the *Practitioner* devotes its entire July issue to a presentation of the views of ten well known British physicians on this subject. Each of the writers discusses the physiologic and pathologic aspects of such contraceptive methods as are now generally known and available to the informed. Of the ten medical authorities who discuss the question, nine are in virtual agreement as to what constitutes the ideal method of contraception. The most pressing problem appears to be a decision as to how the available information is to be brought to the attention of those most needing it, and as to how such persons are to be encouraged to avail themselves of the information offered. This is, of course, not only a medical but equally an educational and social problem. From the present trend of affairs, it would appear that England and the continental countries may be forced at an early date to reach a new point of view relative to restrictions in this matter.

THE HEART IN DIPHTHERIA

It is generally recognized by clinicians that the heart is involved in many cases of diphtheria. Irregularities of various sorts may be observed; and, since the development of electrocardiographic methods of observation, almost every type of arrhythmia has been reported in connection with this disease, in which cardiac failure is an outstanding cause of death. Great uncertainty exists, however, regarding the nature of the processes that involve the circulation so seriously in such circumstances. An extensive literature has accumulated in which it seems to be debated whether the cardiac failure is attributable to injury and deterioration of the myocardium or its conducting system, or whether the disturbance rather is extracardiac, involving the peripheral vasomotor system. Mere bedside observation cannot furnish a complete and satisfactory answer to the questions at issue. The subject is one that demands for its proper elucidation that combination of careful clinical study of the patient, along with detailed postmortem examinations in the cases with fatal termination, which represents the highest type of medical investigation. A recent report by Loth [1] on the heart in diphtheria represents something of this sort. According to this study made at the Yale University School of Medicine, death in the fatalities of diphtheria due to circulatory failure is probably referable to injury of the myocardium itself or its conducting system. This is not what one might have been led to expect on the basis of previous animal experimentation. MacCallum,[2] for example, noticed that the actual work of the heart poisoned by diphtheria was fully as good as that of the normal heart. Consequently, he concluded that death occurring at the height of an attack of the disease is not exclusively the result of direct injury to the heart, although damage to this organ may play some part in the process. Loth has observed that the injection of lethal or sublethal doses of diphtheria toxin in guinea-pigs produces degenerative changes in the heart muscle similar to those seen in the human heart in fatal diphtheria; but such injections do not induce a true inflammatory reaction. In the human cases, a definite myocarditis of this sort is only exceptionally demonstrable at necropsy. Fat accumulation and cloudy swelling are regularly seen, but are not more pronounced than in other acute infectious diseases, such as scarlet fever, measles and pneumonia. It will require investigation of a far larger number of cases before a final conclusion can be reached with respect to the diphtheria heart; in the instances just recorded, at least, no specific myocardial lesion has been demonstrated.

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[1] Loth, Mathilde: The Heart in Diphtheria, Arch. Int. Med. **31**: 637 (May) 1923.

[2] MacCallum, W. G.: The Mechanism of Circulatory Failure in Diphtheria, Am. J. M. Sc. **147**: 37, 1914.

ABRAMS VISITS MEXICO

Albert Abrams,[1] the Electronic Wizard of the West, recently visited Mexico. The visit, according to Mexican papers, was prompted by the invitation of a Mexican politician. We read in *El Universal* that Abrams arrived in Mexico City "accompanied by his attorney, nurse and valet." The name of the attorney is Gottesfeld; the names of the nurse and valet were not given. At the time of Abrams' arrival the same paper stated that the doctor would stay five days, "after which time he and his retinue will return to San Francisco." Abrams, however, only stayed ten hours, when he and his "retinue" left. According to *El Mundo,* Abrams' Mexican representative, one Levine, declared that Abrams had stated that drug manufacturers in the United States had spent at least a million dollars in an attempt to discredit him. In the same interview Levine is said to have declared that Abrams resigned from the American Medical Association because the influence of drug manufacturers and sellers caused The Journal to decline his advertising. Abrams' agent wound up by announcing that, after spending two months at Los Angeles, Abrams was going to Russia to "cure" Lenin. One feature of Abrams' visit to Mexico was a public lecture in which, among other subjects, he set forth at length his views on his "electronic reactions." In concluding, he invited physicians in the audience to ask questions. Dr. A. Brioso Vasconcelos, editor of the *Gaceta Médica de México,* official delegate at international congresses and a well-known sanitarian, asked Abrams for some proof of the many assertions he had made. Abrams, in reply asked whether the doctor would believe in the existence of a sound should he hear one. To this Dr. Vasconcelos retorted that he not only could hear sounds, but he could also tell when they were mere noise. Abrams then invited Dr. Vasconcelos to go to San Francisco for proofs of the "electronic reactions." The Mexican physician contented himself with replying, "I don't smoke." This Mexican idiom seems to be the equivalent of "I'm from Missouri," in what Mr. Mencken would call the American language. Mexican newspapers that support the politician who invited Abrams are now placing the blame for Abrams' sudden departure on Brioso Vasconcelos' skeptical attitude. The short stay of Abrams, however, has not disturbed the better element of the medical profession of Mexico, which is under no misapprehension as to the scientific status of the creator of the "electronic reactions."

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[1] A reprint of the matter that has appeared in The Journal on the Abrams vagaries will be sent on receipt of four cents in stamps.

An Answer to Antivivisectionists.—By experiments on seventeen hogs there was discovered a serum which will protect swine from cholera. In 1921, owing to extensive use of this serum, this loss was reduced from $75,000,000 to $27,907,000, a saving of about $47,000,000 to the farmers of this country in the case of one disease. But it is the welfare of animals that we are concerned with in this article. Forty-seven million dollars is the equivalent of say a million hogs. Here are a million animals that have been spared the suffering incident to disease, at the cost of suffering inflicted on a few of their fellows. What real lover of animals could wish the million to suffer in order that the few might be spared?—Ernest Harold Baynes, *World's Work,* August, 1923.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

Personal.—Col. William D. Wrightson, son-in-law of the late Gen. William C. Gorgas, has been reappointed by the federal government as malaria expert, with jurisdiction in ten counties in northern Alabama.

Chiropractor Fined.—D. T. Robinson, Thomasville, a chiropractor, was tried in the county court at Grove Hill, recently, for practicing medicine without a license, it is reported. Judge Cunningham assessed a fine of $50 in each of eight counts. The case was appealed to the circuit court.

CALIFORNIA

Physician Sentenced.—Dr. Holmes F. Troutman, Berkeley, who was convicted of a statutory offense in December, 1921, and sentenced by the judge to an indefinite term of from one to fifty years, has been sentenced to serve twenty years by the prison board, it is reported.

Drugless Healers Not to Prescribe Narcotics.—Practitioners engaged in the various branches of so-called drugless healing, including osteopaths and chiropractors, are not permitted to register under the Harrison Narcotic Law, according to a ruling given out by the Collector of Internal Revenue, John P. McLaughlin.

Hospital News.—The bond issue of $100,000 for the municipal hospital, Long Beach, has been found to be only about half the amount needed to properly complete the institution, according to reports. The Community Hospital Association has offered to give an additional $100,000, provided the management of the hospital will be turned over to the association which proposed to lease the institution at a nominal rent from the city.——The French Hospital, San Francisco, has awarded the contract for a nurses' home that will cost $75,000.

COLORADO

State Levy for Medical School.—A levy of 0.05 mill was adopted by the last legislature for the benefit of the University of Colorado School of Medicine, effective for a period of four years. At the same session of the legislature, provision was also made for the maintenance of the state general hospital and the state psychopathic hospital for the period of the present biennium.

CONNECTICUT

Personal.—Dr. Kate Campbell Hurd Mead, Middleton, was elected president of the Medical Women's National Association, at San Francisco, June 27.

State Health Commissioner Appointed.—Governor Templeton has announced the appointment of Dr. Stanley H. Osborn, Hartford, as commissioner of health for a term of six years. Dr. Osborn has been deputy commissioner in charge of the bureau of preventable diseases of the state department of health since 1920, and has been serving as commissioner since his predecessor, Dr. John T. Black, resigned.

DISTRICT OF COLUMBIA

Endowment Campaign a Success.—The campaign of Howard University to raise $250,000 in order to receive a similar sum from the General Education Board, New York (The Journal, July 14, p. 140), has been a success. Jesse Isador Straus contributed the last $3,000 of the needed sum. Following this contribution, colored people from various parts of the country pledged an additional $15,000, making a total endowment of $515,000. The department of the interior announces that the colored race now has only sixty-five women physicians and five women dentists in this country. Colored physicians and surgeons have increased only 633, or 23.07 per cent. in the last ten years. An interesting statement is that there are more colored physicians and dentists practicing in the cities of New York, Washington, Philadelphia, Cleveland and Chicago than in all the sixteen southern states combined, where fully 8,000,000 colored people live.

ILLINOIS

Physical Examinations.—As the first step in the physical examination campaign initiated by the National Health Council, the state department of public health has arranged to give a complete examination to all of its employes, more than 90 per cent. of whom welcomed the opportunity offered.

Society Picnic.—Ogle and Lee County Medical societies were hosts at an open-air medical meeting and picnic, Lowell Park, Dixon, July 26, to the societies of Stephenson, Winnebago, DeKalb and Whiteside counties. Dr. Edward H. Ochsner, Chicago, president of the Illinois State Medical Society, delivered an address on "Some Problems in Medical Economics."

Grocers Fined for Selling Medicines.—Eighteen grocers of Joliet were fined $20 each and costs for violating the state law which prohibits the sale of drugs except by a pharmacist. It has been the custom, it is reported, for grocers to sell iodin, glycerin, castor oil and other well known family remedies, and they were assured by the wholesalers that this was not in violation of the law.

Health Lectures at Summer School for Preachers.—The state department of public health has agreed to furnish faculty members for a course in public health and hygiene at the summer school for pastors, which opens, July 31, at Northwestern University, Evanston. A total of eleven lectures will be given by members of the department staff, most of which will be illustrated.

Chiropractors Arrested.—As a test of the new medical practice act which became effective, July 1, the state department of education and registration had arraigned three chiropractors before the justice of peace of Springfield charged with practicing medicine without a license. The department announced that these are the first arrests in a campaign for the rigid enforcement of the new regulations.

Chicago

"Therapeutic Lamp" Expert Arrested.—Peter A. Miller was arrested, July 19, by an inspector of the state department of registration and education, charged with violation of the state medical laws, it is reported. Miller, who, it is said, had a large clientele among the foreign element, used an ordinary glow lamp, and a tin plate attached to electric light wires, to give an electric shock, or "treatment."

Rehabilitation of School Children.—The rehabilitation of defective children will be undertaken on a more extensive scale in the Chicago schools next fall, it has been announced. Children who have lost limbs will be enabled to purchase artificial limbs on the installment plan, paying as little as $1 a week. Children having defective eyesight will be assigned to vision conservation classes of which there will be ten and for which the rooms will be lighted with special equipment. Textbooks for these classes will be printed in type no smaller than 24 point. Plans to help children crippled by infantile paralysis have also been made. The state has voted $100,000 for this work, which amount has been enlarged by an appropriation by the board of trustees and by private subscriptions.

Hospital News.—The following have accepted positions as consulting physicians at the reorganized St. Elizabeth Hospital: Dr. William A. Pusey, syphilology and dermatology; Dr. Frederick Tice, diseases of the lungs; Dr. Joseph M. Patton, diseases of the heart and circulatory system; Dr. Julius H. Hess, diseases of infancy and childhood; Dr. John Favill, diseases of the nervous system; Dr. Hugh McGuigan, clinical biochemistry. Dr. Frederick L. Pickoff has been appointed full-time pathologist and supervisor of laboratory diagnosis and investigation. Dr. Francis E. Senear has been appointed attending physician in dermatology. Dr. Richard B. Oleson, attending physician in tuberculosis and cardiology, and Dr. Albert E. Luckhardt, attending physician in neuropsychiatry.

INDIANA

Banker Warns of Forger.—The secretary of the Indiana Association of Bankers has warned physicians of the state to be on the lookout for a check forger whose victims are mostly physicians and surgeons. The forger has some physical defect for which the physician recommends hospital treatment and who thereon is requested to endorse a check. He is about 68 years of age, 6 feet tall, a little deaf, and has thin gray hair.

KANSAS

Personal.—Dr. Felton W. Landrum, Circleville, has been appointed by the governor a member of the state board of health.

LOUISIANA

Hospital News.—The Jefferson Parish police jury appropriated $10,000, July 11, toward the building fund of the Charity Hospital, New Orleans. Tangipahoa Parish, it is said, leads the country districts by its recent appropriation of $15,000. The firemen of the city have donated $1,242. The fund totaled, July 14, $257,811, which is still far short of the amount necessary to carry out the board of administrators' improvement program.

MAINE

State Board Elects Officers.—At a recent meeting of the State Board of Registration of Medicine, the following organization was effected: Drs. Luther G. Bunker, Waterville, chairman; Allen Woodcock, Bangor; William S. Thompson, Augusta; George R. Hagerty, Bar Harbor; William G. Chamberlain, Fort Fairfield; Adam P. Leighton, Jr., 192 State Street, Portland, secretary.

MARYLAND

New Hospital Opened.—The Edgewood General Hospital at Govans, a suburb of Baltimore, was formally opened, July 18 and 19. The board of directors consist of Drs. William J. Pillsbury, chairman, Harry C. Hess, Harry G. Prentiss, Harry W. Wheaton, Roy W. Locher and Waitman F. Zinn. The hospital will accommodate ninety patients. It has thirty-five private rooms.

New Water Supply for Hagerstown.—The state board of health has granted Hagerstown permission to install a new water system with the Potomac River as the source of supply. The installation will involve the expenditure of more than a million dollars, it is said, and the construction of a filtration plant and pumping station, and laying a 24-inch pipe overland for a distance of more than 7 miles. Hagerstown has outgrown its present water system, the source of which is at various places in the mountains.

MICHIGAN

Personal.—Dr. Hugh A. Stewart, Flint, has been appointed to the state medical board by Governor Groesbeck, to fill the unexpired term of Dr. Arthur M. Hume, Owosso, who recently resigned.——Dr. Ota G. Walters, Detroit, who has accepted a position in the Yale Hospital, Changsha, China, sailed from Seattle, July 24.

Seventy-Seven Medical Students Dropped.—It is reported that the University of Michigan School of Medicine recently "dropped" seventy-seven medical students "wanting to such an extent that they had been placed on a 'home' list as student failures." Forty-five of this number, it is said, were first year students.

MINNESOTA

Society News.—The Minneapolis Surgical Society will give a clinic day the first Thursday of each month, beginning October 4. The program will consist of operative clinics in the forenoon, "dry" clinics in the afternoon, and a literary program in the evening. All physicians and surgeons are invited to attend.——The St. Louis County Medical Society will hold its summer meeting on the Iron Range at the Esquagana Club, August 4.

Personal.—Dr. Oliver S. Olson, recently elected city commissioner of West Duluth, has been assigned to the department of public safety.——Dr. Lincoln A. Sukeforth has been appointed health officer of Duluth, to succeed Dr. Edward W. Fahey.——Dr. Oscar F. Mellby, Thief River Falls, has been appointed a member of the state board of health for an unexpired term ending Jan. 1, 1925.——Dr. John C. Staley, St. Paul, has been appointed superintendent of the Ancker Hospital, formerly known as the City and County Hospital. Dr. Staley was unanimously recommended for the position at a special meeting of the Ramsey County Medical Society.

MISSOURI

Chiropractors Arrested.—It is reported that the following chiropractors have been arrested and fined for practicing medicine without a license: Mrs. Viola Oswald, Cape Girardeau, $500; B. O. Huntley, H. H. Hilbert and A. J. Meyer, St. Louis, each $50.

Baby Clinic.—A baby clinic to be held from 2 to 4 p. m. Wednesday has been announced by the Independence Sanatorium, Independence. Children under 6 years of age will be admitted. This is the outgrowth of the examination of babies held at the sanatorium in May at which time 280 children were examined.

MONTANA

Public Health Association.—At the annual session of the Montana Public Health Association, Butte, Dr. Arthur Jordan, Helena, was elected president; Dr. Roscoe C. Main, Billings, vice president, and Dr. William F. Cogswell, Helena, secretary. Simple goiter and Rocky Mountain spotted fever were prominent among subjects discussed. It was said that the serum prepared by Dr. Hideyo Noguchi for the latter disease had been administered to more than 150 residents of the Bitter Root Valley.

State Medical Association Meeting.—The following officers were elected at the annual session of the state medical association, Butte, July 12: Dr. Charles R. Monahan, Butte, president; Drs. Herbert D. Kistler, Butte, Bernard V. McCabe, Helena, Lewis C. Ford, Sr., Lima, vice presidents; Dr. Elmer G. Balsam, Billings, secretary-treasurer; Dr. Creswell T. Pigot, Roundup, delegate to American Medical Association's annual session; Dr. Harmon T. Rhoads, Choteau, alternate. Drs. George McGrath, Hamilton, William W. Taylor, Whitefish, Thomas A. Grigg, Butte, and Ernest D. Hitchcock, Great Falls, were elected councillors.

NEW HAMPSHIRE

Hospital Opened.—The Peterborough Hospital, Peterborough, was opened for the care of patients, June 30. The hospital consists of the remodeled house of Mr. and Mrs. Robert Parmalee, with extensive additions, and was made possible by the contributions of Mr. Parmalee, Mrs. B. P. Cheney, and Mrs. Carl Kaufman, and others. There are nine private rooms with two rooms of three beds each. The medical staff consists of Drs. H. Cutler, Frank B. Foster, Charles W. Harrington, and Franklin G. Warner, all of Peterborough. There is also an associate medical staff comprising physicians in neighboring cities, as well as a consulting staff of specialists.

NEW JERSEY

Camden Health Director Appointed.—The appointment of Dr. Arthur L. Stone, Pittsfield, Mass., as director of health of Camden, was announced, July 18. He will take office August 1, succeeding the nine members of the board of health legislated out of office by the city commission. Dr. Henry H. Davis, a member of the former board for twenty-five years, has been directing the department during the past two months, pending the appointment of a director.

NEW YORK

Homeopathic Hospital Changes Name.—Supreme Court Justice Staley, Albany, granted an order permitting the board of trustees of the Homeopathic Hospital of Albany to change its name to "Memorial Hospital," effective August 1, it is reported. The purpose of the change was, it is said, to show that the institution had broadened its scope. Other grounds were: "That in all the activities of the hospital it should be and is the aim of those in authority to be abreast of the most advanced scientific developments in medical and surgical treatment, irrespective of any particular or prescribed school."

Epidemic of Puerperal Septicemia.—The *Sanitary Bulletin*, Buffalo (May), reports an unaccountable epidemic among puerperal women in the hospitals and maternities of Buffalo. A few days after delivery, the affected mothers developed a fever which in some cases rose to 104 degrees, and persisted for several days. The epidemic occurred in nearly every maternity hospital in the city. A few patients died. The department of health of Buffalo made an investigation, but was unable apparently to determine the direct cause. Among the results of the investigation tabulated (*Boston Medical and Surgical Journal*, July 12, 1923) are: (1) The period of infection above referred to corresponded to the time when most of our measles epidemic occurred in the city, there being 625 cases of measles in January, 955 in February, 1,457 in March, 1,157 in April, and 785 in May. To what extent, if any, this measles epidemic had to do with the puerperal epidemic is problematical; but inferences may be drawn from the fact that in some instances it was learned by the hospital authorities that some of the infected mothers came from homes in which measles existed—unknown to the hospital authorities. Several cases were recorded as developing a rash of measles or scarlet fever while in the hospital. (2) Promiscuous visiting to maternity cases, especially by children, was almost universal.

New York City

Safety Show.—Brooklyn will hold a safety, health and sanitation exhibition, October 20-27, the aim of which will be to reduce through education preventable deaths, accidents, property destruction, and disease through the application of modern protective devices and methods.

Morbidity in New York City.—A statement issued by the United Hospital Fund, June 30, declares there are on an average, 180,000 people a day sick in New York City, whose illnesses cost the community $54,000,000 a year. The cost of preventable illness and deaths in the United States as a whole, it is said, is $3,000,000,000 a year. The report emphasizes the fact that hospitals supported by public contributions should devote greater efforts to the preventive side of their work.

Automobile Deaths Decrease.—According to figures collected by the Bureau of Public Safety, there were 548 persons killed by motor vehicles during the first six months of 1922, compared with 553 during the corresponding period of this year, although the number of automobiles in the city has increased from 269,945 to 315,614. The decrease in the number of accidents is attributed to the safety campaign, to which children have apparently given greater heed than adults. The Bureau of Public Safety has detailed police lieutenants to lecture to more than 250,000 children in the public and parochial schools of the city. In the first six months of 1922, 242 children under 16 years of age were killed and 5,623 injured, while during the same period this year 200 children have been killed and 4,801 injured.

NORTH CAROLINA

Supreme Court Holds Health Statute Void.—The supreme court has decided that the statute authorizing the board of commissioners of Gaston County to issue bonds to construct a tuberculosis hospital is void. The state constitution prohibits, it appears, the enactment of any local statute on various subjects, among which are "health, sanitation, or the abatement of nuisances."

Personal.—Dr. William M. Jones, Jr., Greensboro, for eleven years county physician and health officer, has tendered his resignation to be effective not later than August 1.——Dr. Joseph L. Spruill, until recently on the staff of the North Carolina State Sanatorium for Tuberculosis, will take charge of the Guilford County Hospital for the Tuberculous September 1.——Dr. Edwin H. Bowling, Durham, received the degree of doctor of laws from Union Christian College, Marion, Ind., at the recent commencement, in recognition of his work on pellagra.

NORTH DAKOTA

Hospital News.—More than thirty pledges for at least $1,000 have been obtained for a new hospital building at Valley City.

OHIO

Parking Privileges Wanted.—The Marion County Medical Society adopted a resolution requesting the mayor of Marion to lift the ban on parking restrictions for physicians and to reserve parking space for them near their offices and in front of drug stores, it is reported.

Delaware Discontinues Sanitary Policeman.—The city council, Delaware, passed an ordinance abolishing the position of sanitary policeman, whose duties will fall on the health officer and other members of the health department. Arrests now for infractions of sanitary regulations will be made through the usual police channels.

Baby Clinic for Barberton.—A baby clinic was opened in Barberton, July 11, with the cooperation of local physicians. The clinic will be open from 8 a. m. until 5 p. m., when children under 6 years of age will be examined, and mothers advised as to their care. Heretofore, much of this work has been done in the neighboring city of Akron.

OKLAHOMA

Physicians' Exchange Organized.—The Pittsburgh County Medical Society has organized a physicians' exchange to facilitate the calls and service of its members.

Health Officers Appointed.—Dr. Bart M. Ballenger, Strong City, has been appointed health officer for Roger Mills County.——Dr. Waldo B. M. B. Newell, Enid, has been appointed health officer of Garfield County.——Dr. William M. Cott, Okmulgee, has been appointed city superintendent of health.

OREGON

State Society Reelects Its First President.—Dr. Alfred C. Kinney, Astoria, elected forty-nine years ago as first president of the Oregon State Medical Association, was unanimously reelected to that position at the annual meeting in Portland, July 11. Other officers elected were as follows: Drs. Richmond Kelly, Portland; Otis B. Wight, Portland; David Robinson, Tillamook, vice presidents; Dr. Ralph C. Walker, Portland, treasurer; Dr. Courtland L. Booth, Portland, secretary; Drs. Roy C. McDaniel and Roy S. Stearns, Portland, councilors.

PENNSYLVANIA

Typhoid at Karthaus.—Eighteen cases of typhoid fever were recently reported at Karthaus, Clearfield County. A health engineer from the state health department, it is said, will be detailed to determine the cause and devise procedures to stop the epidemic. One death has been reported.

Hospital Campaign.—The campaign for funds for Mercy Hospital, Johnstown, reached a total of more than $280,000, which exceeds the quota by more than $30,000. In three hospital campaigns in the last six weeks, the people of Johnstown and vicinity have subscribed about $900,000, it is reported.

Smallpox in Cambria County.—Twenty-one cases of smallpox have developed in Cambria County since May 1, all of which have been isolated in the Municipal Hospital, Johnstown. These cases, it is said, were probably due to the importation of negroes. Fourteen of every hundred negroes who applied for work at the Bethlehem Steel Company were unvaccinated. Only one case of smallpox has developed in a white person.

Philadelphia

Jefferson Plans Campaign.—The board of trustees of Jefferson Medical College has announced a campaign to raise funds to meet insistent demands for greater hospital service. This will be the forerunner of the centenary of the institution in 1925. A fourteen-story annex to the hospital, now under construction, will be completed at that time.

University President Nominated.—Dr. Josiah H. Penniman, Ph.D., LL.D., provost of the University of Pennsylvania, was elected president of that institution at a meeting of the board of trustees, July 16. The trustees have thus filled the post created for Major-General Leonard Wood, who declined the position because his presence was needed in the Philippine Islands. The salary is $25,000 a year.

Professor Keen at 86.—Dr. William W. Keen represented Philadelphia at the sixth triennial congress of the International Surgical Society, London, England, July 17. The Prince of Wales in welcoming the delegates said: "I am glad to extend personal welcome to the society's last president, Dr. William W. Keen, who despite the eighty-six years he carries so lightly and the weight of his world-wide reputation, is again among us ready as always to participate in every meeting, social or scientific, of this distinguished gathering."

Committee on Health and Medicine for Sesquicentennial.—In preparation for the Sesquicentennial Exhibition in 1926, and for the international congress which will meet coincidentally with the Fair, the executive committee of the Sesquicentennial Exhibition Association recently appointed, among others, the following on the committee on health and medicine: Drs. William C. Braisted, Jay F. Schamberg, Henry K. Pancoast, David Riesman, Charles J. Hatfield, J. Leslie Davis, Edward B. Hodge, Chevalier Jackson, George A. Knowles, Hubley R. Owen, William Duffield Robinson, J. P. Crozer Griffith, Lewis Brinton, Barton Cooke Hirst, Charles S. Hirsch, Samuel McC. Hamill, Henry D. Jump, Desiderio A. Roman, Harry B. Wilmer, Jr., and O. G. Lewis.

SOUTH CAROLINA

Personal.—Dr. William M. Bevis has been appointed medical director of the Waverly Sanitarium, Columbia.——Drs. Julius H. Taylor, Columbia, and Robert E. Abell, Chester, have been appointed members of the state board of medical examiners.

Antimalaria Work.—Branchville has voted a bond issue of $4,800 for ditching and draining and other work designed to destroy the breeding places of mosquitoes.——Several other towns in the state are now actively engaged in similar work, Saluda having recently joined the number.——Georgetown, in addition to the draining and ditching, is trying out creosote in the lumber camps, negro cabins and other houses which do not warrant screening, it is reported.

TENNESSEE

Smallpox at Chattanooga.—Twelve cases of smallpox were reported among the colored people of Chattanooga, July 7, all of which, it is said, were imported from other cities. The cases appear mild and all have been quarantined.

Dairy Herd Quarantined. — The city health department, Chattanooga, has quarantined a dairy herd whose products were sold in the city and whose owner has typhoid fever. Further sale of all products from this herd has been prohibited until it has been moved to another place and kept in quarantine for from ten to fifteen days. The cattle have been moved and are under observation.

TEXAS

Society Entertains Surgeon-General.—The El Paso County Medical Society held a special meeting and gave a dinner to Surg.-Gen. Merritte W. Ireland, June 18. General Ireland gave a talk on "Preparedness." Among others present were the mayor, R. M. Dudley, and Judge Ballard Coldwell.

El Paso Health Department Reorganized. — The health department of the city of El Paso has been reorganized and placed on a full-time basis. At the request of the mayor, an officer of the U. S. Public Health Service was assigned to El Paso to reorganize the department and to direct the work during reorganization. The organization follows the usual lines of municipal health organization, although it was necessary in this city to incorporate with it medical charities. The board of health, of which the mayor is chairman, comprises three members, two of which must be physicians and members of the El Paso County Medical Society. The health officer is an ex-officio member and acts as secretary. The board of health is distinct from the health department which is directly under one of the aldermen or commissioners. The budget for 1923 was $85,625. El Paso has had, it is said, a high death rate, which in 1921 reached 25.2 per thousand living population. The new department now has twenty-three full-time employees, and five on part time.

VIRGINIA

Tuberculosis Clinic Established.—A permanent tuberculosis clinic has been established in Loudoun County through the efforts of the county branch of the Virginia Tuberculosis Association. It will be conducted in conjunction with the county health department. Dr. Henry A. Latane, Alexandria, is the acting clinician.

Personal.—Dr. Osbourne O. Ashworth, Catawba, became a member of the staff of St. Elizabeth Hospital, Richmond, July 1.——Dr. James E. Wood, Jr., who, since graduation, has been intern and house officer at the Massachusetts General Hospital, Boston, was elected by the board of visitors an instructor in internal medicine at the University of Virginia.——Dr. Lawrence T. Royster, Norfolk, Dr. Isaac Pierce, Tazewell, and Dr. Achilles L. Tynes, Staunton, have been appointed by the governor members of the state board of health.

WISCONSIN

Health Legislation. — At the legislative session recently closed, a number of bills pertaining to disease and popular education in health matters were passed. A bill was enacted to add the teaching of symptoms of disease and the proper care of the body to the curriculum in all public schools, it is reported; however, such instruction shall not be given over the written objection of parents. The Wisconsin Anti-Tuberculosis Association sponsored a measure which permits admitting to sanatoriums any person having incipient symptoms of tuberculosis, for the purpose of diagnosis and treatment. An amendment also changed the word "indigent" to "unable to pay," which will simplify the admission of such patients. A bill was passed by which any county may establish a county hospital for indigent and pay patients. The control of venereal disease was strengthened by two enactments, it is said, one preventing any person with venereal or a communicable disease from working in a place where food is served or sold; the other permitting qualified officers of the state board of health, as well as state and deputy health officers, to file complaints against persons with such maladies in order to force their commitment. Another new law removes the right of secrecy as to a physician's information regarding the presence of venereal disease. The state also accepted the Sheppard-Towner Maternity Law and made provision for the necessary appropriation.

PHILIPPINE ISLANDS

The Hospital Service in the Philippine Islands.—The insular government is planning to provide public hospitals, it is reported, in all provinces of the archipelago, and a large appropriation has been made for that purpose. A hospital committee has been appointed, under the chairmanship of Col. E. L. Munson, to study plans of organization, and administration of provincial hospitals.

Medical Convention in the Philippine Islands.—A convention of all presidents of sanitary divisions in the province of Rizal and all the physicians in the service of public hygiene of various parts of the Island of Luzon was recently held on the heights of Antipolo. The governor general, Vice Governor Gilmore, Dr. Munson and Dr. Ruiz delivered addresses. A few days later, the presidents of the sanitary divisions of the island of Luzon held a conference in the city of Manila.

CANADA

Society News.—The Academy of Medicine of Western Ontario elected the following officers for the year 1923-1924: Drs. George C. Hale, London, president; Frederic J. H. Campbell, London, vice president; John I. Ferguson, London, treasurer; G. A. Ramsay, London, secretary; Emerson L. Hodgins, London, William M. Shoebotham, London, and John C. Wilson, London, executive committee.——The British Association for the Advancement of Science will hold its annual convention in Toronto, Canada, in September, 1924.

GENERAL

Medical Veterans Elect Officers.—At a meeting of the Medical Veterans of the World War, San Francisco, June 28, the following officers were elected: Dr. J. Carey Vaux, Pittsburgh, president; Dr. B. F. Adler, San Francisco, vice president; Dr. A. T. McCormack, Louisville, Ky., secretary, and Dr. P. E. Blackerby, Louisville, Ky., assistant secretary-treasurer. The organization, it is said, numbers 11,000 physicians.

Health in England.—The minister of health, Mr. Neville Chamberlain, speaking before the House of Commons, said, it is reported, among other things, that in 1900 the deaths from cancer were 829 per million of the population, and in 1921 they had risen to 1,215. There was no doubt, he admitted, after making allowance for improved diagnosis and greater longevity, that the records established a real increase in cancer. Deaths from tuberculosis, he said, in 1867 were 2,653 per million; last year they had fallen to 855. In his opinion, the smallpox situation in England was serious. Twenty years ago, 75 per cent. of babies were vaccinated; today, only 38 per cent. are vaccinated.

Awards for Advancement in Community Health Service.—The American Public Health Association, New York, announces that it will offer a series of awards in recognition of attainment and advancement in community health service. The status of the health work of different cities will be determined by surveys conducted by agents of the association. Ratings, in accordance with a plan to be considered at the annual meeting of the association in Boston, October 8, will take into account all health agencies, voluntary as well as official. The first series of awards will be made to cities of 100,000 or more population which show the most nearly adequate community health service as of January, 1924. Similar awards will be made in succeeding years, it is proposed. Selection of the winners will be made not only on actual attainment, but also on progress since January, 1924.

Committee on Municipal Health Department Practice.—Through the cooperation of the Metropolitan Life Insurance Company and the United States Public Health Service, the work of the committee on municipal health department practice will be continued and extended. This committee, appointed three years ago by the American Public Health Association, has conducted a survey of the organization and work of eighty-three large municipal health departments, the report of which will soon be published as a special bulletin by the U. S. Public Health Service. Surgeon-General Cumming, it is said, has agreed to establish an office of administrative health practice to work in cooperation with the American Public Health Association Committee, which will make available for the new office its records. New information obtained at the office in Washington will likewise be at the disposal of the members of the American Public Health Association.

Association News.—A joint meeting of the Medical Society of the Missouri Valley and the Interstate Society of Radiology and Physiotherapy will be held in Omaha, September 18-21, under the presidency of Dr. Charles L. Mullins, Broken Bow, Neb.——The American Dietetic Association will hold its sixth annual meeting in Indianapolis, October 15-17, at the Hotel Claypool. Dr. Russell M. Wilder, Mayo Clinic, Rochester, Minn., will address the meeting.——At the recent meeting in Detroit of the American Psychiatric Association, the following officers were elected: Drs. Thomas W. Salmon, Larchmont, N. Y., president; William A. White, Washington, D. C., vice president; Clarence Floyd Haviland, Albany, N. Y., secretary-treasurer.——The thirty-sixth annual meeting of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons will be held in Philadelphia, September 19-21, 1923.——The eighth annual meeting of the American Association of Industrial Physicians and Surgeons will be held in Buffalo, October 1-3.——The annual assembly of the Tri-State District Medical Association of Iowa, Illinios, Wisconsin, Minnesota and districts of surrounding states will be held at Des Moines, Oct. 29 to Nov. 1, 1923.——The American Association for the Advancement of Science will hold its seventy-seventh meeting at Los Angeles, September 17-30.——The seventh International Congress of Psychology to be held at Oxford, England, July 26 to August 2, will be restricted to 200 trained physiologists and a few others approved by the committee.

Professor Pawlow's Visit to America.—"The three weeks spent in America by Dr. Ivan Petrovitch Pavlov, winner of the Nobel prize for medicine in 1904, and one of the most distinguished physiologists in the world, have not been pleasant," said the New York *Times* last week. "He was robbed of $2,000 in a train in the Grand Central Terminal, was forced to become the guest of the Rockefeller Institute because of his predicament and then was refused a British visé to his passport because he was a Russian.

"As a result, Dr. Pavlov, who will sail today on the White Star liner *Majestic,* will not be able to attend the Edinburgh Congress of Physiologists, where his presence was desired by his fellow scientists. With his son, Professor Vladimir Pavlov, he will leave the *Majestic* at Cherbourg under French visé which was readily granted to him, and after a short stay in France will return to Russia.

"Dr. Pavlov is a tall, distinguished looking man, straight despite his 75 years. He left Russia, where he conducts laboratories in Petrograd, to attend the Pasteur anniversary celebration in Paris. He came to this country three weeks ago and after a few days started for New Haven to visit friends. Few persons knew that he was in the country, for if they had he would have been welcomed by scientists here as a celebrated physiologist.

"He and his son had hardly taken their seats on a train in the Grand Central Station when three men set upon the old man and snatched from him his pocketbook, containing all their funds, $2,000. The porter and the son attempted to catch them, but were unsuccessful, and the old man and his son left the train, perplexed as to what they should do in their predicament. They finally got in touch with Dr. P. A. Levene, of the Rockefeller Institute, and since then have been the guests of the institute.

"When Dr. Pavlov attempted to get the British visé to his passport he was told that it could not be done. He was accompanied by Dr. Levene, who explained that Dr. Pavlov was not a Bolshevist, that in fact he was anti-Bolshevist, but the passport bureau of the British consulate maintained that they could not visé any Soviet passport without express instructions. Two visits were made by the Pavlovs and Dr. Levene to the consulate, on Thursday and again yesterday, but without success, the son explained last night.

"In his Petrograd laboratories Dr. Pavlov has thirty doctors and other helpers working under his direction. Despite his anti-Soviet beliefs, the Soviet government has protected him and aided him in maintaining his laboratories because of his scientific research. Recently the Soviet government published his collected papers and distributed them. In recent years he has studied the psychology of animal instinct and formed theories of sleep and hypnotism. His chief researches deal with the physiology of the heart, secretion of the glands, digestion and the producing of gastric and pancreatic fluid."

FOREIGN

The Kaiser Wilhelm's Academy at Berlin.—The national public health service has recently come into possession of this institution, formerly the military medical training school. The plan to consecrate it solely to medical research had to be abandoned, but its extensive library and unique collections of war and constitutional pathology specimens are to be maintained intact.

Call for Physician on the Faroe Islands.—The *Ugeskrift for Læger* questions the alleged overproduction of physicians. Three calls have been made in vain to fill the position of chief physician at the hospital for tuberculosis at Thorshaven, Faroe Islands. It is an institution of thirty-four beds, in a healthy climate. There is a good opportunity to develop private practice, in addition to the salary offered.

Vaccination in Switzerland. — The sanitary authority at Zurich has issued a compulsory vaccination order applicable to all persons engaged at public establishments, factories and schools, and their families. Persons disobeying the order are subject to a fine of from 10 to 500 francs, or imprisonment. A number of cases of smallpox have recently been reported in northern and central Switzerland.

Japanese Medical Mission at Home.—The Japanese Medical Mission, which recently toured the United States and Canada to study medical institutions, has returned home. The report of the mission has not yet been received, but the impression gained is indicated in an informal report given out by Dr. K. Miura, head of the mission, who said, in part: "Educationally speaking, the United States and Canada are now seeking quality rather than quantity; especially is this true in regard to the study and practice of medical science. . . . In the building of hospitals and medical schools, all is of the best. Public sanitation is excellent and preventive means are being taken in a large measure. Sickness is rapidly becoming less prevalent on that continent when present conditions are compared with those of years ago."

Control of Insulin in Scandinavia.—Since remedies cannot be patented in Norway, Sweden and Denmark, the preparation of insulin would naturally be open to any manufacturer desiring to manufacture this product. Prof. August Krogh, it is said, foresaw possible objections to the open manufacture of insulin in these countries and went to Toronto where arrangements were made by which no preparation can be sold as insulin in Scandinavia unless approved by him. Löven's Kemiske Fabrik will undertake the manufacture of insulin without profit in Scandinavia. The laboratory will be an independent institution, and only the direct cost of manufacture, control and distribution will be considered in fixing the price. After the capital sum invested in the institution has been paid, the proceeds of the sale of insulin will be devoted to further research and to extending the plant. The charge provisionally fixed for every Toronto unit of insulin is 20 Danish öre.

Personal.—Dr. Thomas Jones Mackie has been appointed Robert Irvine professor of bacteriology, University of Edinburgh, to succeed the late Prof. James Ritchie. —— Sir Clifford Allbutt received the Triennial Gold Medal of the West London Medico-Chirurgical Society at its annual dinner, June 19.——Sir Anthony Alfred Bowlby, president of the Royal College of Surgeons, England, was recently honored by the king with a baronetcy. Dr. George Francis Blacker, Dean of University College Hospital Medical School, was knighted on the same occasion.——The Prince of Wales has accepted the invitation of the president and council to be present at the annual dinner of the Royal Society of Medicine, December 11.——Dr. S. Recasens, dean of the medical faculty, has been elected senator as the representative of the University of Madrid.——Dr. B. Rodriguez Arias, of the editorial staff of the *Revista Española de Medicina y Cirugía*, Barcelona, has been elected foreign member of the Société médicopsychologique at Paris. He is also a member of the French Société de neurologie.——The prize of 100 pesetas offered by the Spanish journal *Archivos de Medicina y Cirugía* has been awarded to Drs. Gottschalk and Nonnenbruch for their work, "Importance of the Liver for the Intermediate Metabolism of Albumin."——The seventieth birthday of Dr. Max von Gruber, professor of hygiene, Munich, was the occasion of many greetings from home and abroad; a volume of the *Archiv für Hygiene* was presented as a *Festschrift*.——Dr. and Senator Bassini has presented the Bassini Institute for Treatment of Hernia, Milan, with a large estate near Verona. Dr. A. Preto, professor of operative medicine at Padua, is the founder and director of this charitable institute to which he gave Bassini's name.——The public health service of Spain has appointed the following three physicians to the fellowships offered by the Rockefeller Foundation for a visit of inspection and study in America: Drs. Fernández Besones, inspector for Salamanca province; Ortiz de Landazuri, of the central sanitary brigade, and Fucgó, the bacteriologist of the public health headquarters at Vigo.——Prof. R. Lozano of Zaragossa has selected as the title for the lecture he will deliver at the Paris medical faculty, "Unusual Facts of Medicine."——One of the oldest medical societies of Europe, the Cercle médical of Antwerp, recently presented its honorary president, Dr. Tricot-Royer, the medical historian, with a bronze portrait tablet, the manifestation concluding with a banquet.——The prizes founded by Dr. Sarabio y Pardo, Madrid, for eminent work in pediatrics, has been awarded to Dr. Santiago Cavengt, editor of *Pediatría Española*, for his publications on "Hysteria in Children" and "Infantile Endocrinology." Dr. Sarabia y Pardo has been decorated by the French government as chevalier of the Legion of Honor.——Dr. Albrecht Kossel, professor of physiology at Heidelberg, retires this year, having reached the age limit.——Prof. W. S. van Leeuwen, Leiden, has become "scientific editor" for an important daily paper in the Netherlands, the *Telegraaf*, and has taken up the work of "popularizing medicine."

Deaths in Other Countries

Sir James Reid, physician to Queen Victoria and King Edward, London, England, aged 73.——Col. **John Girvin**, A.M.S., retired, London, England, recently.——**Hugh Clayton Fox**, F.R.C.S.I., England, aged 59, of angina pectoris.——Dr. **Carl von Hess**, professor of ophthalmology at Munich, author of works on physiologic optics; aged 60; received the Graefe medal in 1922.——Dr. **Andres Posada Arango**, Medellin, formerly president of the Academia de Medicina of Medellin, aged 84.——Dr. **P. Mathes**, professor of obstetrics and gynecology at Innsbruck.——Dr. **Praxedes Llisterri Ferrer**, professor of clinical medicine at Valencia.——Dr. **M. Pietravalle**, Naples, vice president of the house of deputies and director of the local public hospital system, assassinated at the age of 55.

Government Services

Reserve Officers' Training Camp

The Reserve Officers' Training Camp, at Carlisle Barracks, Pa., was opened, June 14, being the third of its kind held at Carlisle. Reports indicate an attendance of about 200 medical, forty-five dental and eleven veterinary students, a total of 256, from seventeen Eastern universities. Reserve Officers' Training Corps units of the first, second, third, fourth and fifth corps areas are sending medical, dental and veterinary students to Carlisle this year to receive summer training. Sixteen professors of military science and tactics from the camp staff serve as company commanders. The largest group of students is from Ohio State University; the second largest, from Jefferson Medical College, and the third largest, from the University of Pittsburgh. Col. Percy M. Ashburn, M. C., is the camp commander, and Lieut.-Col. William J. L. Lyster, M. C., is in command of the provisional battalion of students. The course of instruction is entirely practical, consisting of demonstrations and problems. The four student companies have been organized into the following units of a medical regiment: (1) regimental detachment; (2) a collecting company; (3) an ambulance company, and (4) a hospital company, rotating at the end of each week so that every student may serve in each of these units. The camp is near the historic Carlisle Athletic Field. The students are quartered under canvas, utilizing field equipment. Civilian cooks do the cooking, utilizing the students in rotation as "K. P's." Students may use the post exchange, the post gymnasium, the baseball diamonds and the tennis courts and volley ball equipment. There are classes in equitation. The Service Club is available at all times to the students. Motor truck trips to the Battlefield at Gettysburg are planned. A field meet was held July 4. Reports from Carlisle indicate a loyal cooperation on the part of the student body. Similar but smaller camps for the R. O. T. C. of the medical department are located at Fort Snelling, Minnesota; Camp Lewis, Washington, and at Fort Sam Houston, Texas.

Foreign Letters

LONDON

(From Our Regular Correspondent)

July 7, 1923.

The British Empire Cancer Campaign

In a previous letter, the foundation of the British Empire Cancer Campaign was described. The Royal Society and the Medical Research Council have agreed to receive delegates of the campaign to discuss the formation of a scientific committee for the distribution of the money subscribed for research purposes, and the revision of the articles of association of the campaign which may be necessary to give effective powers to the committee. The grand council of the campaign has held its first meeting. The council consists of representatives nominated by the principal bodies and institutions especially interested in cancer, seven by the Imperial Cancer Research Fund, seven by the Cancer Hospital, seven by the Middlesex Hospital, and three by St. Mark's Hospital. A small subcommittee was appointed for the purpose of considering changes in the articles of association, so as to secure the cooperation of all parties interested in the undertaking.

The New Vaccine Treatment of Tuberculosis and Other Diseases

The new vaccine treatment, introduced by Professor Dreyer of Oxford, is attracting a great deal of attention and, in reply to inquiries, the Medical Research Council issued the following important statement: When it had been shown by experiment that small animals highly susceptible to tuberculosis, when infected with tubercle bacilli, were improved or lost the signs of active disease after the use of the new vaccine, arrangements were made for trials of this treatment under suitable control at three London hospitals. The results have been favorable almost without exception in tuberculosis of the lungs or other internal organs, but no final opinion can be pronounced until a longer period has elapsed. In tuberculosis of glands and of the skin, it can already be said that the results have surpassed any attained regularly by other methods. Encouraging results have also been obtained in puerperal fever and other septic conditions. There is therefore good ground for the hope that an important advance in the treatment of tuberculosis and other diseases has been made. The council is arranging for trial of the treatment by physicians and surgeons at centers in different parts of the country where suitable facilities can be provided. Supplies of the new vaccine will be prepared for distribution at the Oxford School of Pathology, from which for some years serums for typhoid, paratyphoid and dysenteric infections have been made for the Medical Research Council. As soon as the progress of the patients has been sufficiently watched, full publication will be made of the results. If these justify the hopes formed, large supplies of the vaccine can be produced at small cost.

Medical Fellowships in the United States for British Graduates

The Rockefeller Foundation has provided the Medical Research Council with a fund for providing fellowships in medicine in the United States for graduates who have had some training in research work in the primary sciences of medicine or in clinical medicine or surgery, and are likely to profit by work at a university or other chosen center in the United States before taking up positions for higher teaching and research in the United Kingdom. A fellowship will be of the value of not less than $1,575 for a single fellow or $2,350 for a married one, with traveling expenses and some other allowances in addition. It will be tenable for one year. Similar fellowships are to be provided for American graduates desiring to work for a time in this country.

The Smallpox Epidemic

The ministry of health has issued a statement on the smallpox situation. The Gloucester epidemic was not dealt with as early as it might have been, because of the refusal of the local health officer to admit the presence of the disease on a large scale in the city. But cases were admitted as early as April, and he was advised of the danger early in May by the ministry on cases occurring at a distance from Gloucester, which were traced to that city. At the end of May, a medical officer of the ministry visited various suspected cases in Gloucester and found them to be smallpox. The health officer of Gloucester would not agree, and another expert, Dr. Cameron of the metropolitan asylum board, was sent to the city and confirmed the diagnosis of smallpox. A subsequent house to house visitation by officers of the ministry established the existence of an epidemic. Then Dr. Davison, senior assistant medical officer of health of Birmingham, was invested with control. A special hospital and vaccination stations were established, and contacts were traced as far as possible. Fresh cases are occurring, but the situation is well in hand, though there is urgent need of vaccination of the population. The Gloucester epidemic shows the danger of incorrect diagnosis. It is the duty of the general practitioner to notify cases of smallpox to the health officer, and if in doubt, to consult him. If, in his turn, the latter has any doubt, he should consult the ministry of health, and its staff will at once assist him as to the diagnosis, and steps will then be taken to stamp out infection. In view of the number of calls now being made on the ministry and the limited staff available, arrangements have been made by which health officers expert in smallpox are ready to give immediate help in twelve districts into which the country has been divided. In June, 408 cases of smallpox were notified in England and Wales, as compared with 151 in January, 154 in February, 214 in March, 141 in April, and 112 in May. The disease is widely spread over the country. The notifications in the first six months of the year are largely in excess of those for the whole of last year, and out of all comparison with those recorded since the last epidemic period of 1902 to 1904. In view of the neglect of vaccination (the percentage of children vaccinated in 1921 being 38 of the births, as compared with 80 in 1907), and the rarity of adult revaccinations, the ministry regards the situation with concern and fears a serious outbreak. It considers that, now that infection has been introduced, the only remedy is increased recourse to vaccination. In the House of Commons, Mr. Neville Chamberlain, minister of health, uttered a serious warning. He said that, as the result of vaccination, smallpox was for some time almost extinct in this country. In 1917, there were only seven cases, but there had been a serious revival of the disease; in 1922, there were 973 cases, and this year, up to June 16, 955. The disease was present in a mild form, but might soon develop into a more virulent one. Owing to the neglect of vaccination, they were faced with the possibility of a great epidemic dangerous to health and perhaps to life.

Dr. William Mayo

Dr. William J. Mayo is visiting this country, and has delivered at the Royal Society of Medicine an address on the "Surgery of the Bile Ducts." The surgical section of the society gave a complimentary dinner in his honor, at which the president, Mr. James Berry, presided and was supported by a large attendance of fellows and members from all over the United Kingdom. Responding to the toast of his health, Dr. Mayo described the zeal for education in his state of 3,000,000 inhabitants, which had 11,000 students attending its university, and 8,000 intimately connected with it. Sir Berkeley Moynihan proposed "American Surgery," reciting the names and achievements of a series of American surgeons, most of whom, like himself, bore Irish names. He described Dr. William Mayo as "the greatest statesman of surgery of all time." The characteristics of American surgery, he considered, were masterly technic, fertility in suggestion, integrity of utterance and unbounding hospitality to new ideas. Dr. Mayo has also visited Dublin, where he was present at the "Charter Day" dinner of the Royal College of Surgeons in Ireland. Replying to a toast, he referred to the men of Irish birth who had won distinction in America, and described the late Dr. J. B. Murphy as the greatest surgeon of his day.

Danger of Pulmonary Tuberculosis in Letting a Furnished House

A case raising a novel point has recently been decided in the courts. A man with his wife, a daughter, aged 15, and a son, aged 12, entered into possession of a furnished house, October 26. On the following day he ascertained that the husband of the woman who let him the house had suffered from pulmonary tuberculosis, and had lived in the house in July and September. The tenant vacated the house, October 28, and brought an action for damages against the landlady for breach of the implied warranty that the house was fit for habitation. The case was a protracted one, and there was a conflict of medical evidence. It came out in the evidence that the plaintiff's wife on hearing that the defendant's husband was in Switzerland asked at the office of the house agent who let the premises whether he was suffering from consumption and was told that he often went to Switzerland on business. As a matter of fact, he died there from the disease.

For the plaintiff, Dr. W. J. Fenton, senior physician to the Brompton Hospital for Consumption, stated that it would not be safe to take a furnished house in which a person suffering from consumption had been lying unless it had been thoroughly disinfected under the supervision of a health officer. In cross examination he admitted that from 50 to 100 per cent. of the people in this country were infected with tuberculosis, opinions differing as to the exact percentage. No case of infection from premises inhabited by infected persons six weeks previously had come under his notice. The plaintiff stated that, when he entered into possession, the house was apparently clean; but there was considerable dust, and the kitchen, scullery and outside premises were dirty.

For the defendant, Dr. S. V. Pearson, superintendent of the Mundesley Sanatorium, a well-known authority on tuberculosis, was called. He stated that the defendant's husband was an inmate of his sanatorium, where he received full instructions with a view to minimizing infection. Tuberculosis was not infectious in the ordinary sense. There must be massive infection—the intaking of bacilli in one or two virulent doses from an acute case. One person in every six died from tuberculosis in this country. In his opinion, the plaintiff ran no risk in the defendant's house. He had never heard of a case of infection from entering a house inhabited six weeks previously by a tuberculous person. He once let his furnished house to a person who died there from tuberculosis, and he and his wife occupied the bedroom almost immediately afterward. He thought that the room was fumigated and possibly it was cleaned in the ordinary domestic sense before they went back into it. There was no recorded case of tuberculous infection from premises left by an infected person.

The defendant stated that when her husband was found to be suffering from consumption he slept on the balcony, the windows of the house were always open, and he was always careful and took all precautions. Before the plaintiff came in, the house was thoroughly cleansed. Dr. Punch, assistant physician at the Brompton Hospital, gave his opinion that, on the evidence there was no danger of infection from the house.

In giving judgment, Mr. Justice McCardie pointed out that in letting a furnished house there was by law an implied warranty of fitness for occupation. Pulmonary consumption in the adult was the result of infection from human beings. The sputum or other ejection might fix on walls, floor, carpets and bedding, and if allowed to dry might be virulent for six months. The house was left in a dusty and dirty condition and was a dangerous harbor for tubercle bacilli. He therefore gave judgment for the plaintiff with $650 damages.

PARIS

(From Our Regular Correspondent)

June 29, 1923.

The Campaign Against Vivisection

At the recent meeting of the municipal council of Paris, Emile Desvaux brought forward the following recommendations: (1) that a law be passed for the strict regulation of vivisection; (2) that no one but doctors of medicine and doctors of science be authorized to perform vivisection, and (3) that an authorized operation may not be performed more than once in the laboratory rooms of the faculty that secured the authorization.

In support of his demands, Desvaux introduced documents relating acts of cruelty committed against animals. The charge was brought that such practices had occurred in certain hospitals and in a certain school of veterinary medicine. As for the hospitals so accused, Dr. Mourier, director of the Assistance publique, has issued a formal denial. One of the former pupils of the veterinary school, M. Roéland, has also filed an energetic protest against the suspicion cast on his alma mater, and has positively asserted that no such experiments were ever performed as "raising the skin of living horses to study the movements of the muscles." M. Roéland also called attention to the fact that a man like Pasteur who was neither a physician nor a doctor of science would not have been able to make his wonderful discoveries if the restriction Desvaux demanded had been in force at the time.

An Address by Professor Rabello

An address by Professor Rabello of Rio de Janeiro before the Société française de prophylaxie sanitaire et morale on the campaign against venereal disease in Brazil has been announced for the immediate future.

Paul Bourget as Psychiatrist

Mme. Dr. Reine H. Louge chose as the subject of her doctoral thesis in medicine, "Paul Bourget as a Psychiatrist." In her study she discusses certain constitutional psychopaths that figure in Bourget's novels. According to Madame Louge, at no other time has mental pathology been reflected in the literature of the imagination as it is today. In support of her opinion she cites numerous examples: The novel by Francis Carco, L'homme traqué, which deals with a remarkable case of mental contagion; Le Phare, by Paul Reboux, which derives its dramatic interest from an attack of mania in a lighthouse keeper; Sa vraie femme, by André Corthis, which treats of an hallucination due to a disturbance of the imagination. The present-day taste for violent emotions leads naturally to the exploitation of the tragic elements of insanity, which presents more horrifying situations than death itself. To this must be added the taste for the new, which is the reason why psychanalysis and freudism have found favor in fiction. Le mangeur de rêves, by Lenormand, is a good example of this.

Madame Louge ascribes more interest to another group of writers who "gladly use the atmosphere of depth and truth that science is able to give to art." Among these, Paul Bourget occupies one of the first places. Paul Bourget has more than once declared that he is an ardent student of psychiatry, and that he considers psychiatry destined to furnish "a principle of enrichment" to the literature of observation, in which he includes history, criticism, the novel and the drama. He studied assiduously and for many years the teachings of the lamented Professor Dupré, to whom he has dedicated one of his books, L'envers du décor, in which he has given, according to his own statement, certain "observations" (in the technical sense that attaches to the term in the hospitals and clinics). "I have missed my calling," he says in one place; "I ought to have been a physician."

However, Madame Louge states that besides the types that have sprung spontaneously into being through the exercise of the powers of observation and the psychiatric genius of the novelist, or that are composed of elements taken from medical literature, but which Bourget has recreated by passing them through his mind and impressing on them the seal of his analysis, there are others that the author has transported bodily from treatises on psychiatary to his novels in order to create an atmosphere of originality and increase the dramatic interest. This is true particularly of his last novel, La Geôle, which is nothing more than a popular description of psychiatry. The characters are well known types such as are described in medical treatises, and are taken over into the novel without having received the personal imprint that an author like Bourget puts on the characters he introduces.

In this connection, it is of interest to note that a campaign has been launched in the Academy of Medicine with a view to proposing the candidacy of Paul Bourget for the first vacancy that occurs in the section of honorary members. The *Journal des praticiens* in a recent editorial favors the idea, presenting, among other arguments, the following: At the Academy of Medicine, problems of a psychologic nature are often brought up, and the question may well be raised whether discussions on race suicide, overstudy in schools, etc., would not profit by the light of considerations in which the moral side would be emphasized. The *Journal des praticiens* holds that a well informed psychologist such as Paul Bourget would serve as a balance wheel and would give added weight to the conclusions adopted.

Sanitary Attachés to Foreign Countries

At one of its recent meetings, the Société de médecine publique discussed the report of Dr. Pierre Even on the creation of sanitary attachés to foreign countries. All the speakers who took part in the discussion declared themselves in favor of the innovation. To be sure, the international congresses of hygiene and the temporary missions on which certain functionaries are sent give some insight into the sanitary organizations of other countries, but they are insufficient to establish the intimate connections that are needed in dealing with important sanitary problems. It was for this reason that the international bureau of public health and the section of hygiene of the League of Nations were created. It was for this reason also that the latter organization has instituted what is termed an "interchange" of functionaries, public health officers of one country being allowed to spend a season in another country to study the various departments of the public health service. This has been accomplished thus far through the financial aid of the Rockefeller Foundation (The Journal, Aug. 5, 1922, p. 485, and Sept. 23, 1922, p. 1061). Dr. Cavaillon, who was recently chosen by the minister of health as a member of the party to visit England, endorsed the plan of creating sanitary attachés and emphasized the meaning of a permanent bond of union such as Dr. Even recommended. Very few French hygienists, Cavaillon stated, are acquainted with the excellent English sanitary equipment, and do not realize that in the ministry of public health in London there are approximately eighty medical hygienists employed and that all the departments are directed by medical technicians. At the close of the discussion, the Société de médecine publique unanimously adopted a motion urging the ministry of health to approve the creation of permanent sanitary attachés to foreign countries.

Death of Dr. André Venot

The death of Dr. André Venot, surgeon to the hospitals of Bordeaux and agrégé professor of surgery in the University of Bordeaux, at the age of 54, is announced.

Activities of the League of French Women

The Union des femmes de France, one of the three societies of which the French Red Cross Society is comprised, recently held its general assembly under the honorary chairmanship of General Gouraud. This league was established in 1882, and today numbers 90,000 members (20,500 of whom are nurses) and 400 committees or groups. From the date of its establishment up to August, 1914, it had expended a total of 5,000,000 francs in rendering aid of various kinds. Its activities during the World War, 1914-1918, may be summed up thus: Creation and administration of 400 hospitals; support, for benevolent work, of 775 physicians and 20,000 nurses, 1,000 of whom worked in crews in the zone of hostilities (exclusive of the administrative personnel). Ten physicians and fifty-five nurses died in the service, the victims of their devotion. The Union des femmes de France distributed, between August, 1914, and the end of the year 1918, 147 million francs, over half of which was furnished through the generosity of the public. The league did not confine itself, however, to lending its aid to the Army Medical Corps. It created also free dispensaries for the wives of men called to the colors, and, beginning with 1917, aid stations were established in the regions evacuated by the opposing forces. These aid stations had expended 1,100,000 francs up to Nov. 11, 1918, the date of the armistice.

Since the cessation of hostilities, the Union des femmes de France has been engaged in the reorganization of instruction courses for the training of additional nurses, and these courses have been extended to include social hygiene and child welfare. Then, again, in order to make itself useful to the army in times of peace as it had done during the war, it has established a special service of *foyers du soldat* (somewhat after the plan of the American Y. M. C. A. huts), where soldiers may find a comfortable lounging room and healthful recreation.

The Seventy-Fifth Anniversary of the Société de Biologie

The Société de biologie has just celebrated its seventy-fifth anniversary. Before an audience comprising French and foreign scientists, Prof. Charles Richet delivered the first address. He referred to the early founders of the society, Rayer, Claude Bernard, Brown-Séquard and Verneuil, and pointed out the value of the movement they inaugurated when they united all investigators in the diverse fields pertaining to vital phenomena. Emphasizing the fact that the great discoveries are always made at the confines of the sciences, he pointed out the vitality of the Société de biologie, which, owing to its many branches, has members in every quarter of the globe. Hereupon, the delegates from the foreign branches and from similar societies in foreign countries came forward to greet the officers of the Société de biologie.

A Monument to Hospital Externs

At the instance of the Association professionnelle des externes et anciens externes des hôpitaux de Paris, a committee has been formed to secure funds for the erection of a monument to the memory of the hospital externs who lost their lives in the recent great struggle. The monument will be erected under one of the galleries of the court of honor of the Hôtel-Dieu. The plan has received the approval of M. Paul Strauss, minister of public health; and Prof. G. H. Roger, dean of the faculty of medicine of the University of Paris, is the president of the committee. Dr. Mourier, general director of the Assistance publique, is the vice president. Among other members may be mentioned Pierre Marie, E. Sergent and Jeanselme, together with several physicians and surgeons of the hospitals of Paris. Subscriptions may be addressed to M. Bazonge, trésorier, 37, rue de l'Abbé Grégoire, Paris (VIe).

HOLLAND

(From Our Regular Correspondent)

June 30, 1923.

Daylight Saving Time

Urging the need of more light, air and sunshine, the Dutch society for the progress of medicine has petitioned the chamber of the states-general for the adoption of daylight saving time. The point at issue is an amelioration of living conditions rather than a question of economy, and that is the attitude taken by the medical society.

Danger from Plane-Trees

The committee of the league of Holland against tuberculosis has pointed out the danger from plane-trees set out along the squares and avenues of the cities. It seems that plane-trees, which grow exceedingly well in these regions, have on their young leaves a down consisting of sharp-pointed hairs. As the leaves develop, these fine hairs become detached and are carried into the air by the wind. They cause marked troubles of the respiratory organs, particularly in the tuberculous and in persons affected with hay-fever and asthma.

Vaccination Against Smallpox

It is difficult to understand how Holland, a country so progressive in matters pertaining to public health, should remain so backward in its attitude toward vaccination against smallpox. Some years ago, several antivaccinationists of influence, who were not medical men, succeeded in getting legislation passed that hampered the universal application of vaccination, and, up to the present time, it has not been possible to modify the law. There is no absolute obligation of submitting to vaccination. The children attending school are supervised in this regard, but the remainder of the population, which is considerable, escapes all control. If a child receives his early instruction at home, the law does not require that he be vaccinated. The movement to escape vaccination is supported by certain religious sects, which regard compulsory vaccination as an interference with liberty of conscience. The example of England where, every year, deaths occur from smallpox does not suffice to cause them to change their views. Attempts to modify the existing laws by making the obligation of vaccination even less rigorous than it now is are vigorously combated, as can be imagined, by the medical profession. Just at present there is a discussion going on in the chamber of the states-general in regard to modifications of the existing law, and the medical world is up in arms to prevent the launching of any backward movement. With this object in view, the association of school physicians has been holding a convention at Amsterdam, and many speakers have demanded that the present law shall be made more stringent.

Aid Given Russia by Holland

The league for the aid of the needy in Russia, under the supervision of Mr. Mulder, has developed a marked activity in the districts of Kolokolzofka and Pestrofka, where 380 hectares of ground have been plowed and sown. Utilizing the gifts of money, food and clothing received from Holland, several shelters for children have been created. At Pestrofka forty orphans are being taken care of. A center capable of sheltering fifty children will be opened soon at Kaldiban-Samarofka, and will also receive orphans from Kolokolzofka.

Prophylaxis Against Diphtheria

The committee on social hygiene appointed to study the prophylaxis of diphtheria, of which Mr. Buning is the chairman, has sent a detailed report to the Nederlandsche Maatschappij tot Bevordering der Geneeskunst, in which several points merit attention. The committee recommends that every case of this disease be reported, and, furthermore, it demands that a placard be displayed at every house that is contaminated, unless the patient is completely isolated. Complete isolation should be the end sought; in fact, an endeavor should be made to secure permission from the authorities to treat all diphtheria cases in special hospitals. All children living in the same house or apartment with the patient must be excluded from school. No carrier of bacilli should be allowed to reenter school for at least eight weeks after a complete bacteriologic test has proved negative. Disinfection of the whole house seems superfluous; the clothing and bedding of patients should, however, be disinfected. It is also useless to disinfect school rooms. Active immunization against diphtheria deserves to become more general, but it is still in the experimental stage.

Congress of Medical and Natural Sciences

The nineteenth Dutch congress of medical and natural sciences was held recently at Maestricht under the chairmanship of Professor Spronck, who gave the opening address. Mr. Van Iterson, in his address, outlined the work of the miners in Limburg, while Dr. Comandon of Paris spoke of the value of the cinematograph as an instrument of biologic research. Among the sections that presented particular medical interest was that presided over by Professor Noyon and Zwaardemaker, in which the physiologic and pathologi aspects of work were discussed. The main topics were the intoxications of modern industry and workmen's compensation in industrial accidents. The medical section was subdivided into several subsections, in which the various papers presented treated of problems pertaining to general medicine, surgery, obstetrics, veterinary medicine and social medicine. Tieleman of Heerlen presented an interesting study on the psychotechnical examination of workmen in the mines controlled by the state.

Dental Statistics

The statistics of dental services in operation at the end of 1922 has just been published. There were 488 dentists in Holland. Since 1919 the number has been increasing by about twenty a year. There are now seventy women dentists; in 1904 there were only twelve. The number of dentists in the various cities per thousand of population varies greatly. Whereas the Hague has a dentist for every 4,500 inhabitants and Amsterdam one for every 700, Rotterdam has but one for every 14,000 inhabitants.

Comparative Statistics on Influenza

A very comprehensive study by Dr. Sanders on the epidemiology of influenza has just appeared. He compares the dominant facts of this disease during the three most important epidemic periods (1918, 1920 and 1922). The epidemic of 1918 presented especially grave aspects for persons of middle age, most of the victims having been between 20 and 49 years old. During the epidemics of 1920 and 1922, persons past 50 were more affected. In 1920 and 1922 the morbidity and mortality rates were not appreciably affected by weather conditions, whereas in 1918 one may note close correlation in the curves between high mortality rates and a dry condition of the atmosphere associated with a low temperature.

International Congress of Orthopedics

On the occasion of the twenty-fifth anniversary of its foundation, the Dutch Society of Orthopedics held an international congress, which was opened by its president, Dr. Murk Jansen. The minister of public instruction and the minister of labor were patrons of the congress, which was a great success, to which many foreign guests contributed in no small measure. Lorenz and Spitzy of Vienna, Calot of Paris, Albee of New York, Sir Robert Jones of Liverpool, Biesalski of Berlin and Putti of Bologna, together with the most eminent Dutch orthopedic surgeons, discussed many live and important problems, such as plastic operations on joints, bone transplantation, and the care of disabled or crippled ex-service men.

In his opening address, the president emphasized the importance of orthopedic surgery and pointed out that this science, though now only in the first stages of its development, promises great things for the future. Its field is immense when we recall the large number of congenital deformities that exist at the present time. The figures that he presented were very striking. According to the last census of Holland there were 45,000 persons suffering from some infirmity of an orthopedic nature. Through a more careful investigation it was found that this report took account of only one sixth of the actual number so affected, which brought the number up to more than a quarter of a million. The president utilized the opportunity offered by this international congress to stress Holland's need for more and better orthopedic institutions, and urged his compatriots to make a supreme effort to improve conditions in this regard.

ROUMANIA

(From Our Regular Correspondent)

BUCHAREST, July 4, 1923.

No Operation Can Be Performed Without Obtaining Consent

Recent legal proceedings involving the question of consent for operation have attracted considerable attention in Roumanian medical and lay papers. One medical writer, in a careful review of the subject, states that the physician finds that he must in all cases either keep within the strict scope of the authority expressly given to him, or must so safeguard himself that he can prove by testimony of reliable witnesses that he was asked to perform such an operation as he might find necessary, and that the operation actually performed was, in fact, necessary or desirable. There is some confusion as to the person from whom the consent must be obtained; it is, however, laid down as a general rule that this person is the husband in the case of an operation on the wife, and the parents, guardians or other persons legally responsible in the case of children.

Exploitation of Medical Men by a Private Sick Club

In a large provincial town, Marosvasarhely, a private sick club has attempted to exploit the physicians by underpaying them and by admitting members without regard to their financial status, so that wealthy families, who could easily pay regular medical fees, availed themselves of this form of cheap medical service. The local medical society has adopted a resolution to the effect that on and after July 1, 1923, no member shall accept a post under the sick club, or continue to work at a rate less than the regular charges for services to patients not members of that club; also that no physician shall attend families of the members of this club at a fee lower than the regular rate. Nothing in this resolution is to be construed as prohibiting any member from attending the worthy poor at a less rate, or giving free service to those who are too poor to pay anything. Any violation of this order will be considered unprofessional conduct, and it will be the duty of the censors to expel such members from the society if proof of such conduct is presented to them.

Measles Epidemic in Bessarabia

Since the outbreak of measles three weeks ago, the disease has spread rapidly; its dissemination is held by health officials to be due to negligence on the part of parents in not calling in a physician to see that infected children are properly isolated. The epidemic is most severe in the Bendery district; in that city all school houses have been disinfected, and, in addition, the bureau of public sanitation has disinfected the homes of many children. Last week 156 cases were reported to the district medical officer. The cases are all mild, and recovery takes place almost without complication; no fatal case has yet been reported.

Enteritis in Albania

There is an alarming increase of gastro-intestinal disorders in Albania; thousands of working men are unemployed, and are compelled to live on a semistarvation diet. The sanitary conditions of the bakeries are very unsatisfactory; the bread is bitter and made of inferior flour (maize) in a primitive manner. Another great source of gastro-intestinal disease is the enormous consumption of decayed vegetables, raw or half-cooked.

When Is the Sterilization of Women Justified?

Dr. Panatescu, surgeon at the university clinic at Cluj, states that the performance of an operation which will render a woman sterile for life is never justifiable except to avoid a dangerous pregnancy, and that a condition that justifies abortion may not justify female castration. A contracted pelvis should not be considered an absolute indication for sterilization, since with modern technic cesarean section has become a comparatively safe operation. Chronic nephritis may be considered an indication; psychic and nervous conditions are a doubtful indication: insanity may be curable, and if it is severe, asylum segregation would render sterilization needless. In tuberculosis of the lungs, abortion should be induced if there is hope for a cure; in hopeless cases, sterilization is justifiable to avoid the strain of bearing and nursing a child. The most satisfactory method of operation is to remove the entire tube and close the superior angle of the uterus—the procedure advised by Chrobak of Vienna.

The Cerebrospinal Fluid in Syphilitics

At the recent meeting of the Jassy Medical Union, Dr. Matei detailed fifty-two cases of syphilis and drew attention to the importance of a careful examination of the cerebrospinal fluid in these cases. In every case of tabes, in which the origin is always syphilitic, a marked lymphocytosis is present in the cerebrospinal fluid and is an indication of syphilitic meningitis. A similar meningitis exists in patients with pupillary symptoms (irregularity, anisocoria, Argyll Robertson phenomenon, absence of pupil reflex, optic atrophy). The headache and syphilitic pains may be of meningeal origin even in recent syphilis without marked cutaneous or mucous localizations. All syphilitics who present even slight pains should be examined for lymphocytosis in the spinal fluid, in order to determine whether an intensive form of treatment is necessary. A secondary syphilitic meningitis precedes the nervous disturbances of every nature, and may be considered the initial lesion of important syphilitic nervous diseases, for example, tabes. In fact, a direct relation exists between the two factors. These are the chief conclusions arrived at by the author, and they are of importance as showing the existence of an early secondary syphilitic meningitis, the forerunner of central syphilitic nervous lesions and of the chronic meningitis which succeeds later.

BERLIN

(From Our Regular Correspondent)

June 23, 1923.

Cooperation in the Fight Against Tuberculosis

The city, the league of health insurance societies, the executive committee of the tuberculosis welfare centers, and the Landesversicherungsanstalt have agreed to combine forces in the campaign against tuberculosis in the Berlin district. The headquarters of the merger are at the office of the Landesversicherungsanstalt. This should bring increased strength to the fight by coordinating the available resources and the pooling of ideas and experiences. An extension of the merger by taking in other organizations is planned.

Psychopathic Aspects of Genius

In opening his address on "Psychopathology in Relation to Genius or Creative Personality" in the Kaiserin Friedrich-Haus, Privatdozent Kretzschmer of Tübingen raised the question: What ground is there for Lombroso's statement that genius is a form of insanity? He referred to several examples of genius to show that genius is often characterized by the milder forms of psychopathic manifestation. He defined genius biologically as a rare and extreme variant of the human species, which presents slight stability. But biologic defects do not necessarily imply a want in a sociological sense, and it is an entirely unjustifiable conception of laymen that they feel constantly called on to defend persons of genius from reflections pointing to psychopathic characteristics. The genius himself is proud of his "demon," his "sacred dementia," or his mania, for he has the feeling that it is the ferment that gives birth to his genius. This conception of genius is proved correct by the biologic aspects of hereditary transmission. Whereas talents may be developed by breeding, genius is not hereditary. However, favorable conditions for the genesis of genius are found in a gifted clan at the moment that degenerative factors first appear. These cause seemingly a relaxation of the hereditary determinants; make possible an outbreak of passion or inward restlessness, and produce the soil from which creative genius can arise. Viewed in this light, the relationship between the psychopathic and the demoniacal, as displayed in geniuses, appears to have an inner basis of fact; in truth, they are sometimes identical. It occurs in connection with the milder transient psychopathic affections, from which highly talented persons suffer; the schizophrenic streak imparts certain marks of genius which disappear with the passing of the affection. In the case of geniuses that have become insane there has been noted just before the breakdown, along with the increased toxic cerebral irritation, an augmentation of genius.

This psychopathic element associated with genius furnishes also an explanation as to why the genius—from the philosophical standpoint, the ideal of human development—has such a hard time adjusting himself to life conditions. The genius is often, as a man, quite unbearable. This is true to an even greater extent of "highly gifted natures," the unstaid, self-tormenting, distracted dispositions, which, though possessing all the marks of genius, are lacking in poise and balance. They lack the inhibitions and control that go with average talent, without which high grade creative development is impossible.

At the close of his address, Kretzschmer displayed a number of photographs of geniuses, in order to demonstrate the correctness of his theory of the relation of physical habitus to psychic endowment. He proved that the majority of story writers and humorists belong to the pyknic habitus (the stocky, corpulent type), whereas the dramatists and lyrists are asthenic or athletic (narrow-chested and slender, or rawboned and hard-muscled). Among men of learning, talent for the biologic (descriptive) sciences is also found in the pyknic type, whereas the philosophers, and the geniuses in the realm of physics and mathematics (that is, all abstract thinkers), are asthenic or athletic. The first type ranges between the melancholic and the sanguine temperament; the second is choleric, hyperesthetic or cold. Nietzsche and Jacob Böhme, Schiller and Hebbel, Voltaire and Kant, Moses Mendelssohn and Spinoza all showed the typical external characteristics of the schizothymic type, whereas the group comprising Gottfried Keller, Fritz Reuter, Auerbach, Mendel, Pasteur, Virchow, Comte and Robert Koch were out-and-out pyknics.

Decrease in the Population of Small and Medium-Sized Towns

According to a statistical report which appeared in the *Klinische Wochenschrift,* the population of the small and middle-sized towns of Germany is decreasing. The number of cities with more than 100,000 population in 1920 was forty-nine, and in 1922, forty-six. On the other hand, the population of the large cities in 1920 was 14,855,000, and in 1922, 16,553,000. The number of cities with a population of from 50,000 to 100,000 inhabitants has decreased from forty-six to thirty-six; the cities with a population of from 30,000 to 50,000 have decreased from seventy-five to sixty-one, while the number of cities with from 15,000 to 30,000 inhabitants has decreased from 205 to 190. The excess of births over deaths which the smaller and middle-sized towns show as compared to the large cities had likewise decreased in 1920, but is still seven, on the average, as against 3.3 in the large cities. The mortality in the smaller and medium-sized towns is higher than in the large cities, but this is apparently due to the fact that in the smaller towns many strangers die that have been sent there from the rural districts.

A Prize Offering

Geheimrat Professor Denker, otologist at the University of Halle, has established a prize of 1,000,000 marks for the best treatise on otosclerosis that shall be presented during the next two years. The funds for this prize were derived from a gift of 4,000,000 marks that was bestowed on Denker by his friends, collaborators and pupils here and in foreign countries, on the occasion of his sixtieth birthday.

Marriages

LAWRENCE HITES HOOVER to Miss Flossie Webster McFarland, both of Clarksville, Va., at Richmond, June 17.

HUNTER H. McGUIRE to Mrs. Jane Love Baker, both of Winchester, Va., at Asheville, N. C., June 12.

WILLIAM MORTON KENNEDY, Philadelphia, to Miss Dorothy Hilda Gerecke of Scranton, Pa., June 2.

JAMES EDWIN WOOD, JR., to Miss Emily Mildred Battle, both of Charlottesville, Va., June 28.

JOHN IGNATIUS McNAMARA to Miss Lila M. Curran, both of Taunton, Mass., June 27.

CHARLES B. FAGER to Miss Miriam Galbraith Cocklin, both of Harrisburg, Pa., June 14.

MACPHERSON CRICHTON to Mrs. Muriel Lynch, both of Washington, D. C., June 9.

ERIC LEONIAL MAJOR to Miss Mattie Elise Row, both of Rosedale, La., recently.

HARRY W. BAILY, Tamaqua, Pa., to Miss Mary Haldeman of Reading, June 21.

ARTHUR L. HOLLAND to Miss Helen Hunter, both of New York, July 10.

Deaths

William Joseph Coogan, Brooklyn; Fordham University School of Medicine, New York, 1916; member of the Medical Society of the State of New York; served in the M. C., U. S. Army, during the World War; on the staffs of St. Mary's and Coney Island hospitals; aged 31; died, July 8, at St. Elizabeth's Hospital, of pneumonia, following an operation for duodenal ulcer.

Daniel Thurber Nelson ⊕ Chicago; Medical School of Harvard University, Boston, 1865; professor of physiology and histology, Chicago Medical College, 1866-1879; professor of clinical gynecology, Rush Medical College, 1880-1898; member of the Royal Society of Medicine, London; Civil War veteran; aged 85; died, July 19, of bronchopneumonia.

Miller Bone Hutchins ⊕ Atlanta, Ga.; Atlanta Medical College, 1886; emeritus professor of medicine (dermatology) at his alma mater; served in the M. C., U. S. Army, during the Word War, with the rank of captain; formerly on the staffs of the Presbyterian and Wesley Memorial hospitals; aged 59; died, July 6, of cerebral hemorrhage.

Stephen Russell Mallory Kennedy, Pensacola, Fla.; Medical Department of the Tulane University of Louisiana, New Orleans, 1903; member of the Florida Medical Association; U. S. public health officer; served in the M. C., U. S. Army, during the World War; aged 45; died, July 11, of heart disease.

Francis Webster Goss, Sacramento, Calif.; Medical School of Harvard University, Boston, 1869; member of the Medical Society of the State of California, and the Massachusetts Medical Society; aged 81; died, July 10, of chronic valvular disease of the heart and arteriosclerosis.

Henry Shively Pernot, Corvallis, Ore.; Cincinnati (Ohio) College of Medicine and Surgery, 1888; Bellevue Hospital Medical College, New York, 1893; member of the Oregon State Medical Association; formerly city bacteriologist; aged 57; died, July 3, of uremia.

Jacob W. Shope, Harrisburg, Pa.; Jefferson Medical College of Philadelphia, 1880; member of the Medical Society of the State of Pennsylvania; Civil War veteran; on the staff of the Polyclinic Hospital; aged 78; died, June 14, of cerebral hemorrhage.

Burton Argyle Baird, Rochester, Minn.; State University of Iowa College of Medicine, Iowa City, 1915; member of the Minnesota State Medical Association; served in the M. C., U. S. Army, during the World War; aged 32; died, July 8.

Hugh L. Judge, Wellsburg, W. Va.; Jefferson Medical College of Philadelphia, 1889; member of the West Virginia State Medical Association; also a pharmacist; aged 69; died, June 30, following a long illness.

William Edward Wiatt, East St. Louis, Ill.; St. Louis (Mo.) Medical College, 1879; member of the Illinois State Medical Society; Civil War veteran; aged 78; died, July 3, following a long illness.

Elmer Clayton File, Rochelle, Ill.; Hahnemann Medical College and Hospital, Chicago, 1896; member of the Illinois State Medical Society; aged 51; died suddenly, July 8, of cerebral hemorrhage.

Joseph D. McCann, Monticello, Ind.; Eclectic Medical Institute, Cincinnati, 1888; aged 65; died, July 8, at St. Elizabeth's Hospital, Lafayette, of injuries received in an automobile accident.

Thomas W. Carroll ⊕ Clarendon, Texas; University of Texas Department of Medicine, Galveston, 1898; aged 46; died, July 4, at the Adair Hospital, of injuries received in an automobile accident.

Robert Smith Doak, Nashville, Tenn.; Medical Department Vanderbilt University, Nashville, 1894; formerly adjunct professor of ophthalmology at his alma mater; aged 57; died, July 4.

John G. Bickley, Waterloo, Iowa; Jefferson Medical College of Philadelphia, 1877; Chicago (Ill.) Homeopathic Medical College, 1880; aged 68; died, July 5, of acute dilatation of the heart.

Frank J. Woodbury, St. George, Utah; College of Physicians and Surgeons, Baltimore, 1904; formerly physician to the Indian Service Shivwits School, Santa Clara; aged 54; died, July 2.

William Hillman Hosey, Stringer, Miss. (licensed, Mississippi, 1901); member of the Mississippi State Medical Association; aged 43; died suddenly, June 10, of cerebral hemorrhage.

Stephen Driver Brooks ⊕ Washington, D. C.; Medical School of Harvard University, Boston, 1882; senior surgeon, U. S. Public Health Service; aged 69; died, July 4, at Los Angeles.

Isaac Francis Stover, Philadelphia; Jefferson Medical College of Philadelphia, 1893; on the staff of the Chestnut Hill Hospital; aged 63; died, July 12, following a long illness.

William T. Bridges, Stonington, Ill.; Missouri Medical College, St. Louis, 1888; member of the Illinois State Medical Society; aged 63; died, July 4, following a long illness.

Cora Lou Pope Ganung, Lansing, Mich.; University of Michigan Medical School, Ann Arbor, 1883; formerly on the staff of the City Hospital; aged 61; died, July 5.

Benjamin Aloysius Del Marco, Philadelphia; Jefferson Medical College of Philadelphia, 1921, aged 28; was shot and killed, July 13, by a demented patient.

Annie Mary Reid, Redding Ridge, Conn.; Woman's Medical College of the New York Infirmary for Women and Children, 1877; aged 77; died, July 5.

James Jackson Watkins, Glennville, Ga.; Atlanta (Ga.) Medical College, 1891; member of the Medical Association of Georgia, aged 59; died, June 9.

John Howard Martindale, Los Angeles; New York University Medical College, New York, 1885; aged 64; died, July 4, of cerebral hemorrhage.

Edgar S. Barry ⊕ Grand Coteau, La.; Medical College of Louisiana, New Orleans, 1878; aged 69; died, June 30, of carcinoma of the stomach.

Iris Jones Vaughan ⊕ Topeka, Ind.; University of Michigan Medical School, Ann Arbor, 1884; aged 60; died, June 26, of cerebral hemorrhage.

Chalmers D. Morgan ⊕ Galion, Ohio; Starling Medical College, Columbus, 1896; aged 55; died suddenly, July 5, of cerebral hemorrhage.

John Alvin Alley, Atlanta, Ga.; Atlanta Medical College, 1897; member of the Medical Association of Georgia; aged 51; died, July 3.

Theodore Engle ⊕ State Center, Iowa; Missouri Medical College, St. Louis, 1885; aged 67; died, June 29, of carcinoma of the bladder.

William Chambers Schultze, Gresham, Ore.; Bellevue Hospital Medical College, New York, 1867; aged 84; died, June 28, of senility.

Frederick Lawrence Wilson, South Solon, Ohio; Starling Medical College, Columbus, 1898; aged 47; died, July 2, of heart disease.

Edward Branford Gibson, Ann Arbor, Mich.; University of Michigan Medical School, Ann Arbor, 1887; aged 78; died, June 29.

Isaac Louis Beatty, Fairview, Ill.; Eclectic Medical Institute, Cincinnati, 1881; aged 67; died, July 2, of pernicious anemia.

Cyrus McOmber Rulison, St. Joseph, Mich.; Albany (N. Y.) Medical College, 1873; aged 76; died, July 6, of senility.

William P. Henrich, East St. Louis, Ill.; Marion-Sims College of Medicine, St. Louis, 1895; aged 53; died, July 4, of diabetes.

William H. Lemon, Lawrence, Kan. (licensed, years of practice); Civil War veteran; aged 90; died, April 29, of senility.

Robert Arnot Quinn, Vicksburg, Miss.; Medical Department of Columbia College, New York, 1870; aged 76; died, June 30.

William Clayton Etherton, Missouri City, Mo.; Jefferson Medical College of Philadelphia, 1890; aged 55; died, May 25.

Thomas E. Craig, Warrensburg, Mo. (licensed, years of practice); aged 88; died, June 15, of senility.

John W. Carney, Edinburg, Ind. (licensed, Indiana, 1901); aged 71; died, July 1, of cerebral hemorrhage.

James W. Lambert, Luthersville, Ga.; Atlanta (Ga.) Medical College, 1871; aged 75; died, June 16.

Charles Pipkin, Jamesport, Mo.; Missouri Medical College, St. Louis, 1870; aged 75; died in April.

The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other General Material of an Informative Nature

ANOTHER ELECTRONIC DIAGNOSIS AND TREATMENT

"Everything Clears Up"—But the Patient Dies

The following reports on the case of Mr. D., who was treated for carcinoma by C. E. Phelps, M.D., an Abrams disciple of Hartley, Iowa, is of interest because it represents, undoubtedly, what is being duplicated in hundreds, if not thousands, of cases, in various parts of the country.

The clinical report and the general facts in the case were sent to The Journal by Dr. E. E. Munger of Spencer, Iowa. The pathological report was made by Dr. E. R. LeCount of Chicago. Briefly, it is the story of a man in his seventies suffering from inoperable carcinoma of the stomach with implanted metastases on various other abdominal organs. The man's family physician, Dr. Munger, diagnosed the condition when the patient first came to him. The diagnosis was verified at the Mayo Clinic. Then the man began taking the "Abrams treatment" from a disciple of this cult in a nearby town. The poor fellow, it appears, was led to believe that he was being rapidly cured and was finally told that "everything has cleared up except a trace of colisepsis." A month after he had been so advised he died. Dr. Munger's report follows:

CLINICAL REPORT BY DR. E. E. MUNGER

"E. M. D., laborer, aged 73, first consulted me Jan. 16, 1923, height 5 feet, 7 inches, weight 124 pounds, normal weight about 130. Family history negative except that one brother and one sister died of carcinoma, and one brother of pernicious anemia, at 70, 45, and 75 years of age, respectively. The patient had never used liquor or tobacco; he had felt well until one year ago, when he noticed pain, not severe, in epigastrium after eating; lasted an hour or two. Appetite was good until last November; since then he had been unable to take much nourishment, and any food, especially cold water, caused distress. Constipation, of mild degree, had been present more or less constantly, but a daily evacuation resulted from a small dose of paraffin oil.

"Recumbent, with clothing removed, a mere glance at the abdomen revealed an abnormal contour in left hypochondriac region. Palpation with both hands revealed a large mass in this region which moved freely up and down with respiration. Temperature 98, pulse 72; heart and lungs normal; blood pressure, systolic 120, diastolic 90; haemoglobin 90 per cent.; urinalysis negative; had never vomited; no obstructive symptoms; pain never severe enough to call for anodyne. There was entire absence of the typical cachectic color. Chief complaint was loss of appetite, distress after eating, loss of strength and a general ill feeling. I saw him occasionally until Feb. 15, 1923. There was no marked change in symptoms, except progressive loss of weight, which on the latter date was 119½ pounds.

"He had a feeling that something was 'radically wrong inside' and there was no chance to disagree with his intuition. He was quite depressed, and was not advised of the nature of his trouble. The family was seen, however, and a hopeless prognosis given. They were advised they might be better satisfied if he consulted some one else and the Mayo Clinic was decided upon. On Feb. 3, 1923, he went there, driving with his son in an automobile. He returned from the Mayo Clinic on February 11. Dr. H. Z. Giffin of the Clinic, sent me the following report:

> Mr. E. M. D., whom you recently referred to us for examination, was dismissed February 7. Physical examination disclosed a large nodular mass in the left hypochondrium. We were not able to find any distant metastasis either in the chest or the rectal shelf, but the x-ray examination of the stomach indicated advanced involvement and the condition was regarded as inoperable. The Wassermann test was negative. Mr. D. was seen in surgical consultation by Dr. W. J. Mayo. The patient asked concerning x-ray treatment and we told him that there would be no objection to the use of x-ray providing it did not cause too much general debility. Upon his request we gave him a digestant. Mr. D.'s condition was discussed frankly with his son.

"Before long mutual friends advised me that Mr. D. was taking the 'Abrams treatment' and getting well. This was good news, I said, if true. These reports became more numerous and more frequent over a period of several weeks. Some chagrin was felt on my part over failure to effect the cure he very much desired. On April 17, 1923, the daughter of Mr. D. came to the office and asked me to go to the house to see her father. She told me he had been taking the 'Abrams treatment' at a nearby town, but was no longer able to make the trips. The patient still had his always strikingly good color; a glance at the abdomen showed an abnormal contour extending well across the right hypochondriac region; palpation with both hands revealed a mass twice the size it was on February 15; the upper half of abdomen was filled with a hard mass that moved freely with respiration. There were no pathological palpable superficial glands anywhere. His weight was estimated at 90 pounds. He could take no nourishment; a teaspoonful of white of egg, ice cream, or malted milk gave a full feeling, a little nausea, but no severe pain; no vomiting; evacuations from the bowels occurred daily after taking paraffin oil, or enemata. Heart, lungs and kidneys normal; complained of a feeling of complete exhaustion; could scarcely get out of bed and could not stand erect without assistance. He could not understand why he felt so bad, when he had recently been told he was cured, and related the following:

"On February 28, he had consulted Dr. C. E. Phelps, Hartley, Iowa, and said he was told that his was just the kind of a case that the 'Abrams treatment' was good for, and if faith availed anything he certainly had it. He said he had taken forty-two treatments at $5.00 each; that he had gone to Hartley on Mondays and returned on Saturdays. On March 31 he said he was advised by Dr. Phelps that the malignancy was 'killed' and that all he had to do was to go home and 'it would peel out like an orange out of its skin.'

"Without relating the harrowing details of starvation, coupled with the mental disquietude and resentment that resulted from the disappointment which he had suffered, the tragedy came to an end on Monday morning, May 7. A few days before his death he had requested his wife and daughter, much to my surprise, to have me make a postmortem examination and find out the truth about his condition. Accordingly, this was arranged for in the presence of several other Spencer physicians. The abdomen was opened, the esophagus and rectum each tied off, all the abdominal viscera were removed and sent to Dr. E. R. LeCount of Chicago. Before opening the body Dr. C. E. Phelps of Hartley [the Abrams disciple who had treated Mr. D.—Ed.] was called up by 'phone and given the opportunity of being present at the autopsy. He did not come."

NECROPSY REPORT BY DR. E. R. LE COUNT

Dr. E. R. LeCount sent in the report which follows describing the condition of the viscera of Mr. D., as found by Mr. Baker and Mr. Bussey in the Pathological Laboratory of Rush Medical College where the examination was made under the direction and supervision of Dr. LeCount.

"There were received the liver, gall-bladder, stomach spleen, pancreas, both kidneys and ureters, the large and small bowel and part of the diaphragm.

"All the serous membranes had lost their lustre. The external surface of the stomach was light gray and generally covered with flattened nodules, most profuse toward the pyloric end, 1 mm. to 15 mm. in diameter and the same color as the stomach wall. The gastro-hepatic ligament was thickened, stiff and covered with similar nodules. The stomach wall was hard and thick. The pyloric wall had an average thickness of 2 cm., the fundus, 1 cm., and the cardia, 5 mm. The lining of the stomach was soft, irregular, gelatinous and easily scraped away. The cavity of the stomach was 15 cm. long, with a cardiac diameter of 2 cm. and a pyloric diameter of 5 gm.

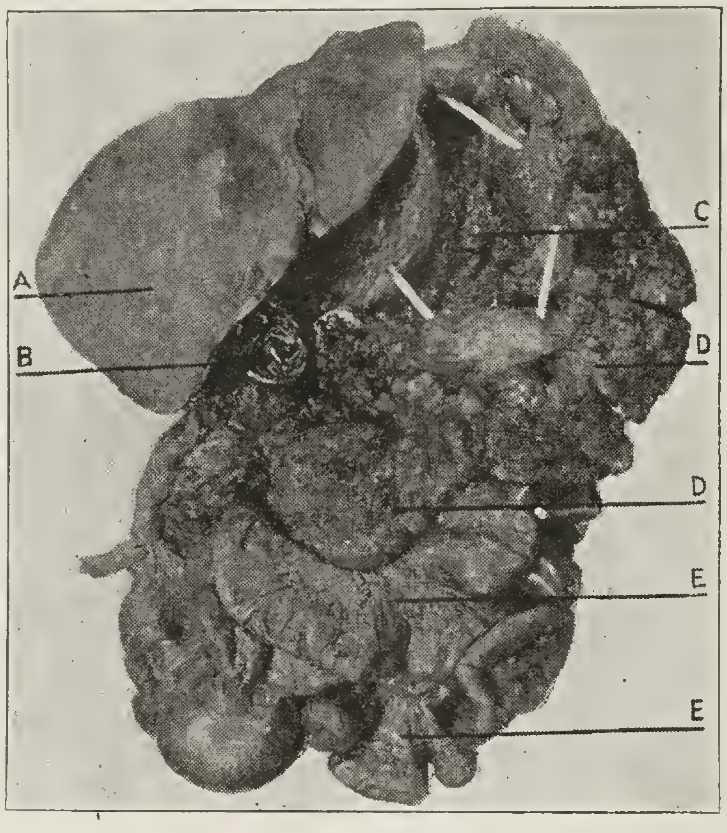
"The great omentum, full of tumor nodules, extended down 3 cm. to 6 cm. and was 1.5 cm. thick, the same brown color as the stomach, hard, stiff, of about the same consistency as the stomach wall and very rough. Close to the greater curvature it was 3 cm. thick. It was also strikingly translucent, a characteristic of all the nodules described elsewhere.

"The gall-bladder, normally pendant, was green and partially filled with green fluid, a part of which had stained the nearby tissues. The external surface of the liver was finely wrinkled, brownish gray, soft and had sharp edges. On the superior surface of the right lobe there were two small, light brown tumor nodules 3 mm. in diameter easily shelled out from the surface.

"The coronary and falciform ligaments were stiff, thicker than normal and diffusely covered by disseminated flat nodules, the largest 15 mm. in diameter. The attached diaphragm was a portion 10 cm. by 15 cm., the upper surface quite smooth, the lower roughened by a number of light brown nodules 2 mm. to 5 mm. in diameter and projecting about 1 mm. The spleen had a wrinkled slate-colored external surface; was about normal size and, grossly, unchanged outside. Surfaces made by cutting were purplish red and had an excess of stroma.

"The right kidney weighed 100 g. Surfaces made by cutting did not bulge; the cortex was brown and had an average depth of 6 mm.; the cortical striations were easily seen. There was no gross change in the medulla. There was a small amount of peripelvic fat. The lining of the pelvis was light gray. The left kidney was similar to the right in all respects except for the presence of a small cyst at the upper pole, 1 cm. in diameter. Running into the upper pole of each kidney was an accessory artery. The capsules of these kidneys stripped readily and left a smooth surface.

"The mesentery of the entire bowel was thickened, opaque and diffusely covered with nodules similar to those described; some flat, others pedunculated and they were most numerous in the ileocecal region and at the distal edge of the mesentery. The foramen epiploicum was closed by adhesions. The ascending colon had fibrous bands on its free surface near the hepatic flexura. The transverse colon was so closely adherent to the under surface of the tumor mass in the great omentum that the mesocolon was apparently missing. Some appendices epiploicae bore several of the small nodules like those described. The hepatic arteries, portal vein, the hepatic, cystic and common ducts, the pancreas, pancreatic duct and duodenum, and the attached 10.5 cm. of the inferior cava caudad to the liver were all, grossly, unchanged except for adhesions, a part of the generalized fibrous peritonitis. There were no enlarged lymph glands anywhere.



The abdominal organs removed en masse. *a*, liver; *b*, gallbladder; *c*, the stomach greatly reduced in size, propped open, almost vertical and with a very thick wall; *d*, the great omentum and mesogastrium full of tumor; *e*, nodular metastases implanted on the peritoneum.

Histologic Diagnosis.—Pseudomucinous carcinoma.

Anatomic Diagnosis.—Primary pseudomucinous carcinoma of the stomach with secondary implantation metastases on the surface of the liver, the mesentery, the bowel, the diaphragm and ligaments of the liver; fibrous peritonitis; retention cyst of the left kidney; accessory arteries of the kidneys.

SOME "ELECTRONIC DIAGNOSES" OF DR. PHLEPS

In view of the clinical findings of Dr. Munger and the Mayo Clinic and the necropsy report of Dr. LeCount, given above, the "Electronic Diagnoses" made by Dr. C. E. Phelps of Hartley, Iowa, are worthy of attention. In passing, it may be said that Dr. Phelps, according to the records, was born in 1881 and was graduated in 1907 by the Hahnemann Medical College and Hospital of Philadelphia. Apparently, until taking up the Abrams business, Dr. Phelps specialized in eye, ear, nose and throat work. In 1909 he seems to have been the superintendent of an advertising "cancer cure" outfit, operated by one Perry Nichols and at that time located at Hot Springs, S. D.

Mr. D., the patient of the present report, received his first "electronic diagnosis" at the hands of Dr. Phelps March 1. At this time Dr. Phelps gave a written "report," of which the following is a copy:

Carcinoma Reactions.—6 ohms + pyloric end of stomach with irritation in gall bladder and slight in colon.
Tuberculosis.—None.
Sarcoma Reactions.—None.
Neisserian.—Slight.
Colisepsis.—Positive.
Acquired Diminished Resistance. — 42 ohms. Circulation, nervous system, digestive kidney and bladder.
Streptococcus Infection.—Positive. 7 ohms. Ethmoid frontal sinus.
Staphylococcus.—None.
Malaria.—None
Influenza.—Strong.

On March 13 another "diagnosis" was made and the "report" issued by Dr. Phelps reads:

Carcinoma Reactions.—3 ohms.
Tuberculosis.—None.
Sarcoma Reactions.—None.
Neisserian.—None.
Colisepsis.—Positive.
Acquired Diminished Resistance.—24 ohms.
Streptococcus Infection.—Positive.
Staphylococcus.—None.
Malaria.—None.
Influenza.—None.

Ten days later, or March 23, Mr. D. was reexamined by Dr. Phelps "according to electronic reactions of Abrams" and the following "report" issued:

Carcinoma Reactions.—Negative.
Tuberculosis.—None.
Sarcoma Reactions.—None.
Neisserian.—None.
Colisepsis.— +
Acquired Diminished Resistance. — 10 ohms.
Streptococcus Infection.—None.
Staphylococcus.—None.
Malaria.—None.
Influenza.—None.

On April 2, Mr. D. again underwent a "diagnostic" examination and received from Dr. Phelps this "report":

Carcinoma Reactions.—Negative.
Tuberculosis.—None.
Sarcoma Reactions.—None.
Neisserian.—Negative.
Colisepsis.—Trace.
Acquired Diminished Resistance. — Negative.
Streptococcus Infection.—None.
Staphylococcus.—None.
Malaria.—None.
Influenza.—None.

With this last "report" Dr. Phelps sent a letter to Mr. D. stating in part:

> "Everything is cleared up except a trace of colisepsis. We will see how you get along. We might have to give you a few treatments for that later."

In the same letter Dr. Phelps expressed the hope that Mr. D. was gaining in strength and added "I am very busy. Keeps me going from morning until night." Before leaving this part of the narrative, attention should be called to the phrase "Acquired or Congenital Diminished Resistance" used by the exponents of the Abrams cult. This is a euphemistic expression now used by the Abramsites in place of the older phrase "Acquired or Congenital Syphilis." As readers of The Journal have already been advised, the indiscriminate charges made by the followers of the Abrams cult that most of the victims that come to them are sufferers from acquired or congenital syphilis has led, in at least some instances, to complications. Hence the substitution of the phrase "Diminished Resistance" for "Syphilis."

Observation and Experimentation.—Claude Bernard said that observation is a passive science, experimentation an active science.—Garrison.

Correspondence

"TREATMENT OF MIGRAINE WITH PEPTONE"

To the Editor:—Perhaps you will kindly permit me to make a correction in the interesting paper of Drs. Miller and Raulston (The Journal, June 30), and also to add one or two remarks on the peptone immunization treatment.

The preparation of peptone I have recommended is not Armour's peptonum siccum, as stated in the article, but Armour's peptone No. 2, which differs very considerably in that it contains a fair quantity of primary proteoses, a feature which is absent in the peptonum siccum. According to analyses made some years ago for me by Professor Plimmer, the peptone No. 2 contains one part of primary proteose to seven parts of deuteroproteose. This content of primary proteose renders the preparation more effective, and the larger size of the molecule would tend to induce a reaction much more readily, entailing greater care in the dosage. This particular peptone (No. 2) was that used first by me in 1917 as a nonspecific immunizing agent in asthma (*Brit. M. J.* **1**:580 [May 5] 1917). I then used it hypodermically, but soon afterward, constructed the formula for intravenous use (*Brit. M. J.* **3**:49 [July 20] 1918), which is practically identical with that given by Drs. Miller and Raulston on page 1895. In 1920 (*Brit. M. J.* **1**:567 [April 24] 1920), I applied the same formula to migraine and other conditions, and have found no occasion to alter it.

The statement made in the same issue of The Journal (p. 1910) by the Council on Pharmacy and Chemistry, to the effect that commercial peptones are largely of uncertain composition, and that no adequate tests and standards have been developed whereby the uniformity of a given brand of peptone may be controlled, cannot be too strongly emphasized and brought to general notice. We require a standardized product. Some commercial peptones, such as Witte's, contain histamin or some other very toxic substance, and are often dangerous to use. Certain experiences of my own in this connection were published in 1922 (*Brit. M. J.* **1**:835 [May 27] 1922).

A. G. Auld, London, England.

To the Editor:—The article by Miller and Raulston on the "Treatment of Migraine with Peptone" (The Journal, June 30, p. 1894) interested me very much. The note of warning by the Council on Pharmacy and Chemistry is of vast importance. Miller and Raulston say, "Migraine . . . is distinctly hereditary." Surely a physician must have a high regard for medication and a low regard for fundamental biologic processes as expressed in hereditary characters when he suggests that a hereditary character can be removed by a few intravenous injections of a preparation of peptone. The phenomena of migraine do the bearer no permanent harm. In fact, it is absurd to recommend treatments for hereditary characters. Migraine is hereditary, and is transmitted between generations in exact compliance with the two laws of Mendel. Heredity is a subdivision of physiology and not a subdivision of pathology. A person who receives from his ancestors an untoward hereditary character is normal for his type, and any attempt to rid him of the character will prove fruitless or do harm. Any method that would completely eradicate a hereditary character would simultaneously prove that the condition was not hereditary. If a condition which is hereditary could be concealed completely in an individual, it would reappear in his progeny. Knowledge of hereditary characters in man should be given to medical students in the department of physiology. The management of characters that are hereditary belongs to a subdivision of preventive medicine whereby knowledge of the value of proper mating can be disseminated to all people. One hundred years of selective mating that is properly controlled would rid the world of migraine.

J. Arthur Buchanan, M.D., Pueblo, Colo.

[The letter was referred to Dr. J. L. Miller, who replies:]

To the Editor:—Hay-fever and asthma are both hereditary, just as migraine. They are now definitely recognized as sensitization diseases, and are relieved by desensitizing measures. The fact that the migraine patient following a severe infection, or frequently during pregnancy, is entirely free from attacks shows that, whatever may be the nature of the trouble, there are certain conditions which develop that give the patient temporary relief. In this respect there is a close analogy between migraine and asthma. The only attempt of the treatment is to desensitize the individual exactly as we do in asthma or hay-fever, and there is no more reason to criticize the treatment of migraine by this means than there would be to criticize the treatment of asthma or hay-fever.

Joseph L. Miller, M.D., Chicago.

"NUXATED IRON" NOT ALWAYS "NUX"-LESS

To the Editor:—In looking over The Journal of July 14, I find a little item about "Nuxated Iron" in which the statement is made that the nostrum contains very little iron and a negligible quantity of "nux." A few days ago I was called to see a boy about 2½ years old who had eaten thirty-two "Nuxated Iron" tablets. He died of strychnin poisoning about two hours after he had taken the tablets and before I reached him (the child lived 20 miles from my office and it was some time after he got the stuff that I was called). I hardly believe that the parents of this child could be convinced that the quantity of nux in those particular tablets was negligible.

E. O. Barker, M.D., Guthrie, Okla.

[Comment.—When The Journal, in its recent item, stated that analysis had shown "Nuxated Iron" to contain a negligible amount of "nux," it was referring to an analysis made in the A. M. A. Chemical Laboratory some time ago. What the preparation has in it at present we do not know. The composition of "patent medicines" is notoriously variable. It is conceivable that one batch of "Nuxated Iron" may contain mere traces of nux vomica and its alkaloids, while another may have a dangerously high content of these substances. The case reported by Dr. Barker shows the need of a federal law requiring a poison label on all medicines sold for self-medication that contain any of the more dangerous drugs.—Ed.].

LOCAL ANESTHESIA BY QUININ SALTS AND THE COMMITTEE REPORT

To the Editor:—A communication by me with this title was published in The Journal, Sept. 18, 1920, and the September, 1920, *Laryngoscope,* in which I gave my experience with the quinin salts, and expressed the opinion that the committee of the Section on Laryngology, Otology and Rhinology on local anesthetics had not quite done justice to quinin as a local anesthetic. I had lately used quinin hydrochlorid, 1 grain in 2 drams of distilled water, with entire satisfaction. Shortly afterward, a patient had a slight slough of the wound, and I reduced the strength of solution to ¾ grain in 2 drams, since which time I have had no case of sloughing, and the anesthesia has been satisfactory. I then began the practice of using this strength of quinin hydrochlorid for the right tonsil and 0.2 per cent. of cocain for the left (5 c.c.) to secure comparative results. In all cases either 20 per cent. cocain or cocain mud was first applied to each tonsil, but in small amount. In each one of the few cases I have been privileged to operate, the patient has expressed himself as better satisfied with the operation of the right than of the left. The healing after quinin has been at least as good as after cocain, and, the first twenty-four hours, freer from pain.

A little more time (ten or fifteen minutes) is required for anesthesia, and it is well to incise the mucous membrane under the anesthesia from the cocain application and before edema has followed the injection of the quinin.

Edward J. Brown, M.D., Minneapolis.

ANESTHETIZING THE TRIGEMINAL NERVE

To the Editor:—In The Journal, July 14, p. 112, Dr. S. L. Silverman describes a method of anesthetizing the superior maxillary division of the trigeminal nerve by an injection made through the greater palatine canal. I would call attention to an article by Dr. Juan Ubaldo Carrea, in *El Odontólogo,* Buenos Aires, 1921, Nos. 16 and 17, entitled "Anestesia troncular del nervio maxilar superior por el conducto palatino posterior," describing the identical procedure with the exception of a few minor details. It appears to me that the method has its greatest field of usefulness in reaching the sphenopalatine ganglion in cases of nasal ganglion neurosis as described by Sluder, affording, as it does, a more direct route to the sphenomaxillary fossa than any other method.

Robert H. Ivy, M.D., Philadelphia.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

ROENTGENIZATION OF THE SPLEEN IN PULMONARY TUBERCULOSIS

To the Editor:—Will you kindly oblige me by the following information: 1. What are the details of the technic of the Manoukhin treatment of pulmonary tuberculosis by roentgen-ray irradiation of the spleen? 2. What are the details of the blood examinations to be conducted during such treatment?

M.D.

Answer.—1. The human spleen, according to Manoukhin (*Lancet* **1**:685 [April 2] 1921), is irradiated by a dose of roentgen rays equal to 1 h. as measured by the Sabouraud and Noiré radiometer, using the Holzknecht scale. In the case of weak patients a smaller dose is given. The rays are filtered through 1 mm. of aluminum. Manoukhin obtains this dose during five minutes at 1 ma. 5-7 a. with roentgen rays whose hardness is 8 on Benoist's radiochromometer and 10 on Wehnelt's criptometer (but the hardness of the rays and duration of irradiation are varied in relation to the gravity of the case), and with the anticathode at a distance of 25 cm. from the body. As the liver and the spleen secrete antagonistic ferments, it is very important that the roentgen rays should not fall on the liver while irradiating the spleen. Therefore, the irradiation of the spleen is done exclusively from the front or back, but never from the side; and, to avoid irradiating the liver when the spleen is being irradiated from in front, the right boundary of the tube (8 cm. diameter), which does not let the roentgen rays pass through its sides, must be to the left of the left mammary line, and during roentgenization from the back it must be to the left of the left scapular line. In tuberculosis of the lungs, irradiation is performed not oftener than once a week. In Petrograd, the treatment of tuberculosis of the lungs of the first stage requires from eight to ten sittings; of the second stage, from twelve to fifteen, and of the third stage two series of from twelve to fifteen each, with an interval between of two or three months. In general, Manoukhin never gives more than fifteen sittings at one stretch.

2. Manoukhin (*Arch. d. mal. du cœur,* June, 1912, p. 390) tests the leukocytolytic capacity of the patient's blood serum. He mixes the serum to be examined with normal human blood. A leukocyte count is made of this mixture, whereupon it is heated over a water bath for twenty-four hours. Then a second leukocyte count is taken. The difference between the two counts gives the number of leukocytes destroyed. The relation of this figure to the first count gives the leukocytolytic index of the serum examined. (Manoukhin regards leukocytolysis as a defense reaction, and the purpose of roentgenization is to increase the fragility of the leukocytes. His experiments on leukocytolysis and all researches on the fragility of leukocytes show that the diseased organism often defends itself against toxinfection by a hyperleukocytosis. At a certain time these leukocytes become fragile, are then broken up, and by releasing the ferments with which they are impregnated, contribute to the defense of the organism.) After each roentgenization of the spleen, the study of the blood must be renewed (Mauriac, Pierre: Réflexions à propos du traitement de la tuberculose pulmonaire par l'irradiation de la rate, *J. de méd. de Bordeaux* **94**:231 [April 25] 1922).

ETHYL CHLORID AS A GENERAL ANESTHETIC

To the Editor:—Please give me the facts, as they are known to date, concerning the comparative dangers of ethyl chlorid with other anesthetics, when used as a general anesthetic. It is my practice to use it to produce unconsciousness, and then to switch to ether. I do this because it is quicker and has not the objectionable odor that ether has.

Arthur J. Kemp, M.D., Miami, Fla.

Answer.—The unreliability of statistics is evidenced by the fact that the published mortality rates from ethyl chlorid anesthesia vary from 1 in 15,000, which is also the mortality rate of ether anesthesia, to about 1 in 6,000. From these statistics, therefore, one might judge that ethyl chlorid stands between ether and chloroform; but it is probably closer to the latter, which gives a mortality of about 1 in 3,500. Ethyl chlorid, however, is used for minor anesthesia (brief anesthetization), so that it is unfair to compare it with the major anesthetics used for prolonged operations. The fair comparison for ethyl chlorid is with nitrous oxid, the accepted mortality rate from which is about 1 death in 1,000,000 anesthesias. Hence, whether for induction of anesthesia or for minor anesthesia, ethyl chlorid is somewhere between 200 and 66 times more dangerous than nitrous oxid, and therefore much inferior to the latter, excepting from the standpoint of convenience and portability of apparatus. It is, on the other hand, somewhat safer than chloroform for the induction of anesthesia, though also less convenient.

The essential danger from ethyl chlorid lies in the extraordinary suddenness of the death, which may occur within half a minute from the beginning of the inhalation. The danger signs are such as may be easily overlooked by any except the most experienced anesthetist.

SKIN TESTS IN HAY-FEVER

To the Editor:—The skin tests in a case of fall hay-fever gave a marked reaction to ragweed, goldenrod and sunflower. Scheppegrell's book exonerates goldenrod and sunflower as causes of fall hay-fever, because their pollens are not wind borne. Under the circumstances, should treatment with goldenrod and sunflower be given together with the ragweed, or should the first two be omitted in spite of the well marked skin reactions? Please omit name.

——— M.D., New Jersey.

Answer.—The skin reaction in patients suffering from the fall type of hay-fever will be positive if made with any of the pollens of the 10,000 species of flowers which constitute the large family of *Compositae.* The same skin reaction will also be obtained with the pollen of flowers which, belonging to this family, are indigenous to South America or South Africa and are not found in the United States. In other words, immunologically speaking, it is probably a group reaction due to a specific chemical nucleus common to the pollen of the whole family of *Compositae,* possibly protein in nature.

Virtually only those members of *Compositae* have any part in the production of fall hay-fever that are fertilized by the wind: therefore chiefly the ragweeds *(Ambrosiaceae)* and wormworts *(Artemisiaceae).* The ripe pollen of the wild sunflower, goldenrod, blackeyed susan, daisy and aster—flowers which grow abundantly on the sides of most of our country roads—might be carried a few feet on a hot windy day and thus play a certain small part in producing hay-fever (e. g., in motorists); but this is certainly a very insignificant factor in the causation of fall hay-fever as compared to the rôle of the truly anemophilous *Compositae.*

The treatment with ragweed pollen extract is, therefore, sufficient in most cases to desensitize the patients to fall hay-fever.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALASKA: Juneau, September 4. Sec., Dr. Harry C. De Vighne, Juneau.

PHILIPPINE ISLANDS: Manila, August 14. Sec., Mr. José V. Gloria, 400 Asuncion, Manila.

THE RELATION OF MEDICAL EDUCATION TO THE MEDICAL PLANT

G. CANBY ROBINSON, M.D.
Dean-Elect and Professor of Medicine-Elect, Vanderbilt University Medical Department
NASHVILLE, TENN.

Medical education is conducted in different countries in various ways, and theories of education express themselves in various forms of plants. On the other hand, the plants available for medical education have been perhaps strong factors in determining educational policies. It is not always easy to determine whether the educational principles have dominated the types and arrangements of buildings, or whether the educational principles have been dominated by the facilities in which medical education is of necessity conducted. Doubtless, in some countries the educational policy has been the dominant factor, while, in others, material facilities seem to have influenced strongly educational methods. Without attempting a decision of this question, it is certain that a striking contrast is seen between the educational policies and plants of Germany and those of England. In Germany, the medical schools have consisted of a series of institutes, each being a concrete unit of the university. In England, the medical schools, at least in London, have been developed about hospitals, have existed as independent units, and have, generally speaking, a very loose university connection. In Germany, medical education has been conducted as a university function in the true sense of the word. The English medical schools are largely vocational in their methods and spirit. They attack in a very direct way the development of the practitioner of medicine.

In the United States until recent times, medical education did not generally have the advantage of being conducted as an integral part either of true universities or of large general hospitals. Our schools were for the most part conducted in rather meager laboratories, and in hospitals seldom fully controlled by the medical faculties. Only in rare instances prior to twenty-five years ago did a medical faculty have an opportunity to express freely any true educational policy in its plant, and in this country even today the available plant dominates the educational methods of many of our medical schools.

We have, however, at present a rapidly increasing number of schools in which the opportunity is afforded to construct new plants or thoroughly remodel old ones along lines which express the modern American conception of medical education. One such opportunity has been given in the recent endowment of Vanderbilt University for its medical school by the General Education Board and the Carnegie Foundation. Through these benefactors, a sum of eight million dollars for medical education has been made available for Vanderbilt University, with which the university proposes to erect a hospital, laboratories, a nurses' home and a power plant, and to provide for their endowment.

EDUCATIONAL FEATURES EXPRESSED IN THE BUILDING PLAN

It is my purpose here to point out some of the features of the plant that has been planned which reflect the educational policies which for the present guide the development of the new medical school.

In the first place, the new buildings have been located directly on the main campus of the university, which assures the school of its place as an integral part of the university and its close contact with the departments of science underlying the medical sciences. The decision of this location was difficult, especially as it involved the abandonment of valuable buildings and land now occupied by the Vanderbilt Medical School, situated about two miles across the city of Nashville from the university.

Another problem of educational policy has been the question of bringing the laboratories and the hospitals of the school into the closest possible contact. In order to accomplish this, it was decided to connect the laboratories and hospital so that in reality they constitute one building. The laboratories form three sides of a court facing north and opening toward the main campus of the university, while the hospital forms a similar group opening toward the south. These two groups are joined by the laboratories of the clinical departments, arranged in such a way that the type of work conducted in each one will be carried on in close proximity to the laboratory most closely allied to it. Thus, the laboratory of clinical bacteriology adjoins the main laboratory of bacteriology, that of surgery adjoins anatomy, and that of clinical chemistry and physiology adjoins those of biologic chemistry, pharmacology and physiology. By such assignment of space it is hoped that the barrier between the laboratory and the clinical departments will be eliminated, and that the influence of the fundamental sciences will be felt constantly by the clinical staff and by the students throughout their entire course, so that the knowledge and training gained in the laboratories will be carried forward into the practice of medicine. This seems to be an essential factor in solving the much discussed problem of the so-called "water tight compartment" departments, and in bringing about successfully the much desired correlation between departments. It is possible, however, that this close linking of the laboratories and the clinics will produce a tendency which may need to be resisted. It may tend to have the undesirable influence of distracting both students and staff from engaging in the less spectacular and less practical activities of the laboratories, and to place too near them the allurements of clinical medicine. This is a matter that needs to be recognized and taken into strict account, especially when there is a tendency to push forward in the curriculum clinical demonstrations. The desire to impress on the student the practical application of his early medical studies may result in leading him astray, diverting his attention and giving him clinical notions before he is ready or capable of receiving them. There is much more to be said for carrying forward the laboratories into the clinics than there is for carrying the clinics into the laboratories, and it is hoped that a plan which will effect the former may not unduly produce the latter condition.

Another educational feature expressed in the building plan of the Vanderbilt University school is the position of the library and museum. The library occupies a central position on the first floor, almost analogous to the hub of a wheel, and no provision for departmental libraries has been made. Stack room on the main floor for approximately thirty-six thousand volumes is provided, with additional room for about fourteen thousand volumes immediately below. The reading room adjoining the stack room will accommodate about seventy readers, and two small studies for intensive literary work are provided. The museum is placed opposite the main entrance of the laboratories. It is connected by a passageway with the library, so that the cataloguing, arranging and issuing of books and specimens may be done by the same staff. The prominent position of the museum should encourage its use by students of all classes, and should develop an attitude toward it so well exemplified by the English schools, where much knowledge is acquired in the museum both with and without teachers.

Special emphasis has also been placed on the relation of the outpatient department to the wards. The medical outpatient department is directly under the medical wards, and the surgical outpatient department is directly under the surgical wards. This arrangement has been made with the idea of breaking down the distinction of the out and in services, from the point of view both of the staff and of the students. Another feature of the plan which should tend to bring the two services together is a common record room. This feature will allow the ready establishment of the unit record system, and it is planned that each patient will have but a single record, whether he is treated in various departments or whether he is at times admitted to the hospital and at other times treated as an outpatient.

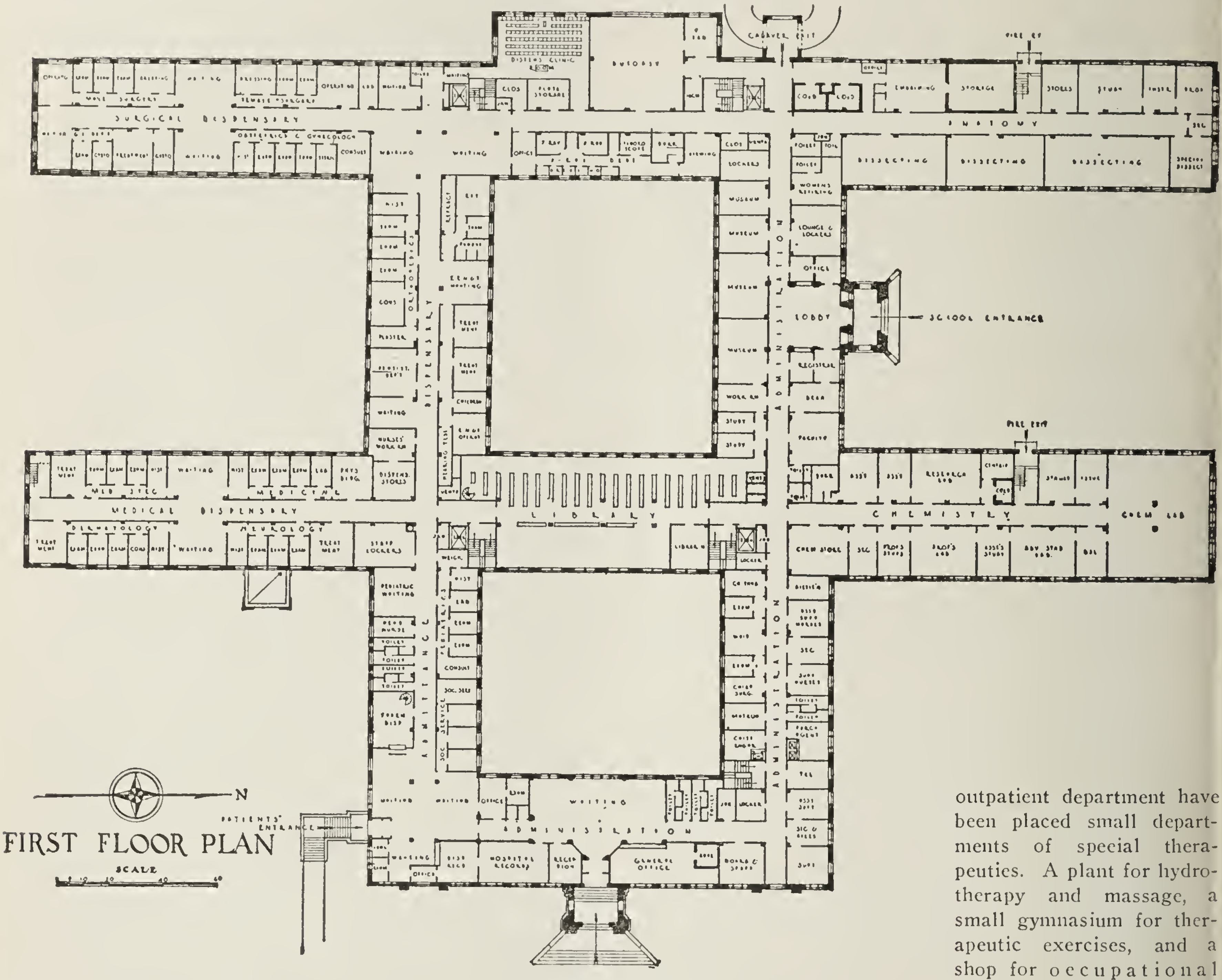


Fig. 1.—First floor plan.

The admitting office of the hospital adjoins the main entrance hall of the dispensary, in which are rooms for the social service department, the staff of which will be readily accessible to patients being admitted to the hospital or to patients attending the outpatient department. A prominent place is given to the social service department, not only because of the great humanitarian value of a properly conducted hospital social service, but also with the belief that it is a valuable asset in medical education. The early impressions gained by students are of great importance in determining their attitude toward future patients, toward the public at large and toward the profession. It is essential, therefore, that the medical student should be surrounded by influences which will emphasize the individual problems of patients in relation to society and to their environment, and which will tend to cultivate in them those desirable qualities of character and fine emotions which have always been looked for in the physician, and which are not always to be found. The influence of an intelligent, competent hospital social service is unquestionably very beneficial from this point of view. Under one portion of the outpatient department have been placed small departments of special therapeutics. A plant for hydrotherapy and massage, a small gymnasium for therapeutic exercises, and a shop for occupational therapy have been provided. These will allow students to see and study some of the more general therapeutic measures, which have not been generally recognized as part of a medical training.

The hospital wards represent a departure from the large wards in general use in this country. A ward unit is composed of thirty beds, but these are so distributed that not more than four patients are in a single space. The main part of the ward, which leads to a closed porch, contains sixteen beds, but this is in turn subdivided by two partitions and a wide corridor. The beds are to be placed lengthwise with the wards, so that the patients do not face the windows. The ward office, linen, bath and utility rooms are between the main portion of the ward and smaller rooms containing fourteen beds. It is believed that this type of ward, new in this country, but successfully used in the university hospital in Copenhagen, will allow improved facilities for teaching, a better distribution of patients, and a more comfortable hospital.

In order to provide facilities for students, two rooms are provided for their use just outside each ward, one a small laboratory measuring 22 by 17 feet, and another adjoining room half as large to be used as a study and conference room for the students serving as clerks in the ward. These rooms are not contained in the ward unit, so that students may work in them at hours when their presence in the wards is not desirable. In general, the principle of giving the students facilities so that they may be as far as possible incorporated in the work of the hospital has been carried out.

No large operating amphitheater has been provided, but the operating rooms have been made large enough so that groups of students can attend operations, thus expressing another policy of medical education now generally regarded as sound.

The hospital will contain approximately 170 beds, twenty-seven of which are arranged for patients paying professional fees. Sixteen beds are devoted to contagious cases. This is a small number of beds for educational purposes, but it constitutes a hospital as large as can be well maintained with the funds available for this purpose. The hospital wards are constructed so that an additional story can be added, which would provide two more wards, one for pediatrics over the medical wards and one for obstetrics over the surgical wards. Ground for further extension of both hospital and laboratories toward the west is available, so that a plant three times the size of the one now planned can be accommodated. Other hospital facilities in Nashville now being used by the school will also be continued.

Finally, an important relation between the educational policy of the school and the physical plant is the number of students which will be admitted. A limit of fifty students in each class has been set, and the facilities of the school have been planned accordingly. All lecture rooms, locker facilities and laboratories have been planned to care for this number. Further endowment would be necessary to provide for a larger number, and extensive additions to the plant would be required. It is perhaps fortunate that a limit is placed on the number of students by definite physical limitations, as it is essential to have comparatively small numbers in order to carry out many of our present-day American educational ideals. Whether these ideals are true or false perhaps the future will show.

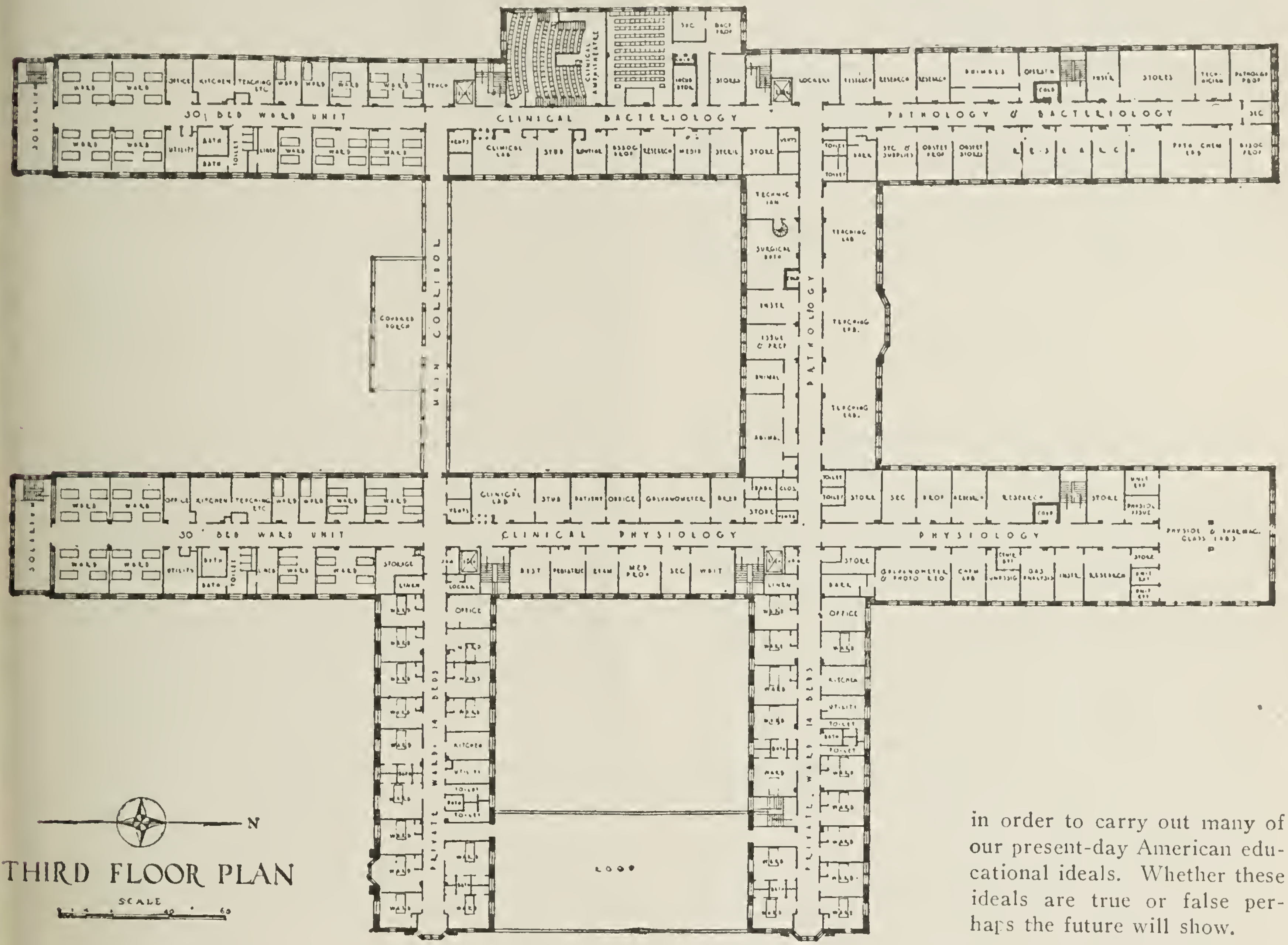


Fig. 2.—Third floor plan.

Iowa March Examination

Dr. Rodney P. Fagen, secretary, Iowa State Board of Medical Examiners, reports the written examination held at Des Moines, March 8-10, 1923. The examination covered 8 subjects and included 100 questions. An average of 75 per cent. was required to pass. Four candidates were examined, all of whom passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
St. Louis University School of Medicine		(1922)	85.4
New York University Medical College		(1888)	76
University and Bellevue Hospital Medical College		(1903)	84
University of Kazan, Russia		(1916)*	84.1

* Graduation not verified.

Porto Rico April Examination

Dr. Jorge del Toro, secretary, Board of Medical Examiners of Porto Rico, reports the written and practical examination held at San Juan, April 3, 1923. The examination covered 9 subjects and included 90 questions. An average of 75 per cent. was required to pass. Four candidates were examined, all of whom passed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Loyola University (1917) 75,	(1922)	82.3
Tufts College Medical School	(1920)	75
School of Medicine of Caracas, Venezuela	(1893)*	76.6

* Graduation not verified.

Ohio April Meeting

Dr. H. M. Platter, secretary, Ohio State Medical Board, reports that 18 candidates were licensed by reciprocity at the meeting held at Columbus, April 3, 1923. The following colleges were represented:

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
College of Physicians and Surgeons of Chicago	(1905)	Iowa
Woman's Medical School of Northwestern Univ.	(1892)	Iowa
Indiana University School of Medicine	(1913)	Indiana
University of Louisville	(1916)	Mississippi
Baltimore Medical College	(1903)	W. Virginia
Johns Hopkins University	(1918)	Maryland
University of Maryland (1920) New York, (1921) Virginia	(1921)	Maryland
University of Michigan Medical School	(1921)	Michigan
Washington University Medical Department	(1917)	Missouri
John A. Creighton Medical College	(1920)	Nebraska
Long Island College Hospital	(1905)	New York
University and Bellevue Hospital Medical College	(1902)	New York
Medical College of Ohio	(1885)	Nebraska
Meharry Medical College (1898) Missouri,	(1917)	Kentucky
Medical College of Virginia	(1916)	Virginia

Miscellany

WAGNER'S SUGGESTION FOR THE PREVENTION OF GOITER IN AUSTRIA

During the last twenty years there has been a progressive increase of goiter in Austria; formerly it was more or less confined to the purely Alpine districts. Two different types were common: one with massive hypertrophy of the gland, but without marked symptoms, and the other with only moderate enlargement of the organ, but with outspoken symptoms of hypothyroidism or hyperthyroidism. While the former is likely to be more frequent in the mountainous districts, the latter is now very frequent in the capital and the cities, mostly lowland places. The cause is as yet not definitely known, but many authors blame the water supply, which is derived from the Alpine districts. Especially among school children, who are now regularly inspected by trained school physicians, a high percentage of goiter has been found; this reaches 28 in girls and 9 in boys, below the age of 16. Professor Wagner-Jaurreg, who twenty-five years ago investigated the "cretin" districts of the Alps and definitely associated this condition with changes in the thyroid, presented an interesting paper, "The Prevention and Treatment of Goiter," at the recent meeting of the Vienna Medical Society. He pointed out that the old theory that places the responsibility for goiter on the drinking water supply has been abandoned in Switzerland, by Gummer, Hunziker and Bayard. These authors explain goiter, at least the endemic form, as a deficiency disease caused by the deficiency of iodin in the food.

This theory was offered in 1849 by Prevost, and numerous facts can be brought forward both for and against it. From 1911 to 1913, a special goiter commission was established in Switzerland, and found definitely that by adding a minimal quantity of iodin to the food or water, rats remained free from goiter under conditions that produced goiter in other rats not so treated. But large doses of iodin are not without danger. Professor Wagner mentioned the experiments of Roux in Lausanne, and of Klinges and others, who obtained excellent results in children from the inhalation of iodin vapor or the administration of iodin tablets. In America, Marine in 1917 gave for ten days 0.2 gm. sodium iodid to school children in districts in which goiter was endemic. This was repeated twice a year; the results were excellent. He was prompted by his observations of trout in large ponds where the otherwise frequent appearance of goiter ceased if minimal quantities of iodin were added to the water.

These methods, however, have the serious objections that a cumbrous organization is required for the distribution of the iodin; lack of cooperation is frequent, and only a small percentage of the population, and even this part only for a short time, is placed under the influence of the remedy. A much better method was employed by Bayard in Zermalt, Switzerland. He first gave to five goitrous families, for five months, common salt mixed with a small amount of iodin (from 5 to 20 mg. for each kilogram of salt) for daily use. Even the cattle received only such salt. The results were excellent: All goiters disappeared. As the daily intake of salt amounts to about 10 gm. for each person, each received from 0.05 to 0.1 mg. of iodin daily, a "homeopathic" dose. Bayard continued his experiments on a larger scale, and fed the 1,200 inhabitants of two villages for six months in the same way, with salt containing 0.004 gm. of potassium iodid for each kilogram, also with excellent results. The treatment was continued in one of these villages for another year, the percentage of iodin in the salt being increased to 0.01 gm. for each kilogram in the first half year, and to double that amount in the next half year. The result was that all goiters that had been refractory to the smaller percentage yielded to the later treatment; no ill effects were noted from the prolonged use of the higher dosage. The example set by Bayard has been followed in several districts of Switzerland, and arrangements are in progress to extend the method to larger cantons. In Austria, similar conditions, chiefly in Vienna and in certain districts of the Alps, call for similar treatment.

Wagner suggests that a certain well defined goiter district located in Styria, where the ravages of the disease are most marked, be constantly supplied with salt containing 0.004 gm. of iodin for each kilogram. This is easy to accomplish here, as salt is a state monopoly, and the salt sold to this district by the government can readily be "treated." The effects would apply not only to school children but to all inhabitants, and also to the yet unborn. There is no danger of causing ill effects from too large doses of iodin. Samples of salt from different sources show that, in some places, much larger quantities of iodin are present. Thus, in Bordeaux, France, the salt contains about three times the quantity of iodin contained in the Swiss experiment, and causes no harm. In Bex, salt is obtained that is rich in magnesium iodid, and goiter is notable there for its absence. If, after protracted (from five to ten years) use of this "medicated" salt in Styria, no ill effects are noted, then it would be well to supply the entire Austrian population with such salt in order practically to free it from goiter, and render the coming generation really free from it. The present generation of adults would also be less subject to hyperthyroidism that is now so frequent here.

THE CENTENNIAL OF VAGINAL HYSTERECTOMY IN EUROPE

On Jan. 28, 1822, Dr. J. N. Sauter of Constance performed the first vaginal hysterectomy in France for a large cancerous tumor which filled the vagina in a woman, aged 50, who for three months had been subject to hemorrhages. The patient recovered but died four months later from an acute intestinal affection. Necropsy showed no trace of the tumor, and only adhesion of the intestine marked the place which had been occupied by the uterus. Sauter saw the possibility of hysterectomy, but his technic, without hemostasis, was too faulty for him to be considered as the father of the method. "Vaginal hysterectomy was his offspring, but it was not a viable child." Great improvements were required before it could become a regular anatomic operation, and these were realized by Professor Récamier of Paris, a charter member of the French Académie de médecine. On July 26, 1829, he made the first successful hysterectomy in France, at the Hôtel-Dieu, in presence of Marjolin, Breschet and Blandin. It is odd that curettage, colpotomy and hysterectomy were the work of French clinicians, not surgeons.

Book Notices

Foundations of Biology. By Lorande Loss Woodruff, Professor of Biology in Yale University. Cloth. Price, $3.50. Pp. 276, with 211 illustrations. New York: The Macmillan Company, 1922.

The appearance of this book should meet the approval of those entrusted with the teaching of general courses in biology. It is thoroughly modern in tone and in treatment of material, illustrating the general revolt against teaching from "types." A teacher of botany might be justified in taking exception to the title Foundations of Biology, since the botanic side does not appear to receive adequate attention. This does not in any way detract from the value of the book to the zoologist, since the discussion of problems in animal life cannot but be strengthened by judicious reference to similar problems in the plant world. Chapters deserving special mention are those devoted to the origin of the individual, the heritage of the individual, the adaptation of organisms and the origin of species. In his last chapter, on epochs in biologic history, the author has departed from the stereotyped historical summary and has written an historical sketch which contains sufficient of human interest to make it enjoyable. The book is well illustrated. The appendix contains a synoptic classification of plants and animals, a bibliography and a glossary. The bibliography should commend itself to the busy teacher, since it contains an adequate list of "easily available works in English which are suitable for reference and collateral reading"; but it seems difficult to justify the presence of a glossary of almost thirty pages. A glossary should be unnecessary if a book is well indexed and if the author has been careful to explain sufficiently new terms as they are introduced in the text. Good scientific dictionaries are usually accessible.

Lehrbuch der Augenheilkunde. Von Dr. Paul Römer, Direktor der Universitäts-Augenklinik zu Bonn. Fourth edition. Paper. Pp. 500, with 338 illustrations. Berlin: Urban & Schwarzenberg, 1923.

This edition has been condensed from the former two volumes to one, to great advantage. From the slight incoordination that exists in various chapters, it can be seen that the work is a compilation of the lectures delivered by Römer, and later amplified. The colored illustrations are for the most part excellent, and it is unfortunate that many of the text illustrations, reproduced from photographs, have been printed so dark that the desired details cannot be distinguished. Otherwise the printing is good, as are the proofreading and the general make-up. A practical point that adds to the usefulness of the book is the marginal headings of various paragraphs. For many of the diseases, the differential diagnosis and treatment are given in a schematic form that is both practical and good. There are some decided opinions expressed that are of great interest to American ophthalmologists. Römer states that "every granular disease of the conjunctiva that leads to scar formation must be considered a trachoma," and he denies etiologic import to the Prowaczek inclusion bodies. It is also of interest to note that he still mentions pneumococcus serum in the treatment of serpiginous ulcer of the cornea; but he no longer emphasizes it as formerly. In this connection, he questions the efficiency of ethylhydrocuprein. To the American ophthalmologic mind, the greatest drawback to the book is the scanty attention paid to the etiologic factors of uveal disease of all sorts. Focal infection plays little or no part, while absorption of intestinal toxins is not even mentioned. One chapter that stands out by reason of its excellence is that on injuries to the eye and orbit. In this, the author states emphatically that sympathetic ophthalmia is undoubtedly a mycotic disease, due to an as yet undiscovered organism, and that it cannot possibly be an anaphylaxis as claimed by the Elschnig school. But he makes this as a bald statement without supporting proof. The chapter on glaucoma is not as complete as it might be. In the beginning of the chapter, he discredits the Leber theory of aqueous formation and flow, but seems to be unwilling to accept any of the modern substitute theories. In contradistinction to many of the German ophthalmologists, the Elliott trephining occupies a high position in his armamentarium of glaucoma operations. Taken by and large, it is a good textbook for students in whose curriculum ophthalmology plays a greater part than it does in the American medical schools; but it is far from sufficient as a textbook for the graduate student. By reason of the good illustrations and the many expressions of personal opinion, however, it forms a rather valuable addition to the library of the well-read ophthalmologist.

Eugenical Sterilization in the United States. By Harry Hamilton Laughlin, D.Sc., Assistant Director of the Eugenics Record Office, Carnegie Institution of Washington. Cloth. Pp. 502, with 14 illustrations. Chicago: Psychopathic Laboratory of the Municipal Court, 1922.

In his capacity as assistant director of the eugenics record office, Carnegie Institution of Washington, and eugenics associate of the psychopathic laboratory of the municipal court of Chicago, Dr. Laughlin presents a detailed and complete exposition of the history and present status of eugenic sterilization in the United States. Incidentally, he discusses the determination of eugenic deficiency and the anatomic, physiologic, mental, surgical and legal aspects of sterilization. The discussion culminates in the draft of a standard or model law. The book contains everything necessary for an intelligent understanding of sterilization from the biologic, sociological and legal standpoints as far as is now practicable. Compulsory sterilization, according to the author, is justifiable for the biologic betterment of the race, but its use as a punitive measure is of doubtful expediency, and may be legally impossible in the United States because of constitutional restraints. In defining the class or classes subject to compulsory sterilization, lines should follow biologic landmarks, and not court records of convictions under man-made laws; the latter are of value only as they are evidence of transmissible constitutional inferiority. All persons, whether or not inmates of jails or asylums, should be liable to sterilization "who, because of degenerate or defective qualities, are potential parents of socially inadequate offspring." Whether a person shall or shall not be compulsory sterilized is properly determinable only after due notice and hearing by a court, with a jury if the party interested so demands; determination by executive officers or by special boards, even though made up of technically trained persons, the author does not approve. It is along these lines that the author has drafted his standard or model law, which, however, in the present state of public enlightenment and opinion on compulsory eugenic sterilization will probably be looked on as idealistic rather than practical. Advocates of compulsory eugenic sterilization must, however, have in mind an ideal if they would attain their objects; for it is certain that circumstances, including political expediency, will reduce to a practical measure any ideal law they may propose. Dr. Laughlin's book should be studied by every one seriously undertaking to prepare and advocate legislation on compulsory eugenic sterilization. Indeed, because of the thoroughness and system with which he has presented the facts and the law on which his model bill is based, it may well be studied by any one undertaking to draft model legislation of any kind. Unfortunately, the niceties of typographic form and arrangement, through which so much may be accomplished to aid in the presentation of serious exposition and argumentation of this kind, have been slighted. Otherwise, it might well be questioned whether the book is the more valuable as an exposition of eugenic sterilization or as a pattern to be studied by persons interested in the development and formulation of model laws.

Diseases of the Heart. By John Cowan, D.Sc., M.D., F.R.F.P.S., Physician to the Royal Infirmary, Glasgow, and W. T. Ritchie, O.B.E., M.D., F.R.C.P.E., Physician to the Ministry of Pensions Hospital, Edinburgh. With a chapter on the Ocular Manifestations of Arterial Disease. by Arthur J Ballantyne, M.D., F.R.F.P.S., Lecturer on Ophthalmology, University of Glasgow. Second edition. Cloth. Price, $10, net. Pp. 605, with 321 illustrations. New York: Longmans, Green & Co., 1922.

The favorable comment that this volume received a few years ago when it was reviewed in The Journal may be repeated concerning this larger and improved edition, in which Ritchie appears as co-author. It is well written. Good judgment is shown in the proportion of space and emphasis accorded various topics. Questions of anatomy, physiology and pathology are given due consideration when they are essential to a clear understanding of the nature and clinical manifestations of a disease. The electrocardiograph, polygraph and roentgen ray are described as fully as necessary to show their proper value as aids to diagnosis. Treatment is not neglected. We know of no better book in English for the student or practitioner who desires a concise yet reasonably comprehensive, up-to-date textbook on heart disease.

Dictionnaire des termes techniques de médecine. Contenant: Les étymologies grecques et latines, les noms des maladies, des opérations chirurgicales et obstétricales, des symptômes cliniques, des lésions anatomiques, les termes de laboratoire, etc. Par les Docteurs M. Garnier, Professeur agrégé, Médecin des Hopitaux, et V. Delamare, Ancien Interne des Hopitaux. Préface de G. H. Roger, Doyen de la Faculté de Médecine. Eighth edition. Paper. Price, 16 francs. Pp. 640. Paris: A. Maloine et Fils, 1923.

This small volume is all that it pretends to be: a concise, well edited dictionary of the technical terms of medicine, including Greek and Latin etymologies, names of diseases, surgical and obstetric operations, clinical symptoms, anatomic lesions and laboratory terms. It does not contain many general scientific terms, names of chemicals and various preparations and instruments, terms of anatomy, biology and physiology, nor are there many biographic references. One good feature is that it frequently gives the name of the physician who brought a word or expression into use; often also the date of the first usage. It may possibly be said to have unduly emphasized pathology to the exclusion of other branches of medicine. The book is intended primarily for French medical students, and is only occasionally of value to the English-speaking physician, since he has practically all the pathologic terms, in almost the identical form, in his English medical dictionary. What the English-speaking physician requires is a dictionary that includes biologic, anatomic and physiologic terms (including two and three word expressions) and the ordinary words of the language which have at times a peculiar medical significance, such as: *cancussion, collocation, redressement* and *débridement*. The book is well printed on a good quality of paper, and the price is reasonable.

The Heart in Modern Practice: Diagnosis and Treatment. By William Duncan Reid, A.B., M.D., Chief of Heart Clinic at the Boston Dispensary. Cloth. Price, $5. Pp. 352, with 32 illustrations. Philadelphia: J. B. Lippincott Company, 1923.

The aim of the author has been to incorporate in this single volume the best of the more recent knowledge, e. g., that pertaining to the abnormal cardiac rhythms, together with the older knowledge that experience has shown to be of real worth. He has succeeded fairly well, perhaps as well as could be expected in so few pages. Often, however, the clinical features of a disease are given very scant consideration, so that the description is too much like that of a quiz compend. This undue brevity really mars the usefulness of the book for either the practitioner or the college-trained senior student of a present-day medical school. They are looking for something a little more complete as to details and are not satisfied with the bare recital of a few salient facts concerning the symptoms of a disease, its etiology, pathology or treatment. That the author is a careful clinical observer is revealed by his discussion of physical examination. The relative values of signs as manifested on auscultation and percussion are set forth with unusual clearness and judicial discrimination. We are not sure that the illustrative case reports that take up the last sixty pages add to the real value of the book.

A Clinical Treatise on Diabetes Mellitus. By Marcel Labbé, M.D., Professor of General Pathology at the Faculty of Medicine of Paris. Translated, revised, and edited by Charles Greene Cumston, M.D., Lecturer at the Faculty of Medicine of the University of Geneva. Cloth. Price, $5. Pp. 382. New York: William Wood & Co., 1922.

This is the work of a clinician and student of clinical medicine, not that of a profound student of the purer sciences, such as physics and chemistry, or of the science of metabolism that is based on calorimetry. The author is a clinician and a shrewd observer. He has seen many diabetic patients and knows their symptoms. He writes of this phase of diabetes much in accordance with the traditions of the French school of clinical writers. For this reason the book recommends itself to the American student of diabetes who has not inherited so much of purely clinical lore. The American student need not look for advanced knowledge of organic or physical chemistry, or calorimetry or biochemical methods, or for concepts or interpretation couched in the language of modern chemical science. He will not find them if he does. But if he reads the book he will find, for example, a chapter on diabetes xanthochromia, a subject not mentioned in American writings on diabetes, and he will find a medical handling of the subject of diabetes by a physician with a general knowledge of other diseases, who sees in diabetes a disease rather than a mere anomaly of the metabolism. The book is in a number of respects comparable with Naunyn's Der Diabetes mellitus and Lepine's Diabète sucré, in that each aspires to be a balanced treatise. It contains some matter that will not be found in either of those works. Nevertheless, in spite of its greater modernity, it is not equal in depth to Lepine, or as worthy of study as Der Diabetes mellitus.

Studies in the Standardization of the Wassermann Reaction, with the Description of a New Method. By John A. Kolmer, Professor of Pathology and Bacteriology in the Graduate School of Medicine of the University of Pennsylvania, Assisted by C. P. Brown, T. Matsunani, A. M. Flick, A. Rule, M. E. Trist and E. Yagle. Cloth. Philadelphia: Research Institute of Cutaneous Medicine.

The introductory chapter in this book is an address by Dr. John A. Kolmer on "The Nature of the Complement Fixation Reaction in Syphilis in Relation to the Standardization of Technic," which was read before the New York Academy of Medicine, Dec. 20, 1921, and republished from the *American Journal of the Medical Sciences*. The following thirty-two chapters represent the work done by Kolmer and his associates at the Research Institute of Cutaneous Medicine, Philadelphia, in developing the Kolmer modification of the Wassermann test. These were all published in the *American Journal of Syphilis* between 1919 and 1922, inclusive. This book is therefore a collection of reprints. The Journal has already commented editorially on the Kolmer technic (Sept. 23, 1922, p. 1051), and published an article by Schamberg and Greenbaum (March 24, 1923, p. 836), who concluded, after considerable clinical experience, that the Kolmer test was an invaluable advance in the serologic study of syphilis.

The Unadjusted Girl, with Cases and Standpoint for Behavior Analysis. By William I. Thomas. Foreword by Mrs. W. F. Dummer. Cloth. Price, $3 net. Pp. 261. Boston: Little, Brown & Company, 1923.

This volume is the fourth of a series on criminal science, authorized by the American Institute of Criminal Law and Criminology. It is composed chiefly of case reports of the lives of incorrigible girls, with an analysis from the point of view of the psychologist. In this instance, the point of view leans strongly to the Freudian belief that sex repression and transmutation are the main features of etiology and prophylaxis. This point of view is particularly emphasized by the chapter headings: The Wishes, The Regulation of Wishes, The Individualization of Behavior, The Demoralization of the Girls, Social Agencies and Social Influence. The volume is definitely of the type that considers the unadjusted girl as a patient to be cured rather than as a criminal. It is an interesting and serious contribution to social science.

Taschenbuch der praktischen Untersuchungsmethoden der Körperflüssigkeiten bei Nerven- und Geisteskrankheiten. Von Privatdozent Dr. V. Kafka, Leiter der serologischen Abteilung der psychiatrischen Universitätsklinik und Staatskrankenanstalt Friedrichsberg in Hamburg. Second edition. Paper. Price, 50 cents. Pp. 105, with 29 illustrations. Berlin: Julius Springer, 1922.

This convenient little pocket manual gives practical details of the technic and interpretation of various laboratory tests applied to the body fluids in mental and nervous diseases. The technic is given in admirably concise and exact form, and should prove of great value to laboratory workers. The formulas for the various reagents and the successive steps to be followed in each procedure are given with precision. In the last chapter, the body fluid pictures in different mental diseases are formulated, and the diagnostic value of the different tests is indicated. The methods, on the whole, are up to date, though it is notable that the author still emphasizes the Abderhalden tests in the diagnosis of dementia praecox, and omits an account of the methods of chemical examination of the blood to which, in this country, so much attention is being directed. Dr. Kafka's work in the clinical laboratory study of mental diseases is well known, and this pocket guide embodies the results of a wide experience.

Proceedings of the Thirty-Seventh Annual Meeting of the Conference of State and Provincial Health Authorities of North America. Cloth. 1922.

The deliberations of the health officials of thirty-two states, and of a number of distinguished guests, at the annual meeting of the conference in May, 1922, are printed in this volume of 150 pages. It contains much information not elsewhere accessible, which is of substantial value to all interested in public health administration. Unfortunately, the facts and opinions it embodies are not readily available in detail because of inadequate indexing. Tables are given showing practice in the several states with respect to public health nursing, laboratory activities, and communicable diseases. The report discloses an interesting difference of opinion among state health officials as to the advisability of charging on the health department the duty of enforcing antinarcotic laws.

Medicolegal

Evidence Required to Sustain Indictment

(People v. Lucas (N. Y.), 198 N. Y. Supp. 846)

The Supreme Court of New York, Special Term, Monroe County, in dismissing, on the minutes of the grand jury, an indictment which charged the defendant with practicing medicine without a license, says that he was not indicted by competent and relevant evidence, such as would warrant his conviction by a trial jury. The charge against him required the district attorney to satisfy the grand jury by legal evidence beyond a reasonable doubt that the defendant had held himself out "as being able to diagnose, treat, operate, or prescribe for some [any] human disease, pain, injury, deformity or physical condition," and had offered or undertaken "by some [any] means or method, to diagnose, treat, operate or prescribe for some [any] human disease, pain, injury, deformity or physical condition." There was no claim that the defendant treated anybody for any such conditions as the statute describes, which differentiated this case at the outset from every other case to which the court's attention was called, so that the only question was whether or not he held himself out as being able to treat such conditions and offered to do so. But there was no legal evidence before the grand jury that he held himself out as being able to treat the complaining witness or anybody else. This element of the crime should appear by substantial evidence beyond a reasonable doubt, and should not be left to inference from incompetent or contradictory evidence, such as the minutes of the grand jury revealed in this case.

The purpose of the statute is to reach those not excepted, who by advertisement or by a course of conduct are holding themselves out as physicians or surgeons, or as being able to treat human ailments. It is not necessary that they should call themselves physicians or surgeons, but, not being excepted, they must clearly represent themselves as being able to diagnose, treat, operate or prescribe by some "means or method" for some form of "human disease, pain, injury, deformity or physical condition." There are exceptions in the statute in favor of those who practice healing as a part of the religious tenets of a church; but even this exception does not apply when such persons supplement prayer with drugs and medical prescriptions. Treatment by diet was formerly sanctioned as not practicing medicine, and so was treatment by rubbing, kneading and pressure; and under the present language of the statute it has been held that physical exercise to remedy diseases and physical conditions are not prohibited, nor the removal of superfluous hair from the face by an electric needle; but the use of autosuggestion and dieting, agencies which the defendant was charged with offering to employ, and which are not among the subjects on which a physician is required to be examined, unless practiced in good faith as a part of the religious tenets of a church, seem not to be exempted, although during the recent visit of the humble pharmacist from Nancy it was tacitly conceded to be lawful to practice autosuggestion in public without a physician's license. The language of the statute covers every "means or method" held out or offered, but there must be some limitations other than those enumerated in the statute, or there are many pharmacists, anatomists, chemists, physical culturists and roentgen-ray photographers, and the whole brood of "patent medicine" venders, who claim to cure all the ills that flesh is heir to, who are practicing medicine and are subject to indictment.

A single instance may be sufficient to establish a holding out, when there is an actual treatment, for in such a case the treatment itself would make out a prima facie case of representation. But the defendant was not to be indicted because he was a "colored fellow," or may have had trouble in other places. He was to be judged here by what he did here, and not by what he might have done, or would be likely to do, or by reason of the color of his skin, or because of his general reputation, or by reason of any suggestion of his that he might be willing at some time to employ "means and methods" of treatment which were never employed, and by which no one was treated or injured, so far as the evidence showed. When there is no treatment, and no immediate offer to treat, but only a suggestion to come around at some other time, when a contract would be made to do something which might, when offered, not constitute a violation of the statute, the case is barren of the representations required by law.

Malpractice in Treatment of Dislocation—Witness Member of Association—"Proper" Treatment

(Hoover v. McCormick (Ky.), 247 S. W. R. 718)

The Court of Appeals of Kentucky, in affirming a judgment for $4,000 damages in favor of plaintiff McCormick, says that he sustained a simple backward dislocation of his right elbow joint. He called defendant Hoover, who arrived within an hour and a quarter, to take charge of the case. An anesthetic was administered, and, it was thought, reduction was made. No roentgenogram was made at the instance of the defendant, but the plaintiff had one made about a month after the injury, which showed that the dislocation was not reduced. An anesthetic was administered, and three physicians with a nurse manipulated the arm and resorted to and applied the well-recognized and known methods usually employed to produce reduction by that method, but without success. About two weeks later, the plaintiff had an operation performed by another physician, which left but little motion in the joint, and partially paralyzed fingers, although the operation was not at all criticized.

The defendant contended that he was not negligent in failing properly to diagnose the case, or in failing to reduce the dislocation on his first visit, on account of the swollen condition, but that such was the condition was contradicted, and necessarily formed an issue for the determination of the jury. As is usual in such cases, there was a contrariety of testimony on all of the direct as well as collateral issues, but one could not read the record without being forced to the conclusion that the defendant was negligent in at least the one particular of not sooner making a roentgenogram of the elbow so as to enable him better to treat it thereafter. To say the least of it, the contradictions in the testimony on the crucial points clearly made a case for the determination of the jury.

It appeared that both the defendant and one of his witnesses were members of the state medical association, and the witness was asked, on cross-examination, whether the association did not have an arrangement for protecting its members against suits for malpractice. He answered that it did not have just what the question implied, but that it did have a defense branch which was obligated to investigate malpractice suits, and when they were not based on proper foundation, assistance was given so far as legal advice was concerned. It was developed that the defendant and the witness were members of the same organization, and each necessarily contributed to the fund inquired about, the existence as well as the purpose of which was admitted. It is therefore extremely probable that the testimony was competent for the purpose of showing bias or interest which might possibly affect the credibility of his testimony, especially in view of the fact that other testimony of the witness showed his interest in the case. But, whether so or not, and admitting for the purposes of this opinion that it was technically an error to admit it, this court is then convinced that it was not sufficiently prejudicial to authorize a reversal of the judgment on that error alone, since the jury was afterward told that the defendant obtained no assistance from that source, but was contesting the action with only his own resources.

The contention that the trial court, in instructing the jury, erred in using the word "proper" as applied to the treatment administered was clearly untenable. Various authorities, in defining the physician's duty, contain that element, which does not mean that the treatment shall actually be proper in all respects, but only that it shall be proper as measured by the defined degree of skill and care required in such cases, which is that usually and ordinarily possessed by others engaged in the same profession in the same locality, and which locality is not the place where the services are rendered, but the place where the defendant is stationed and located, and where he engages in the practice of his profession.

No Damages for Disfigurement Alone

(J. J. Newman Lumber Co. v. Norris (Miss.), 94 So. R. 881)

The Supreme Court of Mississippi, Division A, reverses a judgment for $17,500 damages which was rendered in favor of plaintiff Norris, and remands the case for a new trial on the question of damages, because the jury was instructed that, in assessing his damages, it should take into consideration, not only the physical and mental pain suffered by him, as well as any permanent injury, but, in addition, the scars and disfigurements of his person. The court holds that, in an action for personal injuries, an instruction which authorizes the jury in assessing damages to take into consideration, not only the plaintiff's physical and mental suffering and permanent injury, but in addition any disfigurement of his person, is erroneous since as it authorizes the jury to consider any disfigurement of the plaintiff's person which may continue after the termination of his physical pain and suffering, because it thereby authorizes the jury to award damages for mental anguish alone, unaccompanied by physical suffering.

Burden of Proof After Burn in Roentgen-Ray Treatment

(Rost v. Roberts (Wis.), 192 N. W. R. 38)

The Supreme Court of Wisconsin, in affirming a judgment in favor of the defendant, says that the plaintiff was afflicted with pustular acne, for which the defendant, a physician, advised roentgen-ray treatments, which were administered, July 2, 5, 9 and 11, 1920. About a week after the last treatment, an area of about 144 square inches on the plaintiff's back began to show indications of a roentgen-ray burn, which burn was not healed until well along in the summer of 1921. The plaintiff brought this action to recover damages; and the defendant counterclaimed for the value of his services in giving such treatments, and in treating the burn resulting therefrom, in the sum of $431. A further counterclaim was made for services in treating a gunshot wound. A general verdict was rendered in favor of the defendant for $560, which was said to be the full amount claimed for services in treating the plaintiff.

The jury was instructed that it might consider the fact that the plaintiff was burned as evidence of the defendant's negligence, in connection with all the other evidence in the case. This really accorded to the plaintiff the full benefit of the rule of "res ipsa loquitur," or the matter speaks for itself, and was as favorable to him as the law permitted. The contention that there was error in the portion of the instruction which placed the burden of proof on the plaintiff could not be sustained. Nor was there error in the fact that the jury was not instructed that the burden of proving that the burn resulted from a supersensitive skin or peculiar susceptibility of the plaintiff to the effect of the roentgen ray was on the defendant. The evidence suggested two possible reasons for the burn: One was the negligence of the defendant, and the other was the supersensitive skin or a peculiar susceptibility on the part of the plaintiff to the effect of the roentgen-ray treatments. The plaintiff contended that the burn was the result of the negligence of the defendant. The defendant contended that it was the result of a supersensitive skin, of which he had no knowledge, and which he could not discover by the exercise of due care. The court instructed the jury generally that the burden of proof was on the plaintiff to establish facts entitling him to recover damages. That was correct. In this connection the jury was instructed further:

> Where proof discloses that a given result may have been produced by either of two or more things operating as causes, one of which things is negligence of the defendant, and there is as much reason to believe that it resulted from one as from any other, the jury is not justified in attributing it to negligence of the defendant. If the result complained of is as reasonably attributable under the evidence to a cause or condition independent of the defendant's acts as to negligence on his part, the proof does not establish negligence.

This also was correct; and this rule of law was applicable to the case. The burden was not on the defendant to establish that the burn in fact resulted from the peculiar susceptibility of the plaintiff. If it merely appeared that there was as much reason to believe that the burn resulted from the peculiar susceptibility as from the negligent treatment, a verdict could not go against the defendant. It was argued that there was no evidence that the plaintiff was peculiarly susceptible. The evidence showed that some persons are peculiarly susceptible to roentgen-ray treatments, and that unexpected results do sometimes ensue from such treatments; that the treatment administered was the usual and ordinary treatment for pustular acne, from which a burn such as the plaintiff suffered was not likely to follow. If the jury believed the experts who so testified, it was warranted in inferring that it was as probable that the burn resulted from peculiar susceptibility as from negligent treatment. Furthermore, an instruction was in accord with the well settled law on the subject, when the instruction said that an honest mistake of judgment, if that judgment was formed with due care and skill, did not render the defendant liable for the consequences; and that, if what was done was in all respects in accordance with common practice under all the circumstances involved, the jury must find for the defendant on the issue of negligence.

Objection to the testimony of a medical expert on the ground that he is not competent or qualified must be made at the time the testimony is offered, and, if not so made, the objection is waived.

Weight of Expert Testimony

(Madison County Mining Co. v. Industrial Commission et al. (Ill.), 138 N. E. R. 211)

The Supreme Court of Illinois, in reversing a judgment that confirmed an award of the industrial commission which granted an injured employee compensation for permanent total disability and, in addition, a pension for life, says that the man testified that he was struck a glancing blow in the back by an elevator chain weighing about 1,000 pounds. The finding that he was wholly incapable of performing any work rested entirely on his unsupported testimony, while there was the testimony of several physicians that tended to show that he was not wholly and permanently incapable of work. Expert evidence is legal and competent evidence, and is to be received, treated and weighed precisely as other evidence by triers of fact in this character of cases. The weight of such testimony must be determined by the character, capacity, skill, opportunities for observation and apparent state of mind of the experts themselves as seen and heard, and estimated by the triers of fact and by the nature of the case and its developed facts.

Society Proceedings

AMERICAN PEDIATRIC SOCIETY

Thirty-Fifth Annual Meeting, held at French Lick Springs, Ind., May 31-June 2, 1923

(Concluded from page 244)

Effect of Magnesium Sulphate on Blood Pressure in Acute Nephritis

Drs. Kenneth D. Blackfan and C. A. Mills, Cincinnati: In studying the dehydrating action of calcium and magnesium salts in acute nephritis, we have observed that there is lowering of blood pressure following the administration of magnesium sulphate. When a 2 per cent. solution of magnesium sulphate is given intravenously, in selected cases, the blood pressure promptly falls and remains at a low level for about five hours. With the fall in blood pressure, the headache, visual disturbances and convulsions abate. The injection is usually followed by diuresis, diaphoresis, or free catharsis. The procedure has had no apparent effect on the albuminuria or hematuria. The fall in blood pressure begins usually after the introduction of from 15 to 20 c.c. of the solution. When introduced slowly, at the rate of 10 c.c. a minute, the respiratory and cardiac rate is not changed. The total amount given at a single injection has not exceeded 10 c.c. per kilogram of body weight.

DISCUSSION

Dr. Henry Heiman, New York: Possibly one of the reasons for the action of magnesium sulphate is that it reduces the tension on the muscular system. When it was first used in tetany by Meltzer, he said it did not act on the organisms, but relieved muscular spasticity. We tried it in chorea some years ago on that theory, but without success.

Intoxications Associated with Alterations in the Physico-chemical Equilibrium of the Body Cells in Fluid

Drs. W. McKim Marriott and S. W. Clausen, St. Louis: Evidence is constantly accumulating which points to the fact that the condition ordinarily referred to as nephritis is in reality a widespread systemic disease. The edema of Bright's disease seems to be due to the fact that the tissues hold fluid rather than that the kidneys are functionally unable to excrete it. The factors involved are physical as well as chemical. An investigation of the colloidal osmotic pressure of the blood serum was made by Dr. Clausen, who found that this pressure was uniformly low in patients suffering from acute Bright's disease. The colloidal osmotic pressure, in a general way, parallels the protein content of the serum. On the other hand, not all patients with lowered colloids have edema. An effort was made to determine what other factors might be operative. The surface tension of the blood serum was studied by the drop weight method, and it was found that the surface tension was invariably low in patients with Bright's disease and persistent edema. With the disappearance of the edema, the surface tension returns to normal. In patients who failed to recover and whose cases were followed to the time of death, the surface tension was observed to become progressively lower. The surface active substance which was shown to be present in the blood was also found in the urine, from which it was isolated in fairly pure form. This substance proved to be neither lecithin nor cholesterin, nor is it one of the usual proteins. Its exact nature is still under investigation. This substance has not been found in the serum of patients suffering from edema of cardiac origin, nor in the serum of patients with other forms of nephritis. These facts have been found to be of some value in differential diagnosis. We have found that the majority of patients with the type of Bright's disease here described have been suffering from purulent infections of the nasal accessory sinuses. There has been a prompt disappearance of the edema and other signs of Bright's disease when the sinuses have been drained. Organisms isolated from the sinuses and grown in pure culture do not produce a surface active substance.

Use of Insulin in the Treatment of Diabetes in Children

Drs. David Murray Cowie and J. P. Parsons, Ann Arbor, Mich.: Little danger can come from the administration of insulin to babies with diabetes, because the usual spacing of feedings can easily be taken advantage of to insure sufficient carbohydrate coming into the blood stream when hyperinsulemia might otherwise develop. In children no longer bottle fed, the danger might very easily arise because of the inability of the child to announce developing symptoms. However, averting danger in child cases is only a matter of careful management and meal spacing which will insure a carbohydrate income at these times. The patient should not be allowed to pass from control until the lowest level of insulin intake has been established. Infections of all kinds occurring during the course of diabetes are overcome rapidly and without harmful effect by insulin. The insulin intake should be increased at these times. The evil effects of surgery and anesthesia in diabetes can be overcome by insulin. No child should be given insulin without a careful study of the blood sugar content by a reliable method. Diabetes in children, as in adults, should receive insulin treatment.

DISCUSSION

Dr. Henry Rawle Geyelin, New York: Dr. Cowie speaks of the gain in weight as apparently the result of insulin therapy and the increased tolerance for carbohydrates. Before we draw too definite conclusions we must remember the variations in all cases of diabetes from year to year, from month to month and even from week to week, so unless we are cautious we may make mistakes in drawing conclusions from cases under insulin treatment for even two or three years. There is a factor in regard to the gain in weight of these children who have received insulin treatment which I should like to emphasize. It is a well known fact that when the low peak in the diabetic curve is found, there is a gain in the carbohydrate tolerance which is striking, and also a gain in weight, but when the highest weight is reached, the weight curve showed a plateau which was found to be the proper weight for the height. At this point less and less insulin is required for the amount of carbohydrate.

Dr. John Howland, Baltimore: Even with a comparatively mild infection, it is almost impossible to keep a diabetic child sugar free, even with large amounts of insulin. As regards the rise in carbohydrate tolerance, before the days of treatment with insulin, I never saw a child whose carbohydrate tolerance consistently rose; in other words, in every child there is a tendency to a more or less rapid fall in the carbohydrate tolerance.

The Influence of the Diet During Pregnancy and the Lactating Period on the Susceptibility of the Young to Rickets

Dr. Alfred F. Hess, New York: Rats from six different stocks were employed in our study. In all but one group rickets regularly came about on the standard dietary. The young of one stock, however, failed to develop rickets. By changing the dietary of these mothers during the lactating period, it was possible to render the young susceptible to rickets. An attempt was made to render the young refractory by feeding the mother rats cod liver oil during pregnancy or during lactation. This failed; the young developed rickets. In one series, 20 drops of cod liver oil was administered to the mother daily, which is equivalent, considered on the basis of body weight in kilograms, to 6 ounces for an adult. Nevertheless, rickets developed when the young were put on the standard diet; the inorganic phosphate of the blood decreased. A few tests on human beings indicated that infants cannot regularly be protected by giving mothers cod liver oil during pregnancy. In the observations on human beings it was found that the calcium and phosphorus in the blood of pregnant women is about normal; the calcium was slightly low at about term. The inorganic phosphate content of the blood of the mother and child are not the same; that of the infant is almost regularly higher than that of its mother. The phosphate of a premature infant was not low, nor was it low in syphilitic infants. This fact may be used in differentiating between congenital syphilis and rickets, when it is difficult to interpret roentgenograms. Although the blood phosphate of the infant is higher than that of the mother, it is lower than in infants in postnatal life. In the infants whose cases were followed for a year, it was found that there was no relationship between the amount of inorganic phosphate which had been found at birth and the development of rickets in the course of the winter. Some born with a higher blood phosphate developed rickets, whereas others born with a low blood phosphate did not develop rickets. Therefore, the content of inorganic phosphate at birth furnishes no criterion, and is of no prognostic value in regard to subsequent development of rickets, nor does the development of rickets depend on the store of inorganic phosphate which the infant brings with it at birth.

Relation Between the Acid and Alkali of the Blood in Epilepsy

Dr. Henry Rawle Geyelin, New York: We have charted the hydrogen-ion concentration of the blood in a series of epileptic patients. The figures show that there is no p_H curve definitely characteristic of epilepsy, but it may be said that the blood of epileptics shows a distinctly wider range of p_H from day to day and from hour to hour than does the blood of normal persons.

DISCUSSION

Dr. David Murray Cowie, Ann Arbor, Mich.: Soon after the starvation treatment of epilepsy was announced, I treated a 4 year old epileptic boy by this method, with the exception of permitting oranges to the extent of twelve a day after the second day. It is now nearly three years since beginning this treatment, and there have been no recurrences of the seizures. The patient continues to take three or four oranges a day. The orange diet was supplemented in the course of time with 5 per cent. vegetables, then 10 per cent. vegetables, and finally the patient was advanced to a substantial diet, with a minimum of animal food, on which he remains. We hve had several other epileptic children who have responded in the same way, but who were put to bed and started on oranges without a previous period of absolute starvation. We must consider the fate of the organic acids in these cases.

Calcium and Phosphorus Determinations in the Blood Plasma of Rickets and Tetany

Drs. Julius H. Hess, Chi Che Wang, Joseph K. Calvin and Augusta Felcher, Chicago: Consecutive blood examinations to determine the calcium phosphorus concentration, their rations and products are most important in the diagnosis of the degree and stage of rickets and the prognostication of probable complications. A calcium and phosphorus concentration with a minimal product between 30 and 40 is the determining factor in the calcification of bones. All cases of rickets with a calcium-phosphorus product of less than 30 must be considered as in the active zone. The low phosphorus is usually the factor influencing the low factor, but this may also be caused by a low calcium, or by both. Tetany may complicate both moderate and severe rickets. In every case examined, the calcium and the phosphorus of the blood were below the normal average. The average product of calcium and phosphorus was lower in cases of tetany than in uncomplicated moderate rickets, but slightly higher than in severe rickets. Although in the majority of these cases there was evidence of healing, indicated by the roentgenograms, even in those showing the more severe forms of rickets, in ten cases the product of calcium and phosphorus was below the healing zone. Although there is a relatively high concentration of phosphorus in cases of severe rickets complicated by tetany, the blood picture tends to revert to the relatively low phosphorus and high calcium content in the early stages of treatment. The clinical symptoms of tetany improve as the calcium content of the blood increases under treatment, and the electrical reaction may be normal even before the calcium returns to the normal figure. There is a more or less definite blood picture in rickets, and in rickets associated with tetany, but we believe that these conditions represent two phases of the same disorder rather than two distinct types, that the blood picture may be affected by extraneous factors and that it may vary according to the activity or healing of the process.

The Results of Follow-Up Work with Infants in a Maternity Hospital

Drs. Walter Lester Carr and Bret Ratner, New York: Clinics have been established for nutrition, etc., but a gap exists from the time that the mother leaves the maternity hospital and the time she first seeks medical advice for her baby. This results in the development of many preventable conditions and the impeded progress of the infant. This condition can be corrected best by the establishment of postnatal clinics in the maternity hospital, under the direction of pediatricians. We have kept in touch with 410 babies born at the Manhattan Maternity Hospital, where we established such a clinic. The routine of the clinic consists in obtaining the history of the confinement, the birth weight and the Wassermann reaction, and in making a complete physical examination and recording the results. Two nurses were in attendance, and two social service workers carried out the follow-up work. The babies were brought to the clinic once a week until the sixth week, then once every two weeks, and then once a month. Some of the infants were seen as often as three times a week if this was thought to be necessary. Acutely sick infants, or those requiring special treatment, were transferred to special hospitals. When treatment was completed, the child was returned to the clinic for advice on general hygiene and feeding. The mothers were given instruction in the hygiene and management of the child, and the physiologic facts about breast secretion and feeding were explained to the mother. The results obtained show the value of such a clinic in the prevention of disease and the correction of minor ailments. It also affords the physician an opportunity to study the normal development, anomalies and diseases of the new-born. Observations made on this large group of mothers and babies lead to the conclusion that menstruation has very little effect on the process of lactation. In the majority of cases absolutely no ill effect was noted. All the premature, Italian and colored infants were treated as potential rachitics, and from the third month were given cod liver oil and sun exposures. As a result no frank cases of rickets developed in this series.

Exophthalmic Goiter in Childhood

Dr. Henry Heiman, New York: In three cases of exophthalmic goiter in children, aged 4, 5 and 7 years, respectively, there was no history of syphilis, but heredity played an important rôle. The basal metabolism test proved to be the best guide in diagnosis as well as in the determination of the severity of the disease. It seems that the most rational procedure is to institute first a regimen of strict physical and psychic rest for from six to ten weeks. If the patient shows no improvement, a short period of roentgen-ray therapy should be tried. Thyroidectomy should be performed if there is no response to the roentgen rays. In the severer cases, it is safer not to wait too long before operating.

DISCUSSION

Dr. Harold K. Faber, San Francisco: A baby was born of a mother suffering from exophthalmic goiter, two or three weeks prematurely, with a very rapid pulse, excessive restlessness and exophthalmos. The baby was never put to the breast. The symptoms diminished and the exophthalmos disappeared at the age of about 4 weeks. An interesting point in this case was that the child required higher caloric feeding than was normal for its age.

Etiology and Treatment of Herpetic (Aphthous and Aphtho-Ulcerative) Stomatitis and Herpes Labialis

Dr. H. J. Gerstenberger, Cleveland: The administration of the water-soluble vitamin B produces in herpetic stomatitis, aphthous stomatitis, herpes labialis, acute gingivitis, and ulcerative stomatitis a remarkably rapid improvement and recovery. It is suggested that the metabolic disturbance concerned is due to a disproportion between the water-soluble B supply of the body and the metabolic requirements of the given patient's body for this vitamin; that the presence in the individual of a metabolism, that operates excessively or uneconomically, or both, because of heredity, or of pathologic or physiologic peculiarities existing at the time in the individual or because of the consumption of a liberal and peculiar diet, or both, is responsible for the metabolic disturbance as suggested. Vincent's angina, noma and the various forms of herpes may belong to this class of disturbances. Some of the formes frustes of scurvy may not be true cases of scurvy, but water-soluble B disturbances that improve on the administration of orange juice because of the latter's content of the water-soluble vitamin B. In the future, in such cases, a liberal administration of the water-soluble B vitamin in pure form should be carried out before orange juice is used. The liberal use of canned tomato is an economic and dependable source of vitamin B.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

25: 257-338 (April) 1923

*Brain Tumors in Young Children. M. Wollstein and F. H. Bartlett, New York.—p. 257.
*Characteristics of Cerebrospinal Fluid in Postdiphtheric Paralysis. J. C. Regan, C. Regan and B. Wilson, Brooklyn.—p. 284.
*Transfusion Through Umbilical Vein in Hemorrhage of New-Born. Report of Case. J. B. Sidbury, Wilmington, N. C.—p. 290.
Causes of Absence in Boy's School. C. H. Sanford, Concord, N. H. —p. 297.
Saliva of Nursling. A. Hymanson, New York, and H. Davidsohn, Berlin.—p. 302.
*Bacteriologic Study of Acute Diarrheas in Young Children. M. Wollstein, New York.—p. 310.
Statistical Analysis of Causes of Palpable Lymph Glands in New-Born. L. Dunn and H. L. Dunn, Minneapolis.—p. 319.

Brain Tumors in Children.—The results of a study of seven cases of brain tumors in children are recorded by Wollstein and Bartlett. Five neoplasms were infratentorial and located in the cerebellum; two were in the cerebrum. These and two other cases were listed among 4,563 necropsies at the Babies' Hospital. All the tumors were gliomatous in type. Of the supratentorial tumors, one occupied the left cerebral hemisphere and was congenital in origin. The other tumor occupied the basal ganglions. In the five infratentorial tumors the vermis of the cerebellum was involved. The growth involved the right cerebellar hemisphere in four cases and the left hemisphere in one instance. The medulla and the pons were infiltrated in two cases, and the right cerebellopontile peduncle was involved in two instances. The upper cervical cord was compressed in three of the cases. Hydrocephalus was present in each of the seven cases. The most striking feature of the symptomatology was the variability in physical signs. Convulsions were absent in all cases except one in which a convulsion occurred just before death. Vomiting did not appear as a significant symptom in any of the cases. The spinal fluids showed nothing that is distinctive. Xanthocromia was present in only one case in which there was a cerebral hernia.

Cerebrospinal Fluid in Postdiphtheric Paralysis.—The cerebrospinal fluid in postdiphtheric paralysis is described by the Regans and Wilson as being a clear limpid liquid, flowing usually under normal or slight hypertension. The Bordet-Wassermann reaction of the spinal fluid was uniformly negative in each of sixteen cases. The cell count was always within normal limits, less than 10 cells per c.mm., and the cells found were small lymphocytes. The globulin was increased in less than one third of the cases. The increase was slight, occasionally moderate, never marked. There existed, therefore, in certain cases (less than one third) a dissociation between the cytologic and chemical findings. The colloidal gold reaction was the most constantly positive pathologic reaction encountered in the fluid of this disease. The reduction usually occurred in the syphilitic zone, occasionally extending into the higher dilutions. The reaction seemed gradually to subside, reaching normal as convalescence was established and paralysis disappeared.

Transfusion Through Umbilical Vein.—A baby was transfused by Sidbury through the umbilical vein on the fourth day of life with the greatest ease. The fact that the great majority of cases of hemorrhagic disease of the new-born occur during the first three days of life should emphasize the fact that if transfusion is necessary in these infants it may be performed through the umbilical vein with greater ease than by other routes. The probability of a clot in the umbilical vein is very unlikely because the blood is fluid many hours after death in these cases. Transfusion through the sinus in cases of intracranial hemorrhage may increase intracranial pressure, which is not desirable. Transfusion through the superior longitudinal sinus is comparatively simple for one experienced, while the umbilical route is simple for those inexperienced in the sinus route.

Bacteriologic Study of Acute Diarrheas.—Bacteriologic examinations of stools from a series of eighty-six young children admitted to the Babies' Hospital with some form of intestinal disturbance were made by Wollstein, and twenty children were found to harbor dysentery bacilli. Three were of the Shiga type of *B. dysenteriae*, five of the Flexner type and twelve of the Mount Dessert type. The highest mortality rate occurred among the group of Shiga infections; but the group of Mount Dessert infections showed the most prolonged course and the severest lesions at necropsy. The mortality rate of the dysentery group of cases was 40 per cent., while the mortality of the entire group was 39.5 per cent. Serum therapy was applied in seventeen of the twenty-children suffering from dysentery, with no untoward, and no strikingly positive, results.

American Journal of Psychiatry, Baltimore

2: 501-759 (April) 1923

Practical Value of Study of Personality in Mental Disorders. G. S. Amsden, White Plains, N. Y.—p. 501.
Physiologic Level in Dementia Praecox. T. Raphael, Ann Arbor, Mich. —p. 515.
Study of Mechanism of Obsessive Compulsive Conditions. P. Greenacre, Baltimore.—p. 527.
Types of Word Association in Dementia Praecox, Manic-Depressives, and Normal Persons. G. Murphy.—p. 539.
*Statistical Analysis of Certain Phases of Epilepsy. O. C. Smith, Baltimore.—p. 573.
Further Report of Nurses' Conduct Scheme. J. S. Plant, Boston.—p. 593.
General Pathology and Relationship to Certain Mental Diseases. R. A. Deilty, Danville, Pa.—p. 614.
*General Paresis: What It Is and Its Therapeutic Possibilities. H. C. Solomon, Boston.—p. 623.
Important Factors in Hospital Treatment of Psychoneurotic Exservice Men. T. J. Heldt, U. S. P. H. S.—p. 647.
Neuropsychiatric Service of Department of Soldiers' Civil Reestablishment, Canada. C. B. Farrar, Guelph, Ont., Can.—p. 665.
Neuropsychiatric Exservice Man and His Civil Reestablishment. G. O. Ireland, Washington, D. C.—p. 685.
Psychotic Symptoms of Epilepsy. H. L. Paine, N. Grafton, Mass.—p. 713.

Epilepsy.—The main points of interest in Smith's study of age of onset and type of the disease manifested may be summed up as follows: Without regard to family history, in males the average age of onset is later than in females and this lies within the group having grand mal attacks without petit mal. Furthermore, this particular type of case occurs more frequently in males than in females. When the cases are separated in groups for different family histories, the age of onset for both sexes is later in the negative group and more markedly so for males than for females. In regard to the finding that grand mal without petit mal occurs more frequently in males than in females, this is found to occur chiefly in the negative family history, whereas females show no marked differentiation.

Treatment of General Paralysis.—The problem of treatment of general paralysis, Solomon says, offers a certain amount of difficulty due to the lack of any sufficiently powerful spirocheticidal drug. The conventional routine treatment of early syphilis, namely, a half dozen injections of arsphenamin weekly, followed by twelve or fifteen injections of mercury at a like interval, is rarely, if ever, of any benefit to the paretic. To obtain results, the treatment must be pushed to the limit of the patient's tolerance. If giving arsphenamin at frequent intervals over a considerable period of time does not produce satisfactory results, other methods must be relied on. For this purpose intrathecal injections have some value, but the injection of serum into the lumbar region is theoretically and practically inefficient as compared to cisternal or ventricular injections, because it does not reach the cerebrum in any considerable amount. Therefore, Smith has adopted the procedure of combining intrathecal and intravenous therapy and spinal drainage, and treats patients somewhat as follows: semiweekly injections of arsphenamin associated with spinal drainage, lumbar, cisternal, and ventricular injections of serum given at intervals of three or four days, and repeated for a number of months. The results obtained by this procedure have been somewhat more satisfactory than when less vigorous treatment was given. Smith points out that it would be logical to add to this methods which apparently have had some therapeutic benefit by increasing the immunity reaction of the patient, such as the tuberculin or sodium nucleinate injections.

Annals of Surgery, Philadelphia

77: 513-640 (May) 1923

*Ischemic Fat Necrosis. C. E. Farr, New York.—p. 513.
*Significance of Diarrhea Following Abdominal Operations. E. Beer, New York.—p. 524.
Double Kidney. D. N. Eisendrath, Chicago.—p. 531.
*Method for Determining Question of Drainage in Intra-Abdominal Infection. A. O. Wilensky and B. N. Berg, New York.—p. 558.
Reduplication of Ureter. J. F. Geisinger, Richmond, Va.—p. 563.
*Modification of Operation of Bucknall for Hypospadias. S. C. Harvey, New Haven, Conn.—p. 572.
Benign Tumors of Stomach. Four Cases. J. Douglas, New York.—p. 580.
*Gallbladder Disease in Childhood. E. L. Kellogg, New York.—p. 587.
Combination Ileus, or Coincidence of Two Intestinal Occlusions. K. Schlaepfer, Baltimore.—p. 594.
Transposition of Rectus Muscle and Utilization of External Oblique Aponeurosis in Radical Cure of Inguinal Hernia. W. S. Schley, New York.—p. 605.
*Anterior Dislocation at Elbow Joint. Report of Case. F. J. Tees, Montreal, Can.—p. 612.
Cardiospasm in Aged. J. H. Zaaijer, Leiden, Holland.—p. 615.

Ischemic Fat Necrosis in Infant.—Farr reports a case of subcutaneous fat necrosis occurring in an infant, aged 4 weeks; so far as careful search of the literature shows, it is the only one occurring in an infant. Considering the weight and age of the child, it is also probably the most extensive case on record of fat necrosis with recovery. The child weighed about eight pounds and presented no evidence of trouble except a flaccid paralysis of the left arm and hand, probably due to birth trauma, and a very slight rash on the face. On palpation, however, a large number of subcutaneous tumors were found over the neck and shoulders, extending as high as the submaxillary region and as low as the seventh rib posteriorly. These tumor masses were of irregular shape and varied in size from 0.5 to 5 cm. in diameter; they were for the most part oval in shape, although one or two were sausage-like masses. Their consistency was considerably firmer than the surrounding normal fat. There was no evidence of pain, tenderness, nor any inflammatory signs whatever. The tumors were adherent to the skin, but were freely movable on the underlying tissues. The largest masses were found over the deltoid, supraspinatus and infraspinatus regions. Various diagnoses were considered, but the one finally accepted was multiple congenital lipomata or, possibly, some condition of unaltered embryonal fat. Microscopically, the picture was typical of fat necrosis of the type usually considered pancreatic in origin. Six other cases occurring in adults are also reported.

Cause of Diarrhea Following Abdominal Operations.—Localized pericolic suppurative peritonitis, ileocolitis and proctitis, perhaps as a terminal infection in weakened patients, or in patients with renal insufficiency, Beer says, must be considered in looking for an explanation of these diarrheas, while it is just possible that too large a stoma may favor the development of this startling complication. From a therapeutic standpoint, recovery in the mild cases follows simple diet and the usual astringent therapy; on the other hand, the severe cases have baffled all therapy. Each case should be studied individually. The milder transient diarrheas are probably dyspeptic or irritative in origin.

Determining Question of Drainage in Intra-Abdominal Infection.—The method employed by Wilensky and Berg consists in making smears directly from the surfaces of the involved viscus and from any peritoneal exudate which may be present at the time of operation. Utilizing a rapid stain, the presence or absence of organisms is determined microscopically. Similar to the Carrel technic for the determination of the degree of infection in wounds, the method attempts to ascertain approximately the degree of infection of the operative field by the number of organisms found per microscopic field. With the observation of a sufficiently large number of cases the determination of the greatest number of organisms per field compatible with the safe primary closure of the peritoneal cavity becomes possible.

Modification of Bucknall Operation for Hypospadias.—Modifications of the Bucknall operation for penoscrotal hypospadias are described by Harvey which make this principle applicable also to the penile and coronal malformation of the urethra. A method is described also for carrying the distal urethra through the glans, rather than on its under surface, as originally suggested.

Gallbladder Disease in Childhood.—Sixty-four cases are reported by Kellogg. They are grouped under three headings: (1) cholelithiasis of early infancy; (2) cholelithiasis of later childhood; (3) cholecystitis without gallstones. Cholelithiasis in the new-born appears to be due to an unknown fetal pathology and is usually fatal. Cholelithiasis of later childhood does not differ from that in adults, but is often wrongly diagnosed because this lesion is not considered.

Anterior Dislocation at Elbow Joint.—Tees cites the case of a boy, aged 12, whose curiosity led him to try the effect of feeding his right hand between the revolving rollers of a wringing machine in a laundry, with the result that his arm was securely caught. As he attempted to extricate himself from the machine, his elbow was squeezed by the rollers, and the olecranon forced downward and forward over the end of the humerus, bringing about a complete anterior dislocation of both radius and ulna, with detachment of the internal epicondyle.

Archives of Internal Medicine, Chicago

31: 455-622 (April) 1923

*Use of High Fat Diet in Treatment of Diabetes Mellitus. L. H. Newburgh and P. L. Marsh, Ann Arbor, Mich.—p. 455.
Stem-Stature Index. H. Gray, Boston.—p. 491.
*Albuminuria: Its Clinical Significance as Shown by Chemical Study of Blood. T. H. Coffen, Portland, Ore.—p. 499.
*Clinical Experience with Quinidin. C. S. Burwell and F. R. Dieuaide, Baltimore.—p. 518.
*Mycotic (Bacterial) Aneurysms of Intravascular Origin. A. Stengel and C. C. Wolferth, Philadelphia.—p. 527.
*Distribution of Sugar in Whole Blood, Plasma and Corpuscles; Permeability of Red Blood Corpuscles for Sugar in Diabetic and Nondiabetic Cases. H. J. John, Cleveland.—p. 555.
*Blood Pressure in Relation to Types of Bodily Habitus. J. W. Larimore, St. Louis.—p. 567.
*Hemoglobinuria in Hemolytic Jaundice. H. Z. Giffin, Rochester, Minn.—p. 573.
Relation of Age and Obesity to Vital Capacity. B. D. Bowen, Buffalo.—p. 579.
Acid-Base Equilibrium. I. Clinical Studies in Alkalosis. A. E. Koehler, Madison, Wis.—p. 590.
Physical and Chemical Studies of Human Blood Serum. I. Study of Normal Subjects. D. W. Atchley, R. F. Loeb, E. M. Benedict and W. W. Palmer, New York.—p. 606.
Id. II. Study of Twenty-Nine Cases of Nephritis. D. W. Atchley, R. F. Loeb, E. M. Benedict and W. W. Palmer, New York.—p. 611.
Id. III. Study of Miscellaneous Disease Conditions. D. W. Atchley, R. F. Loeb, E. M. Benedict and W. W. Palmer, New York.—p. 616.

High Fat Diet in Diabetes.—The efficacy of a high fat diet in the treatment of diabetes was made the subject of study by Newburgh and Marsh. A low protein, low carbohydrate, high fat diet fed a large group of diabetic patients since March 1, 1918, (1) produced and maintained an aglycosuric state; (2) was not attended by acidosis and caused its disappearance when present (short of coma) at the beginning of treatment; (2) maintained nitrogen balance ; (4) did not cause a hyperlipoidemia and was attended by its disappearance in those patients in whom it was present at entrance; (5) supplied sufficient energy to (*a*) avoid the evils of fasting and undernutrition and (*b*) permit an amount of activity compatible with earning a livelihood; (6) was, within the limits of the observations made, not attended by downward progress in uncomplicated cases. In none of 190 cases has the diet been responsible for diarrhea. Patients were allowed from 900 to 1,000 calories per day. A standard maintenance diet, composed of protein, 55 gm., fat, 220 gm., carbohydrate, 35 gm., gives a ratio of 2.5. In spite of these high fat values none of the patients developed acidosis. Of still more importance is the fact that in those patients who came in with an acidosis short of coma, this acidosis disappeared on the diet. The important conclusion derived from this experience with these 190 cases is that the fear of the use of fat in the treatment of diabetes mellitus is exaggerated, and that fat may be used without danger of acidosis. A diet from 900 to 1,000 calories derived chiefly from fat is devoid of most of the disadvantages of complete fasting for purposes of desugarization. It produces the same fall in basal metabolic rate as does fasting. It has advantages over fasting in that it is more successful in desugarization and is far less dangerous.

Blood Chemistry in Albuminuria.—The blood and urine in twenty cases of albuminuria were analyzed by Coffen and his findings indicate that albuminuria may not be due to serious damage in the kidney and may even be excessive from extrarenal factors. Passive congestion of the kidneys occurs not only in cardiac breakdown due to valvular insufficiency but may be a result of long continued heart strain from arterial hypertension. Albuminuria occurs so frequently as a part of the clinical picture of arterial hypertension that these cases form a large group in the patients studied. While chronic interstitial nephritis is assumed to be present, the "renal crisis" is often due to myocardial weakness and results in passive renal congestion. In a miscellaneous group, two cases of orthostatic or postural albuminuria are cited. Renal function tests show no marked disturbance in the kidneys. Of the various functional tests, those using the urine are disappointing. The chemical examination of the blood seems to offer a means of early differentiation between renal or extrarenal albuminuria. The test diet for fixation of specific gravity, and for the estimation of chlorid and nitrogen excretion and water output also gives an early clue of renal function. The term "cardionephritis" seems to Coffen to be a misnomer in view of the fact that the nephritic symptoms may be largely due to congestion and not to extensive renal damage. Efforts to make clinical and pathologic nephritis conform still fail because of the complicated mechanism of renal secretion. Attention is called to the predominating symptoms in vascular hypertension. Sooner or later every patient shows singly or jointly (*a*) nephritis, (*b*) cardiac or (*c*) cerebral symptoms.

Quinidin in Auricular Fibrillation.—Of sixteen cases of auricular fibrillation treated by Burwell and Dieuaide with quinidin sulphate, fourteen (88 per cent.) reverted to normal mechanism. Regular rhythm has persisted in eight of these patients; in six for more than six months. In the cases remaining persistently regular there has been marked improvement in the patient's health. Death occurred in three patients; in one due to embolism from an intra-auricular thrombus. Observations of the patients' activity, systolic blood pressure, vital capacity, and subjective condition show a consistent improvement in all patients whose cardiac rhythm became regular and remained so for some time. It is established that the change in rhythm can be effected in at least 50 per cent. of the cases. Two grams of quinidin sulphate may be administered daily without the production of severe toxic symptoms, and such a dosage results in a higher percentage of successes than does a smaller dosage. So far as is known at present, the danger associated with the use of this drug lies not in its direct effects but in embolism from an intra-auricular thrombus, following the onset of normal auricular activity.

Mycotic Aneurysms of Intravascular Origin. — Three unquestionable cases of mycotic aneurysms of intravascular origin and one in which this diagnosis is probable, are reported by Stengel and Welferth. In one of these cases, the first to be recorded, a clinical diagnosis of mycotic aneurysm of the arch of the aorta was confirmed at necropsy. In the second case the aortic aneurysm was healed with replacement of destroyed media and intima by a thin layer of young connective tissue covered over by newly formed endothelium which had grown out from the intima at the edges of the aneurysm. In the third case all clinical evidences of an unmistakable femoral mycotic aneurysm disappeared. In the fourth case there was a violently pulsating, but symptomless, aneurysm of the innominate artery that appeared to be healed, in a boy aged 18, without any evidences of syphilis, but with a history of acute rheumatism and an attack of fever with cardiac involvement. The cases of mycotic aneurysm of intravascular origin have been collected from the literature by the authors and on the basis of this material and their own, the etiology, pathology and clinical manifestations of the condition are discussed.

Sugar in Erythrocytes of Diabetics and Nondiabetics.—John found that in nondiabetics, after the ingestion of glucose, the sugar in the corpuscles may be either increased or decreased as compared with the plasma content, the tendency to an increase slightly predominating. In diabetics the sugar in the corpuscles is practically always decreased below the plasma content. On exposure of the red blood corpuscles of nondiabetics to a concentration of 1 gm. of glucose in 100 c.c. of physiologic sodium chlorid solution for two hours, the corpuscles took up less sugar than the corpuscles of diabetics treated in a like manner.

Blood Pressure in Relation to Bodily Habitus.—Larimore analyzed the blood pressure for its relation to bodily habitus in a group of 417 factory workers. The sthenic habitus was accompanied by a higher blood pressure than the asthenic habitus. The pressure accompanying the hyposthenic habitus was intermediate.

Hemoglobinuria in Hemolytic Jaundice.—The important features of Giffin's case were slight jaundice and anemia which had probably existed for three years; marked jaundice and anemia of six months' duration; crises similar to those of hemolytic jaundice without, however, gallbladder colic; a blood picture which at times approached that of pernicious anemia; the presence of bile in the stool and its absence from the urine save in crises; an increased reticulated fragility of the erythrocytes on two examinations; and increased reticulated cell count; seven severe crises which were associated with hemoglobinuria, in one of which hemoglobinemia and bilateral hemoglobinuria were demonstrated; the absence of any effect of cold or exposure on the occurrence of the hemoglobinuria; the absence of hemoglobinuria after transfusion, and the recurrence of the hemoglobinuria when the erythrocytes reached approximately 2,000,000.

Arkansas Medical Society Journal, Little Rock

19: 223-234 (May) 1923

Nonvenereal Infected Prostate. W. T. Wootton, Hot Springs.—p. 223.
Medical Practitioner and American Society for Control of Cancer. J. E. Rush.—p. 224.

Boston Medical and Surgical Journal

188: 837-888 (May 31) 1923

Duty of Physician to Public and His Relation to Local Board of Health. F. G. Curtis, Newton, Mass.—p. 837.
*Gangrene of Lung. Report of Case. H. Binney, Boston.—p. 844.
Pulmonary Abscess Following Tonsillectomy; Report of Case. F. T. Clark, Westfield, Mass.—p. 846.
*Permissible Breakfast Prior to Basal Metabolism Measurements. C. G. Benedict and F. G. Benedict, Boston.—p. 849.
Tendon Suture Which Permits Immediate Motion. F. H. Lahey, Boston.—p. 851.
*Study of Blood Sugar Curves in Jewish and Non-Jewish Patients with No Apparent Glycogenic Disturbance. H. Morrison and W. R. Ohler, Boston.—p. 852.
Address to Graduating Class of Nurses Delivered in 1899 at Long Island Hospital. A. Post, Boston.—p. 854.
*Question of Physical Injury to Working Child of Fourteen to Sixteen. H. G. Rowell, New Bedford, Mass.—p. 856.
Observations Made During American College of Surgeons' Cruise to South America. M. L. Alling, Lowell, Mass.—p. 858.

Gangrene of Lung.—In Binney's case an abscess in the upper lobe of the right lung led to gangrene of the lung. A piece of necrotic lung tissue about 7 inches in length was evacuated through a drainage opening. The patient recovered. Binney advocates the two stage operation in these cases as a life saving measure.

Permissible Breakfast Prior to Basal Metabolism Determination.—The Benedicts have determined that a light meal may be permitted before making basal metabolism determinations. The meal they use consists of: 1 cup (200 c.c.) caffein-free coffee; 16 mg. saccharin; 30 gm. medium cream and 25 gm. potato chips. This meal is nearly protein-free, contains no ketose sugar, has an appreciable proportion of fat and a total calorific value of not far from 250 calories, depending somewhat on the percentage of fat in the cream. From the striking effect which this very light meal has on the appetite and the general sense of well-being it is quite clear that a meal of this type does not produce any measurable influence on metabolism and certainly with normal persons cannot interfere with basal metabolism measurements, provided the food is completely eaten at least one hour prior to the actual tests. It has not been demonstrated, however, that even this small quantity of food might not stimulate further the abnormally high metabolism obtaining in disturbances of the endocrine glands. The authors believe that the sense of euphoria resulting from the warm and satisfying, though light, meal will actually make for less discomfort, less irritability, and ultimately for more accurate basal metabolism measurements.

Blood Curve in Jews and Others.—This study by Morrison and Ohler indicates that race alone is not a factor in the incidence of high blood sugar curves following the glucose test meal. The fact that all the high blood sugar curves in the Jewish group occurred in persons with a nervous or emotional temperament may be significant in the explanation of the prevalence of diabetes mellitus among Jews.

Physical Injury to Working Child.—The question of permitting certain school children to engage in limited kinds of labor has been widely discussed and a general impression has been made that this procedure was necessarily harmful. Rowell analyzed a series of 1,225 cases, in no way selected, which seem to demonstrate that if the situation is adequately handled from a medical point of view, namely, that the unsuitable are eliminated from the tasks for which they are not fitted and working conditions are proper, the child between 14 and 16 in industry can and does consistently gain. The normal growth does not seem to have been arrested by working, in fact, improvement was made and this was often marked. For a number of years the local schools have had increasingly good health work and the pupils have been given unusual opportunity for physical development. On entering employment and on change of jobs, the children are given conscientious physical examinations based on a workable sensible standard, approaching the hospital clinic as closely as possible. Special watchfulness is available where indicated. Rowell says that the question of actual injury to the child of from 14 to 16 as a result of going to work, in permitted selected tasks, is doubtful, and probably largely nonexistent, except in the unusual case. Actual benefit may result instead of damage and this benefit seems to be greatest in those who need it worst.

Colorado Medicine, Denver

20: 117-142 (May) 1923

Suprapubic Prostatectomy in Two Stages; Its Application and Its Fallacies. W. M. Spitzer, Denver.—p. 124.
One Hundred Consecutive Cases of Prostatectomy. O. Lyons, Denver. —p. 127.
*Tumors of Round Ligament. Report of Case. L. V. Sams, Denver.—p. 135.

Tumor of Round Ligament.—The symptoms in Sam's case were a heavy pulling sensation in the lower abdomen, inability to perform the usual duties without unnatural exhaustion, a growth in the abdomen, which had constantly and slowly enlarged for several years, and a light mucopurulent vaginal discharge between menstrual periods which had a very offensive odor, and which caused a mild degree of pruritus. When the abdomen was opened, a tumor mass presented itself, the center of which was slightly to the left of the median line. When it was lifted out, it was found to be attached to but not a part of the uterus. There was no attachment to any pelvic or abdominal organ, except at a point just anterior to the left fallopian tube, and it was at this point only that it was necessary to incise and ligate. After the tumor had been extirpated it could be demonstrated that this growth must have originated in the left round ligament. The tumor proved to be a fibromyxoleiomyoma.

Florida Medical Association Journal, St. Augustine and Jacksonville

9: 176-191 (May) 1923

Carbon Tetrachlorid in Treatment of Hookworm Disease. J. D. Love, Jacksonville.—p. 176.
Chronic Nasal Catarrhs, Their Cause and Cure. A. H. Freeman, Jacksonville.—p. 178.
Primary Carcinoma of Pancreas. J. E. Gammon, Jacksonville.—p. 182.

Georgia Medical Association Journal, Atlanta

12: 133-176 (April) 1923

Teachings of Spencer and Freud as Related to Psychiatry. J. N. Brawner, Atlanta.—p. 133.
*Nonsurgical Treatment of Hemorrhoids in Poor Surgical Risks. M. C. Pruitt, Atlanta.—p. 138.
Diagnostic Errors in Posterior Urethritis and Prostatitis. C. Quarterman, Valdosta.—p. 140.
Reasons for Operations in Early Infancy on Hare-Lip and Cleft-Palate. S. L. Silverman, Atlanta.—p. 143.
Situs Viscerum Transposus or Transposition of Viscera. J. S. Stewart, Jr., Athens.—p. 148.
Manipulation of Stiff Joints. F. G. Hodgson, Atlanta.—p. 150.
*Unusual Case of Ureteral Anomaly. C. H. Watt, Thomasville.—p. 152.
Technic of Nonsurgical Drainage of Gallbladder. G. M. Niles, Atlanta. —p. 155.
Intracutaneous Method of Diagnosis in Asthma and Hay-Fever. H. M. Davison, Atlanta.—p. 157.
Medical Practitioner and American Society for Control of Cancer. J. E. Rush.—p. 162.
Child Health Centers. G. W. H. Cheney, Atlanta.—p. 165.

Nonsurgical Treatment of Hemorrhoids.—Internal hemorrhoids of second and third degree are treated by Pruitt by the injection of a solution composed of 95 per cent. phenol, 1 part; glycerin, 3 parts; water, 4 parts. From 2 to 6 drops, according to the size of the hemorrhoid, is injected into the center of each tumor with a hypodermic syringe, using a sharp 24-gage needle. Not more than two tumors should be injected at one time. One week should elapse before other tumors are injected. This treatment is said to cause little pain, but is followed by considerable swelling of the injected hemorrhoid. When the hemorrhoid is not very large, the patient may go about his work next day. But usually it is necessary to remain in bed for from one to three days after treatment. Pruitt claims to have had a large experience with the method during and since the war. The treatment is said to be especially valuable in that large class of cases in which a general anesthetic is unsatisfactory. Results and mortality compare favorably with those obtained by more radical methods.

Ureteral Anomaly.—In the case cited by Watt the preoperative diagnosis was inguinal hernia; operation disclosed not a hernial sac but an extraperitoneal sac, tubular in shape, admitting two fingers readily, running upward and backward toward the left kidney. It had no evident connection with the bladder. The spermatic cord lay somewhat mesial and posterior to this sac, and appeared normal in every respect. Attached to its posterior wall, but entirely outside, was a small, tubular structure the size of a lead pencil, closely resembling a normal ureter, with one exception, it could not be made to function. The subsequent findings in this case convinced Watt that this sac was unquestionably connected with the left kidney, and that this kidney was useless. There was communication between this sac and the bladder originally, because the fluid excreted by the left kidney was being drained off, although some remained always in the sac. Evidently this was a case of double ureter, one functionless, the other greatly dilated as a result of partial obstruction.

Iowa State Medical Society Journal, Des Moines

13: 221-260 (June) 1923

Methods for Promoting Rapid Healing in Simple Mastoid Operation. L. L. Henninger, Council Bluffs.—p. 224.
Spinal Puncture as an Aid to Diagnosis and Therapeusis. J. F. Herrick, Ottumwa.—p. 226.
Postoperative Treatment of Peritonitis. H. E. Pfeiffer, Cedar Rapids. —p. 229.
Major Infections. W. J. Mayo, Rochester, Minn.—p. 233.
Early and Late Lesions Due to Electric Injuries. O. J. Fay, Des Moines.—p. 239.
Hypertrophy of Prostate. A. Kolodny, Iowa City.—p. 243.

Journal of Cancer Research, Baltimore

7: 229-445 (Oct.) 1922

- *Effects of Roentgen Rays and Radioactive Substances on Living Cells and Tissues. L. Loeb, St. Louis.—p. 229.
- *Critique of Tumor Resistance. W. H. Woglom, New York.—p. 283.
- *Unusual Cardiac and Cerebral Metastases in Melanosarcoma. C. V. Weller, Ann Arbor, Mich.—p. 313.
- *Influence of Inorganic Salts on Tumor Growth in Albino Rats. K. Sugiura and S. R. Benedict, New York.—p. 329.
- *Relationship of Cellular Differentiation, Fibrosis, Hyalinization and Lymphocytic Infiltration to Postoperative Longevity of Patients with Squamous Cell Epithelioma of Skin and Lip. L. D. Powell, Rochester, Minn.—p. 371.
- *Regression of Spontaneous Mammary Carcinoma in Mouse. W. H. Woglom, New York.—p. 379.
- *Nucleo-Cytoplasmic Ratio and Cancer. B. Sokoloff, Brussels, Belgium. —p. 395.
- *Salt Content of Malignant Tissues. G. L. Rohdenburg and O. F. Krehbiel, New York.—p. 417.

Effect of Radioactive Substances on Cells.—Summarizing his observations Loeb says: We may then conclude that: (*a*) the main effect of radiation on tumors consists in a direct injurious effect of the rays on the tumor cells; (*b*) that, secondarily, host reactions may play a part in holding in check for variable periods of time, or in injuring still further, tumor cells which have been primarily injured by radiation; that, however, results of experiments in which the number of lymphocytes was artificially increased, and an effect obtained in the case of transplanted tumors cannot, as yet, be directly applied to spontaneous tumors in man; (*c*) that radiation in vitro does not in every respect reproduce the conditions prevailing during radiation in the living organism, inasmuch as the physical factors of radiation prevailing in vitro and in vivo differ, and inasmuch as the state of the tissues is not the same during radiation in vitro and in vivo; furthermore, the host contributes to the effects of radiation through contiguous tissue reactions as well as through distant action. Yet, while making due allowance for these complications, there seems to be after all a certain parallelism between the results of the radiation of tumors in vitro and in vivo.

Tumor Resistance.—Because the doctrine of resistance has proved so barren and so inconsistent, it is proposed by Woglom that propagable tumors be investigated from another aspect, and the relation between a tumor and its blood vessels is suggested as perhaps worthy of consideration. The question is raised whether the receding tumor may not differ from the growing one only in the extent to which its blood vessels have been obliterated by thrombosis, and whether every growing tumor may not therefore be potentially a receding one.

Cardiac and Cerebral Metastases in Melanosarcoma.—In a case of diffuse melanotic sarcomatosis in which death occurred two years after mechanical trauma to, and operation on, a pigmented mole, Weller found in the brain a solitary metastasis in the floor of the fourth ventricle, innumerable older cortical and subcortical metastases and a diffuse meningeal sarcomatosis, none of which had influenced the clinical picture in such a manner as to call attention to their existence. The meningeal involvement was exactly like that described for certain cases of alleged primary meningeal melanosarcoma, and throws further doubt on the possibility of such origin. Very numerous myocardial and endocardial metastases were present, producing a relative aortic insufficiency that had been clinically evident.

Influence of Inorganic Salts on Tumor Growth.—The possible therapeutic value of orally administered inorganic salts for the Flexner-Jobling rat carcinoma has been studied by Sugiura and Benedict. The study included thirty-two different inorganic salts. Copper sulphate, arsenic trioxid, potassium carbonate, and calcium chlorid showed a retarding influence on the growth of the tumor, but such action was not marked. Copper sulphate is the most effective agent in this respect, and appears to have some immunizing action against the tumor. Tellurium nitrate and selenic acid have a very marked toxic action on rats; but these compounds show no influence whatever on the proliferating power of the tumor cells. Magnesium carbonate and magnesium chlorid show a slight but distinct accelerating influence on the tumor growth.

Postoperative Life of Epithelioma Patient.—Powell states that the average length of postoperative life of patients with epithelioma of the skin is increased when the factors differentiation, lymphocytic infiltration, fibrosis and hyalinization are present. Postoperative life is increased when any one of these factors or a combination of them is present in the skin. However, this was not true in cases of epithelioma of the lip in the series studied. In these cases, postoperative life was increased when the factors cellular differentiation or lymphocytic infiltration were present; but with the factors fibrosis or hyalinization singly or in combination, postoperative life was decreased. Despite the fact that with fibrosis and hyalinization there was a decrease in postoperative life in the cases of epithelioma of the lip, the presence of all factors checked against the absence of all factors showed an increase of postoperative life. From the data obtained from these cases it would seem that each of these factors should be considered as a defense in cases of malignancy.

Spontaneous Cure of Breast Cancer.—The factor responsible for spontaneous cure of carcinoma Woglom says appears to reside neither in the stroma nor in the parenchyma of the tumor, though the latter cannot be eliminated entirely. By exclusion only the blood vessels remain, but it cannot be shown from the material here discussed that vascular changes underlie spontaneous cure.

Nucleocytoplasmic Ratio and Cancer. — The results of Sokoloff's investigations on the nucleoprotoplasmic ratio strengthens the assumption that malignant tumors are related in their biologic qualities to embryonic cells; that the cells of malignant tumors are in some essentials closely related to embryonic cells, which they resemble in their extraordinary vital activity.

Salt Content of Tumors.—A study of the microchemistry of malignant and benign rat tissue cells is presented by Rohdenburg and Krehbiel. It is shown that demonstrable changes occur in the salt content of the tissues and blood. These changes consist in a demineralization of the blood and tissue cells on the parenteral introduction of living cells irrespective of their type, with an increase of the mineral content of the growing cells. A further study shows that on the death and absorption of the cells they give up their mineral content which again is rapidly taken up by the body tissues and the blood. There also occur disturbances in the ratios existing between the various salts. These changes in the salt metabolism do not apparently influence the origin of neoplasms, nor have they any demonstrable effect on immunity against the transplantation of rat and mouse tumors, nor do they cause such transplanted tumors to recede. It is, therefore, probable that the changes observed are secondary to cell growth and death, and bear no relationship to the biologic character of the cells which grow or die.

Journal of Immunology, Baltimore

8: 163-238 (May) 1923

- Classification of Phenomena of Hypersensitiveness. A. F. Coca and R. A. Cooke, New York.—p. 163.
- *Toxicity of Human Blood Plasma for Guinea-Pigs. III. Toxicity of Human Blood Plasma in Various Stages of Pulmonary Tuberculosis. S. A. Levinson, Chicago.—p. 183.
- Hepatic Reactions in Anaphylaxis. IV. Dominant Reacting Tissues in Peptone Shock. W. H. Manwaring, W. S. Clark and R. C. Chilcote, Stanford University, Calif.—p. 191.
- Serologic Factors of Natural Resistance in Animals on Deficient Diet. G. H. Smith and I. M. Wason, New Haven, Conn.—p. 195.
- Biologic Reactions of Roentgen Rays. Effect of Roentgen Rays on Rates of Specific Hemolysis. K. F. Cori and G. W. Pucher, Buffalo. —p. 201.
- Hepatic Reactions in Anaphylaxis. V. Mechanism of Increased Hepatic Resistance During Canine Peptone Shock. W. H. Manwaring, W. O. French and S. Brill, Stanford University, Calif.—p. 211.
- Hepatic Reactions in Anaphylaxis. VI. Histamine Reactions in Isolated Canine Tissues. W. H. Manwaring, R. E. Monaco and H. D. Marino, Stanford University, Calif.—p. 217.
- Zone Phenomena in Complement Fixation with "Residue" Antigens. J. T. Parker, New York.—p. 223.
- Hepatic Reactions in Anaphylaxis. VII. Quantitative Changes in Hepatic Parenchyma During Canine Peptone Shock. W. H. Manwaring, H. M. Hosepian and A. C. Beattie, Stanford University, Calif.—p. 229.
- Id. VIII. Anaphylactic Reactions in Isolated Canine Organs. W. H. Manwaring, R. C. Chilcote and V. M. Hosepian, Stanford University, Calif.—p. 233.

Toxicity of Blood of Tuberculous.—As a result of tabulating the findings in the various stages of activity, Levinson says it appears that the suspension stability of the blood in pulmonary tuberculosis parallels the activity of the process. With an increase in the pulse rate and temperature, there is also an increase in the sedimentation rate of erythrocytes. The toxicity of the blood plasma in pulmonary tuberculosis is also increased for the guinea-pig. The pulse, temperature, suspension stability of erythrocytes, and toxicity of the blood plasma are parallel with each other.

Kentucky Medical Journal, Bowling Green

21: 213-262 (May) 1923

Gastric and Duodenal Ulcer. R. M. Evans, Louisville.—p. 214.

Rectum in Its Relation to Digestive Disorders. B. Asman, Louisville.—p. 222.

Huntington's Chorea in Montgomery County. S. See, Mt. Sterling.—p. 226.

Fibroma of Nasopharynx. S. G. Dabney, Louisville.—p. 228.

Etiologic Factors of Retrobulbar Neuritis. C. T. Wolfe, Louisville.—p. 229.

Typhoid Fever. W. F. Nichols, Mumfordville.—p. 232.

Trachoma. G. W. Payne, Bardwell.—p. 238.

Indictment Against Clark County Medical Society. S. J. Rose, Winchester.—p. 239.

Embolic Gangrene of Forearm and Hand. J. G. Sherrill, Louisville.—p. 240.

Myositis, Suppurative, Circumscribed Acute of Abdominal Wall. P. C. Layne, Ashland.—p. 243.

Cancer Propaganda. A. H. Barkley, Lexington.—p. 245.

Testing Value of Antiseptics. C. C. Howard.—p. 246.

Cysts of Spleen, Splenectomy, Report of Case. W. L. Gambill, Ashland.—p. 247.

Lincoln County Memorial Hospital. J. G. Carpenter, Stanford.—p. 250.

Management of Complications Following Cataract Extraction. A. L. Bass, Louisville.—p. 252.

Value of Enterostomy in Surgery. F. W. Rankin, Louisville.—p. 256.

Maine Medical Association Journal, Portland

13: 237-264 (May) 1923

Reports of Annual Meeting.—pp. 237-259.

Mental Hygiene, Albany, N. Y.

7: 225-448 (April) 1923

Some Aspects of Education and Training in Relation to Mental Disorder. M. Craig.—p. 225.

Mental Tests of Superior Child. H. D. Dvorak, Minneapolis.—p. 250.

Mental Hygiene and Our Universities. A. W. Morrison.—p. 258.

Reaction of College Students to Mental Hygiene. D. A. Laird.—p. 271.

Nonspecificity of Mental Disease. E. A. Strecker.—p. 277.

Relationship Between Religious Experience and Mental Disorders. A. T. Boisen.—p. 307.

Community Aspects of Feeblemindedness. G. Hamilton, New York.—p. 312.

What Pennsylvania Village Has Demonstrated. M. M. Wolfe, Laurelton.—p. 339.

Jewish Mind in Making. A Layman's Essay in Mental Hygiene. E. M. Friedman, New York.—p. 345.

Commitment Procedure and State Hospital. H. S. Whisman.—p. 357.

Use of Traveling Clinic in Scheme for Neuropsychiatric Examination of School Children. F. G. Ebaugh, Philadelphia.—p. 365.

Missouri State Medical Association Journal, St. Louis

20: 185-214 (June) 1923

*Upper Intestinal Tract Obstruction: Chemical Studies and Indications for Treatment. R. L. Haden and T. G. Orr, Kansas City, Mo.—p. 185.

*Amebic Infection of Liver. J. W. Larimore, St. Louis.—p. 190.

Cancer of Prostate: Diagnosis and Treatment. J. E. Burns, Kansas City.—p. 191.

Clinical History and Serial Plate Examinations in Differential Roentgen-Ray Diagnosis of Inflammatory Lesions of Chest. L. R. Sante, St. Louis.—p. 194.

Infection and Resistance in Tuberculosis. S. Simon, St. Louis.—p. 198.

Résumé of Symptoms and Signs of Principal Endocrin Disturbances. O. P. J. Falk, St. Louis.—p. 201.

Upper Intestinal Tract Obstruction Cause Changes in Blood Chemistry.—Following pyloric or upper intestinal tract obstruction Haden and Orr found a rapid fall in the chlorids of the blood and a rise in the carbon combining power of the plasma. Later there was a rise in the nonprotein nitrogen and urea nitrogen. The rise in the alkali reserve, as evidenced by the increase in carbon dioxid combining power of the plasma, is an incident in the chlorid metabolism. The chlorin combines with the toxic body or bodies, probably in the form of the hydrochlorid, and the sodium combines with carbonic acid to form sodium bicarbonate. The rôle of the chlorids seems essentially protective, neutralizing, or antitoxic. Sodium chlorid is very effective in treating the toxemia of intestinal obstruction. If given at the onset of the obstruction the rise in nitrogen may not occur. If given after the rise in nitrogen has begun, a rapid fall usually takes place. Since there is practically always a heightened alkali reserve, alkalis should not be given.

Amebic Infection of Liver.—In Larimore's case the acute symptoms supervened after the infection had been latent for thirty years.

Philippine Islands Medical Association Journal, Manila

3: 59-116 (March-April) 1923

Fatal Case of Centipede Bite. E. V. Pineda.—p. 59.

Introduction to Course of Lectures on History of Medicine. F. H. Garrison.—p. 62.

*Congenital Mesenteric Aperture Causing Volvulus. M. P. Mendoza-Guazon.—p. 67.

Polymastia; Report of Case. T. D. Fabiana and T. G. Orr, Kansas City, Mo.—p. 70.

Significance and Prevalence of Intestinal Animal Parasites in American and European Adults and Children in Philippines. F. G. Haughwout.—p. 72.

*Spinal Percussion in Diagnosis of Certain Intrathoracic Diseases. W. J. B. Burke, Manila, P. I.—p. 78.

Congenital Mesenteric Aperture Causing Volvulus.—The case reported by Mendoza-Guazon is the only one that occurred in 9,700 necropsies in the city morgue of Manila. The symptoms had been severe abdominal pain, which was relieved by hot drinks and hot applications on the abdomen. In the mesentery of the ileocecal region was a hole about 2 cm. in diameter through which a small coil of the distal portion of the ileum, measuring 70 cm. in length, had passed toward the left side of the abdomen. Another, larger coil of intestine, 130 cm. in length, continuous with the proximal end of the first coil, had entered the same opening toward the right side. The proximal end of this was continuous with the jejunum. In the mesentery of these two coils was a large gap, the edges of which were smooth and covered by peritoneum. There really was but one large aperture in the mesentery of the jejunum and ileum. Its greatest diameter measured 22 cm. It was congenital, as could be recognized by the continuity of the peritoneum of the border of the aperture, by the course of the blood vessels in the mesentery, and by the absence of the triangular lesion so characteristic in obstructions of the mesenteric arteries. It had caused complete obstruction of the small intestine by the herniation of the distal coil of the ileum through the aperture formed by the twisting of the proximal loop of ileum and jejunum.

Spinal Percussion; Aid in Diagnosis of Inthrathoracic Disease.—This method of percussion was first described by Signorelli in 1904. Signorelli called attention to the fact that if a normal person sits with the shoulders bent forward and the spinous processes of the first eight dorsal vertebrae are percussed firmly, a finger of the left hand being interposed between the percussing finger and the patient, the first four vertebrae give a clear, high pulmonary sound, not very intense, while the remainder of the vertebrae give a deep and more intense sound. The procedure consists, according to him, in comparing the sounds obtained by percussing each vertebrae with those obtained by percussing the other vertebrae and the back of the thorax. The deficiency of resonance of which he speaks is relative. Thus, if the first six dorsal vertebrae give the same sound, he concludes that there is a deficiency of resonance over the fifth and sixth vertebrae. Burke points out that if the vertebrae are only percussed firmly, as Signorelli advises, many important differences of resonance would be missed. His experience has taught him that in some cases the percussion must be light.

U. S. Naval Medical Bulletin, Washington, D. C.

18: 417-544 (April) 1923

Glandular Therapy and Body Growth. D. N. Carpenter.—p. 417.

Sanitation in American Samoa. D. Hunt.—p. 438.

Malingering: Pretended Blindness. J. I. Kurtz.—p. 449.

Diagnosis and Treatment of Syphilis. W. H. Connor.—p. 456.

Medical and Other Aspects of Earthquake and Tidal Wave in Chile, November, 1922. E. A. Stephens and J. F. Terrell.—p. 462.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

1: 321-352 (April) 1923

Congenital Idiopathic Dilatation of Colon. D. Firth and K. Playfair. —p. 321.
Further Developments in Spectrometric Method of March, Staunig and Fritz. for Determination of Quality of Roentgen Rays. K. Staunig. —p. 328.
Pyelography. J. Thomson-Walker.—p. 334.
Dislocation of Upper End of Fibula Forward without Fracture of Tibia or Fibula. R. H. Sankey.—p. 344.

British Journal of Tuberculosis, London

17: 59-106 (April) 1923

Recent Developments in Work of Welsh National Memorial Association. S. L. Cummins.—p. 59.
Tuberculosis Work of Metropolitan Asylums Board. J. Watt.—p. 69.
Common Shibboleths and Sayings Connected with Pulmonary Tuberculosis. B. Hudson.—p. 71.
Types of Tubercle Bacilli Concerned in Surgical Tuberculosis. G. R. Girdlestone.—p. 74.

British Medical Journal, London

1: 887-918 (May 26) 1923

*Pathogenesis of Rickets. E. Pritchard.—p. 887.
*Nephroptosis: Its Causation, Symptoms and Radical Cure. J. J. Bell. —p. 889.
*Radial Pulse in Intrathoracic Aneurysms. C. O. Hawthorne.—p. 892.
*Nature of Blood Sugar. L. B. Winter and W. Smith.—p. 894.
Treatment of General Paralysis by Malaria. W. L. Templeton.—p. 895.
Small Epidemic of Plague. E. N. Chamberlain.—p. 896.
Treatment of Pneumonia. J. T. Maclachlan.—p. 897.
Upper Canine Tooth in Antrum of Highmore. J. H. Pegg.—p. 897.

Pathogenesis of Rickets.—In Pritchard's opinion, the essential basis, or the causa vera, of rickets is most probably a relative excess of acid bodies produced in the system by a disproportion between the intake and the output of energy—a condition which results either from an innate inefficiency of the body machine itself, or from defects in the environment, the latter being regarded as including the quantity and the quality of the food as well as the character of the stimuli afforded by the hygienic surroundings.

Nephroptosis.—Bell is convinced that the too early employment of girls in occupations causing long standing and weight carrying is an important causative factor of movable kidney. Pregnancy he regards as being a negligible factor. Accident, physical strain, etc., are held also to be infrequent causes. Nephropexy is advocated as being the only available treatment. Bell says he has never seen a case in which a belt gave relief, in fact there has never been invented a belt, capable of keeping a dropped kidney in its place, which could be tolerated by the patient. Its pressure would ulcerate the skin in less than a week. He employs Fullerton's operation consisting of raising a tongue-shaped flap of capsule from the back of the kidney, passing this through the external arcuate ligament, drawing the kidney up into position and stitching the suspension flap to the capsule below.

Radial Pulse in Intrathoracic Aneurysms.—A record is submitted by Hawthorne which is said to be a demonstration of actual pulse delay in the left radial artery as compared with the time incidence of the right radial. The tracings were obtained from a case of intrathoracic aneurysm. The diagnosis is beyond question, for a postmortem examination revealed a fusiform aneurysm of the aortic arch extending beyond the origin of the left subclavian artery. The wall of the aneurysm showed but little fibrinous deposit, and doubtless, therefore, during life, the sac responded freely to the alternate rise and fall of blood pressure determined, respectively, by the systole and diastole of the left ventricle. The aneurysm was an elastic bag placed in the course of the circulation between the left ventricle and the left radial artery. Hawthorne states that such an arrangement might on the face of it suggest a delay in the arrival of the pulse wave at the left wrist as compared with the time occupied by the passage of the wave along the arterial trunks of the opposite limb.

Nature of Blood Sugar.—Winter and Smith submit that there is definite evidence that a reactive sugar is present in the blood. There is no chemical evidence that gamma glucose is formed in the body. There is definite evidence that some of the blood sugar of diabetics is fundamentally different from that of normal persons. No evidence at present exists that the intestine plays an essential part in the causation of this difference.

1: 919-958 (June 2) 1923

*Prevention of Heart Disease. F. J. Poynton.—p. 919.
*Economic Aspect of Heart Disease. R. O. Moon.—p. 922.
Acute Pansinusitis. St. C. Thomson.—p. 924.
Optic Neuritis of Sphenoidal Sinus Origin; Operation; Cure. St. C. Thomson.—p. 925.
*Cyst of Right Suprarenal Removed by Operation. H. A. Ballance. —p. 926.
Early and Curable Disease of Breast. G. L. Cheattle.—p. 928.
Case of Polythelia. R. D. Howat.—p. 928.
Acute Edema of Lungs. V. Moxey.—p. 929.
Sinus Thrombosis Following Pneumonia in an Adult. E. W. Hurst.—p. 929.
Atrophy of Skin After Poliomyelitis. A. R. Fox.—p. 930.
Rupture of Peri-anal Skin Caused by Fall on Feet. E. W. Nason.—p. 930.

Prevention of Heart Disease.—The possibility of preventive measures against heart disease is discussed by Poynton. The weak points in the present management of heart disease in childhood he believes to be: imperfection in medical education; public ignorance; neglect of chorea; lack of an auxiliary country hospital with a special department for cardiac children; lack of a schedule of suitable occupations for cardiac children; lack of a central bureau for purposes of organization, and of an institution for research into and the study of rheumatism. The importance of discrete treatment of local foci is emphasized. With prolonged and skilfully managed convalescence there should be great improvement in results with the most important group of all cases—the first attacks of rheumatic carditis. With proper organization one should get hold of the cases with recurrent attacks more easily and give them also a much better chance of recovery. Physicians should learn to prevent much chorea, and should learn much more about the life history of the rheumatic child, and thus prevent may breakdowns during school life. All this would be the more valuable because the incidence of cardiac rheumatism is greater in the first fourteen years of life than at any other period.

Economic Aspect of Heart Disease.—The exercises applied in the convalescent-reconstructive stages of heart disease, Moon points out, have three main purposes: (1) To improve the general condition (nutritional, muscular, and organic); (2) to increase the cardiac reserve power; (3) to lessen the introspective and neurotic tendencies, for the psychoneurotic element is very important in many forms of heart disease. It is a good thing for the exercises to stimulate and merge into every-day physical and social activities. Though formal gymnastics are helpful in inspiring courage and getting hold of the mild slacker and neurasthenic, after six years' observation of 3,000 heart convalescents, no regimen has given such all-round satisfaction, safety and success as the old farm regimen where a total of nearly 500 cardiacs, boys and young men were given essential freedom of play and work—of course, under reasonable regulations of rest, etc. Dancing has been found to be a most useful exercise; it certainly ranks high in mental therapeutics. Convalescent cardiac patients with but a moderate degree of cardiac reserve may begin cautiously to dance and then go on to considerable indulgence with safety and benefit. Patients are often under the impression that dancing is necessarily a strenuous and exhausting exercise, whereas short period dancing, shuffling with little weight lifting, is one of the mildest exertions. Dancing gives an additional and readily available test of the cardiac reserve and of progress. Among all the thousands of dancers there have only been twenty collapses or partial faints, and these were found to be mainly hysterical or neurotic.

Cyst of Suprarenal.—Ballance cites the case of a woman, aged 49, who for many years had suffered from "indigestion." The trouble had been much worse for the last five years and was mainly characterized by pain in the back passing around the waist to the epigastrium. The pain had no relation to meals, and would often come on at night, when a little food would bring relief. For six weeks there had been frequent vomiting. There had never been hematemesis. Constipation had been very troublesome. The stomach was distended and visible peristalsis was present; there was no tenderness anywhere and no tumor could be felt. A roentgen-ray examination showed that even after eight and a half hours a bismuth feed had not entirely left the stomach. The abdomen was opened, and an old ulcer of the first part of the duodenum, just beyond the pylorus, almost encircling the bowel and narrowing it, was found. A large cystic tumor was found in the right hypochondrium, occupying the concavity of the diaphragm and pushing the liver to the left and downward. The kidney was displaced downward, but the cyst was only slightly attached to the upper pole of this organ. At the conclusion of the gastrojejunostomy it was deemed advisable to defer the removal of the cyst. Three months later the patient was again seen, as she had been complaining of distention and sense of pressure in the right loin. A large, smooth, ill-defined swelling could be detected coming down from under the right costal margin on inspiration, and the right kidney was felt in the iliac fossa. An incision was made below the twelfth rib. The cyst previously seen was exposed and separated from the kidney. A very large cavity was left, occupying the arch of the diaphragm behind the peritoneum, which was not opened. The cyst contained 2½ pints of thin, amber colored, odorless, turbid fluid, which was neutral in reaction and became solid on boiling, owing to its albuminous contents. Section of the cyst wall showed suprarenal cortical cells embedded in its outer half.

1: 959-1004 (June 9) 1923

Activity of Capillary Blood Vessels; Relation to Certain Forms of Toxemia. H. H. Dale.—p. 959.
*Limitation of Effort in Heart Disease. C. Wilson.—p. 962.
*Influence of Thyroid on Response to Epinephrin. D. M. Lyon.—p. 466.
*Rectal Papilloma in Schistosoma Haematobium Infestations. H. C. Sinderson and E. A. Mills.—p. 968.
Two Loop Button Suture. W. G. Spencer.—p. 969.
*Herpes Zoster with Localized Muscular Paralysis. C. Worster-Drought.—p. 970.

Limitation of Effort in Heart Disease.—People sometimes die suddenly of heart disease who have never had a symptom, and some such cases have been examined within a few months or weeks of death by the ordinary methods without any abnormal sign being discovered, or anything to suggest that an examination by electrocardiograph was indicated. Wilson has seen many sudden deaths from heart disease, but only two of this kind in which a necropsy was made. In one case there was a ruptured aneurysm of the left ventricle, while the other showed degenerated heart wall, especially on the right side. A second source of error is that occasionally patients live for years whose early death is predicted. When the stethoscope had revealed the various heart sounds, and their meaning became gradually elucidated, conclusions based on the integrity of the valves dominated cardiology for many decades and led to views many of which are today discredited. With the advent of the polygraph and the electrocardiograph, the myocardium has come into its own, and it now dominates. Each case must be looked at all around; no single sign should be given undue weight; but if there is any one point which may be allowed to override the others it is the one to which least attention is often paid—and that is the physiologic capacity of the heart, as proved, not so much by set tests, as by careful inquiries and cautious experiment as to the individual patient's capacity for effort in the ordinary calls of life.

Influence of Thyroid on Response to Epinephrin.—In a comparison of the metabolic and cardiovascular responses to the injection of epinephrin in patients having similar basal metabolic rates, Lyon says no relationship between the reactions is obvious. If individuals are examined on different occasions when their metabolic rates have altered, a change in the degree of response to epinephrin is noticed. Administration of thyroid leads to an exaggeration of the reaction to epinephrin. In cases of exophthalmic goiter, a fall in basal metabolic rate is not accompanied by a very great reduction in the sensitiveness to epinephrin, and it is suggested that this depends on a persisting hypertonus of the sympathetic system.

Schistosoma Hematobium Causes Rectal Papilloma.—The case cited by Sinderson and Mills would appear to prove the ability of *Schistosoma haematobium* to produce rectal papillomata. The fact that after very careful search no trematode ova other than those of *S. haematobium* have been found in the urine, feces, and tissues, the authors believe to be fairly conclusive evidence of a further and previously unproved infestation with *S. haematobium*.

Herpes Zoster with Localized Muscular Paralysis.—Worster-Drought records a case of a typical attack of herpes zoster affecting the area of the twelfth thoracic nerve which was followed twelve days after the appearance of the herpetic eruption by paralysis of the muscles in the lower part of the abdominal wall of the same side.

Journal of Biochemistry, Tokío

2: 369-546 (April) 1923

Lipoids in Placenta in Each Month of Pregnancy; Especially Quantitatively. H. Watanabe.—p. 369.
Autolysis of Pancreatic Juice. K. Nagai.—p. 399.
Purin Metabolism. III. Muscle as Source of Endogenous Purin. M. Kikuchi.—p. 409.
Biologic Study of Organic Bases. I. Organic Bases in Normal Urine. S. Toda.—p. 417.
Id. II. Organic Bases in Extractives of Vegetable and Animal Food Stuffs. S. Toda.—pp. 425, 429, 433.
Composition of Urinary Calculi. H. Nakano.—p. 437.
Glycolytic Action of Blood. II. Experiment with Phosphate Mixture in Warm-Blooded. K. Fukushima.—p. 447.
Id. III. Experiment with Citrate Mixture in Cold-Blooded. K. Fukushima.—p. 455.
New Derivatives of Fucose. T. Tadokoro and Y. Nakamura.—p. 461.
Determination of Ammonia in Blood. M. Hara.—p. 473.
Surface Activity of Colloids in Pathologic Urine. M. Takeda.—p. 479.
Acid-proof Staining Property of Cephalin. R. Koganei.—p. 495.
Interaction Between Heavy Metal Salt and Protein. K. Kodama.—p. 505.
Effect on Membrane Osmosis by Salt Present in Solvent. J. Umezawa.—p. 525.

Lancet, London

1: 1039-1090 (May 26) 1923

Diabetes and Glycosuria; Insulin Treatment. H. Maclean.—p. 1039.
*Mode of Action of Vitamins. W. Cramer.—p. 1046.
*Treatment of Auricular Fibrillation by Quinidin Sulphate. J. G. Emanuel.—p. 1050.
*Analysis of One Hundred Human Fetuses. M. F. L. Keene and E. E. Hewer.—p. 1054.
Case of Recurrent Suppurative Frontal Sinus Disease. E. Watson-Williams.—p. 1056.
Direct and Indirect Inguinal Hernia on Same Side. H. Griffiths.—p. 1056.
Leukemia in Monkey. A. C. Massaglia.—p. 1056.
Acute Polio-encephalitis in Infancy, Associated with Glycosuria. T. P. Williams.—p. 1057.

Action of Vitamins.—From observations on the pathologic lesions induced by vitamin deficiencies, Cramer says, a mass of evidence has gradually accumulated which points to the digestive tract as the key to the problem of the mode of action of these food accessory substances. The functional integrity of the digestive tract is dependent on the presence in the food of certain substances with specific druglike actions, very much in the same way as the functional integrity of the uterus is dependent on a hormone produced by the ovary. These accessory food substances may, therefore, be regarded as "food hormones." Two groups with different specific actions can at present be distinguished—one group (now called the water soluble vitamin B) has a specific stimulating effect on lymphoid tissue. The other group (now called the fat soluble vitamin A) has a specific stimulating effect on the intestinal mucous membrane, and also directly or indirectly on the formation of blood platelets. These specific effects afford an adequate explanation of the general changes produced in an animal by restricting or completely withholding vitamins from the food. An interesting relationship is thus brought out between an animal and its environment; the food itself contains specific substances on which the integrity of the apparatus responsible for the digestion and absorption of food depends. The therapeutic applications following from this conception are briefly discussed.

Quinidin Sulphate in Auricular Fibrillation.—For the treatment of cardiac failure with auricular fibrillation, Emanuel regards digitalis a specific remedy and quinidin an invaluable coadjutor.

Tentorial Tears in Fetuses.—Taking the full-time and premature fetuses together, Keene and Hewer found that, in 100 of these, tentorial tears with subdural hemorrhage occurred in 6 per cent., tentorial tears alone in 2 per cent. and subdural hemorrhage only in 11 per cent. These figures are strikingly lower than those obtained by Eardly Holland, who gave the incidence of these tears as 48 per cent.

Medical Journal of Australia, Sydney

1: 463-486 (April 28) 1923

Radium Therapy. Experimental Research Work, Including Death, Retardation of Growth, Prolongation of Life, Determination of Sex, Sterilization and Artificial Parthenogenesis Reproduction without Male. H. Lawrence.—p. 463.

Pioneer Australian Surgeon (Richard Harris) and His Times. N. J. Dunlop.—p. 472.

Bilateral Detachment of Retina in Nephritis of Pregnancy; Reattachment of Retina. M. Gardner.—p. 477.

Naval Medical Association Bulletin, Tokyo, Japan

No. 38, 11-21 (Feb.) 1923

Standard Ration in Victualling Regulation of Japanese Navy. S. Sakaguchi.—p. 11.

Choice of Immunity Reaction in Determination of Cholera Vibrio. T. Kabeshima.—p. 18.

Studies on Nature of Cholera Vibrio, Isolated from Number of Cases, Which Occurred in Fukuoka, 1922. T. Kabeshima.—p. 19.

South African Medical Record, Cape Town

21: 169-192 (April 28) 1923

Depolarizing Words. E. G. Dru-Drury.—p. 171.

Jaundice. Some Recent Cases. C. F. M. Saint.—p. 178.

Use of Simple Cow's Milk Mixtures in Infant Feeding E. P. Baumann. —p. 182.

Bulletin Médical, Paris

37: 505-535 (May 5) 1923

*Roentgenography of Chronic Constipation. L. Gally.—p. 513.

*Echo Pruritus. P. Jourdanet.—p. 516.

Radiology of Chronic Constipation.—Gally's experience as radiologist at the Laennec Hospital teaches that the radiologist's task is merely to present the evidence on the shape, situation, movements, manner and duration of transit and evacuation of the gastro-intestinal tract, with the aid of a single or double contrast meal, supplemented by a contrast enema for the large intestine. "How many false trails have been followed because the radiologist neglected details and suggested at once a snapshot diagnosis, which the physician is eager to accept."

The "Pruritus Echo."—Jourdanet offers as another contribution to our knowledge of the involuntary nervous system a description of the phenomenon which he calls *repercussivité pruritique:* When an itching region is lightly scratched, another point, sometimes quite remote, begins to itch likewise. These points of this echo reflex itching are always on the same side, and appear each time at the same point. It is something like the motor phenomenon of the pilomotor reflex.

37: 536-565 (May 12) 1923

*Transfusion of Blood. P. Emile-Weil and Isch-Wall.—p. 543.

37: 566-611 (May 19) 1923

Treatment of Diabetes with Insulin. Chabanier, et al.—p. 579.

Mishaps with Transfusion of Blood.—Weil and Wall survey international experience in this line, and emphasize the essential difference between the immediate disturbances from the presence of hemolysins or agglutinins in the blood of the recipient, and later disturbances which are comparable to the phenomena of an upset in colloidal balance. These may be observed even when both parties belong to the same group.

Bulletins de la Société Médicale des Hôpitaux, Paris

47: 531-548 (April 13) 1923

*Bronchitic Ictus and Oculocardiac Reflex. A. Sézary.—p. 531.

Gigantism and Tall Growth. R. Benard.—p. 534.

*Rabies Three Years After Dog Bite. Dumitresco-Mante.—p. 542.

*Therapeutic Pneumopericardium. M. Castex.—p. 545.

Bronchitic Ictus and Oculocardiac Reflex.—Sézary reports the history of a man who had been gassed and subsequently suffered from bronchitis and attacks of unconsciousness following cough. The oculocardiac reflex was strong. The attacks disappeared after treatment with belladonna, but the exaggeration of the oculocardiac reflex persisted.

Death from Lyssa in a Vaccinated Patient Three Years After the Bite.—Dumitresco-Mante reports the history of a patient who was bitten by a rabid dog and died from rabies three years and a few days later. He had been given prophylactic Pasteur treatment at once after the bite.

Therapeutic Pneumopericardium.—Castex reports a case of tuberculous pleuritis and pericarditis treated by punctures and insufflations of oxygen. His patient was a woman, aged 25, much improved by his measures.

Journal de Médecine de Bordeaux

95: 303-340 (May 10) 1923

*Gastric Surgery. Charrier and Charbonnel.—p. 303.

*Pleural Shock with Artificial Pneumothorax. Leuret and Fontan.—p. 314.

Shock After Injection of French Arsenical. Bouyer.—p. 320.

Ultimate Results After Gastrectomy; Thirteen Cases.—Charrier and Charbonnel had a mortality of 23 per cent. in their gastrectomies for cancers and ulcers, showing this operation to be less dangerous than generally considered. Gastric cancer is generally too far advanced for gastrectomy to be permanently successful. Necropsy of a patient who died from acute dilatation of the stomach soon after pylorectomy, showed that the stomach was distended with gas alone, the new outlet obstructed. The acute dilatation had occurred from inflammatory paresis and aerophagia alone: The mechanical theory of postoperative dilatation from compression of the duodenum does not apply to this case as the duodenum had been excluded. This shows the part played by aerophagia and inflammatory paresis in the pathogenesis of acute dilation of the stomach, so frequently attributed to mechanical causes. They describe in detail nine operations for cancer, with a mortality of 21 per cent. While the effects of gastro-enterostomy last only a few months, gastrectomy brings new life to the patient.

Pleural Shock During Artificial Pneumothorax.—Leuret and Fontan report 2 cases in which the injection of 30 or 50 c.c. of air induced shock: In one, a short, incomplete shock of benign nature; in the other, of the type of status epilepticus, terminating by death in sixty-two hours. Both patients had been very apprehensive. Of 86 observations of pleural shock collected by Cestan, 34 were of the convulsive type, as were 31 of Cordier's 81 cases. Typically, the convulsion resembled an epileptic seizure in every way. Preliminary injection of morphin does not prevent the attack, though it may be useful in a nervous patient. Mental preparation is necessary, especially in the emotional patient. No gas must be injected unless the manometer indicates the large oscillations of the pleural pressure, which is negative.

Paris Médical

13: 301-336 (April 7) 1923

Digestive Pathology in 1923. Carnot and Gaehlinger.—p. 301.

*Early Diagnosis of Gastric Cancer. A. Cade.—p. 313.

*Remote Results of Gastrectomy. G. Lion.—p. 319.

Radioscopy of the Duodenum. Guénaux and Vasselle.—p. 323.

*Lowering the Colon to the Anal Sphincter. G. Picot.—p. 329.

Misleading Roentgenograms of the Stomach. Timbal.—p. 333.

Early Diagnosis of Cancer of the Stomach and Intestines, Exclusive of the Rectum.—Cade says that the first sign of cancer of the stomach is the irregular and capricious appetite and finally the total loss of appetite. According to Brinton, this occurs in 85 per cent. of the cases, but anorexia is not inevitable, especially in young cancer patients. The aversion to food may be so decided as to make swallowing impossible. Indifference to tobacco in a smoker is sometimes the first symptom of a growth in the stomach. Common dyspeptic symptoms frequently accompany the loss of appetite, and their rebellious persistence attracts attention. Loeper's method of gastric cytodiagnosis is recommended: The residual contents of the fasting stomach are aspirated, then the stomach is washed with 250 c.c. boiled water, which is aspirated, and a second washing made with 250 c.c. physiologic salt solution. This is centrifuged, and the cellular elements of the sediment thus obtained are examined according to Widal's pleural cytodiagnostic method. Abundance of leukocytes indicates gastric inflammation. Red corpuscles are frequently found, especially when there is ulceration. But more characteristic are the large polyhedral, thick cells, taking stains well, and forming clumps of four or five elements of which the large nuclei, sometimes double or triple, may show cell division. Like other biologic methods of diagnosis, negative results are indecisive.

Remote Results of Gastrectomy for Cancer of the Stomach.—Lion studied the results of 41 gastrectomies for cancer, performed during the period 1903 to 1919, and found that 16, or 39 per cent., died from the operation. Of the 25 surviving, 6 died during the first, 6 during the second, and 2 during the third year. Eleven survived more than four years, but 6 had recurrences and died, while of the 5 now living, 3 had the operation five years ago, 1 nine years, and 1 four years and three months ago. He compares these results with those of 49 gastro-enterostomies, with mortality rate of 20.4 per cent., but among whom, excluding all cases in which the cancer was not diagnosed from necropsy, or macroscopic and microscopic examination, he found only 6 cases with survival of from two to five years. He characterizes gastro-enterostomy as a purely palliative intervention for stenosis of the pylorus only, with the benefits lasting at most from six or eight months to two years.

Drawing Down the Colon to the Anal Sphincter After Removal of Cancerous Rectum.—Picot recommends colostomy before removal of the rectum, in order to avoid fecal retention and infection and to facilitate the coming operation. This preliminary intervention enables exploration of the cancer and of the length and movability of the pelvic colon. It is very important to keep the left colon movable, and hence the artificial anus should be made on the right side. Colostomy on the ascending colon can be made so as to secure total evacuation of the feces.

Presse Médicale, Paris

31: 485-492 (May 30) 1923

*Acute Orchitis in Children. A. Mouchet.—p. 485.
A New Ethyl Anesthetic. A. Lecerf.—p. 486.

Acute Orchitis in Children.—Mouchet's experience has confirmed that torsion of the testicle is often responsible for the clinical picture of acute epididymitis and orchitis in boys. He has had to operate for this cause in five cases in less than two years. In two of the boys the symptoms were less severe, and the operation revealed torsion of the hydatid of Morgagni instead of the testis.

31: 493-504 (June 2) 1923

*Iodized Oil in Roentgen Examination. Sicard and Forestier.—p. 493.
*Intraspinal Treatment of Epidemic Encephalitis. Roch.—p. 496.
*Papaverin in Differential Diagnosis. L. Cheinisse.—p. 498.

Iodized Oil for Contrast in Roentgenology. — Sicard and Forestier reproduce sixteen roentgenograms taken after injection of iodized oil. The tissues seem to tolerate this substance perfectly, and it allows roentgen-ray examination of the subarachnoid and epidural spaces and of the bronchi and lungs—cavities previously inaccessible to such exploration. The preparation he uses is said to be an organic combination of iodin with oil; 0.54 gm. of iodin per cubic centimeter. It spreads by gravity, and the black discoloration persists for months or years.

Intraspinal Injection of Casein in Treatment of Epidemic Encephalitis.—Roch bases this treatment of encephalitis on the assumption that inflammation of the meninges renders them more permeable. He hoped that this would allow access to drugs and antibodies in the blood stream which otherwise are unable to pass this barrier into the brain. He aimed to induce an aseptic meningitis, and found a 1 : 1,000 solution of casein in normal saline convenient for the purpose. In three cases of long chronic parkinsonian syndromes after encephalitis, no benefit was apparent, but they confirmed his theoretical premises, and in two out of four cases of recent epidemic encephalitis, recovery was soon complete. He asks, "Was this coincidence or effect?" Even lumbar puncture alone aids in promoting the flow of fluids from the blood into the cerebrospinal cavities.

Papaverin in Differential Diagnosis.—Cheinisse quotes Frigyér and others who have demonstrated that papaverin reduces the blood pressure in the absence of organic disease of the heart, vessels and kidneys. Hence in dubious cases of high blood pressure, a decline after subcutaneous injection of 0.20 or 0.24 gm. of papaverin is a sign that organic factors are not involved. By the mouth, the test requires 0.3 or 0.5 gm., fractioned during the day. A slight narcotic effect is a sign that the proper dose has been given.

Revue Franç. de Gynécologie et d' Obstét., Paris

18: 177-208 (March 25) 1923

*Relations of Appendicitis and Adnexitis. C. G. Cumston.—p. 177.
*Low Transperitoneal Cesarean Section. E. Hauch.—p. 188.
Transverse Septum in Vagina. E. Goinard.—p. 193.

Reciprocal Relations Between Appendicitis and Adnexitis.—Cumston believes that the only way in which infection can be carried from the adnexa to the appendix is retrograde through the vessels. Venous stasis may develop from phlebitis, and lymphangitis may result. Infection may easily spread from the appendix to the adnexa through Clado's ligament, a prolongation of the meso-appendix which merges into the broad ligament and contains lymphatic vessels. The lesions are often considered genital and are treated as such without result. In beginning appendicitis, percussion will reveal an exudate in the iliac fossa but examination through the vagina will be negative. In his extensive experience with appendicitis he has never seen a woman in whom he could diagnose an inflamed appendix from bimanual palpation, although other persons say they can. Suppurative pelviperitonitis does not present symptoms as violent as those of acute appendicitis. Rupture in tubal pregnancy may be difficult to differentiate from pelvic appendicitis. The mortality is no greater in pelvic than in iliac appendicitis, but the symptoms are often more violent and indicate intervention. He adds that the pathology of the association of inflammatory lesions of the appendix and of the right adnexa has not yet been determined.

Low Transperitoneal Cesarean Section.—Hauch says that extraperitoneal section, the most logical for avoiding infection of the peritoneum, is deceptive since infection of the perivesical tissue is more dangerous than that of the peritoneum. In the low transperitoneal operation, the infectious content of the uterus inundates the cellular tissue which is more sensitive than the peritoneum itself, and part of the uterine content always seeps into the peritoneum. The uterus should be drawn out before opening and washed with ether. But the remote results, ruptures and adhesions, must be taken into consideration as well as the immediate dangers of peritonitis and infection of the wound. The operation may be of advantage in avoiding intraperitoneal adhesions. Among contraindications are placenta praevia; a preceding cesarean section, and cases in which the child is in imminent danger.

Revue de Médecine, Paris

40: 65-128 (Feb.) 1923

*Aneurysms of the Thoracic Aorta. J. Chalier.—p. 65.
*Diphtheric Paralysis. C. Zoeller.—p. 86. Conc'n p. 157.
*Does Anaphylactic Purpura Exist? A. H. Hanns and A. Weiss.—p. 104.

Aneurysm of the Descending Thoracic Aorta.—Chalier presents a study of the characteristic symptoms. Radioscopy generally aids in differential diagnosis, but even this may fail when the walls of the aneurysm are thick and lined with old clots, or the aorta is concealed by the heart as in a case described.

Present Status of Diphtheric Paralysis. — Zoeller affirms that never has any tendency to paralysis been noted in healthy subjects or healthy animals treated with diphtheria antitoxin. The earlier in diphtheria the antitoxin is injected, the less the proportion of cases with paralysis. When the paralysis is once developed, antitoxin should be given freely for three to five days. Comby has reported rapid cures under this in thirteen cases. Massive doses should be given in early diphtheric paralysis. With tardy paralysis, it should also be given if not administered before, and also when the patient is a carrier. If it does no good, at least it does no harm. Sometimes small doses answer the purpose. Ginestous witnessed subsidence of a paralysis of accommodation, which had persisted for two years, when two injections of 10 c.c. of antitoxin were given. If the patient is a carrier, antitoxin is required as the bacilli continue to secrete toxin.

Not Anaphylactic Purpura.—Hanns and Weiss report the case of a man subject to simple purpura. The coagulation time was normal and there was no tendency to hemorrhage. There was slight fever for a time, and the muscles in the calf were tender. When the purpura had subsided, the man developed serum sickness under treatment of the anemia, but there was no flaring up of the purpura during the serum sickness.

Schweizerische medizinische Wochenschrift, Basel

53: 417-440 (April 26) 1923

*Fatigability of Striated Muscle. L. Asher.—p. 417.
*Typhoid Bacilli Carriers. Good.—p. 421. Idem. Arnd.—p. 423.
Action of Sulphur. A. Hottinger.—p. 429.
Smallpox. A. Müller.—p. 432.

New Theory on Infatigability of Striated Muscle, and the Problem of Its Autonomic Innervation.—Asher found in rabbits and frogs that it is possible to elicit contractions of striated muscles at constant and proper intervals for hours without producing signs of fatigue except in the first stage. In rabbits it is possible to repeat the contractions every second. In frogs kept in the cold, four seconds are necessary. Increase of the temperature permitted shortening of the critical interval. Resection of the sympathetic in rabbits did not cause any change in the experiment. Resection of dorsal spinal roots or injection of acetylcholin, which stimulates the parasympathetic, delayed the time of appearance of fatigue. Other experiments on the action of the vegetative nervous system are also reported.

Permanent Elimination of Typhoid Bacilli by Carriers, and Their Surgical Treatment.—Good points to the dangers for nurses and inmates of insane asylums from patients excreting typhoid bacilli. Widal's test is the safest and quickest method for detecting carriers. Preventive vaccination proved very efficient. Carriers, who are excreting bacilli permanently, should be operated on. . . . Arnd reports fifteen cases of gallbladder operations in typhoid carriers, and reviews the literature. He concludes that the results are not decisive. Before advising operation, the physician should explain the question fully to the patient, not forgetting that the gallbladder may be free from typhoid bacilli in persons eliminating these bacilli.

Policlinico, Rome

30: 489-520 (April 16) 1923

*Action of Artificial Pneumothorax. F. Parodi.—p. 489.
Carcinoma of Prostate Cured by Radium. G. Nicolich.—p. 494.
Injury of Bladder in Woman. P. Para.—p. 496.
*Malarial Infection in Surgery. P. Marogna.—p. 498.

Action of Artificial Pneumothorax According to Anatomic Observations.—Parodi found all the typical signs of tuberculosis in a lung treated with pneumothorax. Thus its action consists only in causing conditions favorable to proliferation of connective tissue; this is a healing process, but not a sign that the infectious process has been cured. The possibility of propagation by bronchi, blood and lymphatics remains, though its frequency and especially its extent is diminished. Definite results are very late.

Malaria from Surgical Standpoint.—Marogna reports two cases of recurrence of malaria after aseptic operations. In one it was the first recurrence in twelve years.

30: 521-551 (April 23) 1923

*Anastomosis of Vas Deferens. V. Salvo.—p. 521.
*Bismuth in Treatment of Syphilis. M. Artom.—p. 527.
Angiectasis in Skin of Base of Chest. Pellegrini.—p. 530.

Anastomosis of Vas Deferens.—Salvo succeeded in 50 per cent. of cases in restoring the permeability of the vas deferens by a side-to-side anastomosis. He believes that Monari's similar operation in suturing a ureter is the method of choice.

Value of Bismuth Preparations in Treatment of Nervous Syphilis.—Artom tried bismuth treatment in two recent and one old case of tabes and in two patients with general paresis. The clinical state and examinations of blood and cerebrospinal fluid showed no effects from the treatment.

30: 177-232 (April 15) 1923. Surgical Section

*Treatment of Surgical Tuberculosis. L. Durante.—p. 177.
Tumor from Aberrant Salivary Gland Tissue. O. Finzi.—p. 191.
*Bone Grafts. U. Monaco.—p. 203.
Epithelial Cyst of Prepuce. G. Roello.—p. 220.
Present Status of Reconstruction of Thumb. Gussio.—p. 224.

Treatment of Surgical Tuberculosis with Hypertonic Saline.—In 1919 Durante had occasion to treat 326 soldiers with tuberculous abscesses, and has traced the subsequent course in most of them. Treatment was with a hypertonic salt solution, injecting into the cavity an amount equal to about half of the fluid withdrawn. He has a record of 540 tuberculous lesions of the kind thus treated. After three injections he changed from a calcium chlorid to a sodium chlorid, and then to a magnesium chlorid solution, each a 2.5 per cent. solution in distilled water, with or without a few drops of solution of formaldehyd, added after cooling. He refrained from curetting or other mutilating intervention, and usually injected the hypertonic solution at four day intervals. The cold abscesses frequently started to heal after a single injection, especially those in muscles or ribs. The gravity abscess from extensive vertebral caries was the longest in healing—an average of six months in cases traced to date. He summarizes the literature on treatment by stimulating osmosis in cavities, and refers to his previous articles on the subject, including one in the *Lancet,* in 1919.

Bone Grafts.—Monaco argues that in normal bone certain elements are constantly dying and being replaced by new ones, and the same process occurs in a bone implant when the inner layer of the periosteum accompanies the bone. But the change in environment interferes with nutrition, and this exaggerates the normal process of destruction and repair; but he is convinced that the bone retains its vitality, and after the temporary setback resumes a physiologically complete life when conditions are favorable. This was always manifest in the young and healthy thus treated in Muzii's service since 1909.

Riforma Medica, Naples

39: 433-456 (May 7) 1923

*The Blood in Epilepsy. G. Pezzali.—p. 433.
*Busacca's Test for Tuberculosis. G. Montemartini.—p. 437.
*Agglutination of Spermatozoa by Serum. E. Debenedetti.—p. 440.
Diphtheria at Venice 1903-1912. E. Bussa Lay. —p. 444.
Subhepatic Perivisceritis. G. Castronuovo.—p. 445.

The Blood in Epilepsy.—Pezzali was unable to note any special features of the metabolic findings in five epileptics tested before, during and after seizures. The nonprotein nitrogen and chlorids showed nothing characteristic. Only the cholesterol regularly decreased during the seizure and rose afterward, as likewise the fat to a less extent, while the glucose content was stable. The presence of indican suggested the advisability of regulating the digestive processes. The regular fluctuations in the cholesterol content indicate that this may have a protecting action, and that it might be advisable to give cholesterol treatment a thorough trial. The calcium content of the blood was found much higher during the attacks. This suggests treatment with organic calcium during the intervals.

Busacca's Test for Tuberculosis.—The tuberculous are liable to respond with a pronounced local reaction to intradermal injection of 0.2 c.c. of normal horse serum. Montemartini obtained a positive response in 65 per cent. of 315 tuberculous patients tested. Only those with comparatively recent and active tuberculosis responded positively. This nonspecific test therefore aids both in diagnosis and prognosis.

Agglutination of Spermatozoa.—Debenedetti found that certain serums agglutinate spermatozoa, and he discusses the relation between this and the rouleau formation of the red blood cells.

39: 457-480 (May 14) 1923

*Sunlight in Treatment and Prevention of Internal Manifestations of Tuberculosis. A. Ferrannini.—p. 457.
*Digestive Leukocytosis. E. Puxeddu.—p. 461.
*The Odor of the Urine. E. Pittarelli.—p. 463.
*Transorbital Puncture of Gasserian Ganglion. E. Aievoli.—p. 467.

Heliotherapy in Internal Tuberculosis.—Ferrannini relates that an Italian physician, A. Sciascia, invented a "photocautery" to concentrate sunlight and artificial light, and, in 1892, reported its successful application in the treatment of trachoma and lupus, tuberculous fistulas and peritonitis, erysipelas and carbuncle. This, he says, was seven years before Finsen's first publication on treatment by light. He pleads for arrangements for heliotherapy in every community, every house, every school, every factory, so that every worker with brain or hands could have opportunity for a sunbath every day. The old saying "Where the sun enters, the doctor stays away" should be changed to "Where the doctor enters, the sun enters too."

Digestive Leukocytosis. — Puxeddu's experiments showed that sodium bicarbonate has a direct depressing influence on the leukocyte count, in addition to its indirect influence by neutralizing the hydrochloric acid in the stomach. Leukopenia follows the sodium bicarbonate even when administered while fasting; hydrochloric acid given during fasting induces leukocytosis.

The Substance Responsible for the Odor of Urine.—Pittarelli treated distilled urine with sodium bicarbonate and mercuric chlorid, then with potassium iodid, and then with Nessler's reagent. He obtained in this way a ketone-like substance, different from acetone, which, he says, is responsible for the odor of the urine.

Access to Gasserian Ganglion Through Orbit.—Acivoli summarizes recent works on the gasserian ganglion in The Journal and elsewhere.

Brazil-Medico, Rio de Janeiro

1: 233-244 (April 28) 1923

*Juxta-Articular Nodules in Brazil. J. Montenegro.—p. 233.
New Species of Anopheles. A. Neiva and C. Pinto.—p. 235.
Public Health Service in Minas Geraes. C. Sá.—p. 236.

Etiology of Juxta-Articular Nodules.—In the case described by Montenegro, the subsidence of the lumps near the elbow under treatment for syphilis confirms the assumption of their syphilitic origin. The woman had had transient ulceration of the vulva before the nodules developed.

1: 245-258 (May 5) 1923

Hypertrophied Prostate. H. Ringel.—p. 245.
*Yaws in Brazil. A. Gavião Gonzaga.—p. 248.
Typhoid in Infants. A. Ricardo.—p. 250.

Yaws in Brazil.—Gavião Gonzaga relates that *bouba* was identified in Brazil in 1909 by Rabello's finding *Spirochaeta pertenuis* in the lesions. It is known to be prevalent in nine of the states of Brazil. In Ceará, 60 per cent. of the rural population and 15 per cent. in the towns are affected, while the seacoast is almost exempt. In his experience, mosquitoes seemed to be the principal means of transmitting yaws. The main thing in prophylaxis is to protect the lesions against bloodsucking insects. The public health service is now treating yaws with neo-arsphenamin. Otherwise treatment is with Castellani's emetin-iodin method or tartar emetic. (Compare with editorial in The Journal, June 23, 1923, p. 1854.)

1: 259-276 (May 12) 1923

*Types of Meningococci in Brazil. L. de Assumpção.—p. 259.
*Tropical and Subtropical Diseases. L. W. Sambon.—p. 263.

Meningococcus Types in Brazil.—This communication from the Instituto de Butantan states that of nearly three dozen strains of meningococci tested with French, American and Danish antiserums, only 51.5 per cent. responded to the French and 67.6 per cent to the North American antiserums. The Danish antiserum did not agglutinate any of the Brazilian strains.

Tropical and Subtropical Diseases.—This is a translation into Portuguese of Sambon's article in the *Journal of Tropical Medicine* of June 15, 1922.

Deutsche medizinische Wochenschrift, Berlin

49: 535-568 (April 27) 1923

Contamination of Healthy Cells by Diseased Cells. E. Frey.—p. 535.
*Theory of Atrophy of Muscle. A. Lipschütz.—p. 536.
Hemagglutination in Prognosis of Febrile Affections. E. Vey.—p. 537.
Treatment of Affections of Thyroid with Iodin. Sudeck.—p. 538.
Chemotherapy of Malignant Tumors. R. Roosen.—p. 538.
Action of Papaverin on Striated Muscles. J. Kiss.—p. 541.
*Clinical Use of Papaverin. L. Frigyér.—p. 543.
Dissociation of Personality and Types of Defectives. W. Cimbal.—p. 545.
Treatment of Malaria with Silver Arsphenamin. J. Jungbluth.—p. 545.
Electric Phenomena in Case of Paralysis Agitans. Hesse.—p. 546.
Blood Grouping in Different Races in Hungary. A. v. Jeney.—p. 546.
Opening of Peritonsillar and Retropharyngeal Abscesses. Finder.—p. 547.
Dermatological Diagnosis. M. Joseph.—p. 548.
Determination of Diastolic Blood Pressure. P. Engelen.—p. 550.
Albuminuria in Early Syphilis. A. Dreyer.—p. 550.
Treatment of Whooping-Cough with Ether. F. Graeser.—p. 551.
Comment on "Case of Barbital Poisoning." E. Merck.—p. 552.
What is Being Done to Keep up the Public Hospitals in Germany? L. Langstein.—p. 552.
Royalties for Scientific Works. V. Schilling.—p. 554.
Gynecologic Diseases and Obstetrics in Africa. F. Appel.—p. 555.
Goethe and Compulsory Vaccination. K. Mendel.—p. 557.

Theory of Atrophy of Muscle.—Lipschütz reports further experimental work of his pupil A. Audova. They had found before that the dry weight of a muscle after resection of the nerve is the same as after tenotomy. Chemical investigation showed differences however. The increase in fat was much more marked after resection of the nerve.

Clinical Use of Papaverin.—Frigyér confirms the favorable action of papaverin on high blood pressure, especially in acute glomerulonephritis. It has no effect in severe forms of essential hypertension and nephrosclerosis. Its depressing action is obtained only when slight narcotic effects are observed. Usually one needs an intramuscular injection of 0.2 gm. From 0.3 to 0.5 gm. can be given daily by mouth.

Deutsche Zeitschrift für Chirurgie, Leipzig

178: 1-144 (March 20) 1923

*Artificial Epithelization of Esophagus. A. Narath.—p. 1.
*Constitutionally Weak Epiphyses. Lehmann.—p. 11.
*Blocking the Splanchnic Nerves. E. Metge.—p. 37.
Ossification in Muscles After Spinal Cord Injury. Rehbein.—p. 60.
*Tumors of the Cerebellopontile Angle. T. Aoyama.—p. 76.
Action of New Antiseptics on Tissues. W. Odermatt.—p. 90.
*Resection of Large Intestine. F. Brunner.—p. 96.
*Ascarid Ileus. K. Jaroschka.—p. 122.
Bleeding Myoma on Small Intestine. W. Goldschmidt.—p. 128.
Acute Osteomyelitis of Skull. E. Metge.—p. 133.
Luxation in Chopart's Joint. W. Krämer.—p. 136.
Hernia of Gimbernat's Ligament. E. Sattler.—p. 140.

Artificial Epithelization of the Esophagus.—Narath suggests the possibility of applying a Thiersch flap directly to reconstruct the epithelial lining of the esophagus after a corrosive injury. He thinks the cicatricial stenosis is due in large part to the defect in the epithelium. By healing this, we might ward off stenosis. His plan is to wrap a square Thiersch flap around a rubber tube and introduce it from above or below, pulling on the tube to stretch it until narrow enough to pass through the stricture, under direct inspection with the esophagoscope introduced from above or below. Thiersch flaps heal in the mouth perfectly, and swallowed saliva would drain through the tube. The tube must be large enough to press the flap evenly against the esophageal epithelium. Even if only part of the flap adheres, when the tube is finally removed, this island may be enough to insure natural production of epithelium.

Constitutionally Weak Epiphyses.—Lehmann discusses this possibility as a factor in rachitis, osteochondritis and arthritis deformans. Three cases are described in which this seemed to be the explanation for loose bodies in the joint. Even normal functioning is too much strain in this condition.

Blocking the Splanchnic Nerves.—Metge gives scopolamin and morphin beforehand, and then follows Kappis' technic exactly. He has applied this method in over 100 cases and found it convenient and effectual. But in 78 of the total 104 cases the blood pressure dropped to below one half of what it was before and after. As a rule, this great fall in blood pressure does no harm. There were 3 fatal pneumonias in 112 operations under splanchnic nerve blocking, but he had 7 cases of fatal pneumonia in an equal number of operations under general anesthesia at the same time. The after-effects seem to be less severe with the splanchnic method in operations on the stomach and for gallstones, which are the ones for which it is preferred. But the drop in blood pressure must be considered. His charts show a drop from 125 to 25 and then imperceptible pulse, in fifteen minutes, in a woman, aged 58, with gastric cancer. The pressure rose to 35 in the next ten minutes, and gradually climbed to 120 as the long operation proceeded. The pressure had reached 95 by the end of the hour.

Tumor in Cerebellopontile Angle.—In the two cases described, one patient was cured by the operation.

Resection of Large Intestine.—Brunner reports a series of seventy operations with seven deaths. In forty-seven of the cases the operation was concluded at one sitting. Eight patients are in good health from four to fifteen years after resection of a cancer in the large intestine.

Ascarid Ileus.—Jaroschka's patient was a boy, aged 15 months; the clump of ascarids was removed by operation. Diffuse peritonitis followed, and was explained at necropsy by perforation of the bowel where an ascarid had forced its head through the suture.

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New Investigations on Amebas. W. Fischer.—p. 725.
*Pathogenesis of Amyloid. H. Kuczynski.—p. 727.
Significance of Cells of the Walls of Vessels in Pathology. G. Herzog.—p. 730. Conc'n.
Diabetes Mellitus in Young Persons. W. Weiland.—p. 736.
*Albuminocholia and Its Diagnostic Significance. F. Raue.—p. 741.
Experimental Research on Effect of Great Heat on Tissues. A. Beekmann.—p. 743.
Sedimentation Speed and Volume of Erythrocytes. M. Bönniger and W. Herrmann.—p. 744.
Colorimetric Determination of Arsphenamin and Neo-Arsphenamin. H. Weyl.—p. 745.
*Calcium Chlorid in Sachs-Georgi Reaction. E. Witebsky.—p. 745.
Clinical Method of Fibrinogen Determination. Leendertz.—p. 746.
Peculiar Form of Acute Anemia. Frehse and Froboese.—p. 748.
Treatment of Spasms in Children. O. Bossert.—p. 749.
War Privations and Dimensions of Body. F. Fischer.—p. 752.

Pathogenesis of Amyloid.—Kuczynski was able to produce amyloidosis in mice by feeding them with casein or soluble proteins of eggs. The structure of the amyloid was similar to the crystalloid structure observed by Maximow in the amyloid degeneration of horse liver. He believes that amyloid is a product of fermentative decomposition of proteins.

Albuminocholia and Its Diagnostic Significance.—Raue concludes from seventy examinations of duodenal contents that the normal bile does not contain proteins coagulable by heat. If they are present, they may be used in the diagnosis between cholecystitis and nonbleeding duodenal ulcers, cholelithiasis and nephrolithiasis. Positive reaction speaks for stasis in the liver and against cirrhosis.

Action of Calcium Chlorid on the Reversible Early Flocculation in Sachs-Georgi Reaction. — Witebsky investigated the nonspecific early flocculations in the Sachs-Georgi test, which disappear later. He found that addition of small amounts of calcium chlorid produces them in many instances, and makes some of them permanent. Such serums were derived especially from cases of tuberculosis, tumors, infections, pregnancy, anemias and other diseases with an increased lability of serum proteins.

2: 773-812 (April 23) 1923

New Views on Psychoses. K. Birnbaum.—p. 773.
*Experiments on Cancer Tissue. Warburg and Minami.—p. 776.
*Surgical Treatment of Angina Pectoris. F. Brüning.—p. 777.
*Oversensitiveness to Tuberculin. Dietrich and Klopstock.—p. 780.
*Auricularis Symptom in Meningitis. B. Mendel.—p. 782.
*Fractures of Base of Skull. A. Esch.—p. 782.
*Leukopenia After Injection of Protein Free Material. H. Ritter.—p. 784.
Comment on Pulay's "Blood Chemistry." E. Urbach.—p. 785.
Capillary Mixing Pipet for Microchemical Examination of Blood. M. Landsberg.—p. 788.
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*Roentgen Irradiation of Suprarenals. O. David and A. Hirsch.—p. 790.
*Refraction of Human Cerebrospinal Fluid. A. L. Molnár.—p. 790.
*D'Herelle's Phenomenon. W. Borchardt.—p. 791.
Artificial Perforations of Uterus. H. Reinstaller.—p. 792.
Renal Hematuria. H. Gessler.—p. 793.
Symbiosis of Plants. F. Markgraf.—p. 797.

Experiments on Surviving Carcinomatous Tissue.—Warburg and Minami examined the glycolytic action of surviving small sections from Flexner's strain of rat carcinoma. They found that it forms at least seventy times more lactic acid from sugar, than other tissues of rats. Absence of oxygen does not change the action. Narcotics inhibit it, but hydrocyanic acid has little effect. These qualities correspond to the behavior of low organisms, like yeast. One mg. of tumor forms 0.075 mg. lactic acid per hour. This means, that it can decompose in thirteen hours its own weight of sugar. The energy thus liberated is 42 per cent. of the energy that the tumor sets free by its oxygen consumption.

Surgical Treatment of Angina Pectoris by Extirpation of Cervical Sympathetic, and Comment on Surgical Treatment of Abnormally High Blood Pressure.—Brüning adds to the three cases of Jonnesco and Tuffier a fourth instance of successful extirpation of the cervical sympathetic in angina pectoris. He observed lowering of the blood pressure from the operation.

Tuberculin Allergy and Anaphylaxis.—Dietrich and Klopstock used the isolated uterus of virginal guinea-pigs (Dale's method) for testing the anaphylactic condition of the animals infected with tuberculosis. They found that tuberculin was without effect, while an extract from tubercle bacilli acted very strongly. They conclude that tuberculous guinea-pigs are sensitized against proteins of tubercle bacilli, but not against tuberculin. Thus the tuberculin reaction does not seem to be due to anaphylaxis against the proteins of tubercle bacilli.

Auricularis Symptom in Meningitis.—Mendel finds that mild pressure applied on the dorsal wall of the external auditory meatus in meningitis causes severe pains and a marked reaction, even in stupor. The negative control is made by pressure on the anterior wall. He calls his sign the "auricularis phenomenon" and considers it an early symptom of meningitis. The reflex is due to an irradiation of increased irritability from the meningeal branch of the pneumogastric to the auricular branch of the same nerve.

Treatment of Injured Ear in Fractures of Base of Skull.—Esch requires in injuries of the ear in fractures of the base of the skull the same indications as in other affections of the ear. He does not operate, if the ear is not inflamed.

Leukopenia After Nonspecific Intracutaneous Injections of Protein-Free Material.—Ritter injected olive oil, sterilized juice from carrots or a 5 per cent. solution of milk sugar. All such injections were followed by leukopenia while subcutaneous injections failed to produce it. He confirms fully E. F. Müller's findings on the importance of the mode of introduction. It does not matter whether the injected substance contains proteins.

Experimental Investigations on Epinephrin Content of Suprarenal Capsules After Roentgen Irradiation.—David and Hirsch found usually a decrease of the epinephrin content of different animals after irradiation with one skin dose, and an increase when using a quarter of the dose.

Refraction of Human Cerebrospinal Fluid. — Molnár's figures confirm the usefulness of the determination of the refractometric index of the cerebrospinal fluid. It is not parallel with the concentration of the globulin fraction alone.

Further Biologic Contributions to d'Herelle's Phenomenon.—Borchardt does not confirm Putter's and Vallen's alleged bacteriophage action of filtered bouillon. He studied the activity of duodenal contents of animals, and found that bile does not play any part in it. The duodenal content of dogs after extirpation of the pancreas was not bacteriophage. He concludes that trypsin has an action analogous to d'Herelle's phenomenon.

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19: 523-560 (April 22) 1923

Indications for Mixed Infant Feeding. A. Reuss.—p. 523. Conc'n p. 565.
*Treatment of Chronic Arthritis. Hirsch and Sternberg.—p. 527.
*Condyloma Acuminatum. L. Waelsch.—p. 529.
Functional Prognosis of Suture of Tendons. K. Lang.—p. 530.
*Diagnosis of Endocranial Affections. G. Charousek.—p. 533.
Necessity and Results of Early Operation in Tubal Pregnancy. F. Engelmann.—p. 535.
*The Sucking Habits of Children. M. Cohn.—p. 536.
Treatment of Epicondylitis. C. Gütig.—p. 539.
Duration of Immunity Against Smallpox Acquired by Vaccination. Siebelt.—p. 539.
*Leukocyte Blood Picture in Dysentery. Lämpe.—p. 540.
Case of Death from Purulent Meningitis Not Due to Injury of Head. H. Engel.—p. 541.
Gynecology of Practitioners. E. Runge.—p. 544. Cont'n.
Liver Function Tests. F. Glaser and B. Engelmann.—p. 546.

Treatment of Chronic Deforming Arthritis.—Hirsch and Sternberg regard with resignation the results of treatment of chronic cases with protein and similar therapy. They observed a certain number of surprising results regularly whenever introducing any new preparation. They believe that this is due simply to mobilization of psychic reserve powers under the influence of a strong stimulus and fever. Such miraculous cures last for a few days or months, according to the energy of the patient. The individual constitution influences the action of stimulating treatment (especially in fever) more than the preparation used. Physical therapy cannot be substituted by protein therapy.

Contagiousness of Condyloma Acuminatum.—Waelsch considers his inoculation experiments as having proved the contagiousness of condyloma acuminatum. He reports a new case. The affection disappeared very quickly after arsenical treatment. This would speak, according to him, for verrucae which present themselves as condylomata because of the localization.

Diagnosis of Accidental Endocranial Affections and of Complications of Suppurative Otitis Media.—Charousek considers otoscopy with functional tests of the ear and their comparison with the clinical symptoms which can be attributed to the ear affection with certainty as the safest aids to diagnosis. An omitted operation might be more disastrous in a doubtful case than an unnecessary operation.

Sucking Habits of Children and Deformities of Jaws.—Cohn finds that the habitual sucking of fingers has a distinct influence on the formation of prognathism and other deformities of teeth and jaws.

Leukocyte Blood Picture in Dysentery.—Lämpe found in mild cases of dysentery 30 to 55 per cent. of lymphocytes and 1 to 3 per cent. of eosinophils. Severe cases had low lymphocyte counts (7-15-21 per cent.) and absence of eosinophils.

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Autochthonous Malaria in Child in Karlsruhe. Schiller.—p. 589.
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Genius Epidemicus et Loci. F. v. Szontagh.—p. 631.
Metabolism Study of a Case Simulating Premature Senility. F. B. Talbot.—p. 643.
Frequency of Tuberculosis in School Children. Vogt et al.—p. 647.
*Etiology and Dietotherapy of Prurigo of Children. R. Weigert.—p. 669.
Unsolved Problems of Stenosis of Pylorus. Wernstedt.—p. 676.

Alkalescence of Cerebrospinal Fluid in Infants.—Bálint found a constant carbonate content (corresponding to 1.92-1.80 of centinormal acid) in the cerebrospinal fluid of healthy children. He considers figures between 1.85 and 2.00 normal. In cerebral, especially inflammatory, diseases there was a local acidosis in the fluid, while the findings were not constant in other infectious processes. Acidosis of the cerebrospinal fluid does not parallel acidosis of the blood. This is especially true of spasmophilia, in which the fluid is usually acidotic.

Colon Bacillus Infection of Small Intestine.—Bernheim-Karrer, in experiments on animals, finds that colon bacilli are able to infect the small intestine only if it is injured anatomically, or at least functionally. Diphtheria toxin damages the mucosa of the small intestine in guinea-pigs and rabbits, and colon bacilli are then found. It seems that the severe disturbances of new-born guinea-pigs fed on cow's milk are due to invasion of the small intestine by colon bacilli.

Toxicosis in Infants.—Bessau, Rosenbaum and Leichtentritt studied the combination of infection and symptoms of intoxication in children. They found that an infectious toxicosis may occur in the second year of life, while purely alimentary intoxication is limited to younger age. The pathognomonic sign is the "deep breathing." Together with coma and loss of water reserves, it indicates the combination of the existing infection with intoxication. The essence of the disturbance is the loss of water (dehydration), just as it is in alimentary intoxication. Food, in neither case, is the sole cause. Lactosuria occurs in both alimentary and infectious intoxication. The treatment must combat the loss of water.

Changes in Mother's Milk During Lactation.—Birk, contrary to popular belief, found that, even after three years of nursing, human milk contains a sufficient amount of food and salts.

The Fat Soluble A Vitamin and Rachitis.—Bloch emphasizes the importance of vitamin A, even if it may not be the cause of rachitis. Xerophthalmia, which is due to the lack of it, is a more common cause of blindness than many assume. The diagnosis of its later stages is not easy, and most cases are misdiagnosed and mistreated as inflammation of the eyes.

Transillumination of the Skull in Chronic Internal Hydrocephalus.—Bokay recommends Strassburger's method for determining the distribution of the fluid in the cerebral ventricles in hydrocephalus.

Sodium Chlorid Excretion with the Exudative Diathesis.—Brinchmann found greater retention of ingested chlorids in children with exudative diathesis than in normal controls.

Nonspecific Serum Treatment in Infancy.—Epstein selected for protein treatment severely atrophic infants, whose symptoms seemed to warrant a bad prognosis. He used daily injections of serum from different animals, starting with 0.5 c.c. and adding daily 0.2 or 0.3, until the optimum was reached (between 1 and 2 c.c.). Eight or ten injections were usually sufficient; in some cases thirty injections were necessary. He believes that daily injections of small amounts avoid anaphylactic phenomena. Other proteins, including milk, and injections of saline and epinephrin had no therapeutic effects. He saw very good results in twelve out of eighteen chronic atrophies. The first injections were immediately followed by increase in weight due apparently to water retention though edema never occurred. It seems that the treatment acts on the hydration function of infantile tissues. Atrophy in prematurely born and other weak infants, as well as in those with congenital malformation and debility, was favorably influenced. The action on the general condition was also very beneficial in atrophies due to infections, though the course of the basal process (folliculitis, abscess) was not modified. He considers pyuria a contraindication, because it seems that only a negative phase, with focal reaction, occurred. Diphtheria occurred in one child during the treatment, but the patient recovered after injection of antidiphtheric serum.

Goiter Heart and Thymus Heart in Infants.—Feer studied the relations of the thyroid and thymus with the size of the heart in infants. Endemic goiter causes very frequently a dilatation and hypertrophy of the heart, which becomes smaller after treatment of the goiter with iodids. Hyperplasia of the thymus causes a less marked enlargement of the heart. Both goiter and hyperplastic thymus frequently occur in the same infant; the heart may be very much enlarged in these patients.

Pathogenesis of Sclerema in Infants.—Finkelstein and Sommerfeld do not consider the chilling of the fat in subnormal temperatures as cause of sclerema. On the contrary, they usually found fever. Chemical examination of the fat in infants did not give reason to assume a higher melting point due to hydration. They believe there is some change of the colloids of the tissues.

Profeta's Law of Immunity.—Fischl deals with recorded and personal cases of apparently healthy and immune children of syphilitic mothers. He finds no reason to deny the existence of Profeta's immunity. Experiments point also to the possible immunizing properties of serum of individuals with latent syphilis. These children should be nursed by the mother. He never saw an infection of the child caused by nursing, and the milk may confer a further immunity.

Cerebrospinal Fluid in Congenital Syphilis.—Frank found increase in globulins, lymphocytosis and positive Wassermann reaction only in insufficiently treated infants with florid syphilis. The colloidal gold reaction is more sensitive and very valuable.

One-Sided Vitamin Feeding and Its Correction.—Frank overfed rats with fat, and found a characteristic loss of density of hair and a dermatitis with crusts, especially on the ears. He believes that these disturbances were due to a too strong proportion of vitamin A in the food, because the animals recovered when larger amounts of vitamin B and C were added. He recalls Czerny's observations on children who received daily 80 gm. cod liver oil. They suffered from eczema, until the oil was discontinued. Since similar disturbances of the correlation of ingested vitamins are possible in the exudative diathesis, he proposes to experiment with addition of vitamin B and C.

Vitamin A and B in the Biochemistry of Growth.—Glanzmann believes that vitamins regulate the hydration of colloids of the cells. He found that avitaminotic rats lose suddenly in weight if deprived of salt, while healthy controls are able to retain the water. He gives his colloid-chemical points of view on growth, and deals especially with the significance of hydration and dispersion of colloids with regard to the action of vitamins.

Diphtheria of the Nose.—Göppert points out that a positive bacteriologic findings does not prove that the child is suffering from diphtheria, and that negative findings do not disprove it. The most important sign is the typical membrane, though it may be due to other infections. Sanguinolent secretion is important, but not very common. Some cases are chronic. Unilateral atrophic rhinitis is especially suspicious of a diphtheric origin.

Starch Nutritional Disturbance.—While the summer diarrheas are already under control in Leiden (Netherlands), Gorter considers nutritional disturbance from flour an important cause of infant mortality. Most of these children had been fed for weeks exclusively on flour, or rice and water, or on some proprietary preparation. Human milk is the best remedy, yet some infants are no longer influenced by it. In such cases, transfusions of blood save the infant.

The Pyuria Question.—Grävinghoff observed, among 140 infants with pyuria, two cases of carpopedal spasms and edema of the hands and feet.

Butter-Flour Food.—Hamburger points out the advantages of reserve fat formed during fat feeding over the fat formed on a carbohydrate diet in some infants. Addition of 100 gm. of a soup containing 5 gm. butter and 5 gm. flour may be very valuable. Raw butter is as dangerous with regard to tuberculosis as raw milk. The mixture is excellent in mixed feeding and the contraindications, as stated by Czerny and Kleinschmidt (acute disturbances, atrophy) remain. The fat is well tolerated with neutral and alkaline reaction of the stool and even with a weakly acid reaction, when it is followed by well formed calcium soap stools. With strongly acid reaction of feces, the butter-flour soup may increase the dyspepsia because of the formation of fatty acids. The mixture sometimes causes slight constipation. These cases are improved by addition of sugar. If it does not help, or if diarrhea occurs after butter-flour soup, the addition of fat must be discontinued.

Tuberculin Tests in Children.—Heim recommends the use of different tuberculins for the easy cutaneous test, though the subcutaneous or intracutaneous is more reliable.

Suggestive Treatment and Orthogenic Conditioned Reflex.—Karger differentiates between suggestion and an orthogenic conditional reflex. Suggestion is a representation induced by an outside authority, accepted without criticism, leading to a movement, sensation, or inhibition. An orthogenic conditioned reflex is the activating or inhibiting influence of a regular connection between a performed or omitted action and some agreeable or disagreeable sequela automatically occurring after it—without any outside authority. This coupling of an action to a disagreeable sensation is what Czerny calls a "modified spanking." It plays a part even in the supposedly purely suggestive action of some drugs. For a time he had failures with tinctura amara, because the druggist had substituted for it a more pleasant concoction. A solution of quinin gave the desired results. Treatment with electricity is merely suggestive if it is not painful. Yet it is possible to induce with it a therapeutic conditional reflex, if one uses it exclusively immediately after the pathologic symptom (for instance, enuresis), and in a painful way. The pain must not be represented in any sense as punishment; most of these children had been treated without results with unmodified spanking. The pain must be explained as a regrettable but unavoidable concomitant of the necessary treatment with electricity. If disagreeable drugs are used, the proper direction is not: "Three times daily," but: "A teaspoonful if the bed is wet." In hysterical paralysis better results are obtained with sudden surprise. In anorexia the real objects of the treatment are the parents, who spoil the appetite. The difference between slimness and undernutrition is to be explained. A coated tongue points usually to some organic affection of the nasopharynx.

Experiences with Butter-Flour in Infant Dispensary at Scheveningen.—Besides reporting good results with butter-flour soup, Kasteele gives some interesting folklore about the fishers of Scheveningen (Netherlands). The women are afraid to use fresh water; believe that pediculi are advantageous for health, etc. They avoid using a wetnurse who has a girl baby for nursing a boy.

Sleep and Inhibition. — Krasnogorski continued the extremely interesting observations made by Shishlo and Solomonoff on the sleep provoked in animals by certain conditional reflexes. He induced several "active points" on the legs of a dog, which were always associated with feeding and provoked salivation, and an "inactive" point, which was without connection with feeding and provoked no salivary reaction. Stimulation of this point led to sleep. Still better results were obtained with conditioned inhibition. This means instituting a stimulus which inhibits a conditional reflex, if applied at the same time. For instance, the animal was fed when stimulated on the skin. If however a metronome was working when the skin was stimulated, the animal received no food. Thus the simultaneous action of a metronome induced inhibition of the salivation which would otherwise follow the irritation of the skin. The most interesting observation was that this inhibitory influence seems to extend also to other parts of the central nervous system, and induces sleep.

Similar results were obtained with children. These experiments speak for the theory that sleep is due to central inhibition.

Epidemic Cerebrospinal Meningitis a Chorio-Ependymitis.—Lewkowicz finds that the main point of attack of the meningococci is in the tela chorioidea and ependyma of the ventricles of the brain. If the connection of the brain with the subarachnoid space is occluded, the local suppuration of the meninges stops.

Mental Development of Prematurely Born Rachitic Infants.—Looft considers rachitis the main cause of the frequent slow mental development of prematurely born infants in the first two or three years of life.

Treatment of Acute Toxi-Infectious Gastro-Enteritis with Protracted Water Diet.—Monrad reports the results in 291 children treated with exclusive water diet. He gives no other food as long as the child has symptoms of intoxication. Three days were sufficient in about one third of the patients, but he did not hesitate to continue the diet twelve days. Hot baths, hot compresses on the abdomen, spirits of ether, camphor, caffein and especially two to four subcutaneous infusions of 20 or 50 c.c. or two rectal infusions of 50 or 100 c.c. of salt solution, repeated daily, are essential to the results, if the water diet has to be kept up for more than three days. After it, proteins and salts have to be given; carbohydrates and fat only with caution.

Neotenic Character of Myxedema.—Moro points to some neotenic characters (attributes of younger ages) in myxedema, quoting the experimental literature. It is interesting that Hart had already compared the skin of tadpoles fed with thymus with myxedema. The thyroids of these animals are atrophic.

Somatic Constitution and Tuberculosis in Children.—Peiser found that children with a positive Pirquet reaction are just as tall, heavy and stout as their brothers and sisters with negative Pirquet. Children with a primary tuberculous pulmonary lesion are a little taller, stouter, of equal or a little smaller weight and narrower shoulders when compared with other children of their age. A narrow chest predisposes to tuberculosis, even in children.

Is a Considerable Lowering of the Mortality from Diphtheria Possible?—Schelble believes that only prophylactic treatment can lower further the mortality from diphtheria.

Catarrhal Icterus.—Schiff and Eliasberg found acetonuria in the beginning of icterus. They consider it a sign of disturbance of the liver. They always found some bile derivatives in the feces of children with icterus. Duodenal contents of twenty-six children contained little bilirubin, but gave a strong reaction with Hay's method; cholesterol was never present. Even after recovery, there was only a small excretion of cholesterol. A lipolytic ferment was always present. The bilirubin in blood gave only Bergh's indirect reaction during four months. After January, 1922, they obtained always direct reactions. Cholesterol in blood was increased to 0.3 or 0.5 per cent. They believe that icterus is due to an infection. The incubation period is three to four weeks. The affection passes, whether treated or not.

Arsphenamin By-Effects.—Slawik observed albuminuria, leukocytes, erythrocytes and casts in the urine without fever in an infant treated with mercury and arsphenamin. The symptoms disappeared when the treatment was continued. The by-effects of arsphenamin are harmless, he says. It is contraindicated only in fever.

Equilibrium of Ions and Transmineralization.—Spiro points out that it is not correct to speak of antagonism of ions without mentioning the organ on which they act. Potassium and calcium are antagonists with regard to the heart function. In their diuretic effect, they are synergists. He found that calcium favors fermentation of sugar in low concentrations more than potassium, but higher concentrations inhibit it. When working on isolated organs, one can regulate the concentrations easily; in the whole organism, however, the mutual relations and other processes make this impossible. He gives some instances of unexpected results with ingestion of calcium on the acidity of urine. Calcium elimination always parallels the potassium elimination. Injection of one substance may change the content of others in the organism (transmineralization). Jenny found that calcium is an antagonist to ammonium in its action on the heart. It is possible that the mobilization of calcium in diabetes is a compensatory process. It is not sufficient to consider in the metabolism of inorganic substances only those which react chemically together. The whole physical interrelation of ions must not be forgotten.

Cystitis from Hexamethylenamin in Scarlet Fever.—Steinitz observed seven cases of cystitis due to hexamethylenamin, which he used for prevention of scarlatinal nephritis. This was about 10 to 15 per cent. of his material. The treatment does not prevent nephritis.

Etiology and Dietotherapy of Prurigo in Children.—Weigert considers overfeeding a cause of prurigo. Sugar is especially harmful, but any food may be the cause. Hard boiled eggs are better tolerated than soft ones. Insects may be the exciting cause in some children.

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*Leukoplakia of Kidney Pelvis. O. Corsdress.—p. 1.
*Nephropexy Through Anterior Incision. P. Frangenheim.—p. 31.
*Surgical Treatment of Hypertrophied Prostate. Rubritius.—p. 35.
*Cancer in Bladder Diverticulum. O. A. Schwarz.—p. 47.
*Trauma and Hypernephroma. G. B. Gruber.—p. 66.
Situs Inversus with Atresia of Rectum. Gruber and Reisinger.—p. 73.
*Spurious Hermaphroditism of Endocrine Origin. Löser and Israel.—p. 75.

Leukoplakia of Kidney Pelvis.—In Corsdress' compilation of 58 cases of leukoplakia in the urinary apparatus, only 18 were in women, and the leukoplakia was restricted to a small area. The plug of epithelial cells that may obstruct the passage is not a true tumor. The bladder alone was affected in 38 cases, the kidney pelvis alone in 16, and the ureter alone in one case. When leukoplakia is in the kidney pelvis or ureter, it is generally unilateral, and hence nephrectomy is justified at need. Gonorrhea, syphilis and tuberculosis do not seem to be factors, and no evidence was discovered as to a tendency to malignant degeneration, as with leukoplakia of the mouth.

Nephropexy from the Front.—Frangenheim expatiates on the ease and advantages of the extraperitoneal, vertical, pararectal abdominal incision, for operating on the kidney. The peritoneum can be sutured to the musculature of the posterior abdominal wall and to the twelfth rib. The only drawback is the danger of lacerating the peritoneum.

Surgical Treatment of Hypertrophied Prostate.—Rubritius reports a mortality of 11.6 per cent. in 77 operative cases of enlarged prostate. He regards a specific gravity of the urine of 1.015 after Volhard's concentration test as the extreme limit allowing operative relief. When there is residual urine, an operation is indicated as soon as possible. There were 7 deaths in the 52 one-stage operations but 2 were due to extraneous causes. In one other case, a two-stage operation might have saved the patient. The water test had proved misleading in this case. He quotes Payr's remark, "My heart is with the Freyer technic, but my reason is with the Voelcker perineal method."

Cancer in Bladder Diverticulum.—Schwarz reports two cases. The exact diagnosis had been impossible during life. There was extensive metastasis in the bones in both men.

Trauma and Hypernephroma.—In the case of death from hypernephroma discussed by Gruber, the medical experts could not agree as to the causal importance of a contusion in the kidney region six months before death. The court decided that the fatal outcome had not been materially hastened by the trauma.

Pseudohermaphroditism from Endocrine Disturbance.—The close connection between the suprarenals and the gonads is confirmed anew by the two sisters whose cases are described. Both were of masculine appearance, and pneumoradiography in the bed of the kidney showed notable enlargement of the suprarenal on that side. The possibility of treatment on this basis is discussed. Both sisters stopped growing at the age of 12 or 13, and one, now 21, has to shave every day.

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THE PROGRESS OF MEDICINE

A PLEA FOR THE CONCERTED EFFORTS OF THE CLINICIAN AND THE LABORATORY WORKER *

ARNO B. LUCKHARDT, Ph.D., M.D.
CHICAGO

Medical men the world over can be divided roughly into two groups: the majority have committed themselves to the care and treatment of the sick; the minority are engaged at research in some one of the sciences fundamental to practical medicine, devoting, very often of necessity, part of the time in teaching the principles of their science to our future practitioners. Although both groups are intensely interested in the progress of medicine, each group, curiously enough, views the work of the other either with a silent disregard or more often with disdain or openly expressed contempt. Forgetting that the best men in both groups are doing their utmost to contribute their share to the science of medicine, the clinician often ridicules the results of scientific investigation or the problem itself as devoid of practical significance; the laboratory worker in turn shows by attitude and speech his conviction that he alone is capable of making accurate observations and sound deductions.

Being allowed to mingle with both groups because of a somewhat dual nature, I have heard each group on occasion attempt to criticize the alleged shortcomings of the other without reflecting that at each occasion I was not only the listener but in part also the subject of the verbal punishment. Self-respect, if nothing more, forced me to conclude that both groups were wrong in part, and by a little reflection it was possible for me to gather evidence to support this conclusion. What there is of a science of medicine is the result of the efforts of both groups. The efforts have rarely been concerted. Had they been so, progress in medicine would have been more rapid.

VALUE OF BOTH GROUPS TO MEDICINE

1. *Our Debt to the Clinician.*—Many of our present-day academic men need to be reminded that most of our modern surgical technic, except asepsis and antisepsis in its modern sense, was perfected to a great measure without aid from the laboratory; that both the technical procedures and the instrumentarium were developed on the field of battle or in the clinic. No one will deny the value of percussion and auscultation in the diagnosis, differential diagnosis, prognosis and treatment of many diseases. Both methods were discovered and perfected by clinicians and used by them in the fields of internal medicine, surgery and obstetrics alike, to the great advantage of suffering humanity. The accurate and detailed observations of morbid processes and deductions based thereon, as recorded in the works of Hippocrates, Sydenham, Hunter and a host of others, will remain forever scientific classics in medicine. Who will deny that the discovery of anesthetics by Long, Morton, Jackson, Wells and Simpson did not lead rapidly to a better surgery; and that the preventive vaccination of Jenner and the clinical researches of Holmes and Semmelweis were fundamental for the science of immunology, bacteriology and preventive medicine? These few historical facts are commonly disregarded or forgotten by many of our scientific colleagues who may know them. During the major portion of their lives they think of the average physician and surgeon as an unscientific meddler with disease, an inaccurate observer, a prescriber of many and useless drugs, who in spite of bungling accumulates more or less dishonestly somewhat of a fortune. It is interesting to observe, however, that at times of sickness our scientific men seek both sympathy and help from such of the profession as are most skilled in surgery and who have spent their lives in the practice of medicine along the lines marked out by a Sydenham, a Laënnec, an Auenbrugger or an Osler.

2. *Our Debt to the Laboratory Worker in the Preclinical Sciences.*—The modern clinician, on the other hand, very often criticizes unjustly the entire lot of laboratory workers engaged in research in the sciences fundamental to medicine. The general nature of the attack, particularly on the anatomists, physiologists, biochemists and pharmacologists, is to the effect that their problems are of academic interest only, and often hardly that. They apparently forget that in the past many solutions of so-called academic problems have eventually contributed greatly to the diagnosis, prognosis and successful treatment of disease. To the practical men of his day, Harvey was discredited not only for the discovery of the circulation, but also for the type of animals he chose to solve the problem. Yet the establishment of his thesis revolutionized the practice of medicine. I have no doubt that the account by Leeuwenhoek, of the erythrocytes present in the circulating blood and his description of the capillary circulation and its significance, created no particular stir in medical circles. Certain it is that the discovery by the Rev. Stephen Hales of the exact value of the pressure of the blood in the blood vessels was not deemed of any more medical importance than his measurement of the pressure, exerted against a manometer, of the flow of sap in a vine. Now every

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* Chairman's address, read before the Section on Pathology and Physiology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

clinician uses almost daily a hemocytometer and a sphygmomanometer. But does he remember that these useful instruments of precision are the results of investigations which in their infancy were of scientific interest only?

Who of the practitioners of the day were interested in the nature of alcoholic and acetic fermentation? And yet, as the direct result of this study, Pasteur, the chemist, created the science of bacteriology, so important in the industries and even of greater importance to us in medicine. If the electrocardiograph is of value to medicine, it should be remembered that it had its origin in the physiologic laboratory in an academic study of action currents by a capillary electrometer or string galvanometer. Who will deny that pharmacologists have contributed much to our knowledge of the action of, indications for, therapeutic use and standardization of drugs, as well as to the synthesis of new ones? Are not valuable studies of the blood and urine made possible now because of the accurate methods devised and perfected by biochemists and immunologists working at the start, and to a great extent even now, in the laboratory and not at the bedside? And yet in their inception the problems for which the methods were devised were of little practical moment. Let no one, therefore, use the term "academic" in the usual derogatory sense, for the solution of an academic problem today may be of immense practical importance tomorrow.

THE CAUSES OF THIS RECIPROCAL ATTITUDE

The nature of the daily work of the average physician obviously directs him to efforts in practical measures for the relief and cure of the sick. As a result he has neither interest in or time for the prosecution of problems whose solution promises no immediate practical application, nor has he often vision enough to appreciate the fact that any knowledge regarding the nature and mode of activity of living protoplasm, however obtained, must eventually be of practical value in the control, cure and prevention of disease; for who will deny that we will cope most successfully with disease when our knowledge of the mechanism of life is more complete? Complete knowledge of function must precede an accurate diagnosis and a scientific therapeusis. Knowledge gained empirically is of the utmost value. But in the repair of a watch, automobile or any fine piece of machinery, we get the quickest and most satisfactory results from him who is thoroughly familiar with the "anatomy," "physiology" and "pathology" of the mechanism. Empiric methods do not conduce to rapidity of progress in any field of endeavor except as these methods in turn stimulate to an investigation of the why and the wherefore of the successful result.

The essential cause, however, of this mutual misunderstanding, so prevalent among even the best representatives of both groups, is profound ignorance of each other's work. As a rule, the laboratory man has never had an occasion to observe with what care and scientific acumen the good clinician gathers and weighs his data before instituting a rational and effective therapy. The clinician, on the other hand, rarely is in a position to observe and appreciate the resource, patience and pertinacity required of the laboratory man in order to solve a research problem the results of which are subsequently so readily susceptible of practical application. And yet the history of our profession indicates that both types are important in the steady progress of medicine as a science.

THE IDEAL

There are some clinicians who gage their success in medicine by the state of luxury which a large and lucrative practice affords. Satisfied with this criterion, they view with an air of superiority those who are struggling with fundamental biologic problems, forgetting that their medical and financial success is due essentially to the type of man whom they belittle. In the academic field, on the other hand, there are a goodly number whose activities are too often entirely foreign to medicine or the special science which they are presumably cultivating. They are enjoying thoroughly their academic freedom at golf, tennis, billiards or chess. Neither the wealth of the one nor the knowledge of the other will be of value in the progress of medicine.

For progress in medicine we must have the concerted efforts of both the clinician and the laboratory worker. The former must acquire a more thorough knowledge of the fundamentals than most possess at present; the latter should certainly have a medical background or a real interest in clinical medicine as a basis for his research. Overspecialization to a point at which men are ignorant of and have no interest in even closely related preclinical subjects is, generally speaking, disastrous alike to the teaching of medical students and to research in their specialty.

The great obstacle in attaining the latter ideal consists in the practical difficulty of inducing men having some or considerable training in both the clinic and the laboratory to enter or reenter the laboratory at a great financial sacrifice, particularly in this country, where standing in a community is so largely determined by the wealth of the individual.

There is ample evidence, on the other hand, that many of the younger clinicians, on the basis of a more fundamental training, are attacking clinical problems with modern methods developed essentially in the laboratories of the fundamental sciences. But at present such researchers are often considered by their colleagues as "queer." Their efforts to advance medical science are considered by the "leaders" of the profession as of no merit compared with the successful practice of medicine.

Some knowledge of and interest in clinical medicine, however obtained, will enable the laboratory worker to follow infinitely more intelligently than at present any presentation of a clinical paper. Having this knowledge, he will need no special invitation to attend the meetings of the various medical societies. Because of detailed knowledge in several of the fundamental sciences, he will not only be able on occasion to add a helpful discussion, but in turn may find for himself problems whose solution will be of immediate and great practical value to the clinician. A high degree of specialization as it exists today is of the utmost importance for progress. But a monthly review of the research output in any of the preclinical subjects calls to mind a statement of Verworn in the first chapter of his General Physiology:

> But there is a difference whether one engages in researches of a special nature in order to help solve a problem to meet a practical or theoretical need of life, or whether one engages in special investigations, suggested fortuitously or because of any other superficial circumstance in order to determine whether anything would come out of the research and what it might be. The first is true research, the second entirely a pastime.

The problems in clinical medicine awaiting a practical solution are numerous. In these problems the highly specialized laboratory man is not interested chiefly because he has no knowledge of them. With a general medical background, he would give these problems the attention now devoted to problems of a highly technical nature in his own specialty. Whereas some men seek knowledge for its own sake, others are urged to research because of the practical importance of the knowledge sought for. But in the last analysis, all knowledge is of practical importance, the only difference being that some knowledge is more immediately practical than other knowledge. The solution of more or less practical problems in no way interferes with the development of any science, but rather hastens its development.

The clinician, on the other hand, must return to a study of the fundamental sciences for aid in the solution of his own problems. The fundamental sciences will furnish him, as in the past, with pertinent facts and accurate methods for investigation. Of the newer physiology and biochemistry he knows at present very little. Without this knowledge, a study of disease with its pathologic physiology suggests neither rational therapeutic measures nor problems for clinical investigation. In the past, bacteriology and pathology have been charged with the entire task of analyzing the cause of morbid processes and suggesting the cure—a task which these sciences alone obviously are incapable of performing. But with a deeper knowledge of all the fundamental sciences, including the physiologic group, the clinician will cease to spend much of his time at a description of what is present, helpful as it is in the diagnosis and differential diagnosis, but will begin to ask more often than at present why such signs and symptoms occur. The application of the methods of the physiologic group of sciences (biochemistry, physiology and pharmacology) to the problem will aid greatly in the final solution.

A close physical proximity of the laboratory and the clinic will be of great advantage to the laboratory worker and physician and eventually to the science of medicine. Besides engendering in both the clinician and the laboratory worker a mutual respect for the work of the other, joint conferences with a discussion of problems will suggest rational modes of attack in the clinic and laboratory at a time when the enthusiasm essential for the prosecution of any problem is at its height.

SUMMARY

As soon as the laboratory man, because of a more complete knowledge of the clinical branches of medicine, begins to appreciate the work and aspirations of the clinician, as soon as the clinician possesses a better knowledge of the fundamental sciences, then will both cease to avoid each other as bad medical company. With a common interest and a common knowledge, aided by detailed information of their own respective specialty, they will attack with vigor and effect problems of immediate practical moment. History reveals that medicine has evolved to its present status because of the work of both types of investigators. But the progress might have been faster had clinicians following the lead of Harvey and laboratory workers folowing the lead of Claude Bernard and others kept in sympathetic touch with one another instead of cultivating a mental aloofness or critical attitude oward one another. As a result of concerted action, scientific medicine will make more rapid strides, the education of our medical students will improve, the fundamental sciences will in turn develop at a more rapid rate—all of which will redound to the more certain control of disease and cure of the sick.

5216 Greenwood Avenue.

THE CAUSES AND PREVENTION OF OTOLOGIC CONDITIONS FOLLOWING SWIMMING AND DIVING *

H. MARSHALL TAYLOR, M.D.
JACKSONVILLE, FLA.

One of the most important otologic problems today is the prevention of aural infections which have resulted from the tremendous increase in popularity of the public bathing places, and which can be attributed directly to the sports of swimming and diving. A survey of the literature shows that the sanitarians and public health officials have been more alert to the importance of this phase of preventive medicine than the students of otology. One might also judge by the comparatively few replies to the questionnaires sent out by a committee of the American Public Health Association that the otologists have not given them the assistance and cooperation which they desire and deserve.

Perhaps there is no department of sanitation which has been studied so long as that of public bathing places. It is a matter of historical record that the ancients had methods of filtration 400 years before Christ, and that the Chinese used alum in their public baths before the Christian era. All civilized nations have patronized public baths chiefly at the most flourishing period of their history, and in this connection it is interesting to note the 1922 report[1] of the Committee on Bathing Places by the sanitary engineering section of the American Public Health Association, which speaks of the nation-wide increase in popularity of public baths.

If one attempts to review the literature of the sanitary engineers in their work on public baths, one cannot but be impressed with the tremendous efforts which have been put forward under such heads as pool construction, the study of the bacterial quality of water, clearness of water, sputum contamination, diseased bathers, personal cleanliness of bathers, laundering of suits, sanitation of premises, and rules which the bathers must comply with before entering and while in the pool.

By the chemical treatment of the water through the use of various agents, of which liquid chlorin is most used, and such mechanical measures as filtration, the ultraviolet ray or the passage of water through an ozonating apparatus, the sanitarians now assure us that they can kill or neutralize 99 per cent. of the bacteria in a given pool. They further state that if they can keep their bathing load down to 800 gallons to each bather, the pool remains in an acceptable sanitary condition.

When we recall that there are many other factors besides contaminated water which enter into the modus operandi of the invasion of these aural infections fol-

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* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

[1] American Public Health Association: Report of Committee on Bathing Places, 1922.

lowing swimming and diving, we are convinced of the fact that this subject is of vital interest to the otologists as well as sanitary engineers. However, not until there is a hearty cooperation of the otologists with the sanitarians shall we acquire success and lessen the frequency of the aural infections, which run the whole gamut of pathologic conditions, from the innocent circumscribed furuncle to an involvement of the mastoid with all its intracranial complications.

The public health authorities desire the cooperation of the otorhinologist in this movement. As evidence of this, Mr. George W. Simons,[2] who is at present chairman of the Committee on Regulation of Bathing Places of the American Public Health Association, says:

> It would be admirable if the ear, nose and throat sections of the various societies over the United States would designate a committee from their membership and thereby give greater and more careful study to many phases of the problem, such as (1) nature and extent of infections over the country, (2) epidemiologic studies, (3) suggestions as to proper standards to overcome present difficulties, and (4) some plan as to the proper education of the bather as to the care of the nose and ears while in swimming and diving.

The increase of aural infections following this swirl of popularity of bathing issues a challenge to the otorhinologist to make a closer investigation of the physics, physiology and pathology relating to the invasions of these aural complications.

There are many phases of this important subject of preventive medicine which have received very little attention, either from the public health men or from the otologists. In this paper, I shall consider factors other than a perforation of the drum membrane, which allows water to enter the tympanum, and that other etiologic factor of blowing water through the eustachian tube into the middle ear, which are frequently the ones mentioned in our textbooks.

LOWERING OF RESISTANCE BY CHILLING

The question of the duration of time one can remain in the water without reducing the body temperature and lowering one's resistance is a matter of paramount importance. We know that cold water has a veritable appetite for heat, and rapidly withdraws heat from bodies warmer than itself, and all authorities agree that prolonged cold baths cause a rapid loss of body heat. Fox[3] states that in a bath with a temperature of 70 F. of from fifteen to twenty minutes' duration, the loss of heat may be increased to fivefold that of the normal basal rate. In strong, normal persons this loss of bodily heat does not result in an immediate lowering of the body temperature, but if the bath is prolonged, the production of heat fails to keep pace with the loss, and the temperature of the body falls. Many investigators have proved that chilling lowers one's resistance. To illustrate: Pasteur rendered immune hens susceptible to anthrax by reducing their temperature to subnormal. Miller and Noble[4] report experiments on rabbits showing that they were rendered more susceptible to infection of the upper air tracts with *Bacillus bovisepticus* by chilling, and conclude that the weight of evidence proves that chilling is one of the factors that favor infection of the upper air passages. Trommsdorf[5] has also shown that prolonged chilling of the body causes a decreased motility and phagocytic activity of the leukocytes.

In this connection, it is interesting to note the influence of cold baths on the blood count. Winternitz[6] states that in an examination of eighty persons after cold baths, following which a reaction took place, a leukocytosis was observed, often amounting to a threefold increase over the count before the bath. However, in support of the fact that chilling of the body lowers the resistance, he further observed that, when the cold bath was prolonged and a reaction did not take place, as evidenced by a lack of a marked hyperemia of the skin, the characteristic increase in white blood cells did not always occur, but, instead, a leukopenia was present.

The theory that chilling of the body surfaces gives rise to a congestion and stasis in the blood vessels of the mucous membrane of the upper air passages, thus lowering resistance, has recently been proved by Mudd, Grant and Goldman[7] to be incorrect. By experimental work on man, these students, after a most exhaustive study, have proved to their satisfaction that the directly opposite occurs, and that when the body surfaces are chilled, instead of a congestion of the nasal mucous membrane, there was a reflex vasoconstriction with a resulting ischemia. They further observed that this vasoconstriction and ischemia incident to cutaneous chilling caused a fall in the temperature of the nasal and pharyngeal mucous membrane, which in some cases amounted to 6 degrees Centigrade. They concluded by saying that this chilling of the nasal mucous membrane and change in vasomotor tone might so disturb the equilibrium between the host and the bacteria of the nose as to excite infection.

NASAL AND SINUS INFECTION

As virtually all cases of otitis media are interdependent on nasal or sinus infection, we must give some thought to other factors than the lowering of the general resistance following chilling, and consider the direct effect of water on the mucous membranes of the nasal cavities.

When we study the protective mechanism of the nose and then consider the effect of water on ciliated epithelium and on the mucous glands, we at once can understand why there are so many aural and sinus infections following the sport of swimming and diving.

The protective mechanism of the nose consists mainly of two factors: (1) the secretion of a mucus which is inhibitory to bacterial growth, if not bactericidal, as claimed by some investigators, and (2) the power of the ciliated epithelium to sweep this mucus, in which the bacteria become enmeshed, toward the pharynx and esophagus to be disposed of. Anything which interferes with these two functions, whether it is mechanical, chemical or thermal, breaks down Nature's barriers and renders the nasal cavity and its appurtenances susceptible to infection.

Perhaps one of the most necessary protections against aural infections is the wavelike motion of the ciliated epithelium lining the nasal cavity and orifice and proximal end of the eustachian tube. Piersol has demonstrated that reduction of temperature or irritating chemicals will stop these vibrations, and it is evident that in diving these vibrations will be inhibited, if not entirely abolished, thereby affording an opportunity for infection to enter the tube and travel to the tympanum.

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[2] Simons, G. W.: Personal communication to the author.

[3] Fox, R. F.: The Principles and Practice of Medical Hydrology, London, 1913; The Physiology of Bathing, Clin. J. **41**: 183, 1912-1913; The Influence of Heat and Cold upon the Human Body, ibid. **44**: 353, 1915.

[4] Miller, J. A., and Noble, W. C.: Effects of Cold on Experimental Infection of Respiratory Tract, J. Exper. Med. **24**: 223 (Sept.) 1916.

[5] Trommsdorf: Arch. f. Hyg. **59**: 1, 1906.

[6] Winternitz, W.: Physiologische Grundlagen der Hydro- und Thermotherapie, Physikalische Therapie **1**: 1906.

[7] Mudd, S.; Goldman, A., and Grant, S.: Reaction of the Nasal Cavity and Postnasal Space to Chilling of the Body Surfaces, J. Exper. Med. **34**: 11 (July) 1921.

The nasal mucus, which is inhibitory to bacterial growth, is washed away when diving, and the mucous membrane is exposed to the destructive action of water. Fenton[8] has dwelt at length on the destructive action of water on cells by osmosis, and the drawing out of saline elements, causing edema and acidosis of cells and eventual cell death.

For the protection of the nasal mucous membrane against the destructive action of water while diving, no less an authority than Skillern has advised the plugging of the anterior nares. Those who have used this precautionary measure advocate it strongly and state that they do not experience the headache, sensation of pressure and the squeaking and bubbling noises which were present prior to its use. It is doubtful whether the thoughtless public will use this generally, but those who have suffered from previous aural and sinus infections from diving, and those who have any pathologic condition of the nose should either use this protective measure or else forego the pleasure of diving.

The fact that the nose has no respiratory function while the head is submerged, and that this practice entails little inconvenience, would seem to increase the probability of popularizing this custom, which has been endorsed by the professional high divers.

These factors entering into the middle ear infections have been considered with the assumption that we have a normal nose. When we add the burdens of a faulty nose with its hypertrophies, and a diseased nasopharynx and infected sinuses (and few of us have normal noses), all of these dangers are multiplied many times.

In considering this subject, I have also assumed that the water is in an acceptable sanitary condition from a bacterial standpoint as well as not overtreated chemically. Should we add the burdens of a high bacterial count or an overchlorinated pool, again a multiplicity of dangers is added.

The question of the time one should remain in bathing is an important one from two standpoints: 1. If the health officers could control the time each bather remains in the pool, they could keep down their bathing load and maintain a lower bacterial count of the water. 2. If there was a time limit, the question of a general and local lowered resistance from prolonged chilling would be largely overcome. Today, children will spend the entire morning in an indoor swimming pool or else play around it in their wet bathing suits, during which time they are not exposed to the sunshine. The chilling of the body lowers their resistance and makes them more susceptible to pathogenic organisms which may be present in the pool, or those which may be already harbored in the upper air passages. This is a different problem from that of the days of James Whitcomb Riley's "Old Swimmin' Hole," when we were clad in Nature's garb, and the body surfaces were kept warm and dried almost immediately in the sunshine.

Otitis externa, which is frequently a condition incident to swimming, is one which rarely offers the danger of a middle ear infection, though it entails much inconvenience and suffering. This condition is not necessarily dependent on infected water, for the staphylococcus is virtually always the specific organism. It is my belief that this is due to the maceration of the delicate dermis by the water, which breaks the skin and opens up an avenue of infection. The bather often inflicts additional trauma by causing an abrasion with his fingers in an effort to dry his ears.

The protection of the external auditory canal from the vitiating effect of the water will prevent the vast majority of furuncles, as well as many other infections of the external ear. This can be accomplished by placing a tuft of raw cotton, from which the natural oil has not been removed, in the external meatus. Raw cotton will not act as a siphon, as absorbent cotton does. This can be further fortified by the use of a tight-fitting bathing cap.

CONCLUSIONS

1. Problems incident to swimming and diving demand the attention of the otorhinologists and public health officials. There should be a hearty cooperation of one group with the other.

2. Prolonged chilling of the body surfaces causes a reduction of temperature and lowers the general and local resistance.

3. The protective mechanism of the nose and its appurtenances against infection is definitely impaired by the destructive action of water.

ABSTRACT OF DISCUSSION

Dr. Hill Hastings, Los Angeles: I have been interested in this subject for several years, and my first interest was really a selfish one. Years ago, when I was house surgeon in the Eye and Ear Infirmary, and began to think of a vacation, some one told me not to think of a vacation in July, because that was the time when we would get a fine crop of inflamed mastoids. And I found that to be true. There is no question that many deaths occurred that were preventable, and it is rather remarkable that most cases of mastoid disease that I have seen have been due to sea bathing rather than to pool bathing. On thinking the matter over, it looks to me as if there are two ways to attack this problem, and the way the doctor has attacked it is the better. The way it has been attacked in the past, for instance, the laws that have been passed for the control of swimming pools, have been with the main idea that the bathers who spit and blow should not do this because it might infect another bather. Dr. Taylor has gone at it the other way—and I think it is the important way—that bath houses should conform to certain requirements and regulations, but with the idea that the bather may not infect himself, because, as a matter of fact, most bathers are selfish. They do not care whether they are going to infect some one else; but if they are shown that they are likely to harm themselves, quicker results will be obtained. That is the idea of Dr. Taylor's paper—that the bather carries his own infection into the water and is dangerous to himself, and incidentally dangerous to other bathers. We have many bathing pools in California, and this state was one of the first to pass a law, in 1917, empowering the state board of health to give permits to bathing houses and to revoke them. Since that law went into effect, there has been considerable regulation done. I was told by a state board of health man, a year ago last July, that he had inspected one of our big plunges at the beach at Los Angeles. More than 4,000 people were in the plunge on July 4. He went there early on the morning of July 5 to check up that water, and found that the *Bacillus coli* index was 0.6 per cent., an exceptionally good figure, showing the effect of the chlorin apparatus and the continuous circulation of the water. So there is no question that the laws have helped immensely. We have two ways of helping, (1) education of the people, and (2) to take up this matter with our boards of health, and have them put placards in the bath houses saying that bathers with a nasal discharge or discharge from any part of the body should not go in bathing, because such bathing is dangerous to the bather himself.

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[8] Fenton, R. A.: Sinusitis from Swimming, Tr. Am. A. Ophth. & Oto-Laryngol., 1922, p. 421.

Dr. Ralph A. Fenton, Portland, Ore.: Dr. Taylor's study gives admirable emphasis to the general physiologic reasons for local disturbances that follow swimming. It explains the infection of the nasal and eustachian mucosa by flora to which they are ordinarily immune. While sanitary swimming tanks are important, we must agree that bathers carry with them bacterial infections which probably are mostly to blame for ear and nasal complications. It seems to me that these things should be spread widely among the laity; especially, might I suggest, in the pages of *Hygeia,* the new health magazine of the American Medical Association.

Dr. George F. Keiper, Lafayette, Ind.: Notwithstanding the fact that we have had this large number of infections, the swimming pool is not to be condemned. When we think of the number of accidents that have been prevented, and deaths from drowning, the swimming pool has certainly justified its existence, because, too, it is a supervised method of exercise. Many persons have the idea that an open air swimming pool, exposed to the sunshine, is sufficiently protected against bacterial infection, but that is a great mistake. In our own city, we had an epidemic of otitis media following bathing in such a swimming pool, in which no precautions had been taken to treat the water chemically, and the result was this large number of cases of infection. A sanitary pool is exceedingly important, therefore, as is also the preparation of the bather beforehand. No one should ever enter a pool without thoroughly washing himself with soap and water, and thereafter standing under a shower bath, in order that he may enter the pool as clean as possible. The swimming pool has prevented many disastrous accidents, and we are learning how to keep clean, and that is worth a great deal in the prevention of disease. The doctor spoke of the otologic feature, and some of us have seen disastrous ophthalmic and nasal sequelae in the way of swimmer's conjunctivitis and frontal sinus infections. One of the worst cases of the latter I have ever seen was due to bathing in a poorly protected pool. But the pool is with us, and the thing for us to do is to regulate it and advise people how to use it.

Dr. W. M. Stookey, Salt Lake City: This is a question that has been neglected by otologists. A considerable amount of investigation is still necessary in order that otologists may have a satisfactory explanation as to the cause and reasons why we get as much otitis media and sinus infection as we do from swimming. Dr. Taylor called attention to the fact that cold water seemed to be conducive to this infection. In my city, we have two bathing places. One is Salt Lake, which is always rather cool and has an abundance of water. Whether the salt, which is a saturated solution of sodium chlorid, has anything to do with purifying the water, I do not know. I have seen practically no cases of otitis media. Other bathing places in our city are warm pools. We have within the city limits two or three pools of hot water—hot springs that come directly into the bathing pool from a rock spring that never comes to the surface until it arrives at the bathing pool. The bathers in these pools bathe in hot water. Ninety per cent. of all the cases of otitis media that I have seen have followed bathing in these pools. I have no explanation for this, but I wish to call attention to it, that it may be considered. When we solve the question reasonably well, the next question is to inform the public, in general, as to the proper methods of prevention.

Dr. Lee Cohen, Baltimore: It would seem, from the fact that otitis media so frequently follows douching of the nose with sterile salt solution, in which we are certain no bacteria are present, that the bacterial condition of the water in bathing pools is not of great importance in causing otitis media. We know it is important to have clean water. We also know that, no matter how clean the water is, when the pool is first filled, after a number of bathers go into it, dive and blow water out of their noses, the water is bound to be contaminated. So I believe that as long as we permit diving, expectorating and blowing the nose into this water, we shall continue to have infections. The occurrence of eye infection from pools is common—further proof of the danger of infection from the public bathing pool. In Baltimore, whenever a new pool is opened, we notice an increase in the number of nose and throat infections. Many of these infections follow in twenty-four hours after bathing. I have seen acute sinus infection in as short a time as this. In my opinion, the bacteria, in most instances, are in the patient's nose and throat, and the water simply acts as a medium for carrying them into the sinuses.

Dr. Cullen F. Welty, San Francisco: We are all familiar with the patient who says he blew his nose and had a sudden pain in his ear, and it went on to mastoid formation. What happened in that particular instance? He carried some of his own infection directly into his ear and produced acute otitis. We have a few bathing places in San Francisco that are very nice, indeed, quite perfect in detail; but we have had quite a few mastoid cases in people who had been to these bathing places; likewise from the ocean. In Atlantic City and Philadelphia, during the bathing season, they have plenty of cases of mastoiditis. You cannot sterilize the ocean. I believe too much importance is attached to the fact of pure water. Pure water is all right, but we are going a little too far. I believe that we get the infection from ourselves. It is the bacteria that we carry around with us that are accidentally washed into the eustachian tube that cause otitis; the infection is carried into the sinuses and produces trouble. I believe more trouble comes from that than from contamination of the water.

Dr. Dennis J. McDonald, New York: Dr. Taylor has given us a wonderful review of what engineers are doing by purification, filtration and chlorinization in attempting to sterilize the water in pools. In New York, we are trying what Dr. Taylor brings out as preventive measures to lessen this condition by the appointment of inspectors for each school, regulating the pools, the time of changing water, and the temperature of the water, to lessen these dangers to the children. I want to reiterate what Dr. Welty said, that in many cases the infection lies within the individual's nose and throat. We now have our schools charted and certain pupils are allowed to go into the pool, and certain ones are allowed to dive. We make a physical examination and charting of the children twice a year. Remember, we have some 800,000 children in the city of New York. In our larger pools, we have everything that money can buy; everything that science can bring to us; everything that can be devised by the engineering corps and architects for the protection of the children. The condition of the heart is examined, the time the child should be in the pool, the necessity of a shower taking the place of the pool, the question of going into the ocean when they go away for the summer—all this is considered.

Dr. M. M. Cullom, Nashville, Tenn.: In this question of bathing, there is the mechanical factor of the washing of the secretions of the bather himself into the eustachian tube and setting up trouble there, and there is the question of pure water. I believe that the pool is an evil, but it is an evil that we have to deal with and recognize. I do think there is no question that we get a much greater percentage of infection from pools than from running water. I can remember very well when we opened the pool for the boys at the Y. M. C. A. some years ago. We began to have boys come in with middle ear infection, and then one day we had nine boys come in whose drums we had to incise—all going into the same pool. We also had three teachers at the Y. M. C. A. who had been going in together, and each had sinus infection. I called attention to this, and it stirred up considerable trouble at the Y. M. C. A. The secretary was very much hurt that I had spoken about their pool in that way, and said they were careful. But I found that they were not taking any precautions; that the boys were going in there with trunks on, and no investigation was made. So they made an effort to keep the pool clean and make the boys take a bath before they went in, and the infections immediately lessened in number. I do not think we see anything like the number of infections now that we did when we did not understand these points. I believe the greater percentage of infections comes from bathing in pools, as it is impossible to keep a pool clean after two or three people have gone into it, especially those who dive—and they all love to dive. There is where the greatest danger lies, and I think we ought to give a warning to the public on this very important subject.

Dr. E. B. Cayce, Nashville, Tenn.: There is just one point in the discussion that has not been brought out. The chairman in his address spoke of using the lay press to bring about a proper knowledge of medicine in an ethical way to combat the immense amount of error that is published, and it would be in keeping with that idea if every man here appointed himself a committee of one to start a propaganda of education in the lay press. I think that we should each make an effort at home to see that the public is properly instructed as to the length of time that children, especially, should stay in, and also the fact that those with any infection should remain away from the pool. The public, as a whole, is rather keen on the necessity of the water being purified, but I do not think the length of time, the lowering of the body's resistance by a too long exposure to the cold, is a question with which they are familiar.

Dr. Isaac H. Jones, Los Angeles: Two cases were reported recently from Santa Barbara. In June, 1922, one of two brothers, aged 19, after being in swimming was completely deaf in the left ear. A paracentesis was done. Some vestibular response remained on that side, with obvious intracranial involvement, including no response in the vertical canal of the opposite ear, and partial vertical nystagmus. Therefore, he unquestionably had nasal infection, otitis media and extensive mastoiditis, as was proved, because we did a very extensive mastoid operation. He had mastoiditis, labyrinthitis and intracranial mischief, all in forty-eight hours. He recovered promptly. Exactly twelve months later, his brother had the same thing after swimming. The essential point in his case was that he started with a leukocytosis of about 30,000 and absolutely nothing to account for it. He said he had been in swimming, and afterward felt everything tight in his nose. Nothing could be found. After twenty-four hours, a paracentesis was done, and, shortly afterward, a mastoid operation. One month later, he began to have nystagmus and other evidences of intracranial mischief, and although we explored the cerebellum, and found great tension over the cerebellum and no tension at all over the middle fossa, we thought it might be a cerebellar abscess. Necropsy disclosed a purulent meningitis. These two boys presented the same picture in many ways. The second boy, however, had been swimming in the Y. M. C. A. pool, and the other, in the ocean.

Dr. Emma L. Merritt, San Francisco: I own a very large swimming establishment in San Francisco, and I come in contact with owners of bathing houses and of swimming establishments. I know that they want to do everything they can for sanitation, but with rare exceptions they are commercially inclined. They have no medical education; they do not know what is right or what is wrong. I believe a great deal of good could be done by instruction in hygiene and proper sanitation of the proprietors of these establishments. As to obtaining personal cleanliness in the pool, it seems to me that that is practically impossible. You can see that people have skin diseases; you can hear if they cough, or see if their noses run, but you cannot tell what is wrong in their throats, and they all wear bathing suits and nobody knows what source of contamination they have in their bodies under that suit. Another thing, people get their mouths and noses full of water, and whether they want to or not, they will spit it out. And another thing you cannot control—people will urinate in the swimming pool. As to the chilling of the body—people in the city go into a swimming pool; perhaps they dry themselves improperly, they have wet hair, particularly the women, and then they take a long automobile ride, or they ride on the outside of a street car; it seems to me that a great deal of trouble is caused in this way. Dr. Taylor spoke about putting cotton in the external ear. I would like to ask him what he thinks of the small rubber stoppers that are used very extensively. I furnish cotton and advise bathers to use it.

Dr. H. M. Taylor, Jacksonville, Fla.: I was pleased to have Dr. Cayce corroborate the importance of prolonged chilling as an etiologic factor in the causation of sinus and aural infections. I believe that this is a most potent factor in the causation of the conditions described in my paper. If one is sufficiently interested in this subject to take the temperature of children who have been in a pool for an hour, he will find that their temperatures register anywhere from 95 to 97 F. A reduction in temperature in these cases means a lowered resistance. Dr. Stookey raised the question that the water of Salt Lake does not cause many aural infections, and stated that the temperature of this body of water was lower than that of other bathing places in his vicinity. The fact that no one dares to dive in Salt Lake would seem to weaken his theory. In regard to the use of rubber stoppers, I feel that we are apt to get more traumatism of the epithelium by the introduction of any thing so hard.

INFECTIOUS JAUNDICE IN THE UNITED STATES *

GEORGE BLUMER, M.D.
NEW HAVEN, CONN.

In his report on an outbreak of jaundice which occurred at Halifax Court House, Va., in 1857-1858, Faulkner [1] stated that the disease occurred in Norfolk, Va., during the War of 1812. This is the first record of its occurrence in the United States, and no further outbreak is recorded until 1839, when it appeared at Jacksonville, Ala. From 1812 to 1886 there are but eleven outbreaks recorded in the American literature, and of these nine occurred south of Mason and Dixon's line, four of them in Alabama. The remaining two occurred in Orange, N. J., in 1858, and in Montgomery County, Pa., in 1860. During this period only one outbreak is recorded in any one year, with the exception of 1860, when the disease appeared in Richmond, Va., and in Montgomery County, Pa.

Beginning with the late eighties of the nineteenth century, reports become more frequent, and records of fifty-one outbreaks occurring between 1886 and 1920 have been obtained. During this period as many as seven outbreaks occurred in one year, and these were in widely separated districts. The disease no longer remained confined mainly to the Southern states, but was found all over the United States except in some of the Pacific Coast states; it also appeared during this period in the province of Ontario.

Beginning in 1920, but more particularly in 1921 and 1922, numerous epidemics were observed, of which more than 200 occurred in New York State alone, constituting the only really state wide incidence of the disease on record.

It is to be noted here that whenever troops have been concentrated in this country the disease has usually appeared, with the possible exception of the period of the War of Independence. It is not clear that the outbreak in Norfolk, Va., in 1812 was associated with the military, but the Medical History of the War of the Rebellion contains references to numerous regimental outbreaks. There were forty-seven cases in the Twenty-Seventh Connecticut Regiment for the quarter ending March 31, 1863, and outbreaks are also recorded in the Second West Virginia, the Seventieth New York, the Third Maine, the Third Missouri Cavalry and the Thirteenth Kansas regiments. The charts published by the military authorities show a great monthly variation in jaundice, and indicate the highest incidence as a rule in the autumn and winter months. In both the Spanish War and the World War the disease again made its appearance among troops.

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* Read before the Section on Practice of Medicine at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

[1] Faulkner, L.: Maryland and Virginia M. J. **15**: 355, 1860.

DISTRIBUTION

The information gathered in this paper probably does not give an accurate idea of the distribution of the disease, at least in the nineteenth century. There are various reasons for this. Up to a comparatively recent time, medical journals were few, physicians were widely scattered, and less frequently met and discussed their problems than is the case at present, and were most of them but little inclined to publish their observations. Then, too, the disease, being almost invariably nonfatal, was not reportable to the constituted health authorities, and even at present only three or four states require that it be reported. Much of the information on which this paper is founded was obtained by personal correspondence with physicians, nurses and those in charge of schools, colleges and other institutions. In several instances, health authorities were quite unaware that the disease had occurred within the domain under their care. These individual sources of information are naturally limited to the period covered by the memory of the living, and for that reason the information regarding recent outbreaks is much more likely to be complete than that dealing with the more remote past. However, it seems clear that, taking all these factors into account, a very considerable increase in the prevalence of the disease has occurred within the last few years. Up to the present the disease has been reported in every state except Arkansas, Delaware, Florida, Kentucky, Louisiana, Mississippi, Nevada, Oklahoma and the District of Columbia.

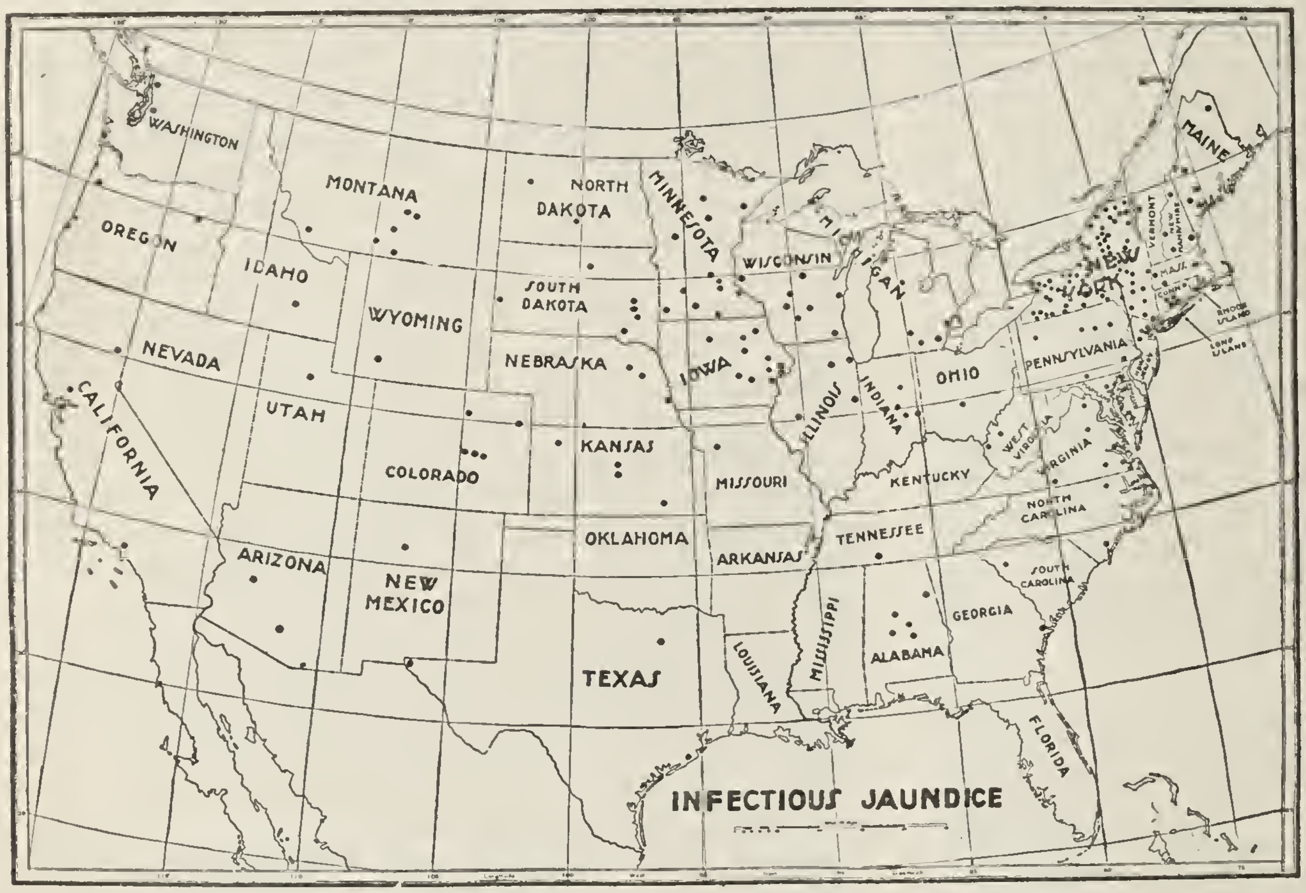

Fig. 1.—Distribution of infectious jaundice in the United States between 1912 and 1922.

TYPES OF OUTBREAKS

Infectious jaundice shows a wide variation as regards the type which outbreaks may assume. We may describe the different types as (1) the family outbreak; (2) the institutional outbreak; (3) the city outbreak; (4) the country outbreak, and (5) the state-wide outbreak.

In the family outbreak, the disease may be limited to a few members of a single family or may involve two or three neighboring or related families. Small outbreaks of this type may occur in large cities, or may be observed in country districts or in institutions. Considerable outbreaks may occur in schools, colleges, hospitals or other institutions, and these may be properly compared to family outbreaks, as the living conditions are essentially those of a family on a large scale. Such foci may occur in institutions situated either in the city or in the country, and may remain confined to the institution, or may occur at the same period as a more widespread epidemic.

In city outbreaks, it is not infrequently observed that certain wards or sections of the city are mainly attacked, and these may be sections that are separated from the main city by either a geographic or a social barrier. On the other hand, many city outbreaks are widespread in their distribution, and involve the suburbs and even the satelite towns.

The country outbreaks not infrequently occur in sparsely settled districts more or less remote from the main routes of travel, if the term remoteness can any longer be properly used in these days of motor communication. The widespread character of such outbreaks and their relation in some instances to the rural school is well shown in Figure 2.

The only state-wide epidemic reported up to the present is that which occurred in New York State during 1921 and 1922.

RECURRENCE OF OUTBREAKS

The literature probably gives no adequate conception of the frequency with which infectious jaundice recurs in a given district, mainly because only the large spectacular epidemics are usually reported. Some correspondents state that they expect to see jaundice recur in their district each year at a given period, and our experience in New Haven would certainly indicate that, once a district is infected, the disease may be looked for annually. This is probably true whenever a considerable number of cases has occurred in a district, but may not occur where only isolated family endemics have appeared.

SEASONAL INCIDENCE

Infectious jaundice is essentially a seasonal disease, though there is no time of year during which cases may not occur. An analysis of the records of fifty outbreaks shows that 14 per cent. occurred in the fall, 22 per cent. in the winter, and 36 per cent. began in the fall and ended during the winter months. Nearly three quarters of these outbreaks, therefore—72 per cent., to be exact—occurred in the fall and winter seasons. Only 12 per cent. began in the summer and continued into the fall, and only 6 per cent. occurred in the spring. Cases of the disease occurred all the year round in only 2 per cent. of the epidemics.

AGE INCIDENCE

In the main, infectious jaundice is a disease of childhood and adolescence. In 70 per cent. of the fifty epidemics analyzed, children and young adults only were attacked. Of this 70 per cent., 30 per cent. involved children only, 26 per cent. involved mainly children, 8 per cent. involved children and young adults, and 6 per cent. involved young adults entirely. The last group mainly occurred in schools, and in some of the outbreaks the involvement of a large percentage of the pupils and the lack of involvement of the adult personnel was most striking. In only 8 per cent. of fifty epidemics were adults only involved, and in the remaining 20 per cent., individuals of all ages were attacked.

Special reference to sex incidence needs only casual mention, as it is clear that in most large outbreaks the two sexes are equally susceptible unless institutions reserved to one sex are involved.

METHOD OF SPREAD

There is almost unanimous agreement that personal contact is the method by which infectious jaundice is usually transmitted. It is not clear how intimate this contact need be, but it is evident that association, such as occurs in families or among school children, suffices to spread the virus. In the outbreaks in country districts, where families are widely scattered, the opportunities for any other form of spread besides contact infection are very remote unless migrating insects are concerned in transmission. Leslie's[2] report of the outbreak in Andover, Me., in 1909, very strongly suggests that the disease in this instance was introduced by a single infected individual and that it spread from house to house no faster than could be accounted for by human contact. One may suspect that droplet infection occurs in some instances, as in many outbreaks an upper air passage catarrh is present. However, this is not always the case.

There is no definite evidence of spread hrough the alimentary tract. In the epidemic at Austin, Minn., in 1911, Collins[3] states that most cases occurred after the river water had been turned into the city mains; but the disease had made its appearance before this. On the other hand, I have the record of the disease appearing in two kitchen employees in a large institution without further spread. The incrimination of articles of food used in common has so far failed, and ome outbreaks seem quite definitely to exclude it.

There is some evidence that the disease may be ransmitted by fomites. Referring to the 1922 epidemic in Fond du Lac County, Wis., Miss Ellis J. Walker, the Red Cross nurse at Fond du Lac, writes:

> The first case in the school was one W. D. Mrs. D. (the patient's mother) was making some quilts for the mother of the L. W. These quilts were made while illness from jaundice was current in the D. home. A few days after these uilts had been transferred to the W. home, jaundice occurred here. So far as can be learned, there was no association between the children or of the other members of the families except through the medium of the quilts.

There is very little evidence that rats or other rodents have any direct relation to most outbreaks. It may not be generally known that there are large areas in this country in which rats do not occur, and there are reports of outbreaks in such districts occurring in seasons when other rodents, such as the prairie dog and gopher, were hibernating.

PROPORTION OF POPULATION AFFECTED

As has been stated already, outbreaks of infectious jaundice may be extremely limited or may be widely distributed throughout a city, a country district or even a state. In a few of the reports of large outbreaks, definite statements are to be found regarding the proportion of the population attacked. In the epidemic in Sherbrooke, Que., about 5 per thousand of population were infected; in the Sterling, Kan., epidemic, about 13 per thousand; in the outbreak in the Calumet region in Michigan, about 22 per thousand; in the Orange, N. J., epidemic, about 50 per thousand; and in the outbreak in Andover, Me., and vicinity., about 67 per thousand. These figures can only be regarded as approximate, for they are based on estimates of the physicians who observed the epidemics and not on figures obtained by reporting the disease to the health authorities. It is to be noted, however, that the highest incidence of the disease, so far as these particular figures indicate, occurred in a country district and not in a city. It is not to be expected that accurate figures will be obtainable until the disease has been a reportable one for some years.

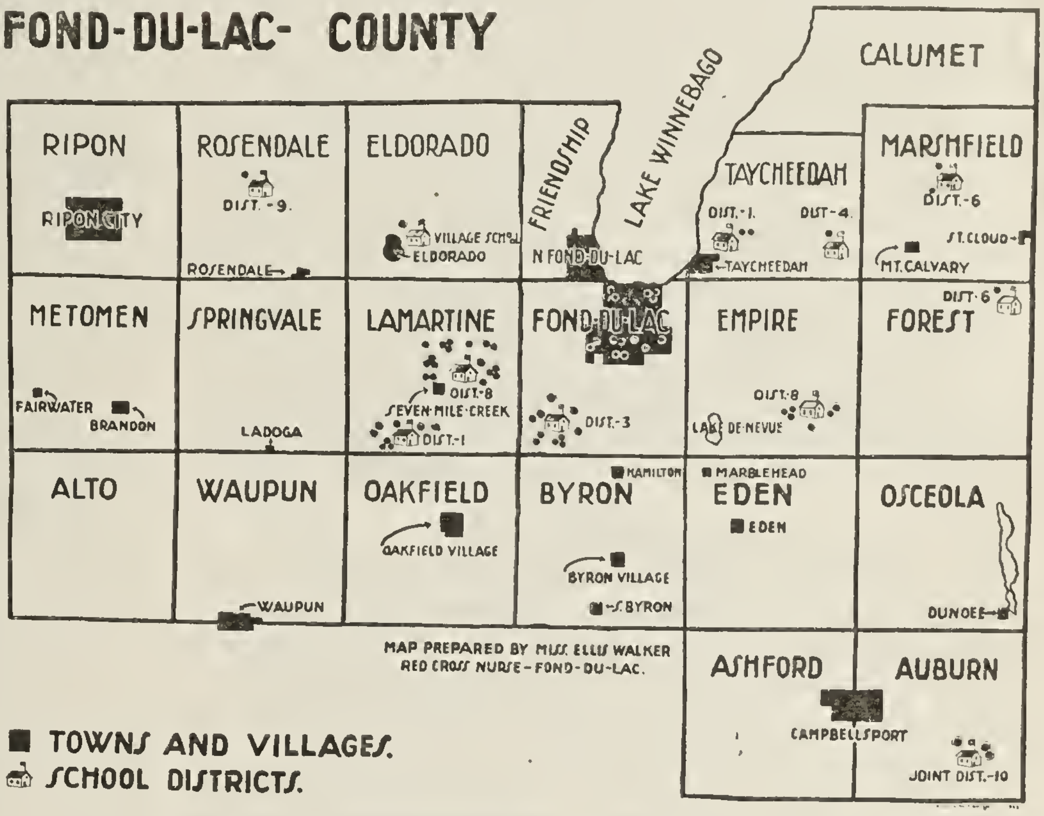

Fig. 2.—Distribution of infectious jaundice in Fond du Lac County, Wis., during two seasons: single dots, single cases; double dots, two in a family; triple dots, three in a family. Both undoubted and probable cases are shown. Chart furnished by Miss Ellis J. Walker, Red Cross nurse, Fond du Lac, Wis.

EXCITING AGENT

It has been generally assumed that the type of infectious jaundice which occurs in the country is an infection with spirochetes. This is a purely gratuitous assumption based on inference rather than observation. Because the work of Jobling,[4] Noguchi and others has shown that the rats in various parts of the country harbor *Spirochaeta icterohemorrhagiae,* the unwarranted conclusion has been drawn that the infectious jaundice of the United States is associated with the infected rodents. In New Haven we have had unusual opportunity for bacteriologic study of the disease at all stages because it has appeared on several occasions among the nurses of the New Haven Hospital. Utilizing all the usual methods, such as dark field illumination, cultures from the blood and urine, and animal inoculation we have never been able to isolate spirochetes at any stage of the disease. Wadsworth[5] in New York state and Symmers[6] in New York City have had similar experiences; in fact, no one has yet succeeded in isolating spirochetes from a case of infectious jaundice of the type common in the United States. Examinations of the duodenal contents have been made by at least three independent observers, with negative results. In New Haven we have also studied several patients for the presence of organisms of the paratyphoid group with negative results, so that it is my conviction that the organism causing the usual infectious jaundice of this country is unknown at present. As infection of the upper air passages is a not infrequent accompaniment of the early stages of the disease in many outbreaks, it would seem profitable, when opportunity offers, to examine the secretions from the nose and throat by the methods which have been used in connection with poliomyelitis.

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[2] Leslie, F. E.: Boston M. & S. J. **161**: 622, 1909.

[3] Collins, A. N.: J. Minnesota State M. Soc. **31**: 305, 1911.

[4] Jobling, J. W., and Eggstein, A. A.: The Wild Rats of the Southern States as Carriers of Spirochaeta Icterohemorrhgiae, J. A. M. A. **69**: 1787 (Nov. 24) 1917.

I wish to emphasize at this point that I do not deny that spirochetosis icterohemorrhagica (Weil's disease) occurs in this country. Indeed, I think it highly probable that it does occur; but I do not believe that the common, nonfatal infectious jaundice is of this nature.

SYMPTOMATOLOGY

The incubation period is usually about seven to ten days, but may be as short as two days and as long as twenty-eight days. These figures have been obtained from the observation of the interval between primary and secondary cases in which the time of exposure of the secondary cases was definitely fixed.

The course of the disease is characterized by considerable variations not only in different epidemics but also in different patients in a single epidemic.

As a rule the onset is sudden, with marked gastro-intestinal symptoms (nausea, vomiting and constipation), severe headache, with pronounced pain in the back and limbs, epigastric pain and fever, which is usually not very high but may be in young children. This period of febrile gastro-intestinal manifestations usually quiets down on the appearance of the jaundice, which generally becomes manifest about the fourth or fifth day, but may be delayed as late as the twentieth day. The jaundice varies in intensity from a light yellow to a deep, almost bronze tint. It generally persists from a week to ten days, but may disappear after a few hours or may persist for six weeks or even longer. Itching may occur, but quite frequently does not.

The usual physical signs are a coated tongue, a foul breath, a rapid rather than a slow pulse, an enlarged tender liver, and in some instances a palpable spleen. The urine is generally concentrated, bile stained, and contains a trace of albumin. The feces are usually of the "putty" or "clay" type. The leukocyte count, judging from the few reported cases, varies, some patients showing a lack of leukocytosis or even leukopenia, while in others a marked leukocytosis is present, from 16,000 to 24,000. There is no striking change in the differential count.

The following variations from the usual picture are to be noted: Fever may be entirely absent in some epidemics, and in some patients in almost every large outbreak. Jaundice is absent in a certain proportion of the patients in the large outbreaks. The pulse may be slow instead of rapid. Skin eruptions of an erythematous type, followed by desquamation, may occur, and occasionally nosebleed or other hemorrhagic manifestations are present.

Table 1.—*Incidence of Infectious Jaundice, 1812-1923*

Year	
1812	Norfolk, Va.
1839	Jacksonville, Ala.
1848	Wetumpka, Ala.
1849	Rocky Mount, N. C.
1850	Jacksonville, Ala.
1857	Halifax Court House, Va.
1858	Orange, N. J.
1860	Montgomery Co. Pa.; Richmond, Va.
1880	Savannah, Ga.
1881	Birmingham, Ala.
1886	Minot, Me., and Dexter, Me.
1887	Plainfield, Mich.
1888	Troy, Me.; Readfield, Me.; Kittery Point, Me.; Geneva, N. Y.
1890	Albany, N. Y.
1897	Sparta, Wis.
1898	Calumet, Mich.; Norfolk, Neb.; Hanover, N. H.; Charlestown, W. Va.
1903	Pomfret, Conn.
1905	Sterling, Kan.; Huntington, W. Va.
1906	Montevallo, Ala.; Onancock, Va.
1907	Talladega, Ala.; Concord, N. H.; Pierce County, Wis.
1908	Andover, Me.; Baltimore, Md.
1909	Richmond, Ind.
1910	Rochester, Minn.
1911	Austin, Minn.
1913	Sherbrooke, Canada; Liberty, Mo.; New York, N. Y.; Hetland, S. D.
1914	Chicago, Ill.; Jacksonville, Ill.; Detroit, Mich.; Colebrook, N. H.
1915	Hartford City, Ind.; New Liberty, Ia.; Bennett, Ia.; Minneapolis, Minn.; Bismarck, N. D.; Archibald, Pa.; Kaysville, Utah.
1916	Sante Fe, N. M.
1917	Waterbury, Conn.; Holyoke, Mass.
1918	Lyons, Kan.; Seattle, Wash.
1919	Buffalo, Minn.; Dillon, Mont.; Bridger, Mont.; Lead, S. D.; Dallas, Tex.
1920	New Haven, Conn.; West Haven, Conn.; Branford, Conn.; Pocatello, Idaho; Yates Center, Kan.; Roberts, Mont.; LeGrande, Ore.; Providence, R. I.; Parkston, S. D.; Rock Springs, Wyo.
1921	Phoenix, Ariz.; Tucson, Ariz.; Coaticook, Canada; Denver, Colo.; Pomfret, Conn.; East Haven, Conn.; New Haven, Conn.; New Castle, Ind.; Middletown, Ind.; Belle Plaine, Ia.; West Branch, Ia.; Cedar Rapids, Ia.; Waucoma, Ia.; Waukon, Ia.; Iowa City, Ia.; Waterloo, Ia.; Wilton, Ia.; Yates Center, Kan.; Plainville, Kan.; Govans, Md.; Pittsfield, Mass.; Howell, Mich.; New York Mills, Minn.; Huntley, Mont.; Carthage, N. D.; Chillicothe, Ohio; Salem, Ore.; Anderson, S. C.; Shelbyville, Tenn.; Highland Springs, Va.; Fond du Lac, Wis.; Sauk City, Wis.; Mauston, Wis.; River Falls, Wis. New York State, 1921-1922, more than 200 outbreaks.
1922	Los Angeles, Calif.; Berkeley, Calif.; Nevada City, Calif.; Sacramento, Calif.; Fort Lupton, Colo.; Wray, Colo.; Elizabeth, Colo.; Sedalia, Colo.; Wallingford, Conn.; New Haven, Conn.; East Lynn, Ill.; Boston, Mass.; Milford, Mich.; Meadowlands, Minn.; Redwood Falls, Minn.; Colton, Minn.; Blakeley, Minn.; Pompey's Pillar, Mont.; Billings, Mont.; Tilden, Neb.; Omaha, Neb.; Hanover, N. H.; Englewood, N. J.; Union, N. J.; Summit, N. J.; Bismarck, N. D.; Carthage, N. D.; Chambersburg, Pa.; Clarion, Pa.; Hazelton, Pa.; Freeland, Pa.; Angelton, Tex.; El Paso, Tex.; North Emporia, Va.; Portsmouth, Va.; Bellingham, Wash.; Charlestown, W. Va.; Burlington, Wis.; Readstown, Wis.; Fond du Lac, Wis.
1923	Hamden, Conn.; Liberty, Mo.; Middleburg, Va.

Relapses are rarely noted in this form of jaundice, as compared with Weil's disease. Second attacks occasionally occur. Recovery may be prompt, but in a good many outbreaks prostration is a marked feature and convalescence is protracted.

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[5] Wadsworth, Augustus; Langworthy, H. V.; Stewart, F. C.; Moore, A. C., and Coleman, M. B.: Infectious Jaundice Occurring in New York State, J. A. M. A. **78**: 1120 (April 15) 1922.

[6] Symmers, Douglas: Epidemic Acute Hemorrhagic Jaundice of Toxic Origin, J. A. M. A. **74**: 1153 (April 24) 1920.

Complications are very rare, so rare that one is justified in suspecting that they are frequently coincidental diseases rather than complications. Nephritis has been occasionally noted. In pregnant women, abortion may take place. In the large outbreak in the Calumet region, Pomeroy[7] noted that attacks of colic in patients with cholelithiasis were much more common than in normal times.

DIAGNOSIS

In the large epidemics the question of diagnosis offers no difficulties, though in the Southern states the question of possible confusion with yellow fever might arise. However, the early jaundice, the black vomit and the pronounced urinary changes in the latter disease would seem to leave little room for error. In areas where dengue occurs, this also might be thought of before the occurrence of the jaundice, as the muscle pains in infectious jaundice may be very severe. The absence of joint symptoms and of the dengue rash and the presence of icterus should permit of differentiation. In the early literature there is one epidemic reported as infectious jaundice which was probably blackwater fever; but this error is unlikely to occur with our present knowledge.

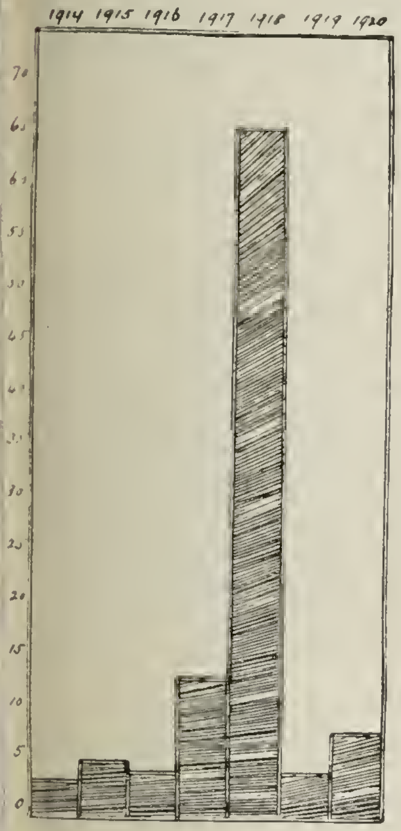

Fig. 3.—Mortality from acute yellow atrophy of the liver in the state of Alabama from 1914 to 1920, inclusive. Furnished by the Alabama State Board of Health.

PROGNOSIS

The complete absence of fatalities in most outbreaks is a striking feature. In only seven out of sixty-four epidemics did fatalities occur. Nearly all the fatal cases were in children or in pregnant women in whom abortion had taken place. It is to be noted that the clinical picture in the fatal cases was that of acute yellow atrophy of the liver or of a very severe intoxication designated by some observers as cholemia.

RELATIONSHIP TO OTHER DISEASES[8]

The relationship of this form of icterus to the so-called "catarrhal" jaundice and to acute yellow atrophy of the liver is of great interest.

So far as catarrhal jaundice is concerned, it is to be noted that the afebrile cases of infectious jaundice are clinically indistinguishable from this disease. When we consider this fact and also recall that catarrhal jaundice has a definite seasonal incidence which corresponds quite closely to that of the infectious type, we are justified in at least tentatively assuming that catarrhal jaundice is probably merely the sporadic type of infectious jaundice. Conclusive proof of this assumption cannot, of course, be obtained until the causal agent of the two conditions is isolated.

So far as acute yellow atrophy is concerned, there is little direct evidence that this condition is related to infectious jaundice beyond the fact, already noted, that patients dying from infectious jaundice may present the clinical picture of acute yellow atrophy. It is quite probable that acute yellow atrophy is not a disease entity but a syndrome which may result from the destructive action of a variety of toxic agents on the liver cells (chloroform, phosphorus, arsenic, bacterial toxins, etc.). It is not generally appreciated that the incidence of acute yellow atrophy may vary greatly from year to year in a given locality. Figure 3, showing the mortality in Alabama from acute yellow atrophy from 1914 to 1920, illustrates this point.[9] So far as can be learned, there was no unusual number of

Table 2.—*Incidence of Infectious Jaundice by States*

Alabama: Jacksonville, 1839 and 1850; Wetumpka, 1848; Birmingham, 1881; Montevallo, 1906; Talladega, 1907.
Arizona: Phoenix, 1921; Tucson, 1921.
Arkansas: None reported.
California: Los Angeles, 1922; Berkeley, 1922; Nevada City, 1922; Sacramento County, 1922.
Canada: Sherbrooke, 1913; Coaticook, 1921.
Colorado: Denver, 1921; Fort Lupton, 1922; Wray, 1922; Elizabeth, 1922; Sedalia, 1922.
Connecticut: Pomfret, 1903; Waterbury, 1917; Branford, 1920; New Haven, 1920; West Haven, 1920; East Haven, 1921; New Haven, 1921; Pomfret, 1921; New Haven, 1922; Wallingford, 1922; Hamden, 1923.
Delaware: None reported.
D. C.: None reported.
Florida: None reported.
Georgia: Savannah, 1880.
Idaho: Pocatello, 1920.
Illinois: Chicago, 1914; Jacksonville, 1914; East Lynn, 1922; Aurora, 1923.
Indiana: Richmond, 1909; Hartford City, 1915; Newcastle, 1921; Middletown, 1921.
Iowa: New Liberty, 1915; Bennett, 1915; Belle Plaine, 1921; West Branch, 1921; Cedar Rapids, 1921; Waucoma, 1921; Waukon, 1921; Iowa City, 1921; Waterloo, 1921; Wilton, 1921; Clarion, 1923.
Kansas: Sterling, 1905; Lyons, 1918?; Yates Center, 1920 and 1921; Plainville, 1921.
Kentucky: None reported.
Louisiana. None reported.
Maine: Dexter, 1886; Minot, 1886; Readfield, 1888; Troy, 1888; Kittery Point, 1888; Andover, 1908.
Massachusetts: Holyoke, 1917?; Pittsfield, 1921; Boston, 1922.
Maryland: Baltimore, 1908; Govans, 1921.
Michigan: Plainfield, 1887; Calumet, 1898; Detroit, 1914; Howell, 1921; Milford, 1922; Ann Arbor.
Minnesota: Rochester, 1910; Austin, 1911; Minneapolis, 1915; Buffalo, 1919; New York Mills, 1921; Meadowlands, 1922; Redwood Falls, 1922; Catton, 1922; Blakeley, 1922; Lake Wilson, 1909; Cambridge, 1909.
Mississippi: None reported.
Missouri: Liberty, 1913 and 1923.
Montana: Dillon, 1919; Bridger, 1919; Roberts, 1920; Huntley, 1921; Billings, 1922; Pompey's Pillar, 1922.
Nebraska: Norfolk, 1898; Tilden, 1922; Omaha, 1922.
Nevada: None reported.
New Hampshire: Hanover, 1898; Concord, 1907; Colebrook, 1914; Hanover, 1922; Epping.
New Jersey: Orange, 1858; Englewood, 1922; Union, 1922; Summit, 1922.
New Mexico: Santa Fe, 1916.
New York: Geneva, 1888; Albany, 1890; New York, 1913 and later.
North Carolina: Rocky Mount, 1849; Wilmington (date ?).
North Dakota: Bismarck, 1915; Carthage, 1921; Bismarck, 1922; Carthage, 1922.
Ohio: Chillicothe, 1921.
Oregon: Salem, 1921; LeGrande, 1920.
Oklahoma: None reported.
Pennsylvania: Montgomery County, 1860; Archibald, 1915; Freeland, 1922; Chambersburg, 1922; Clarion, 1922; Hazelton, 1922.
Rhode Island: Providence, 1920.
South Carolina: Anderson, 1921.
South Dakota: Hetland, 1913; Lead, 1919; Parkston, 1920; Aberdeen, 1920; Carthage, 1920; Pinkerton.
Tennessee: Shelbyville, 1921.
Texas: Dallas, 1919; El Paso, 1922; Angelton, 1922.
Utah: Kaysville (date ?).
Vermont: Williston (date ?).
Virginia: Norfolk, 1812; Halifax Court House, 1857; Richmond, 1860; Onancock, 1906; Highland Springs, 1921; North Emporia, 1922; Portsmouth, 1922; Richmond, 1922.
Washington: Seattle, 1918; Bellingham, 1922.
West Virginia: Charlestown, 1898; Huntington, 1905; Charlestown, 1922.
Wisconsin: Sparta, 1897; Pierce County, 1907; River Falls, 1921; Sauk City, 1921; Manston, 1921; Fond du Lac, 1921-1922; Burlington, 1922.
Wyoming: Rock Springs, 1920.

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[7] Pomeroy, E. H.: Boston M. & S. J. **139**: 107, 1898.

[8] The author disclaims any originality in suggesting a relationship between infectious and catarrhal jaundice, or infectious jaundice and acute yellow atrophy. Cockayne, Gwyn and others long ago made the same suggestions.

[9] Under the international classification of causes of death, acute yellow atrophy and infectious jaundice come under the same head.

cases of infectious jaundice in Alabama in 1918. However, Dr. Irving P. Lyon of Buffalo writes that after the 1921-1922 epidemic in the state of New York the pathologist at the Buffalo City Hospital noted an unusual number of cases of acute yellow atrophy. It would seem to be justifiable to conclude that infectious jaundice is one of the causes of acute yellow atrophy, but that this is simply to be regarded as a complication and a rather unusual one. In the few recorded necropsies, those of Symmers, for example, the younger patients showed liver lesions like those of acute yellow atrophy. Cockayne states that in one type of infectious jaundice in Europe, which appears to be the same disease, the fatal cases showed the symptoms *and liver* of acute yellow atrophy.

TREATMENT

There is, of course, no specific treatment. The disease must be treated symptomatically. During the febrile stage the patient should be kept in bed, and, if the fever is very high, hydrotherapy may be used. In this period the severe headache and muscle pains may require anodynes; acetylsalicylic acid or acetphenetidin and phenyl salicylate may be used, or even opiates in some cases.

The epigastric pain may be severe enough to require treatment; Waters[10] used camphorated tincture of opium with good results. During this period the gastro-intestinal symptoms need attention. A preliminary purge may be given, but repeated purgation is to be avoided, as it seems to increase the gastro-intestinal irritation. Chloroform water is of value for the vomiting.[10] The diet should be soft, and fats and sweets should be restricted. Milk disagrees with many patients. Fluids should be given freely, by mouth if possible, but by rectum if the stomach is intolerant. Nux vomica and chalybeates are of service during convalescence.

CONCLUSIONS

1. Infectious jaundice has occurred in the United States for more than a hundred years and has become widely distributed in the last two or three years.
2. It may occur in small family or institutional outbreaks or as a widespread disease with local foci scattered through an entire city, country district or state.
3. It is mainly a disease of adolescence, attacking the two sexes equally.
4. The exciting cause is unknown.
5. Fatalities are lacking in most epidemics; when they occur, the victims are usually pregnant women or young children, and the fatal cases resemble acute yellow atrophy of the liver.
6. Catarrhal jaundice, so called, is probably the sporadic type of the disease.

195 Church Street.

ABSTRACT OF DISCUSSION

Dr. Leonard G. Rowntree, Rochester, Minn.: The presence of epidemic jaundice has made difficult the diagnosis of various types of jaundice. I have received, through Dr. Blumer, a much clearer conception of this subject than I had previously, and I believe, as a collective review, it is the most important piece of work that has been done on this subject. We have seen many cases of jaundice in Rochester during the last few years. Dr. Stokes and Dr. Lemon have written on jaundice in relation to the treatment of syphilis. They believe that the jaundice they have seen, probably about 200 cases, was in many instances of the type Dr. Blumer described. There is room for doubt as to what proportion of cases of jaundice, particularly jaundice developing during the treatment of syphilis, is due to syphilis or to the treatment.

Dr. George Blumer, New Haven, Conn.: As long as we are unacquainted with the etiologic factor in the disease, it will be impossible to differentiate it from other varieties of jaundice. We have had the same experience in New Haven that Dr. Rowntree and Dr. Stokes and his associates have had in Rochester, but I have not been able to discover any satisfactory method of differentiating this form of jaundice from the types to which he refers.

Dr. Rowntree: We had rather a striking instance of a differential diagnosis made by Dr. Stokes in the case of a patient under treatment. The patient developed urticaria. Dr. Stokes predicted that in a few days he would have jaundice. Jaundice appeared. The patient became extremely ill. The case resembled, in every way, acute yellow atrophy. The man died. I believe that there are many such cases. Has Dr. Blumer seen urticaria develop in such cases?

Dr. Blumer: I have not seen urticaria in connection with infectious jaundice in New Haven, and we have had a very large number of cases there, recurring year after year. But there is described, in the literature, the occurrence of skin eruptions, some being followed by urticaria, but none of them specifically described as an urticarial skin eruption.

Dr. Rowntree: I should like to ask whether, in the treatment of syphilis experimentally induced in animals, any condition resembling infectious jaundice has resulted?

Dr. Blumer: I do not know of any.

Dr. Rowntree: I should like to ask, finally, whether or not there occurs with any very great regularity, prognostic symptoms such as headache and upper respiratory tract involvement?

Dr. Blumer: There is a tremendous variability in the different epidemics of this disease. There have been some epidemics in which almost every patient had pronounced symptoms of that sort, headache, coryza, and so on. And there are other epidemics in which practically nobody had those symptoms, so that that is not at all a constant feature, although it does occur prominently in some outbreaks.

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[10] Waters, S. C.: J. Indiana State M. A. **15**: 430 (Dec.) 1922.

PUNCTURE OF THE CISTERNA MAGNA

REPORT ON ONE THOUSAND, NINE HUNDRED AND EIGHTY-FIVE PUNCTURES *

JAMES B. AYER, M.D.
BOSTON

Puncture of the cisterna cerebellomedullaris (cisterna magna) is undoubtedly potentially a dangerous procedure. Nevertheless, a method of approach to the cerebral meninges without operation is at times of such obvious advantage that I have in three papers advocated this procedure.[1]

After somewhat more than three years of clinical use, it seems wise to publish certain data concerning the safety, the technic and the value of cistern puncture. To make this report of greater value, a number of physicians in different cities have kindly cooperated. While most of the punctures have been made by eight men, it is estimated that at least fifty have contributed to the total number.

THE SAFETY OF CISTERN PUNCTURE

In this series of punctures in 450 patients, no death is known to have occurred directly or indirectly from puncture. In only one case has hemorrhage been demonstrated. It was stated in the report[7] that "one patient with tuberculous meningitis, in whom we had all given an unfavorable prognosis, died one week following puncture. I had diagnosed the possibility of subarachnoid block, and at necropsy it was found that the space formed by the cisterna magna was entirely obliterated. The last puncture of the series of eight, which was unsuccessful, perforated a small spinal vein, resulting in a small hemorrhage, which, in the opinion of the pathologist, could not have caused death or been a factor in the case."

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* Read before the Section on Nervous and Mental Diseases at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

[1] Ayer, J. B.: Am. J. M. Sc. **157**: 789 (June) 1919; Arch. Neurol. & Psychiat. **4**: 529 (Nov.) 1920; Arch. Neurol. & Psychiat. **7**: 38 (Jan.) 1922.

Unpleasant incidents have occurred on several occasions in the experience of three of those reporting, for the most part in connection with the administration of serum. Rarely there occurs in such cases sudden dizziness with nystagmus, and at times nausea and occasionally pain in the face. These symptoms have in each instance been of only a few minutes' duration. I have had the unpleasant experience twice of observing cessation of respiration for a few seconds in patients with spinal cord tumors. In each instance the patient was under primary ether anesthesia, and respiration stopped on the withdrawal of about 1 c.c. of fluid. On two occasions patients have complained of sudden sharp pain in one entire side of the body. In none of these cases was there an after-effect of any kind, and in each the fluid was free from blood. In another case, sharp pain was experienced in the face, no fluid having been obtained at the correct depth; this was in a patient with high cervical cord glioma and, from the operative findings, it is possible that the tumor extended into the cisterna.

Distribution of Operations

	Number of Punctures	Number of Patients	Greatest Number of Punctures in One Case
Boston Psychopathic Hospital:			
Harry C. Solomon and others........	98	26	18
Philadelphia General Hospital and Trenton State Hospital:			
Franklin G. Ebaugh and others......	1,100	150	26
Hubert S. Howe, New York...........	16	4	7
Lawrence Selling, Portland, Ore........	13	11	2
Mitchell and Reilly, Philadelphia (Am. J. M. Sc. **164**: 66 [July] 1922)....	7	3	..
W. P. Eagleton, Newark (Laryngoscope **32**: 1. [Jan.] 1922)................	4	3	..
Rhode Island Hospital and Butler Hospital, Providence:			
Arthur H. Ruggles and others.......	200	25	..
Henry McCusker and others........	215	25	12
Massachusetts General Hospital:			
Fifteen physicians	332	203	15
	1,985	450	

"Bloody tap" has been rarely obtained, and appears to be less frequent than from lumbar puncture. In our earlier experience with cistern puncture, blood was obtained not infrequently at a depth seemingly short of the cisterna, and caused us to desist from further effort. It has been since learned that this blood was from the suboccipital veins (extradural) and was not a contraindication to deeper puncture.

Failure to obtain fluid at the expected depth has been encountered by most of the operators, but rarely. I have failed about ten times, usually in thick-necked patients in whom it seemed unwise to persist to unexpected depths. Needless to say, these failures were in the early days of the procedure.

That repeated punctures may be safely made is the experience of all. The greatest number of punctures reported in a given case is twenty-six. Many patients have received more than ten injections of serum by this route. Attention to possible pathologic change leading to the obliteration of the cisterna should, however, be kept in mind, as indicated by the case of tuberculous meningitis cited above.

TECHNIC

The technic of cistern puncture was given in the earlier papers. For the adult, no change in technic has been advanced. In tapping the cisterna in infants, Howe developed a new technic, as he found that starting above the axis does not give the proper angle. He inserted needles into a cadaver and dissected them out. In this way he found that it was best to start at the base of the neck and direct the needle upward and slightly forward, inserting it gradually until the occipital bone is reached, and then working it forward gradually until it slipped into the foramen magnum.

While the depth at which the cisterna is reached must vary with the individual, it has been found to be less variable than in lumbar puncture. In adults, the distance from the skin is seldom less than 4 cm., and usually less than 5.5 cm. Rarely is the distance greater than 6.5 cm. Moreover, in patients on whom puncture was performed on several occasions it was found that the depth of the needle at different punctures seldom varied more than 5 mm. It is therefore advisable to note the depth at which fluid is obtained for control at future punctures.

CONTRAINDICATIONS

In any condition in which the cisterna magna is likely to be obliterated either by pressure or by adhesions, or in which the cistern may be displaced, as by tumors, the procedure must be considered as contraindicated. In that such conditions would usually lead to early increase of intracranial pressure, the most reliable guide would be the choked disk. In the presence of papilledema, or choked disk, cistern puncture should not be undertaken.

INDICATIONS FOR CISTERN PUNCTURE

This is not the place to discuss diagnostic or therapeutic procedures in connection with cistern puncture. But the uses to which this approach to the cerebral subarachnoid space has been employed should be indicated.

By far the greatest number of punctures has been made in the treatment of cerebral syphilis—especially in general paralysis—for the introduction of arsphenaminized serum. In the hands of several investigators, encouraging results have been obtained.

The next most frequent indication for cistern puncture has been in suspected compression of the spinal cord, in which case combined cisternal and lumbar punctures have been found to give early and reliable diagnostic information by the demonstration of spinal subarachnoid block (Selling, McCusker, Ebaugh, Solomon, Ayer).

In cases of meningococcus meningitic block, all authorities agree that cistern puncture should be employed, and injections of antimeningococcic serum have been made at this point with good results (Ebaugh, Mitchell and Reilly, Howe and Ayer). Antitetanic serum has been used in this manner by McCusker.

In connection with lumbar puncture of the cortical subarachnoid spaces, cistern puncture has been employed for purposes of irrigation in suppurative meningitis by Eagleton, Selling, McCusker and Ayer. While irrigation has been shown to be possible, the results from this procedure can as yet hardly be said to be satisfactory.

Occasionally, cistern puncture has been used as a means for simple drainage (Ebaugh) and as a method for obtaining fluid for examination when, for one reason or another, lumbar puncture has been found impossible (arthritis) or inadvisable (infection of skin).

CONCLUSIONS

Cistern puncture, when carefully performed, has proved safe in the hands of a number of operators.

Repeated punctures, with the introduction of serum, may be made safely.

The technic originally advocated is satisfactory.

Indications for cistern puncture may be said to be, in the order of importance: (1) in the treatment of meningococcus meningitic block; (2) in the serum treatment of cerebral syphilis; (3) in the early diagnosis of compression of the spinal cord; (4) for obtaining cerebrospinal fluid for examination when elsewhere impossible or inadvisable, and (5) as one point of entrance to the subarachnoid space for the purpose of irrigation.

It must be remembered that those who have performed the puncture reported here thoroughly realize the possible dangers of the procedure. Without a knowledge of the anatomy of the subarachnoid spaces and an appreciation of the physiology of the cerebrospinal fluid, but especially without preliminary experience on the cadaver, cistern puncture should not be undertaken.

ABSTRACT OF DISCUSSION

Dr. Harry C. Solomon, Boston: I agree with everything that Dr. Ayer said as to the value of cistern puncture. It is apparently an entirely safe procedure. We have made several hundred punctures without the slightest inconvenience. We have had no reason for ever being fearful of what has happened. I would emphasize particularily that if we wish to put serum in the region of the base of the brain, the optimal locus of injection is into the cisternal space. We have very good evidence that if serum is introduced into the lumbar space, it would not reach the base of the brain in any reasonable quantity. With the cisternal injection, the fluid is brought directly in contact with the base of the brain, and the best evidences that this is so are the clinical symptoms which follow. It is very common, indeed, for a patient to complain of tingling or burning of the face. This is the result of irritation of the fifth nerve, and is a good indication that the drug reached that region. When one is dealing with cases of optic atrophy or syphilitic meningitis at the base, obviously the place to inject the drug is into the cisternal region. To my mind, this is exceedingly important, and gives us a right to hope that we shall accomplish something in this type of disorder. I should like also to corroborate what Dr. Ayer said of the value of this procedure in the case of block. One has no doubt whether or not block exists when one does a double puncture and takes into consideration both the manometric readings and the final fluid examination. Finally, I think a matter of great importance is that we now have a method of irrigation from the ventricles to the cisternal region and from the cistern to the lumbar region, or vice versa. Further, in cases of block due to meningitis, it is possible to place serum above as well as below the block.

Dr. William Alexander Jones, Minneapolis: Have you had any experience in the treatment of encephalitis with puncturing the cisterna?

Dr. James B. Ayer, Boston: No, I have not; I think it was Dr. Ebaugh who wrote me that he had one or two cases in which he had punctured the cisterna and withdrawn fluid with benefit. I could not quite see the mechanism of it and neither could he. I have had no personal experience with the cisterna puncture in encephalitis.

THE RÔLE OF PARENTAL NUTRITION IN THE CAUSATION OF RICKETS *

ALBERT H. BYFIELD, M.D.
AND
AMY L. DANIELS, Ph.D.
IOWA CITY

The renewed interest in the solution of the rickets problem is evidenced by numerous publications dealing with the subject from an experimental as well as from a clinical and social-hygienic standpoint. In the main, these communications have tended to verify the older ideas of the causation and treatment of rickets. The rôle of calcium, phosphates and cod liver oil has again been studied through animal feeding experiments, although little that is fundamentally new has been added to our knowledge. Instead of the old term, "bad hygienic surroundings," we now think more specifically of lack of sunlight.

Not much light has been thrown on the question of the influence of heredity, using this term in a loose sense. While we are not even yet in possession of definite knowledge as to the exact parts played by calcium, phosphorus and possible antirachitic vitamins, we do know that their absence from the diet, their presence in wrong proportions, or their faulty absorption and assimilation are of real significance. In the matter of prenatal influences, however, there is a striking lack of unity of opinion, some authors being strongly opposed to this idea, while others are its ardent supporters. Glisson[1] gives the question of heredity considerable attention, but in the two centuries and more which have followed not much has been added to our knowledge in this respect. This is especially true since achondroplasia and similar affections were wrongly regarded as being fetal rickets, an error which has been made even in recent years.[2] Trousseau[3] and Ritter von Rittershain[4] were among the early physicians who were inclined to entertain the idea of a partial prenatal etiology of rickets. Rehn[5] did not feel that the evidence was sufficient to warrant a definite conclusion. In recent years, Siegert[6] and Marfan[7] have again entered the lists in favor of an hereditary influence, the former being especially positive in the matter. A suggestive case is reported in some detail by Apert and Cambassédés.[8] As a matter of fact, the conclusions of these authors are not fully warranted, since animal experiments show that the

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* From the Department of Pediatrics, College of Medicine, and Department of Nutrition, Child Welfare Research Station, State University of Iowa.

* Read before the Section on Diseases of Children at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

[1] Glisson, Francis: A Treatise of Rickets, Being a Disease Common to Children, translated by Phil. Armin, London, 1668.

[2] Mery and Parturier: Un cas de rachitisme congénital, Bull. Soc. de pédiat. de Paris **17**: 47 (Feb. 18) 1919.

[3] Trousseau, A.: Rickets: Lectures on Clinical Medicine, translated from the edition of 1868 by J. R. Cormack, London **5**: 81, 1871.

[4] Von Rittershain, Ritter, quoted by Czerny: Die Pathologie und Therapie der Rachitis, in Kraus-Brugsch: Spezielle Therapie der inneren Krankheiten **19**: 318, part 1, 1921.

[5] Rehn: Rachitis, in Gerhardt: Handbuch der Kinderkrankheiten, Tübingen **3**: 97, part 1, 1878.

[6] Siegert, F.: Die Erblichkeit der Rachitis, Jahrb. f. Kinderh. **58**: 864, 1903.

[7] Marfan, A. B.: Le rachitisme congénital, Semaine méd., 1906, No. 41.

[8] Apert, E., and Cambassédés: Déformations osseuses congénitales intenses avec rachitisme, Arch. de méd. d. enf. **23**: 265 (May) 1920.

nutrition of the male parent plays a minor part as far as rickets is concerned. No mention of maternal nutrition is made by them. Hess,[9] in studying the diet of the negro mother in New York, pointed out some of the deficiency, especially of calcium. He does not, however, draw very positive conclusions as to the part played by maternal nutrition; but in his recent summary of the subject,[10] he is inclined to give this aspect more consideration.

Czerny,[4] in his monograph on rickets, while not committing himself, dignifies this supposed etiologic factor with several pages of discussion, adding, however, his view that rickets is a constitutional anomaly and that exciting conditions are necessary to produce the clinical picture. Griffith [11] also gives the subject some consideration.

Among the animal experimenters, Korenchevsky [12] alone stresses the view of dietary deficiency in preceding generations as an etiologic factor in rickets in rats. Kramer and Howland,[13] however, have emphasized that the effects of deficiency in calcium, phosphorus and fat-soluble A are carried through several generations.

Among those denying a congenital origin is Wieland,[14] who refuses to admit that the craniotabes and beading of the ribs in young infants are to be regarded as evidences of rickets. He is partially supported by the views of Schmorl,[15] who fails to find histologic evidence of rickets of the new-born. In this he sharply disagrees with Kassowitz.[16]

In the course of our early studies in experimental rickets, we were unable to produce in young rats the gross bone changes characteristic of rickets (rachitis completa, Glisson), although this had been successfully accomplished by other investigators. In a series of young animals, purified rations complete in every respect but low, respectively, in calcium, phosphorus and butter oil, failed to produce gross bone changes and only slight histologic deviation from normal. Hoping to secure more definite results, we then tried a diet recommended by McCollum and Park,[17] with no better success, although the histologic pictures were perhaps more suggestive. When we saw a lantern picture of a normal rat used in experiments by these investigators, the thought suggested itself that our failure to produce the expected result might be due to a difference in the feeding of the stock animal. Accordingly, the rickets-causing diets were continued throughout one generation and into the next. These results were quite different. Animals of the second generation, receiving the diet low in calcium, presented those gross changes which we might expect in experimental rickets: collapsed chest and curvature of the long bones, with a general retarded development of he skeletal system. Histologic sections of the long bones gave the picture of advanced experimental rickets. In other words, the influence of the rickets-producing diet did not become manifest until the econd generation.

The success of these experiments, after a rather long period of failure, naturally suggested that faulty parental nutrition might also be significant in the production of human rickets. With this in mind, we made a study of conditions in England previous to the time of Glisson's report (1653). From what we now know, we might properly say that there had been some great change in the manner of English life to account for this great increase in the incidence, and certainly in the severity, of rickets during the early part of the seventeenth century. If rickets is the result of causes which operate during infancy, then this change should have taken place about Glisson's time. As a matter of fact, it requires only a cursory reading of Traill's [18] Social England to learn that very deep seated changes began in the reign of Henry VII (1488 to 1508), about 150 years before Glisson's report, and at least 100 years before the situation became so serious as to attract the attention of clinicians.

This change in English life began with the increase in the raising of sheep—the animal with the hoof of gold—and marked the beginning of the commercial era. The laws of enclosure caused the open pastures of the rural inhabitants to be enclosed, and a large part of the farming population with its cattle was dispossessed by the landlords. The resulting increase in the price of agricultural products, the vagabondage of the evicted peasants, the movements to the cities, and the astonishing increase in the population of England from 2,500,000 to 4,000,000, "a condition which always follows poverty and desperation," were striking features of the times.

The change in living was also reflected in the diet. The amount of meat consumed, especially by the wealthier class, was a matter of comment by foreigners visiting England. Dairy products formerly used in large quantity were scorned by the wealthy and were too costly for the poor. The frequent plagues added much to the disorganization of the times. These evil conditions continued during the reigns of Henry VIII, from 1509 to 1547, and Edward VI and Mary, from 1547 to 1558, when, it is stated, the "condition of the people was wretched in the extreme." The following quotation gives a suggestive picture of the situation:

> Forasmuch as divers persons, to whom God in His goodness hath disposed great plenty, now of late have daily studied and invented ways how they might accumulate into few hands, as well great multitude of farms as great plenty of cattle, and in especial sheep, putting such land to pasture and not tillage; whereby they have not only pulled down churches and towns, and enhanced the rents and fines of land so that no poor man may meddle with it, but also have raised the prices of all manner of agricultural commodities almost double above the prices which hath been accustomed, by reason whereof a marvellous number of the people of this realm be not able to provide for themselves, their wives, and children, but be so discouraged with misery and poverty that they fall daily to theft and robbery, or pitifully die for hunger and cold.

Improvement did not take place until about 1600; but the pastoral period in England was almost ended.

The idea that the nutrition of one generation affects the members of subsequent generations is by no means a new one, either in animal husbandry or in the experimental nutrition laboratory. If rickets is a disease of nutrition, and there seems to be little doubt on that score, then a deficiency in the parent may well affect the offspring. Our animal experiments, as well as those of other workers, seem to confirm the dominating importance of this etiologic factor. On the human side, the observations on the diet of the New York negro mother reported by Hess, the clinical studies of Weigert, and the analysis of economic conditions in England previous to Glisson's time all indicate the significance of parental nutrition in the causation of rickets. The economic changes with their direct effects on the manner of living of the English people were operative for at least two generations before rickets became so widespread as to assume the proportions of a definite clinical entity.

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[9] Hess, A. F., and Unger, L. J.: The Diet of the Negro Mother in New York City, J. A. M. A. **70**: 900 (March 30) 1918.

[10] Hess, A. F.: Newer Aspects of the Rickets Problem, J. A. M. A. **8**: 1177 (April 22) 1922.

[11] Griffith, J. P. C.: The Diseases of Infants and Children, Philaelphia, W. B. Saunders Company **1**: 585, 1919.

[12] Korenchevsky, V.: Experimental Rickets in Rats, Brit. M. J. **2**: 47 (Oct. 8) 1921.

[13] Kramer, Benjamin; and Howland, John: Factors Which Determine the Concentration of Calcium and Phosphorus in the Blood Serum f Rats, Bull. Johns Hopkins Hosp. **33**: 313 (Sept.) 1922.

[14] Wieland, E.: Zur Frage der angeborenen und hereditären achitis, Ergebn. d. inn. Med. u. Kinderh. **6**: 64, 1910.

[15] Schmorl, G.: Ergebn. d. inn. Med. u. Kinderh. **4**: 403, 1909.

[16] Kassowitz, M.: Ueber Rachitis, Jahrb. f. Kinderh. **75**: 194, 1912.

[17] McCollum, Simmonds, Parsons, Shipley and Park: Diet No. 2249, Biol. Chem. **45**: 333, 1921.

[18] Traill, H. D.: Social England, Ed. 3, London, 1896.

What are the present day conditions? It requires only the most cursory analysis of the average modern diet to note that mineral and other deficiencies are the rule today rather than the exception, and it is not surprising that rickets of mild degree is so common a manifestation as to escape the attention of or, at least, arouse little comment from the average observer.

In the absence of more detailed experimentation, one can only speculate as to the mechanism of parental nutrition in the causation of rickets in the young. Is the child born with rickets, or merely with too small a store of building material (calcium depot) for the skeleton, so that rickets develops when conditions become unfavorable or when a dietary error exists? No matter what the mechanism of action is, we know from our animal experiments that the young of properly nourished mothers are less susceptible to this dystrophy even though they are badly fed. If it be conceded that faulty parental nutrition is one of the chief causes of human rickets, then we have in our hands the most hopeful method of treatment, prophylactic rather than curative.

CONCLUSIONS

1. In a series of animal experiments, it was possible to produce gross rickets by faulty diet only in the second generation, because the parent stock received in abundance a diet containing all the constituents necessary to proper nutrition.

2. Conditions in England before the time of Glisson, together with recent clinical observations, tend to point out that in human pathology, causes existing for more than one generation are necessary in the production of rickets. To quote the words of Glisson: "But omitting all diligent search into the several kinds of causes, we purpose to contract this our discourse chiefly to two heads. The former containeth the Infirmities and the diseased dispositions of the Parents, which perhaps have so great an influence upon the Children, that they suppeditate at least a proneness to this effect, and infer an aptitude to fall into it, if they have not actually fallen into it from their very birth."

3. This conception, if correct, is the more fruitful in that it enables us to attain the ideal of treatment, namely, prophylaxis.

ABSTRACT OF DISCUSSION

Dr. William Palmer Lucas, San Francisco: More than a century ago it was pointed out that the nutrition of the mother played a most important part in the development of rickets. This problem of the maternal nutrition is a most important one. In our own laboratory, Dr. Jones has found something that I am going to ask her to tell you about, because it is in line with the experiments of Dr. Byfield and Dr. Daniels. The same thing has been reported by Hess. I think that McCollum also has pointed out the importance of the maternal nutrition in this condition. As Dr. Jones, in talking to me this morning about it, aptly expressed it, this is transferring the problem from the pediatrician to the obstetrician. We must ask the obstetrician to help us in this field of maternal influence on rickets.

Dr. Martha R. Jones, San Francisco: At a recent meeting of the Western branch of the Society for Experimental Biology and Medicine we reported that severe rickets could be induced in normal puppies on a diet consisting of bread, milk, meat, butter fat, orange juice and alkaline salt mixture, the composition of which was based on ash analyses of cow's milk, except that the phosphorus was omitted. On the same diet, except that sufficient hydrochloric acid was added to neutralize the excess of alkali in the salt mixture, normal bone development resulted. Parallel experiments on rats with both these diets invariably were negative, even the second and third generations showing no signs of rickets. More than a year ago, a litter of nine normal puppies was suckled by the mother until they were 5 weeks of age. The following ten months, she was fed on meat almost exclusively, a diet which is markedly deficient in calcium, and at the end of that time she had another litter of nine pups. When the puppies were about 2 weeks old, it was evident that the mother's milk supply was insufficient, and supplementary feedings had to be given. All of the nine puppies survived, but before they were placed on the experimental diet, each one showed definite clinical and roentgenographic signs of rickets. Another female dog fed on meat exclusively during pregnancy had a litter of twelve pups, each one of which showed unmistakable signs of rickets at 4 weeks of age. The fact that the bony structures of both these mothers had been called on to meet the mineral requirements of the growing fetuses was strikingly demonstrated by the large number of carious teeth that developed during the gestation period. When the puppies of these two litters were placed on experimental diets, those receiving a relatively small amount of alkali in the salt mixture—an amount which normal subjects handle with ease—developed severe rickets rapidly, in some cases in less than two weeks; whereas, the puppies fed on the basal diet without the salt mixture showed marked improvement. While our experiments are not sufficiently numerous to permit us to draw final conclusions, we are of the opinion that the diet of the mother during pregnancy is a more important factor than heredity in predisposing the young to rickets.

Dr. John A. Foote, Washington, D. C.: I have a hobby for collecting pictures of infants, particularly pictures painted by the old masters. Some time ago I read that the paintings of the middle ages, while not particularly inspiring as paintings, were interesting as literature. The thought occurred to me that possibly something might be learned from these paintings with regard to the history or the occurrence of some of the diseases of children. Since then I have studied paintings of children made since the thirteenth century. Pictures of children made before that period amounted to little. With the rise of the cathedral building period in Europe in the thirteenth century, we began to have some very remarkable pictures of children. I have found pictures of children with rickets in the fourteenth, fifteenth and sixteenth centuries. Glisson wrote his paper on rickets in 1650. I have some very interesting pictures made one or two hundred years before that. An Ephesian author spoke of rickets in the second century. He said that the children in the cities had more crooked limbs than the children in the country. There are some excellent pictures showing rickets. In the sixteenth century a German painter, who had been down to Italy, apparently, judging from the picture, painted a child that had decided rickets. There are pictures of cherubim with rickets. In a picture made by a Belgian painter, one can see not only the rickets in the child, but also the cause of the rickets—the pap bowl and the spoon on the table. As Dr. Byfield has said, the rise of industrialism in England and in the low countries, the increased population in England, and the influence of wars were the things that produced rickets in Europe, and that are still producing rickets in Europe, and that will produce rickets in Europe for perhaps another generation, through malnutrition of the parents. Rickets is, as the German calls it, a folk disease, a disease of the people dependent on economic conditions and not only possibly but probably dependent on malnutrition in the parent as well as in the child.

CONGENITAL OBSTRUCTION OF THE LARYNX AND PHARYNX *

GORDON B. NEW, M.D.
ROCHESTER, MINN.

Six cases are here reported which illustrate different types of congenital obstruction of the larynx and pharynx, a rare condition, which may be due to various causes. Although the causes lack similarity, one common symptom, respiratory obstruction in the new-born infant, was present in all of them and has formed the basis for the present study.

REPORT OF CASES OF LARYNGEAL OBSTRUCTION

CASE 1.—*Congenital laryngeal stridor. History.*—J. B. H., a boy, aged 8 weeks, was brought to the Mayo Clinic, Dec. 21, 1922, because of trouble in breathing which had been evident since birth. He made a slight croaking noise on inspiration. He had not had severe spells, and did not get blue, but had some trouble in nursing on account of the difficulty in getting air.

Examination. — Laryngoscopic examination revealed the epiglottis folded on itself, and the aryepiglottic folds almost in apposition. These moved up and down on respiration, almost approximating on inspiration (Fig. 1).

Treatment.—The condition did not demand treatment, and the child is gradually improving.

CASE 2.—*Middle line (bilateral abductor paralysis) position of the true cords. History.*—I. P., a girl, aged 10 months, was brought to the clinic for examination, Jan. 20, 1920, on account of difficulty in breathing which was noticed at birth. The mother had one normal child, aged 4 years, and one child had been stillborn. There was no history of syphilis. The patient was a full-term child; labor had been difficult, and the child blue at birth. She weighed 7 pounds (3.2 kg.). About once a month since birth, she had had severe spells, coming on slowly, when she became blue and gasped for breath. The chief difficulty seemed to be in inspiration. The spells lasted a few minutes and ended with a long, crowing inspiration, and there was always some difficulty in inspiration between the spells. The child did not sit up alone, and did not seem to notice things as a child of its age should, but was otherwise well.

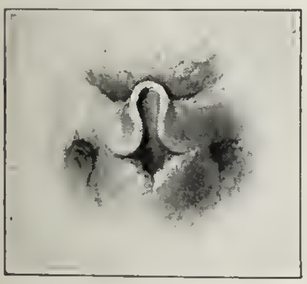

Fig. 1 (Case 1).—Congenital laryngeal stridor in a child, aged 8 weeks.

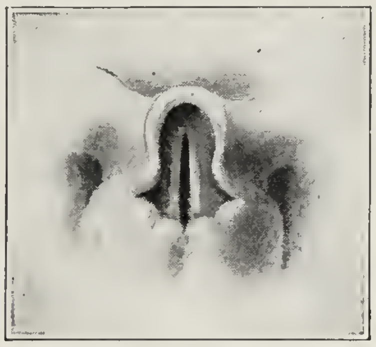

Fig. 2 (Case 2).—Middle line (bilateral abductor paralysis) position of the true cords in a child, aged 10 months.

Examination.—The child was underdeveloped mentally and physically, with a noisy, rattly respiration. Roentgenograms of the chest were negative, and the Wassermann reaction for both mother and child was negative. Laryngoscopic examination, Jan. 22, 1920, revealed the epiglottis folded on itself. Both cords were in the middle line, and moved up and down on respiration. There was a very small slit to breathe through. The aryepiglottic folds were not adjacent as in congenital laryngeal stridor. The general condition was good. Neurologic examination revealed constitutional inferiority. It was impossible to make an examination of the fundi. Laryngoscopic examinations were repeated, February 4, March 1 and May 27, with identical findings. The child's symptoms did not change materially between these examinations (Fig. 2).

Treatment.—No treatment was given, and at no time was a tracheotomy indicated.

Dec. 26, 1922, about two years from the time of the original examination, the mother wrote that the child was perfectly healthy, weighing 37 pounds (17 kg.), and having no difficulty in breathing. Her voice was normal when she cried, but she was mentally deficient. She had had but one spell of difficulty in breathing, which occurred one week after the last examination here, May 27, 1920. A letter from the home physician corroborates the mother's statements.

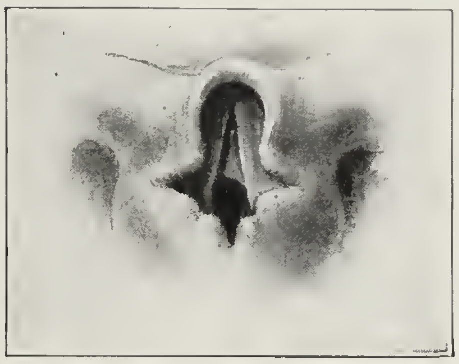

Fig. 3 (Case 3).—Subglottic diaphragm in a child, aged 2 years.

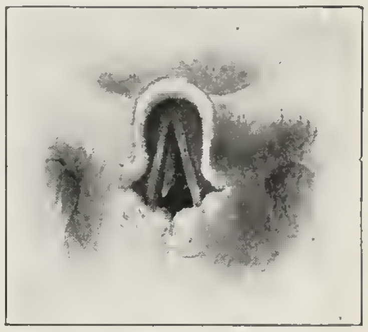

Fig. 4 (Case 4).—Angioma of the larynx in the left subglottic region in a child, aged 9 months.

In reviewing the literature on congenital laryngeal stridor, it would seem that there are two types of conditions included under this heading. First, the type in which the obstruction is at the upper laryngeal aperture, due to the epiglottis and aryepiglottic folds, and, second, the type in which the obstruction is at the glottis. The outstanding papers on the first type are those by Thomson and Turner,[1] and Sutherland and Lack,[2] and, in this country, by Greene,[3] Newcomb,[4] Koplik,[5] Reardon [6] and Iglauer.[7] The characteristic symptoms of this condition are the croaking sound accompanying inspiration, with a possible noise on expiration, which, however, may be noiseless. As a rule, the child never becomes real dyspneic or cyanotic. The condition gradually improves, and disappears during the course of the second year. According to Reardon, death may occur, owing to stenosis. Different opinions are held by Thomson and Turner, and Sutherland and Lack, regarding the etiology of this condition. Thomson and Turner hold that the primary element in the causation of this condition is a disturbance of the coordinating of the respiratory movements, probably due to some developmental backwardness of the cortical structures which control them; and that the valvular action of the upper aperture of the larynx and the falling in of its lateral walls during inspiration is the cause of the obstruction, but that it is an acquired condition, the result of an incoordinated, stammering breathing. Experimentally, using infant cadavers, they have been able to produce this deformity.

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* From the Section on Laryngology, Oral and Plastic Surgery, Mayo Clinic.

* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

[1] Thomson, J., and Turner, A. L.: On the Causation of the Congenital Stridor of Infants, Brit. M. J. **2**: 1561-1563, 1900. Turner, A. L.: A Discussion on Congenital Stridor (Laryngeal and Tracheal), ibid. **2**: 1485-1488, 1906.

[2] Sutherland, G. A., and Lack, H. M.: Congenital Laryngeal Obstruction, Lancet **2**: 653-655, 1897.

[3] Greene, D. C.: Congenital Inspiratory Stridor, Boston M. & S. J. **148**: 638-640, 1903.

[4] Newcomb, J. E.: Congenital Laryngeal Stridor, M. Rec. **64**: 127-130, 1903.

[5] Koplik, Henry: Congenital Laryngeal Stridor: A Contribution to the Pathology of the Affection, with Report of an Autopsy on a Case, Arch. Pediat. **22**: 881-889, 1905.

[6] Reardon, T. J.: Congenital Laryngeal Stridor, Am. J. M. Sc. **134**: 242-253, 1907.

[7] Iglauer, Samuel: Epiglottidectomy for the Relief of Congenital Laryngeal Stridor, with Report of a Case, Laryngoscope **32**: 56-59, 1922.

Sutherland and Lack hold that the deformity in these cases is a congenital one, and not a neurosis. Both agree that the laryngeal condition is the immediate cause of the obstruction and that the obstruction is due to two factors: (1) the malformation of the upper aperture of the larynx, and (2) the flaccidity of the structures.

Koplik believes that the anatomic findings are sufficient to account for the symptoms, and believes that Thomson and Turner's theory needs more confirmation. Iglauer has recently reported a case in which he removed the epiglottis and cleared up the obstruction in this way. This was the first time that this treatment had been employed.

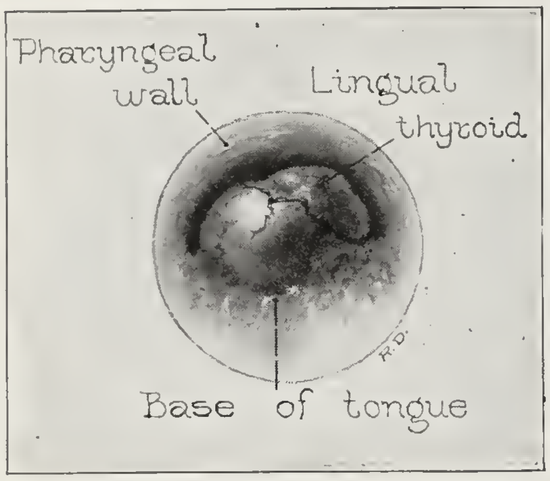

Fig. 5 (Case 5).—Lingual thyroid in a child, aged 3½ months.

Considering the second type, in which the obstruction occurs at the glottis, Robertson [8] believes that the trouble is due to a temporary bilateral abductor paralysis. No laryngeal examination, however, was made in his group of cases. Löri [9] reports twelve cases of infants in which the cords were together for only a few seconds at a time, as a clonic spasm of the glottis, and believes that this condition is a symptom of various diseases, such as chorea and rickets. The condition cleared up in from two months to two years. There was no paralysis at any time, and no treatment of note was given.

Semon [10] states that the condition is not a paralysis, but a clonic spasm, and that bilateral paralysis in infants has not been definitely established, but that it is probably a clonic spasm of the glottis.

Ashby [11] holds that the muscles that regulate the size of the glottis fail to coordinate with the muscles of respiration, so that laryngeal obstruction results. He does not believe that there is any evidence of the laxity of the laryngeal structures, or that the sucking in of the aryepiglottic folds is a factor in this condition.

Cautley [12] states that the persistence of the stridor during sleep would argue against the neurosis theory.

McBride [13] believes that the cases of laryngeal stridor are due to spasm and not to paralysis, and that the condition is similar to a laryngismus stridulus, due to cortical irritation.

Case 1 would seem quite typical of the first type of laryngeal stridor. Case 2, however, in which the cords were found in the middle line, and remained in this position on repeated examinations, does not simulate the second type. The condition would seem to be a congenital middle line position of the cords, as seen in bilateral abductor paralysis. The child was undeveloped mentally, and the laryngeal condition gradually improved and ultimately cleared up. Possibly, therefore, the lack of mental development was the cause of the laryngeal condition.

Case 3.—*Subglottic diaphragm. History.*—E. H., a girl, aged 1 year, examined, Aug. 10, 1921, was a normal-birth, full-term child, well developed and well nourished, but breathing through a tracheotomy tube. She had had asthmatic breathing at intervals since birth, but at other times no dyspnea had been noted, except after coughing. Occasionally she had a croupy cough. Three and a half months before examination, an emergency tracheotomy had been made elsewhere, before a laryngoscopic examination was possible. One month later it was impossible to remove the tracheotomy tube, and this had been attempted several times without success. A tentative diagnosis of thymus obstruction had been made, and radium had been used outside the neck. Repeated Wassermann reactions and cultures of the throat had been negative.

Examination.—At the time of the child's examination, her general condition was good. The tracheotomy tube was in position. The roentgenogram of the chest was negative, although there was a possible, but indefinite, shadow high in the right chest, which might be thymus. Laryngoscopic examination revealed an obstruction in the subglottic region on the right side, which was whitish and might have been the tissue above the tracheotomy tube. When the tube was held forward, or when a probe elevated the area, the child breathed without obstruction. No neoplasm was visible.

On account of the indeterminate diagnosis and the possibility of some type of extrinsic tracheal tumor, no attempt was made to remove the tracheotomy tube. Roentgen-ray and radium treatment outside the neck was advised, and further examination in from three to six months. The child returned for the second examination ten months later, June 27, 1922, with the tracheotomy tube in place. Laryngoscopic examination revealed a diaphragm across the anterior part of the larynx above the tracheotomy tube. Breathing was not obstructed when the tracheotomy tube was removed. The diaphragm did not seem cicatricial, and was of sufficient size to have caused obstruction when the lumen of the larynx and trachea were smaller.

Treatment.—July 5, 1922, the tracheotomy tube was removed, and the child breathed quite well. On this account it was not thought necessary to remove the diaphragm. Later, the tracheal fistula was closed. A letter from the mother states that the child is perfectly well, and has had no further trouble (Fig. 3).

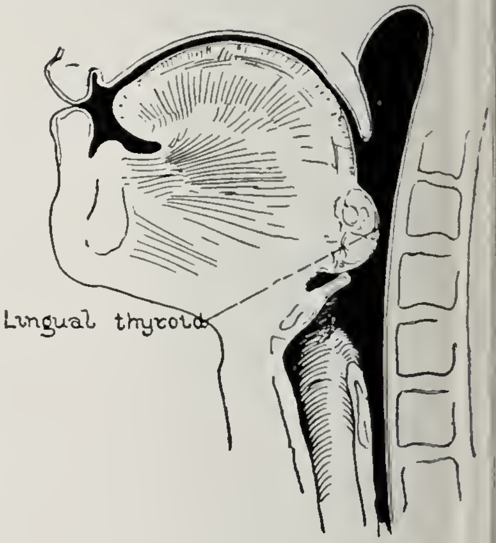

Fig. 6 (Case 5).—Location of a lingual thyroid.

It would seem in this case that the subglottic diaphragm was congenital, causing the original obstruction, and that, as the lumen of the larynx and trachea increased, the diaphragm had ceased to cause obstruction so that removal of the tube ultimately became possible.

In 1915, I [14] reported a case of congenital diaphragm of the larynx, at the same time reviewing the literature, and discussing the etiology. Small membranes have been seen in the anterior part of the larynx in the subglottic region, and not in any way connected with the cords. Case 3 would seem to be one of this type. The possibility of a cicatricial web above the tracheotomy tube must be considered, but the condition did not resemble a cicatrix, and the history would seem to exclude this.

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[8] Robertson, W.: Laryngeal Paralysis in Infants, Lancet **2**: 600-601, 1892.

[9] Löri: Ueber den clonischen Glottiskrampf der Neugeborenen und Säuglinge, Allg. Wien. med. Ztg. **25**: 579, 1890.

[10] Semon, F.: Handbuch der Laryngologie und Rhinologie, bearbeitet von P. Bergengrün, E. von Bergmann (et al); edited by Paul Heymann, Vienna, Hölder **1**, 1896-1898.

[11] Ashby, H. A.: Discussion on Congenital Stridor (Laryngeal and Tracheal), Brit. M. J. **2**: 1488, 1906.

[12] Cautley, E.: A Discussion on Congenital Stridor (Laryngeal and Tracheal), Brit. M. J. **2**: 1488, 1906.

[13] McBride, P.: Diseases of the Throat, Nose and Ear: A Clinical Manual for Students and Practitioners, Ed. 2, Edinburgh and London, Y. J. Pentland, 1894.

[14] New, G. B.: Congenital Diaphragm of the Larynx, St. Paul M. J. **17**: 100-104, 1915.

Wood [15] reports a congenital, subglottic diaphragm in a new-born infant which required tracheotomy, but later, by repeated dilating, the tracheotomy tube was removed. Other laryngeal webs have been reported since that time, but nothing of unusual interest has been brought out.

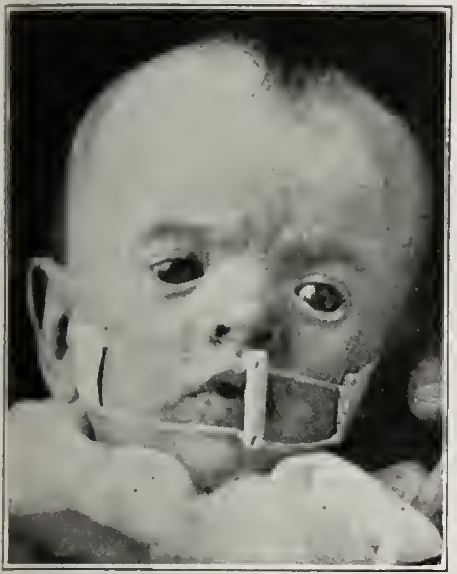

Fig. 7 (Case 6).—Congenital flaccid tongue and palate: A child, aged 2 months and 3 weeks, after two weeks' gain with the celluloid appliance in the pharynx. Pieces of adhesive plaster hold the cross-piece of the celluloid appliance in place, by means of linen threads.

Case 4.—*Angioma of the larynx. History.*—G. R., a girl, aged 9 months, was brought to the clinic for examination, Dec. 11, 1916. At the age of 3 months, a rattling in the child's throat and difficulty in breathing had been noticed by the parents. This seemed worse when she was lying down. She had never been really blue, and seemed well otherwise.

Examination.—The child appeared well nourished but had slight dyspnea. A roentgenogram of the chest was negative for thymus. Laryngoscopic examination revealed a dark bluish tumor in the left subglottic region, bulging to the middle line of the trachea. The mucous membrane was smooth and the tumor was sessile, about 1.25 by 1.8 cm. A clinical diagnosis of angioma was made (Fig. 4).

Treatment.—The child's symptoms did not demand immediate relief, so that radium treatment was used outside the neck directly over the area in the larynx. Jan. 13, 1917, a 50 mg. tube of radium was applied for five hours with 2 mm. of lead and an inch wood distance. A letter from the mother three years later stated that the child had had no further trouble in breathing.

Congenital obstruction of the larynx due to any form of neoplasm is very unusual. Clark and I,[16] in 1919, reported three cases of angioma of the larynx. Moore [17] states that there are seventy-six cases reported in the literature. Radium is the treatment of choice.

REPORT OF CASES OF PHARYNGEAL OBSTRUCTION

Case 5.—*Lingual thyroid. History.*—R. K. S., a boy, aged 3½ months, was brought for examination, April 24, 1922, on account of difficulty in breathing and swallowing which was noticed during the second week of life. The pregnancy had been normal. The symptoms had progressed until at the time of examination the child had constant difficulty in breathing, although at times it was not very marked. The boy had never become blue.

Examination.—The child was fairly well nourished, with a slight inspiratory stridor and slight grunting on expiration. These symptoms were occasionally absent for a few minutes at a time. Laryngoscopic examination revealed a soft, rounded tumor at the base of the tongue, just above the epiglottis, with normal epithelium over its surface and a few large blood vessels. The tumor looked and felt like lingual thyroid. The larynx was normal (Figs. 5 and 6).

Treatment.—No treatment was given, as the child's dyspnea was not marked enough to indicate operation. The parents were advised that, as the child grew older, the enlargement of the pharynx would increase the air space so that in all probability no treatment would be necessary, but that if the child should have trouble in breathing, a catheter might be passed just back of the base of the tongue to relieve this. A recent letter from the mother states that the child has difficulty in breathing only when he becomes excited or cries. He never chokes or gasps for breath, but merely breathes hard at this time. Unless his food is made especially fine, it chokes him.

In the Mayo Clinic we have examined ten adults with lingual thyroids. None of these presented a history of having had pharyngeal obstruction at any time. Fetterolf [18] found recorded in the literature two deaths in infancy from mechanical obstruction of a lingual thyroid which was found at necropsy.

Case 6.—*Congenital flaccid tongue and palate. History.*—D. J. F., a girl, aged 2 months and 3 weeks, came to the clinic for examination, May 26, 1921. She was a second child, of normal birth. She had been very cyanotic at birth, and a catheter had been passed into the pharynx on account of the dyspnea. It had been necessary to retain the catheter almost continuously in the pharynx for two weeks after birth. The child could not go to sleep unless the catheter was in the throat, and had had a great deal of difficulty in swallowing food from a dropper. She had weighed 8 pounds (3.6 kg.) at birth.

Examination.—The child was markedly emaciated, and dehydrated, weighing 7 pounds and 5 ounces (3.3 kg.), and making a peculiar sucking noise on inspiration, when the tongue was sucked back against the palate. On expiration, the neck and cheeks ballooned up, with an intermittent bubbling noise. The child could take but little food on account of the dyspnea. There was some watery discharge from the nose, and in the nasopharynx a collection of curded milk which had been blown back during expiration. The Wassermann reaction was negative (Figs. 7 and 8).

Treatment.—A catheter was passed into the pharynx just back of the tongue, and the child breathed without difficulty.

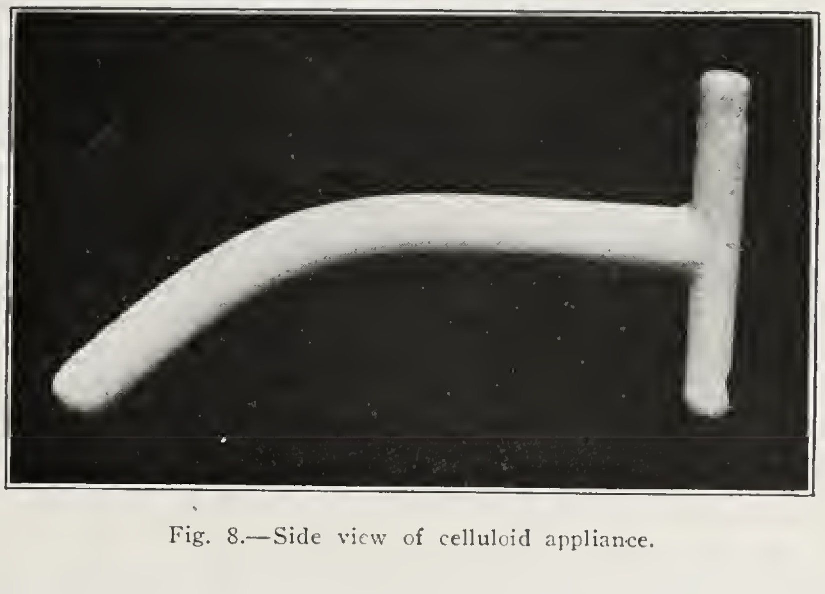

Fig. 8.—Side view of celluloid appliance.

A piece of celluloid was then formed, of the same curve and diameter as the catheter, and with a cross-piece at right angles at one end to remain outside the mouth and prevent the tube from being swallowed. By means of pieces of tape attached through holes at each end of the cross-piece, the celluloid was held in place in the pharynx and replaced the catheter. The child tolerated the apparatus easily, and immediately took her feedings and slept normally, so that she at once began to gain in weight. She gained 2 pounds (0.9 kg.) in a little over two weeks. Figure 7 shows the child after the first two weeks of gaining. She continued to gain and was discharged, June 30, 1921, in good condition, the celluloid being removed from time to time to clean it; but she was unable to sleep, or to take her feedings without it. Letters from the mother state that the child gets along now without the celluloid piece. She moves her tongue quite normally, and has no difficulty in eating or breathing.

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[15] Wood, C. A.; Andrews, A. H., and Shambaugh, G. E.: The Practical Medicine Series: The Eye, Ear, Nose and Throat **3**: 1916.

[16] New, G. B., and Clark, C. M.: Angiomas of the Larynx: Report of Three Cases, Ann. Otol., Rhinol. & Laryngol. **28**: 1025-1050, 1919.

[17] Moore, I.: Further Remarks on Angeiomata of the Larynx, J. Laryngol., Rhinol. & Otol. **38**: 57-65, 1923.

[18] Fetterolf, G.: A Case of Lingual Thyroid, Laryngoscope **22**: 1015-1019, 1912.

Butlin[19] describes two types of excessive mobility of the tongue. In the first type the frenum is very long, allowing the tongue to turn back on itself and be swallowed. In the second type there is a sinking back of the tongue, which lies so far back in the mouth that only the tip is visible, the dorsum of the tongue being applied against the posterior pharyngeal wall and the base pressing down against the epiglottis, causing obstruction.

The case I am reporting did not seem to fall into either of these two groups. The obstruction occurred both on inspiration and expiration, and was at the point where the soft palate and the tongue approximated. On inspiration the tongue was sucked back against the palate, and on expiration the palate was forced forward against the tongue, ballooning the neck, and forcing into the nasopharynx some of the food which had been taken. The cause of the obstruction was a flaccidity of the tongue and palate. The etiology of this condition may have been a neurosis.

CONCLUSION

Considering all of these cases as a group, one appreciates the fact that obstruction of the larynx and pharynx in infants may be due to various causes. I have not been able to find cases reported in the literature similar to two of mine; namely, the one in which the true cords were in the middle line (bilateral abductor paralysis) position, and the one of flaccid tongue and palate. This report may, therefore, add two additional types of conditions to those with which we are already familiar, as causing congenital respiratory obstruction.

ABSTRACT OF DISCUSSION

Dr. Thomas B. Carmody, Denver: Many children die within the first few days after birth, and the cause is not discovered. A number of cases of congenital obstruction have been reported in the last year or so. The only one we know of was reported recently by Dr. J. Mackenzie Brown. The grouping in the cases reported by Dr. New being entirely different, will stimulate us still more. A year and a half ago, I saw a child, between 2 and 3 years old, that had symptoms of flaccid epiglottis, like the case reported by Dr. Iglauer, but removal of the epiglottis was not required. Simply turning the child on its side was sufficient. The child also had pneumonia, and we felt that any operative procedure was out of place at the time. However, the child died within ten or twelve hours after we saw it, and necropsy was refused. In another case, there was nothing to do but to open the trachea. The child died a few days afterward, and the diagnosis was some heart condition. Postmortem examination was refused. I have seen one case of flaccid tongue which might possibly have caused obstruction, but it was a cleft palate case, and the cleft palate probably saved the obstruction. We more frequently find a short frenum than a long one in a case of cleft palate.

Dr. Samuel Iglauer, Cincinnati: Dr. New is to be congratulated on the great variety of conditions he found to cause obstruction of breathing. Ordinarily, when we see a case of this kind, the first thing we think of is an enlarged thymus, and probably the second is congenital stridor. However, Dr. New has two or three additional causes that are unique. At the Cincinnati Hospital, Dr. Blackfan has taken roentgenograms of many children, and he has found that many have an enlarged thymus without any resulting obstruction. However, whenever a child has obstruction, the first thing to do is to give a series of roentgen-ray treatments. If the symptoms do not disappear as the result of roentgen-ray treatment, then the thymus is not the cause of the obstruction. I am particularly interested in cases of congenital stridor with incurving epiglottis during inspiration. In the case I reported a year or more ago, there was much more incurving than is shown in the plates Dr. New presented. In that case, the epiglottis not only incurved, but curved backward, and it was so long that it practically closed off the aperture of the larynx. The removal of the epiglottis did not immediately relieve all of the dyspnea, but it disappeared in the course of a week. It seems to me that, perhaps, in congenital stridor there is some other causal element besides the elongated epiglottis. Since reporting that case, Dr. Rooker of Niagara Falls reported a similar case which he relieved by operation, and I believe a case was reported in Los Angeles. However, Dr. New succeeded in curing most of his patients without surgical intervention, and that is a rather remarkable achievement, because I think that we all have a tendency to rush in and do something to relieve the condition rather than to wait and see what Nature will do.

Dr. Gordon B. New, Rochester, Minn.: I want to bring out the point that Dr. Iglauer made, that many cases of so-called status lymphaticus will turn out to be cases of true laryngeal or pharyngeal obstruction.

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[19] Butlin, H. T., and Spencer, W. G.: Diseases of the Tongue, London and Paris, Cassell & Co., 1900.

PERCIVAL'S CODE: A CHAPTER IN THE HISTORICAL DEVELOPMENT OF MEDICAL ETHICS *

CHAUNCEY D. LEAKE, Ph.D.

MADISON, WIS.

Praesans imperfectum — perfectum, plusquam perfectum futurum.—Grotius.

In tracing the historical development of medica ethics, two main paths of progression are to be noted The first is concerned with regulations imposed o physicians by outside, and usually civil, authority; an the second with regulations imposed on physicians b physicians themselves. Covering generally the questio of fees, and designed to protect at once the interest both of society and of the individual practitioner, th first line of development began with the medical provisions of the celebrated Babylonian Code of Hammurabi (about 2250 B. C.),[1] and culminated with th lengthy fee statutes enacted by the various Europea municipal authorities[2] and the American colonia assemblies[3] during the seventeenth and first half of th eighteenth centuries. These embodied the principle o the *lex talionis* as late as the medical portions of th Forum Judicium of the Visigoths (about 650 A. D.) and usually prescribed the qualifications necessary fo medical practice (e. g., the medical ordinances of Frederick II in 1224 A. D.),[5] and the Menu Code of th Hindus, of unknown date.[6]

It is unlikely that any of these regulations wer initiated by physicians, being more probably law formulated to correct extortion and abuses practiced by physicians. The more truly ethical aspect of medicine was established by the Greeks during the period of Athenian ascendency. It is worthy to note that these people found it unnecessary, as far as we know, to make any laws regulating the practice of medicine, for this was done for them by their own physicians themselves in the famous Oath and Law of Hippocrates. These formed the ethical standard of the medical profession until the publication of Percival's code in 1803,[7] sufficient testimony to their undying merit.

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* Revised from papers read before the Wisconsin Medical Histo Seminar during the year 1922.

* Owing to lack of space, the code is omitted from The Journa It will be incorporated in the author's reprints.

[1] Harper, R. F.: The Code of Hammurabi, Chicago, 1904.

[2] Baas, J. H.: Outlines of the History of Medicine, translated H. E. Handerson, New York, 1889.

[3] Toner, J. M.: Contributions to the Annals of Medical Progress the United States Before and During the War of Independence, Was ington, D. C., 1874.

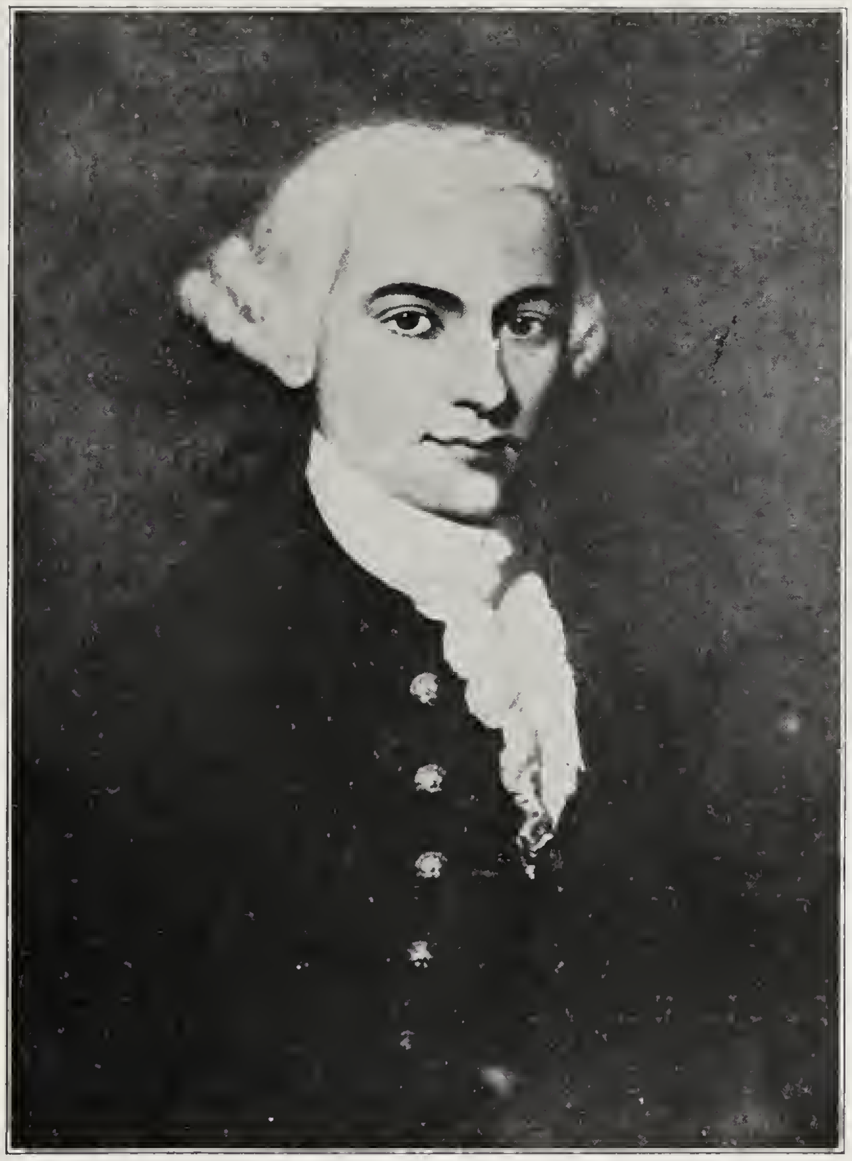
[4] Fort, G. F.: History of Medical Economy During the Midd Ages, New York, 1883.

[5] Fort (Footnote 4). Baumer, A.: Die Arztegesetzgebung Kais Friedrichs II, Leipzig, 1911.

[6] Wise, T. A.: Commentary on the Hindu System of Medici Calcutta, 1845.

From the period of Percival's code to the present, most laws relating to medical practice have been instigated by responsible physicians, and all standards of professional morality have been based on his work. It may be said that about the end of the eighteenth century physicians as a whole, apart from the outstanding leaders of former times whose personal professional ethics were unimpeachable, began to justify the trust humanity had for so long placed in them.

After the lapse of more than a century, and with many events tending to focus attention to medical ethics, it may be of interest to examine briefly the character of Thomas Percival, M.D., and his most important contribution.


Thomas Percival

SKETCH OF PERCIVAL'S LIFE

Born Sept. 29, 1740, in Warrington, Lancashire, Thomas Percival was left an orphan when 3 years old, and was raised by an elder sister. When he was at the impressionable age of 10, his uncle, Thomas, a physician, died and bequeathed him a valuable library and a legacy, gifts which persuaded him to study medicine. Always a progressive and independent thinker, he was a dissenter and staunch Unitarian, and at 17 enrolled as the first student in the Warrington Academy, a school for dissenters. His theological beliefs forced him to matriculate at Edinburgh, where in 1761 he began the active study of medicine. Here he became associated with many of the future leaders in medicine, not only of England, but also of the American colonies. He was a personal friend of Hume, and in 1765, the year following his visit to London, he was elected a Fellow of the Royal Society because of his "mathematical and philosophical learning." This was a considerable honor for one so young. It is not apparent why he failed to receive his degree at Edinburgh, but in 1765 he went for a year to Leyden, and obtained it there. Returning to practice at Warrington, Percival married Elizabeth Bassuett, and in 1767 the couple moved to Manchester. Here Percival soon established himself as a leader in medical and intellectual circles. His first publications, "Essays, Medical and Experimental," in 1767 and 1773 attracted favorable attention, and in 1778 he was appointed physician to the famous Manchester Infirmary. Because of poor vision and liability to headaches, he resigned this responsible position in 1780, and was at once appointed physician extraordinary, a position which he held until his death. It was through his interest in this institution that his Code of Medical Ethics was formulated.

Percival's contributions to medicine, aside from professional ethics, were of a stimulating nature. In 1770 he made "Proposals for the Establishment of More Accurate and Comprehensive Bills of Mortality in Manchester," arguing for the preparation of tables of christenings, marriages and burials in all churches, to be reported annually to one central office. These tables were to give the ages and sexes, the dates, and certificates of deaths stating the disease, and were to be signed by reputable attendants. From these statistics Percival expected to ascertain the increase or decrease of particular diseases; the influence of trades, sex, and other factors on longevity; and the influence of seasons and climate on health. With other friends, he actually succeeded in making a statistical examination of the population of Manchester in 1773, the returns of which he communicated to the Royal Society with criticisms and warnings of the errors of his method.

In 1796, Percival became interested in sanitary housing and working conditions, and his influence was considerable in compelling isolation of fever cases and in supervision of the cleanliness of lodging-houses. He apparently was among the first to call attention to the growing evils of factory work, pointing out the insanitary condition of the Manchester cotton mills, and protesting vigorously against the evils of child labor. Brockbank[8] quotes Alfred's "History of the Factory Movement" as stating that "the question of the factory regulation in Manchester, and the conditions under which factory regulation by Act of Parliament was rendered necessary were, in the resolutions of Dr. Percival, clearly laid down."

In medical treatment, Percival's main contribution was an effort to introduce cod liver oil in debilitation, in undernourishment and in chronic rheumatism and sciatica.

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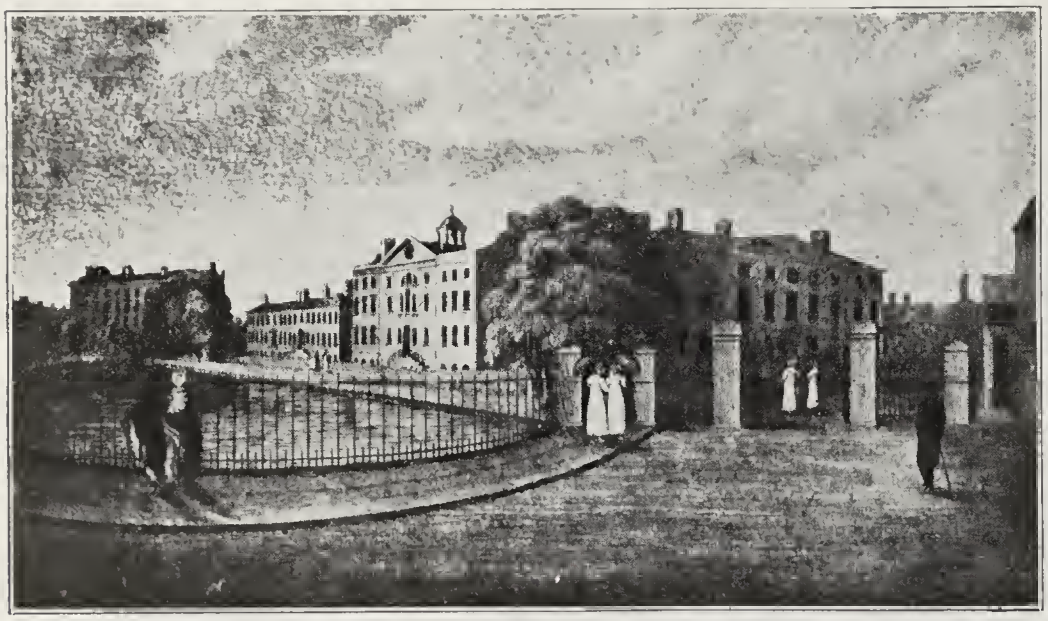
[7] Percival, Thomas: Medical Ethics, Manchester, 1803.

[8] Brockbank, E. M.: The Honorary Medical Staff of the Manchester Infirmary, 1752-1830, Manchester, 1904.

To Percival in a large degree Manchester owes the foundation of the Manchester Literary and Philosophical Society, that distinguished body which sheltered and aided Joule and Dalton. This society was formally organized in 1781, but, according to Brockbank,[8] "for some years before this time, meetings for 'conversation' on scientific and philosophical subjects used to be held weekly in Percival's house." Percival was president of the organization from 1789 to his death, and contributed nine of the first fifty-five papers.

Percival died, Aug. 30, 1804, and was buried at Warrington. He was survived by several children, one of whom, Edward, a physician, collected and published his works in 1807, in four volumes. The title of this edition is interesting in showing the international esteem in which Percival was held: "The works, Literary, Moral, and Medical, of Thomas Percival, M.D., F.R.S., and A.S., F.R.S. and R.M.S. (Edin.), the late President of the Literary and Philosophical Society at Manchester, member of the Medical Societies of London and of Aix en Provence, of the American Academy of Arts, etc., and of the American Philosophical Society at Philadelphia, to which are prefixed memoirs of his life and writings and a selection from his literary correspondence."



The Manchester Infirmary, showing the north wing, added, 1792-1793.

From contemporary accounts, Percival was well regarded by the cultured and enlightened of his age, as pointed out by De Quincy in his Autobiography; although, as quoted by Brockbank,[8] De Quincy intimates that his mother, because of her bigoted tendencies, did not like the more tolerant doctor. However, even in that age of exaggerated and quaint eulogy, nothing could surpass the expression of the Rev. William Magee, later Archbishop of Dublin, on the occasion of Percival's death: "He was an Author without vanity, a Philosopher without pride, a Scholar without pedantry, a Student without seclusion, a Moralist without moroseness, a Patriot without faction, and a Christian without guile. The great object of his life was usefulness, and the grand spring of all his actions was Religion."

PERCIVAL'S "MEDICAL ETHICS"

As early as 1775, Percival began writing short moral essays, entitled "A Father's Advice," and "Moral Tales, Tables and Reflections." These were probably designed at first for his own children, but became so popular that they even became translated into French and German. It was natural enough that with this solicitous regard for the ethical standards of those close about him, Percival's attention should be attracted to conditions in his own profession. The marked discrepancy between the professed ideals of the leaders of medicine and the actual conduct of many in the profession has been a matter for satirical comment for ages, and nearly every organized body of physicians from the Greeks on has attempted to formulate and enact at least a passable minimum of personal conduct compatible with ethical ideals. It was Percival's achievement to devise such a code of professional morality that it was susceptible to authoritative enforcement, and therefore of widespread emulation. Previous attempts, such as that of Paracelsus,[9] lacked authority because of their vague generalizations and failure to receive respect; or, as in the case of some of the continental organizations,[10] the rules were too strict and bigoted.

That Percival very soon after beginning practice had formulated ideas regarding professional ethics is shown by a letter written in 1771 in which he outlined a system for the "Internal Regulation of Hospitals." As the preface to the first edition of the "Medical Ethics" indicates, he composed in 1792, at the request of the physicians of the infirmary, "A Scheme of Professional Conduct Relative to Hospitals and Other Medical Charities." This became the code of laws under which the infirmary operated. In 1794, this code was printed for private circulation, in order to gather the criticisms of friends. Percival wished to call his work "Medical Jurisprudence," but was persuaded that "Medical Ethics" was a more suitable title. In the copy of the 1794 edition owned by the Manchester Infirmary is a note in Percival's writing, according to Brockbank,[8] "The completion of the 'Medical Jurisprudence' has been long suspended, and it is uncertain when the undertaking will be resumed. A title page, an introduction, a fifth and sixth section, and an appendix containing notes and illustrations are wanting to finish this little work. Manchester, March 17, 1794." The fifth section, "On the Powers, Privileges, Honours, and Emoluments of the Faculty," and the sixth, "On the Moral, Religious, and Political Character of Physicians," were never completed.

With the corrections made by friendly criticism, and with the endorsement of a long list of prominent English physicians, among whom was Erasmus Darwin, William Heberden and William Withering, the work was published at Manchester in 1803.

Percival's "Medical Ethics" is a charmingly written book, expressed quite in that leisurely, quaint and scholarly style one associates with a true English gentleman of the old school. Meeting at once with marked success, its wide distribution among all practitioners and medical students was urged by influential physicians. This was done, and it became the standard code of professional morality enjoined upon all practitioners in the British Empire.

Two other editions were published after Percival's death. The first, in 1827, was edited anonymously, and is interesting because of the editorial notes exposing the medical evils of the time. Attacks are made on the "diploma mongering" Colleges of Physicians of London and Dublin, and on the unworthy character of contemporary physicians. The last edition was issued in 1849 under the editorial supervision of Dr. Greenhill of Oxford. Since then other writers, such as Dr. Robert Saundby,[11] have issued texts on medical ethics, none of which either acknowledge any indebtedness to Percival, or show any evidence of improvement on him.

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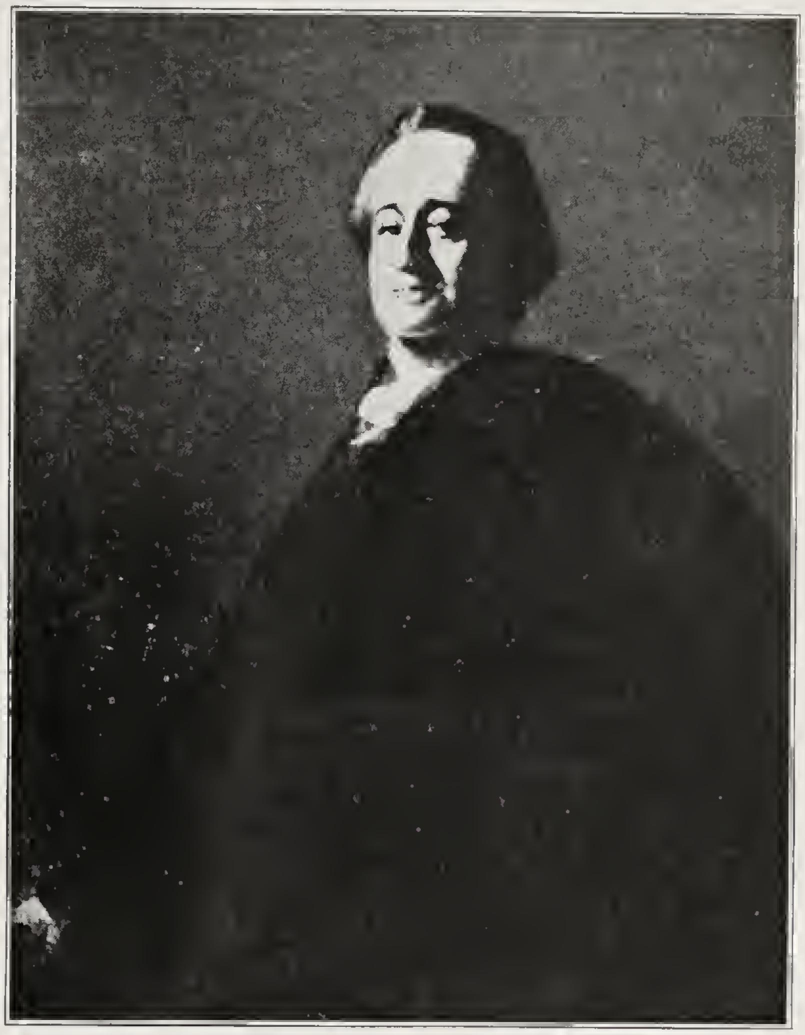
[9] Stoddart, A. M.: The Life of Paracelsus, London, 1911.
[10] Examples may be found in Baas (Footnote 2).

As intimated by the preface, Percival wrote his "Medical Ethics" for the guidance of the elder of two of his sons training for medical practice. The untimely death of this son, and of Percival's wife, caused the delay in its completion. It was dedicated to the other son, Edward Cropper, and although expressed in a manner suggesting that Percival intended it more as a justification for the reputation of a dutiful and affectionate father than as a simple note of dedication to a well beloved and thoroughly understood son, the dedication is worth quoting as an example of the author's literary style and moral tone:

> To E. C. PERCIVAL. Permit me, my dear son, to offer to your acceptance this little Manual of Medical Ethics. In the composition of it, my thoughts were directed towards your late excellent Brother, with the tenderest impulse of paternal love: And not a single moral rule was framed without a secret view to his designation; and an anxious wish that it might influence his future conduct.
>
> To you, who possess, in no inferior degree, my esteem and attachment; who are prosecuting the same studies, and with the same objects; my solicitudes are naturally transferred. And I am persuaded, these united considerations will powerfully and permanently operate upon your ingenius mind.
>
> It is the characteristic of a wise man to act on determinate principles; and of a good man to be assured that they are conformable to rectitude and virtue. The relations in which a physician stands to his patients, to his brethren, and to the public, are complicated and miltifarious; involving .much knowledge of human nature, and extensive moral duties. The study of professional Ethics, therefore, cannot fail to invigorate and enlarge your understanding; whilst the observance of the duties which they enjoin, will soften your manners, expand your affections, and form you to that propriety and dignity of conduct, which are essential to the character of a Gentleman. The academical advantages you have enjoyed at Cambridge, and those you now possess in Edinburgh, will qualify you, I trust, for an ample and honourable sphere of action. And I devoutly pray, that the blessing of God may attend all your pursuits; rendering them at once subservient to your own felicity, and the good of your fellow-creatures.
>
> Sensible that I begin to experience the pressure of advancing years, I regard the present publication as the conclusion, in this way, of my professional labours. I may, therefore, without impropriety, claim the privilege of consecrating them to you, as a paternal legacy. And I feel cordial satisfaction in the occasion of thus testifying the esteem and tenderness with which, whilst life subsists, I shall remain,
>
> Your affectionate friend,
> THOMAS PERCIVAL.

The work includes a preface and four chapters: the first, "Of Professional Conduct Relative to Hospital or Other Medical Charities"; the second, "Of professional Conduct in Private, or General Practice"; the third, "Of the Conduct of Physicians to Apothecaries"; and fourth, "Of Professional Duties in Certain Cases which Require a Knowledge of Law." To these are appended a discourse on hospital duties, and some twenty-two notes and illustrations concerned with hospital management, caution in practice, temperance of physicians, education, worship, and other pertinent matters. In these notes Percival adopts more of a real literary style, and many of them form delightful and scholarly essays.

The influence of this contribution in the field of medical deontology cannot be overemphasized. It served to arouse all physicians to a sense of their moral obligations, and stimulated great discussion in the profession on the points involved. It was but natural that much opposition should arise against the code as formulated by Percival, but its prompt acceptance by the regular associations and leaders of medicine caused those who acted in disagreement with its tenets to feel outlawed. Along with this weak opposition, imitation of the code by various organizations of physicians followed at once. These had a compelling power at hand in regard to obeying the code, in that disobedience, after proper trial, resulted in expulsion.



Samuel Brown, M.D., 1769-1830.

INFLUENCE OF PERCIVAL'S ETHICS ON THE MEDICAL PROFESSION OF THE UNITED STATES

Students of ethics generally recognize two broad theories of moral conduct, essentially contradictory in character: the first, having an ideal end, and serving the interests of humanity in general, is usually designated idealism, or rationalism, and is largely Platonic in nature; the second, having a more practical end, and serving the interests of self, is called hedonism, since it implies personal pleasure as the aim of all conduct. From an analysis of the evolution of moral actions, John Stuart Mill, whose altruistic delicacy was shocked by the coarse implications of hedonism, formulated the principle that whatever is useful is good. This is utilitarianism, and, as Robertson[12] points out, "The whole scope of medicine in relation to the public health is based on this aspect of ethics."

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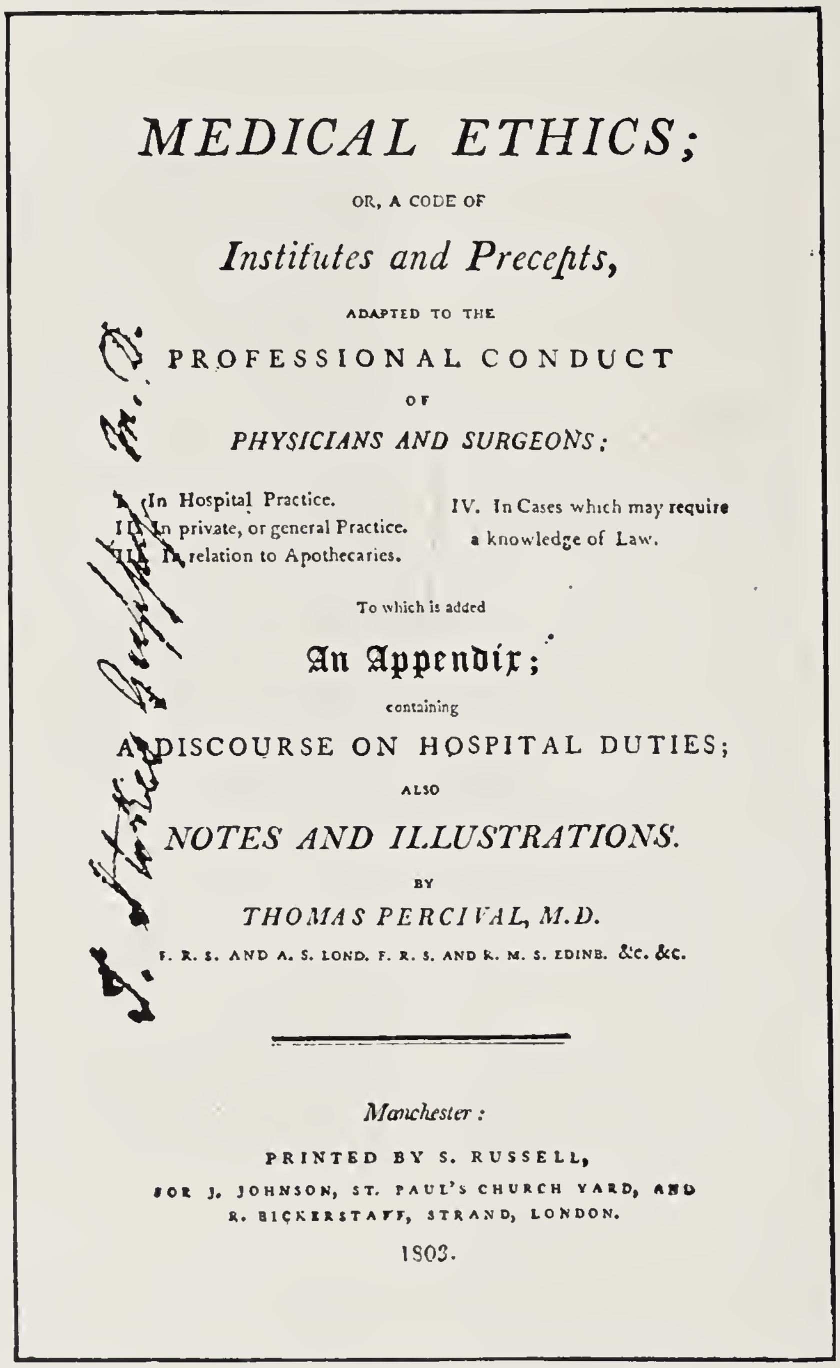
[11] Saundby, Robert: Medical Ethics, London, 1907.

[12] Robertson, W. G. A.: Medical Conduct and Practice: A Guide to the Ethics of Medicine, London, 1921.

In a measure, this is unfortunate, for, as Warner Fite[13] indicates, utilitarianism is an ineffectual compromise between idealism and hedonism, working out in actual practice along purely hedonistic lines. This is clear enough in the moral aspects of medicine, in which, to many physicians, utilitarianism becomes a placebo to their idealistic consciences and a cloak for their hedonistic conduct.

Nevertheless, when one reviews the principles underlying the moral responsibilities of medical men, as enunciated by physicians themselves, and relates them to the evolution of philosophy and civilization, one feels that medical ethics is not based on utilitarianism, but on idealism. From the Hippocratic Oath to the latest revision of the Principles of Ethics of the American Medical Association, it is implied by all the medicoethical writers that the ideal ends in the interest of humanity are the real bases for their remarks, and that these must be compromised only as little as possible in the interests of self. Of this righteous spirit, more evident, of course, in less formal statements of physicians, of which the essays of Osler[14] and Weir Mitchell[15] furnish striking illustrations—of this righteous spirit physicians may be proud. It has won against the pressure of two powerful forces: one, the overwhelming heritage, as James Harvey Robinson[16] puts it, of an animal, child and savage mind, and the other arising from the dangers of the superlatively objective scientific attitude.

Percival's code is idealistic in general, but recognition is made to the hedonistic factor in medical practice due to economic pressure on the individual physician. It is interesting to note how this factor becomes amplified in subsequent revisions of Percival's code made in the United States, where economic pressure was more severe.



MEDICAL ETHICS;

OR, A CODE OF

Institutes and Precepts,

ADAPTED TO THE

PROFESSIONAL CONDUCT

OF

PHYSICIANS AND SURGEONS:

I. In Hospital Practice.
II. In private, or general Practice.
III. In relation to Apothecaries.
IV. In Cases which may require a knowledge of Law.

To which is added

An Appendix;

containing

A DISCOURSE ON HOSPITAL DUTIES;

ALSO

NOTES AND ILLUSTRATIONS.

BY

THOMAS PERCIVAL, M.D.

F. R. S. AND A. S. LOND. F. R. S. AND R. M. S. EDINB. &c. &c.

Manchester:

PRINTED BY S. RUSSELL,
FOR J. JOHNSON, ST. PAUL'S CHURCH YARD, AND
R. BICKERSTAFF, STRAND, LONDON.

1803.

Title page of the code.

The influence of Percival's code in the United States was very great, since it served as a model for all the ethical principles adopted by the various medical organzations of the country, including those of the American Medical Association itself. Previous to the date of Percival's publication, several state medical societies, such as those of New Jersey[17] and Massachusetts, had incorporated in their constitutions or articles of organization many commendable ethical principles, and Benjamin Rush had published a lecture on the duties of a physician.[18] But rather than establishing an authoritative system of medical ethics such as Percival's, these indicated the need for it.

This necessity became acute during the eighteen-twenties, when the rapid expansion of the nation and the rise of many ill equipped medical schools attracted many unscrupulous persons to a lucrative profession. Dr. Samuel Brown of Transylvania University, Lexington, Ky., felt that he had a solution to offer in the formation of a secret society of the best physicians in the country, in which mutual support and good feeling were to reign, and in which the members were to be bound by a rigid system of ethical rules.[19] This code of the Kappa Lambda Society of Aesculapius was probably devised and in operation by 1820. In 1823 it was published by the Philadelphia Chapter of Kappa Lambda, and was acknowledged to be an abridgment of Percival's Ethics.

In the same year, the New York State Medical Society, undoubtedly activated by the same spirit, adapted the report and code of ethics drawn by a committee composed of James R. Manley, Felix Pascalis and John H. Steele.[20] These men made no acknowledgment to Percival; nor did Dr. J. J. Walsh,[21] in commenting on their labors, refer to their manifest indebtedness to the Englishman. On the contrary, Dr. Walsh made it seem as though the idea of a code of medical ethics originated with these members of the New York State Medical Society, and that no one else had ever thought of such a thing before. While the arrangement is different, and the material more condensed in the case of the New York code, the aphoristic style is the same, the context is very similar, and in several places foot-notes in the New York code refer specifically to Percival's words.

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[13] Fite, Warner: An Introductory Study of Ethics, New York, 1916.

[14] Osler, William: Aequanimitas, with Other Addresses to Medical Students, Nurses and Practitioners of Medicine, Ed. 2, London, 1920.

[15] Mitchell, S. W.: Doctor and Patient, Philadelphia, 1904.

[16] Robinson, J. H.: The Mind in the Making: The Relation of Intelligence to Social Reform, New York, 1921.

[17] The Rise, Minutes, and Proceedings of the New Jersey Medical Society, Established July 23rd, 1766, Published by order of the Society, Newark, 1875.

[18] Rush, Benjamin: Medical Inquiries and Observations, Volume I, Appendix "Containing Observations on the Duties of a Physician, and the Methods of Improving Medicine Accomodated to the Present State of Society and Manners in the United States," Philadelphia, 1794.

[19] Leake, C. D.: What Was Kappa Lambda? Annals of Medical History, Summer 1922, 4, No. 2, p. 192.

[20] Transactions of the Medical Society of the State of New York from Its Organization in 1807, up to and Including 1831, Albany, 1868, p. 230.

[21] Walsh, J. J.: History of the Medical Society of the State of New York in Commemoration of the Centennial of the . . . Society, New York, 1907.

In 1832, the Medico-Chirurgical Society of Baltimore published "A System of Medical Ethics,"[22] prefaced by this note:

> In the composition of this code of Ethics, free use has been made of Percival's Ethics, the abridgment of the same by the K. L. Society of Philadelphia, Gregory's Lectures on the Duties and Qualifications of a Physician, the Code of Ethics drawn up by the New York State Medical Society, that of the Connecticut Medical Society, Rush's Medical Observations and Inquiries and Lectures, and Ryan's Medical Jurisprudence by Griffith.—This general acknowledgement will render special references unnecessary.

The paramount importance of Percival's Ethics is here clearly enough stated.

Largely through the efforts of Nathan Smith Davis, the American Medical Association, in spite of much opposition, was organized in May 1846, in New York City. The first real business of the national medical organization was transacted the following year in Philadelphia, and it covered two of the matters most interesting in a study of medical ethics, the requirements of a medical education, and the formulation of a code of professional ethics.[23] Dr. J. J. Walsh has attempted to prove that this national code of medical ethics was based directly on the code of the New York State Medical Society. He[21] says:

> The reading of the two codes makes it clear that that of the National Association was founded to a considerable extent on the system of ethics of the New York State Society. This is not surprising if we recall that the American Medical Association originated from the efforts of the State Society of New York. While there has come considerable development in the professional aspect of many duties of physicians in the early quarter of a century that separates the two documents, there is no doubt at all about the influence exerted by the original system of ethics, and no ethical document adopted by any other state society had anything like the same influence. This is, of course, all the more interesting in the light of the fact that when the further development of medical ethics was to come after another fifty years, New York was again to be a leader in the evolution.

The note prefaced to the edition of the national code published in Philadelphia in 1848[24] indicates that Dr. Walsh's contentions are not true:

> Dr. Hays, in reporting the following code of medical ethics to the National Medical Convention, stated that justice required some explanatory remarks should accompany it.
>
> The members of the convention, he observed, would not fail to recognize in parts of it expressions with which they were familiar. On examining a great number of codes of ethics adopted by different societies in the United States, it was found that they were all based on that by Dr. Percival, and that the phrases of this writer were preserved, to a considerable extent, in all of them. Believing that language so often examined and adopted must possess the greatest of merits for such a document as the present, clearness and precision, and having no ambition for the honors of authorship, the committee which prepared this code have followed a similar course, and have carefully preserved the words of Percival wherever they convey the precepts it is wished to inoculate. A few of the sections are in the words of the late Dr. Rush, and one or two sentences are from other writers. But in all cases, wherever it was thought that the language could be made more explicit by changing a word, or even a part of a sentence, this has been unhesitatingly done; and thus there are but few sections which have not undergone some modification; while, for the language of many, and for the arrangement of the whole, the committee must be held exclusively responsible."

Credit is here given in no uncertain terms to Percival; and to the gracelessness of the previous lack of acknowledgment, attention is rather neatly called.

Gregory's "Lectures on the Duties and Qualifications of a Physician" exerted considerable influence on the development of American medical ethics, probably because many of the older leaders had heard them delivered at Edinburgh. But their lack of concrete definiteness put them in the advisory group with Rush's lectures on the same subject rather than in the authoritative position occupied by Percival's code.

Percival's direct influence on medicine culminated with the announcement by Dr. Hays before the American Medical Association, but it is not too much to believe that his enlightened attitude with regard to public medicine, and his ideals for the guidance of the individual practitioner, are still strong in maintaining the honorable character of the moral aspects of modern medicine, especially in connection with the agitation for more general practice. Percival wrote primarily for the general practitioner, and from the standpoint of one.

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[22] A System of Medical Ethics Adopted by the Medico-Chirurgical Society of Baltimore, Baltimore, 1832.

[23] Davis, N. S.: History of the American Medical Association, Philadelphia, 1855.

[24] Code of Ethics of the American Medical Association, Adopted May, 1847, Philadelphia, 1848.

BACTERIAL ENDOCARDITIS IN CONGENTIAL HEART DISEASE [*]

NORMAN E. CLARKE, M.D., M.S. (Med.)
ANN ARBOR, MICH.

The occurrence of bacterial endocarditis in association with a congenital cardiac defect is of interest because it is uncommon, because it presents certain diagnostic difficulties, and because of its bearing on the origin of bacterial infection of the endocardium. Its rarity is probably due to the infrequency of congenital heart disease after the first few years of life. According to Libman,[1] bacterial endocarditis usually attacks damaged valves or altered endocardial surfaces. Sufferers from congenital cardiac defects are, therefore, probably more prone to develop bacterial endocarditis than are normal persons. In children in whom both congenital and acquired cardiac affections are frequent, it is surprising, as Cautley[2] has pointed out, that bacterial endocarditis is not more common than it is.

Among the 150 cases of bacterial endocarditis included in Horder's[3] series, there were eight cases in which the heart showed congenital lesions. Allbutt[4] has reported sixty-four cases of endocarditis (right-sided), of which twenty-one were associated with congenital cardiac defects. Tuley and Moore[5] have reported a case of pneumococcus endocarditis in a boy, aged 13, with congenital heart disease. This patient also showed numerous other developmental abnormalities, such as congenital ptosis of the eyelids, bifid uvula and typical hutchinsonian teeth. Another case of congenital heart disease associated with pneumococcus endocarditis is that of Augé and Nobécourt[6] in a patient, aged 22. In Abbott's [7] series of 631 cases of congenital heart disease of all types, 182, or about 29 per cent., presented associated endocarditis. Of these patients, approximately 12 per cent. had acute, and 17 per cent. had chronic endocarditis. Garrod [8] has reported an unusual case in a patient, aged 39, with ulcerating vegetations engrafted on congenitally deformed aortic valves. This patient had also a congenital malformation of the liver. In a case reported by Moschcowitz,[9] the vegetations were on and about the pulmonary valve, the heart having an interventricular septum defect. In this case, *Streptococcus viridans* was recovered from the blood stream in one of seven blood cultures. An interesting finding in Hebb's [10] case was evidence of an old, as well as a recent, endocarditis. Laffitte [11] has recorded a case of acute endocarditis in a patient, aged 21, with congenital heart disease, who always had slight dyspnea on exertion, but no cyanosis. In Gordon's [12] patient, a boy, aged 5, there was an interventricular septum defect; Gordon refers to similar cases reported by Turner, Hector MacKenzie and Jackson Clarke.

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[*] From the Department of Internal Medicine, University of Michigan Medical School.

[1] Libman, Emanuel: Am. J. M. Sc. **140:** 516-527, 1910.

[2] Cautley, E.: Arch. Pediat. **30:** 328-334, 1913.

[3] Horder, T. J.: Quart. J. Med. **2:** 289-324, 1908.

[4] Allbutt and Rolleston: System of Medicine, Ed. 2, **6:** 311, 1909.

[5] Tuley, H. E., and Moore, J. W.: Report of a Case of Congenital Endocarditis, Am. J. Dis. Child. **13:** 426 (May) 1917.

[6] Angé and Nobécourt: Bull. et mém. Soc. méd. d. hôp. de Paris **40:** 40-43, 1916.

Horder [3] attributes the predisposition to bacterial endocarditis in congenital heart disease to chronic thickening of the endocardium, which is frequently found with these defects. It has been pointed out that the readjusted and changed blood stream in congenital heart disease throws on various parts of the heart strains for which they are not adapted. These unusual strains produce areas of lowered resistance on which bacterial infections are engrafted. Vegetations are common about the borders of septal defects, and also opposite defects in the ventricular septum, on that part of the ventricular wall against which the abnormal blood stream is directed.

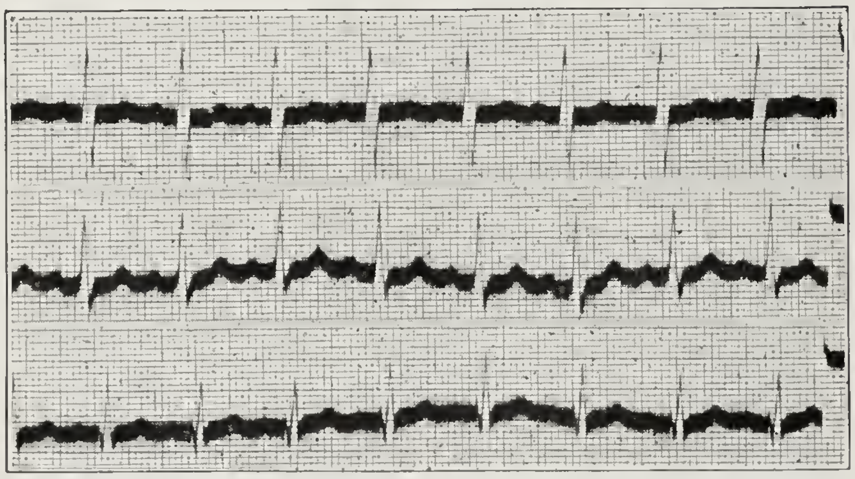

Fig. 1.—Type of electrocardiogram not commonly seen in pulmonary stenosis. It suggested right ventricular preponderance.

In some of the reports, the ages of individual patients are not given; most of the cases apparently fall in the first and second decades. I have not been able to find any record of the association of postfetal bacterial endocarditis and congenital heart disease before the age of 2½ years [3] or after the age of 39.[8]

The case reported here presents a most interesting and instructive example of the picture produced by the engrafting of a subacute bacterial endocarditis on a congenital heart lesion, and of the difficulties in diagnosis to which it gives rise.

REPORT OF CASE

History.—F. H., a man, aged 25, admitted to the University Hospital, Feb. 27, 1923, complaining of bloating of the abdomen, swelling of the feet and scrotum, weakness and sore mouth, had been able to continue his work as a railroad fireman, without symptoms, until October, 1922, when the illness of which he complained began. Before this illness he had never been breathless, and although he had always felt some slight palpitation, he had never been really incapacitated by the heart lesion of which he had been aware for many years. His "peculiar heart" had been noted by several different physicians, and was said to have been present at birth.

One of the patient's brothers was a "blue baby," and died forty-eight hours after birth of congenital heart disease. A second brother, who was living, had been told that he had a "weak heart," a condition which was present at birth. The father and mother were living and in good health.

The patient had measles in infancy, also mumps, followed by orchitis. He had inflammatory rheumatism at the age of 18, with characteristic involvement of the joints. He had gonorrhea at the age of 19, but denied knowledge of any primary or secondary syphilitic lesions. His average weight had been about 170 pounds (77 kg.); at the time of admission, he weighed 135 pounds (61 kg.).

In October, 1922, five months previous to his admission, he noticed a crop of "cold sores" on his lips, and a few days later, he had a severe chill. The day following the chill, he felt well, and resumed his work, but in the evening he felt chilly and very tired. This chilliness and fatigue continued for five weeks. In the morning he felt quite well, but each evening his symptoms returned. He felt feverish, and a physician who was called confirmed the presence of fever. After five weeks, the weakness and the increased severity of his other symptoms confined him to bed, where he remained three weeks. During this period, he had daily exacerbations of fever, with a maximal temperature of from 103 to 104, and a minimal temperature of about 101. His condition at this time resembled that seen in typhoid fever with delirium, and was so diagnosed. When he had recovered sufficiently to be up and about, his morning temperature was normal, but every afternoon at about the same time, his temperature rose suddenly to about 104, and he had a severe shaking chill. His condition then led to a tentative diagnosis of malaria. After a short time, the fever and chills became less severe, but the weakness increased. Three weeks previous to his admission to the hospital, he first noted that the legs and scrotum were swollen. The swelling involved the entire body at one time, but subsided except in the parts mentioned. During the week preceding admission, the abdomen became swollen and the tongue very sore.

Examination.—The examination at the time of admission showed signs of a considerable loss of weight. His mental state was normal, though he appeared acutely ill. The skin of the face was pale, with a lemon yellow tint. The eyes and ears were normal; there was a high grade nasal obstruction which made mouth breathing necessary. The lips were pale, but showed no cyanosis; the tongue was pale, smoothed out and atrophic in appearance. There was slight pulsation in the right supraclavicular fossa.

The chest was symmetrical; it expanded equally on the two sides, and respiration was normal. The cardiac impulse was not sharply localized, but there was a conspicuous systolic heaving of the entire precordium, and a systolic pulsation in the third intercostal space to the left of the sternum, with a diastolic retraction in the same area. By percussion, the left border of the heart was located in the midaxillary line, while the right border was 5 cm. to the right of the midsternal line. Palpation revealed a very strong thrill over the entire precordium; it was best felt in the second, third and fourth interspaces just to the left of the sternum. It was not felt at the apex, nor was it transmitted to the vessels of the neck. It extended upward and outward toward the left shoulder, but was not felt to the right of the sternum. On auscultation, a very loud harsh, rasping systolic murmur was heard over the entire precordium. It was loudest over the region where the thrill was best felt, and was transmitted in a similar way, though more widely. It was plainly heard in the back. No diastolic murmur was heard. The heart rhythm was regular. The pulse was large and poorly sustained, and had some of the features characteristic of the Corrigan pulse of aortic insufficiency. There was conspicuous pulsation of the arteries of the neck, and a well defined capillary pulse. When the patient's fingers were grasped in the hand, the throbbing of the vessels could be easily felt.

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[7] Abbott, M., in Osler and McCrae: Modern Medicine, New York, Lea & Febiger, 1915, pp. 323-448.

[8] Garrod, A. E.: Tr. Path. Soc. London **48**: 42, 1897.

[9] Moschcowitz, E.: Proc. New York Path. Soc. **14**: 18, 1914.

[10] Hebb, R. G.: Tr. Path. Soc. London **48**: 41, 1897.

[11] Laffitte: Bull. Soc. anat. de Paris **6**: 13, 1892.

[12] Gordon, W.: Brit. M. J. **2**: 1174, 1897.

The examination of the abdomen showed extreme tenderness under the left costal border, and a large collection of ascitic fluid which prevented accurate palpation of the abdominal viscera. The scrotum was very edematous. The fingers showed slight clubbing. There was conspicuous edema of both legs. The skin of the entire body was dry, slightly inelastic, pale and slightly yellowish. A close search of the skin and mucous membranes failed to reveal any petechiae. The urine was cloudy; specific gravity, 1.010. It contained a moderate amount of albumin; the sediment showed 200 white and 200 red blood corpuscles per low-power field. The blood examination showed hemoglobin, 20 per cent. (Sahli); red blood corpuscles, 1,700,000 per cubic millimeter, and white blood corpuscles, 21,400 per cubic millimeter, of which 86 per cent. were polymorphonuclears. One week later, the urine was smoky; it contained more albumin and the sediment contained many cellular casts in addition to large numbers of red and white blood cells. Ten days after admission, the phenolsulphonephthalein excretion was found to be 25 per cent. in the first hour, and 10 per cent. in the second hour. The blood contained 38.3 mg. of nonprotein nitrogen per hundred cubic centimeters, and the carbon dioxid combining power of the plasma measured 26.2 per cent. by volume. Twenty-four hours before death, the urine contained a large amount of blood. The leukocytosis present on admission persisted until death. Two blood cultures taken before death were both negative after seventy-two hours, but a pure culture of *Streptococcus viridans* was obtained after death from vegetations on the aortic and pulmonic valves.

Fluoroscopic examination of the heart showed an enormous cardiac enlargement. There was distinct pulsation of the pulmonary arch, but this was not dilated as is commonly the case in open ductus arteriosis. The heart shadow was not globular, nor did it show conspicuous systolic pulsation of the right border; it did not, therefore, show the features which are said to occur in many cases of defective ventricular septum.[13]

The electrocardiogram suggested right ventricular preponderance. It was not, however, of the type commonly seen in pulmonary stenosis.

Course.—March 6, the patient first complained of a sore tongue, and inspection showed it to be very much swollen and reddened, undoubtedly an acute glossitis, the infection having entered through one of the fissures.

March 7, the patient's condition was worse; he was much weaker and complained of choking spells. There was a very noticeable swelling and infiltration of the neck tissues, progressing downward.

March 10, the pulse was weak and thready, but the tongue condition was improved. The chest showed impaired resonance over the left lower back. There was no change in the breath or voice sounds in this area. The face was much swollen.

March 11, the patient died having remained fully conscious to the end.

Necropsy.—The skin was pasty white, with only a trace of yellow. It was fine, soft, and moderately elastic. There was considerable edema of the legs and scrotum, and slight edema of the face. The nasal septum showed a perforation 2 cm. in diameter.

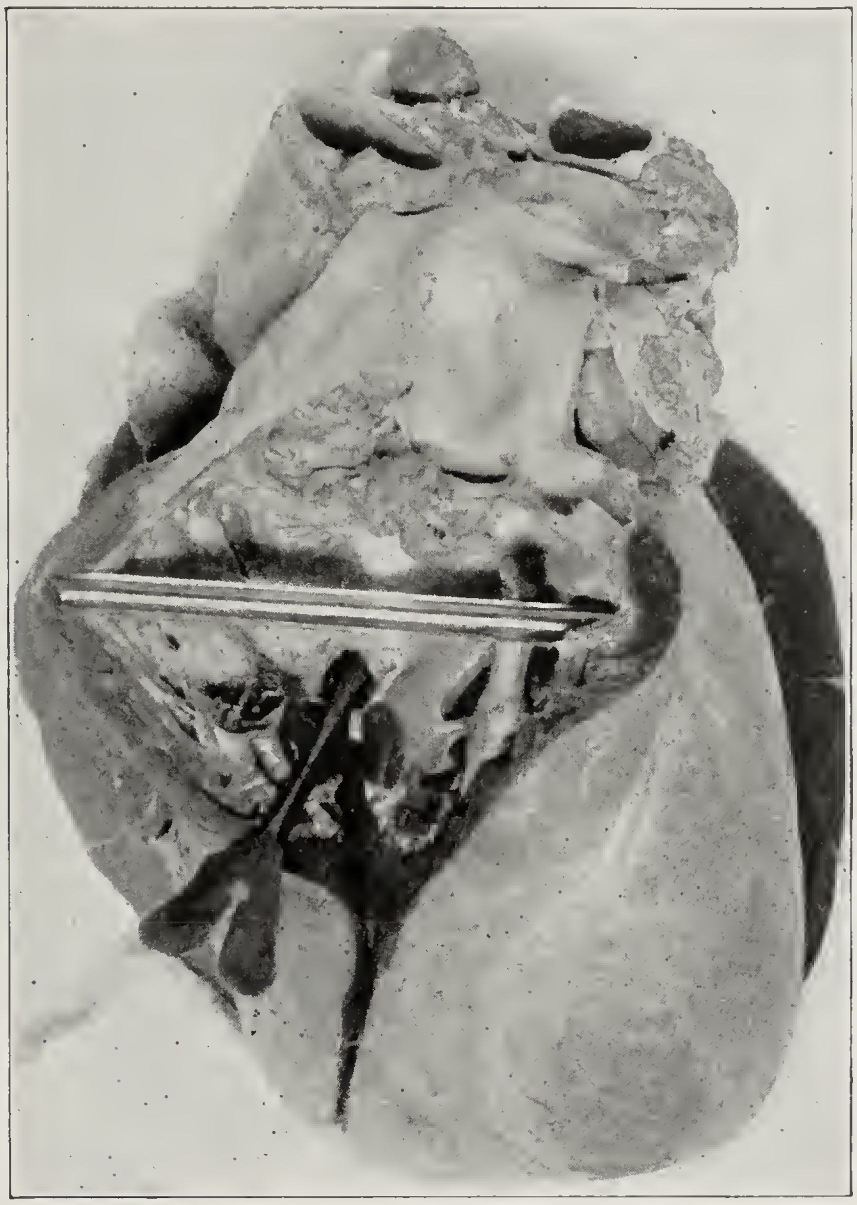
Fig. 2.—Right side of the heart: The grooved director is inserted in the button-like opening between the trabeculae, which was anterior to the septal defect leading in the direction of the pulmonary artery; the large polypoid vegetation is shown on one of the pulmonary cusps.

The abdominal panniculus was very scanty; the abdominal cavity contained about 1,500 c.c. of a chyliform fluid, which was slightly greenish-yellow. The lower border of the liver was 7 cm. below the tip of the ensiform and at the rib margin in the right nipple line. The spleen appeared larger than normal for the size of the body. A small accessory spleen was present. The gastro-intestinal tract was essentially negative. There was no portal vein obstruction, and the mesenteric lymph nodes showed no hyperplasia. The left kidney weighed 425 gm.; its capsule was pale, and mottled gray and pinkish areas were seen through the capsule. The fibrous capsule stripped readily, leaving a smooth, pale, yellowish-gray surface, on which the stellate veins stood out very prominently. Section of the kidney showed swelling of the entire parenchyma, which was most marked in the cortex. The cortex measured 14 mm. in thickness over the bases of the pyramids. In many areas there was a yellowish fatty appearance, and everywhere the cut surface of the cortex rose well above the level of the medulla. The right kidney weighed 405 gm., and in appearance resembled the left. In the abdominal aorta there were well advanced atherosclerotic areas in the form of elevated yellowish plaques, chiefly linear in distribution.

There was considerable fluid exudate in the substernal tissues. Fluid was present in both pleural cavities. Abundant islands of thymic tissue were easily demonstrated. Over the left lung there was a very acute fibrinous pleuritis, and the lung showed almost complete atelectasis and, on section, some edema and congestion. The right lung showed some atelectasis and also edema and congestion. Examination of the bronchi showed a few patches of purulent bronchitis on both sides. The pulmonary vessels showed no evidence of embolism or thrombosis.

The pericardial tension was increased, and the pericardial sac contained about 200 c.c. of a turbid fluid. The heart measured 13.5 by 12.5 by 9 cm.; its weight was not obtained.

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[13] Vaquez and Bordet: The Heart and the Aorta, New Haven, Yale University Press, 1920.

The ventricular portion was somewhat rounded and globular in form. The apex was formed jointly by both ventricles and was not bifid.

The right ventricular wall was hypertrophied, averaging 14 mm. in thickness with the heart in rigor. The foramen ovale was closed, but a defect measuring 23 mm. in diameter was present in the membranous portion of the interventricular septum immediately beneath the aortic ring. This situation caused the upper margin of the opening to be formed by the inferior surface of the aortic cusp, on which was a polypoid vegetation 7.5 mm. in diameter. Anterior to the septal defect was a buttonhole-like opening between the trabeculae, which admitted the thumb. This opening led in the direction of the pulmonary artery, the conus arteriosus thus being unusually cut off from the remainder of the right ventricle. The pulmonary ring proper was found 3 cm. above this opening. The pulmonary valves were tricuspid, one valve showing a small fenestration. A large polypoid vegetation, measuring 1.5 by 1 by 0.5 cm., was attached to one of the cusps.

The left ventricular wall measured 22 mm. in thickness while still in rigor. No fibroid areas were found in the myocardium. The aortic valves showed some inequality; the cusps were irregularly thickened and bore a few small vegetations. The aortic orifice was entirely to the left of the septum. The mitral valves showed but one small marginal nodule.

The heart showed serous atrophy of the subepicardial fat, moderate hypertrophy of the heart muscle, and advanced sclerosis of the endocardium with subendocardial fibrosis. No Aschoff bodies were found. Early atherosclerosis was noted in the aorta. The endocardial vegetations showed progressive thrombo-endocarditis with organization and calcification, signs of an active process. Occasional large Hassell corpuscles were found in the persistent thymus. The spleen showed atrophy of lymphoid tissue, but no infarcts. The liver was of the nutmeg type, showing leukocytosis and atrophy of the liver rods. The microscope picture of both kidneys was that of diffuse subacute glomerulotubular nephritis with severe edema and congestion. Leukocytic infiltration and numerous epithelial crescents were present. A few small hemorrhages were found, but no infarcts were discovered. There was complete atrophy of the testicular germ cells, with no spermatids. One testis showed nearly complete fibroid atrophy, with hyperplasia of the interstitial cells, evidence of an old diffuse orchitis due to mumps.

COMMENT

There can be little doubt that the association of endocarditis and congenital heart disease is more than a coincidence. Their rather frequent association, in view of the rarity of the primary condition, lends additional weight to the statement of Libman [1] that endocardial infection in hearts occurs on previously damaged or, in these cases, altered surfaces. Our patient gave a history of rheumatic fever, and although no evidence of rheumatic heart disease was found at necropsy, this may have contributed to his susceptibility to bacterial endocarditis.

Bacterial endocarditis is most protean in nature. It is frequently diagnosed as typhoid fever, meningitis or malaria, resembling at times the last mentioned to such a degree that the opinion was widely held at one time, especially by the French, that malaria might be the cause of the condition.

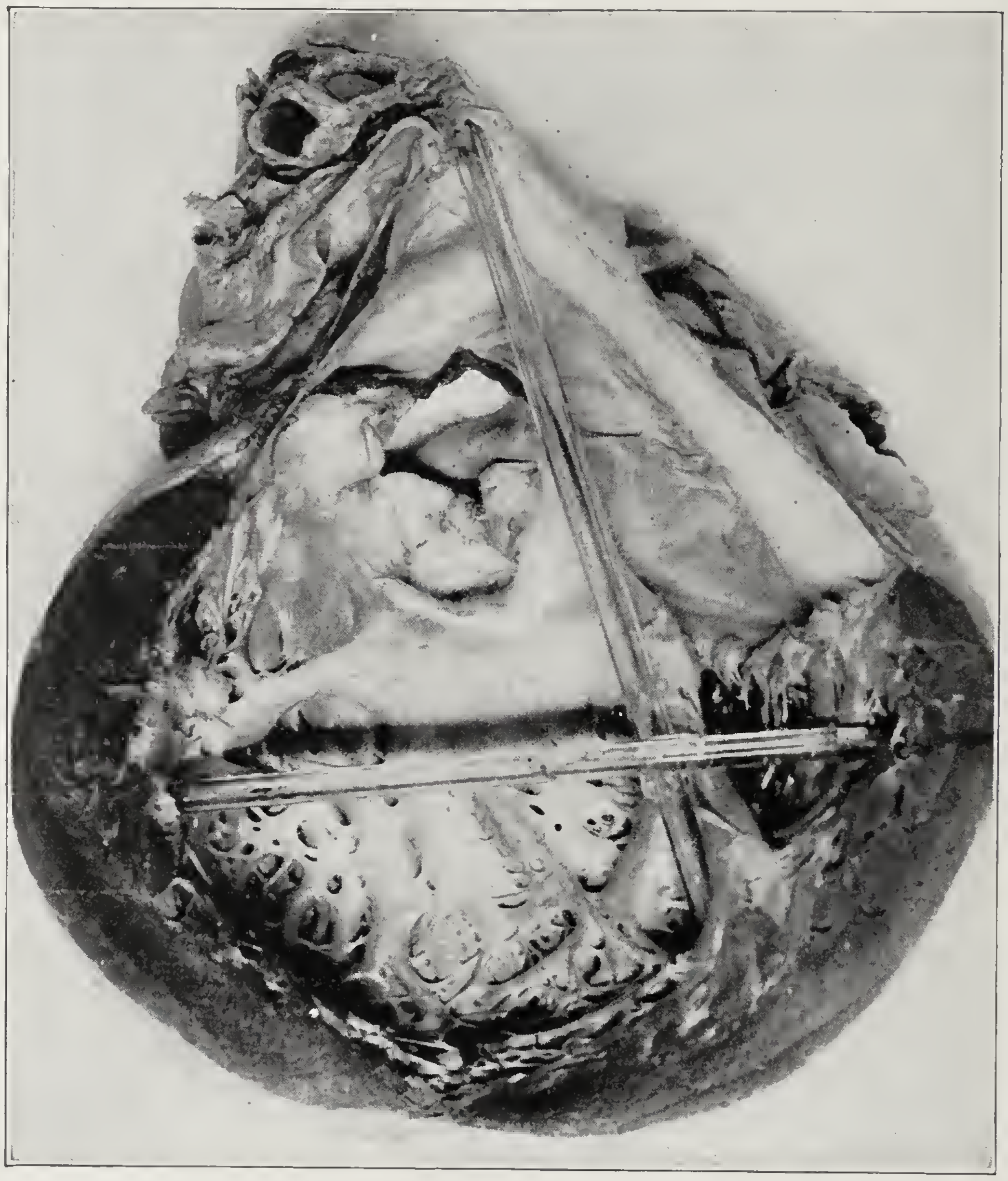

Fig. 3.—Left side of the heart: large defect in membranous portion of septum.

The predisposition of patients with congenital or acquired cardiac disease to bacterial endocarditis is a stumbling block in the recognition of the disease. The family physician who is first called, knowing that the patient has had heart disease for years, is not likely to associate the fever and signs of infection with the cardiac lesion. For the consultant who learns of the heart lesion and the signs of infection simultaneously and at a later date, the diagnosis is usually not difficult.

It should be emphasized that a fever of irregular type, of which the cause is not obvious, in a patient who has heart disease, should lead to a suspicion of endocardial infection, especially if it is long continued. When to this picture are added a progressive hemolytic anemia and acute nephritis with red blood cells and cellular casts in the urine, the diagnosis becomes practically certain.

The disease is almost always fatal, and any hope of the patient's recovery rests on the early recognition of the disease, which is probably best and earliest made by properly taken and controlled blood cultures. The recent report of Capps [14] on the treatment of this disease with sodium cacydolate leads to the hope that treatment with this drug in early cases may bring about a small percentage of cures.

Cyanosis is very common in congenital heart disease, and extreme grades of this symptom are frequently seen. Thomson [15] found cyanosis in 53 per cent. of 136 cases; Still [15] noted it in thirty-four of 100 cases.

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[14] Capps: Am. J. M. Sc. **165**: 40-47, 1923.

[15] Quoted by Lundsgaard and Van Slyke, Medicine **2**, No. 1, 1923.

There are many theories to explain this, association. Morgagni and others believed venous stasis to be the causative factor. The admixture of venous and arterial blood was considered by de Senac, Meckel and other observers to be the cause of the cyanosis. Lees thought many factors, including those mentioned, led to deficient aeration of the blood, which was the essential element in the production of cyanosis.

Normally, the intraventricular systolic pressure is higher in the left than in the right ventricle. When there is a defect in the ventricular septum, the blood flow is, therefore, from left to right. An uncomplicated septal defect is not likely, therefore, to be accompanied by cyanosis due to admixture of venous and arterial blood.

When, however, a large opening in the septum is complicated by pulmonary stenosis, cyanosis is almost always present. It is probable that the stenosis leads to high pressure in the right ventricle, and thus to a flow of blood from the right to the left ventricle. The relation between pulmonary stenosis and high pressure within the right ventricle may be easily explained by the principles laid down by Starling.[16] The absence of cyanosis in patients with large septal defects and pulmonary stenosis has always been difficult to explain.

Recently, Lundsgaard and Van Slyke [17] have shown that cyanosis depends on certain essential factors, and is altered in degree by many variable conditions. Essentially, cyanosis depends on the absolute amount of reduced hemoglobin per unit of blood volume. With other factors remaining normal, it requires 5 gm. of reduced hemoglobin per hundred cubic centimeters of capillary blood to produce the bluish color. The ratio of oxygenated to reduced hemoglobin plays no part. Where a portion of the blood passes through an unaerated shunt, as in cardiac septal defects, one third of the total blood volume must be shunted before the cyanotic threshold is crossed. The absence of cyanosis in certain cases of septal defect and pulmonary stenosis may, therefore, be easily explained.

Anemia is important in the production of cyanosis. Whereas polycythemia, which is often present in congenital heart disease, increases the tendency to cyanosis, anemia reduces the chances of its development. In anemias of severe grade, in which 100 c.c. of blood does not contain 5 gm. of hemoglobin, cyanosis cannot develop under any conditions.

A severe anemia, of recent development, was present in our patient when he was admitted. As the patient had no cyanosis while in good health, its absence could not have been due to the anemia.

The late urinary changes and the pathologic changes in the kidneys are of interest. Hematuria has been frequently noted in subacute bacterial endocarditis, and is often considered a sign of hemorrhagic nephritis. In a special anatomic study of kidneys from patients dying from subacute bacterial endocarditis, Baehr [18] described what he considered a distinctive picture. This consisted of bacterial emboli in the glomerular capillaries with no visible changes in the uninvolved loops of involved or uninvolved glomeruli, the only apparent disturbance being a microscopic renal bleeding. In a later study,[19] these glomerular changes were not found in patients who showed signs of acute renal insufficiency and died of subacute bacterial endocarditis. In nine of his seventy-seven cases, Baehr [20] found unusual kidney changes. In these, the glomerular lesions were obscured by universal glomerulotubular damage. The microscopic kidney changes in two cases closely resembled that found in our patient. The glomerular epithelium was swollen; several glomerular loops were bloodless and disintegrated, while an active proliferation of Bowman's capsule caused crescents of swollen and proliferating cells. No bacterial glomerular emboli were demonstrated.

The absence of emboli in our case was unusual, as was also the absence of emboli or infarctions at the postmortem examination. In view of the numerous vegetations present in the heart, and their friable condition, it is impossible to explain why embolic phenomena were not present.

INTRODUCTION OF COCCIDIOIDAL GRANULOMA INTO CHICAGO *

EDWIN F. HIRSCH, M.D.
CHICAGO

Coccidioidal granuloma, a disease in many ways resembling blastomycosis and tuberculosis, but entirely distinct from them, results from infection with *Coccidioides immitis,* a mold of the *Ascomycetes* group. Since the first report of this disease by Wernicke [1] and Posadas [2] from Buenos Aires in 1892, which to date seems to be the only instance mentioned outside North America, there have been recorded about fifty additional cases, most of them from California. Rixford and Gilchrist [3] in 1896 reported the first two cases from California, and regarded as protozoon parasites the spherical-shaped organisms present in the tissues, the confusion having been introduced by Wernicke and Posadas in the original descriptions of the disease. Ophüls and Moffitt,[4] in 1900, however, demonstrated by cultures of organisms taken from lesions that the causal agent is a mold. Excellent summaries of the disease have been made from time to time by Hektoen,[5] MacNeal and Taylor [6] and Dickson.[7] Dickson's review, written in 1915, lists forty cases of infection in human beings; thirty-five of the patients lived in California, and three visited the state. Twenty-seven of the thirty-five state residents had lived or spent some time in the San Joaquin valley; of the other eight, only two gave a history of never having visited this region. Since Dickson's report, Lipsitz, Lawson and Fessenden [8] have reported a human infection from Missouri; Bowman [9] six more from California; Helsley [10] another from California; Lynch [11] one from Charleston, S. C., and Burkhead [12] one from Kansas.

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[16] Starling, E. H.: Linacre Lecture, Law of the Heart, London, Longmans Green & Co., 1918.

[17] Lundsgaard, C., and Van Slyke, D.: Medicine **2:** 1-76, 1923.

[18] Baehr, George: J. Exper. Med. **15:** 330-346, 1912.

[19] Baehr, George: Significance of Embolic Glomerular Lesions of Subacute Streptococcus Endocarditis, Arch. Int. Med. **27:** 262-264 (Feb.) 1921.

[20] Baehr, George, and Lande, Herman: Glomerulonephritis as a Complication of Subacute Streptococcus Endocarditis, J. A. M. A. **75:** 789-790 (Sept. 18) 1920.

* From the Pathological Laboratory and the Medical Service "A" of St. Luke's Hospital.

[1] Wernicke, R.: Ueber einen Protozoenbefund bei Mycosis fungoides (?), Centralbl. f. Bakteriol. **12:** 859-861 (Dec.) 1892.

[2] Posadas, A.: Psorospermiose infectante généralisée, Rev. de chir. **21:** 277-282 (March) 1900.

[3] Rixford, E.: Case Report, Occidental M. Times **8:** 326 (March 5) 1894; A Case of Protozoic Dermatitis, ibid. **8:** 704-707 (Dec.) 1894. Rixford, E., and Gilchrist, T. C.: Two Cases of Protozoon (Coccidioidal) Infection of the Skin and Other Organs, Johns Hopkins Hosp. Rep. **1:** 209-251, 1896.

[4] Ophüls, William, and Moffit, H. C.: A New Pathogenic Mould (Formerly Described as a Protozoon; Coccidioides Immitis Pyogenes), Preliminary Report, Philadelphia M. J. **5:** 1471-1472 (June 30) 1920.

[5] Hektoen, Ludvig: Systemic Blastomycosis and Coccidioidal Granuloma, J. A. M. A. **49:** 1071-1077 (Sept. 28) 1907.

[6] MacNeal, W. J., and Taylor, R. M.: Coccidioides Immitis and Coccidioidal Granuloma, J. M. Res. **30:** 261-273 (July) 1914.

[7] Dickson, E. C.: Oidiomycosis in California, with Especial Reference to Coccidioidal Granuloma, Including Nine New Cases of Coccidioidal Granuloma and One of Systemic Blastomycosis, Arch. Int. Med. **16:** 1028-1044 (Dec.) 1915.

When cultivated on artificial mediums, the mold grows out in a mycelium with hyphae. MacNeal and Taylor demonstrated in ascitic fluid cultures, grown anaerobically, multiplication by endogenous spore formation such as occurs within the animal tissues. This method of multiplication differentiates coccidioidal granuloma from blastomycosis. The parasites occur abundantly in the diseased tissues as doubly contoured spheres variously reported to be from 5 to 50 microns or larger in diameter. The protoplasm is granular. The spores develop within the protoplasm in numbers as many as a hundred or more, and, when grown sufficiently, are released by rupture of the capsule of the containing parasite.

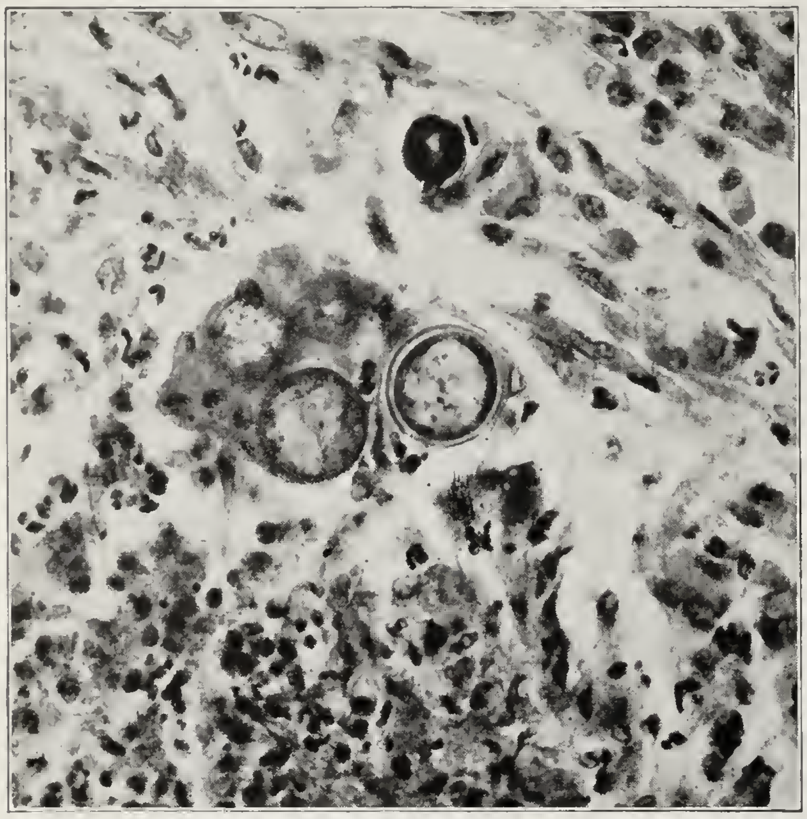

Fig. 1.—Coccidioides immitis in tissue: × 450.

The infection may be cutaneous, pulmonic (or both) or systemic. The cutaneous lesions resemble those of blastomycosis, but the ulceration in coccidioidal granuloma is said to be more extensive. Infection of the lungs produces symptoms like those of pulmonary tuberculosis, and even the lung lesions resemble very closely those of tuberculosis. With either form (or both) the infection becomes systemic, the regional lymph glands particularly are invaded and suppurate, and multiple abscesses appear in the viscera and the tissues generally. The prognosis is grave.

There seems to be no record from Illinois of coccidioidal granuloma in man.

REPORT OF CASE

A negro, aged 27, although claiming residence in Chicago for the last five and one-half years, was a Pullman porter on the Santa Fe Railroad train service between Chicago and Los Angeles, and his illness in Chicago followed a return trip from California. He entered the service of Drs. Arthur R. Elliott and Robert B. Preble at St. Luke's Hospital, March 6, 1923, complaining of a cough and of fever and pain in the chest. His illness began with a left pleurisy, Oct. 27, 1922, followed by pneumonia on the left side, which kept him in bed until December, 1922. Cough, fever, weakness and loss of weight continued, and about three days before he was admitted he began to have pain in the lumbar region of the back. Physical examination demonstrated left lung changes which suggested a chronic pulmonary infection, possibly tuberculosis. Blood examination revealed: red blood corpuscles, 4,160,000; leukocytes, 9,000; hemoglobin, 70 per cent. April 23, the leukocyte count was 17,100; May 3, 10,150. Repeated examinations of the sputum failed to demonstrate tubercle bacilli. March 7, thick, purulent fluid was recovered by thoracotomy in the left seventh interspace. April 12, tenderness opposite the back of the right sixth rib was noted, and when operation was performed, April 17, by Dr. A. E. Halstead, a portion of the rib here was necrotic and an extrapleural abscess was drained. April 20, this cavity was found to connect with another abscess in the mediastinum and with one in the right pleural cavity. From then on the patient gradually lost in strength, had an irregular fever, complained of pain in the back and, May 5, 1923, died after having spent sixty days in the hospital.

The postmortem examination, with Dr. J. A. Bargen, made less than an hour after death, included a complete external examination and an examination of the head and trunk but not of the neck. The essential changes demonstrated were: disseminated miliary gray nodules, fibrous tissue changes and atelectasis of the lungs; a healing abscess of the right lung, with drainage; multiple abscesses of the periaortic, peribronchial and retroperitoneal lymph glands; a huge right psoas abscess, unruptured, with suppurative osteomyelitis of the fourth lumbar vertebra, and suppurative necrosis of the lumbar intervertebral disks; acute fatty and parenchymatous changes of the liver and kidneys, and hyperemia of the leptomeninges. There were no cutaneous lesions or scars except those resulting from operative procedures.

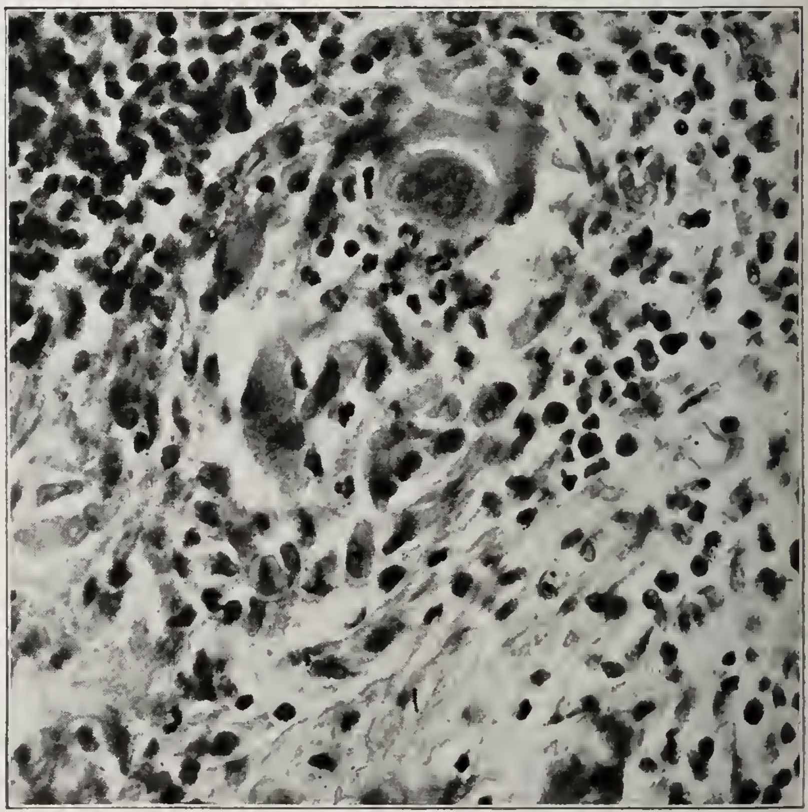

Fig. 2.—Spore-bearing Coccidioides immitis: × 450.

Microscopic examination of tissue preparations from the psoas abscess and from the lymph glands disclosed extensive regions of necrotic tissue containing many polymorphonuclear leukocytes (abscesses). Spore-bearing and non-spore-bearing spheres with doubly refractive capsules, as shown in the accompanying photomicrographs, in all respects resembling *Coccidioides immitis,* were present in these necrotic places and in the chronic granulation tissue of the abscess walls. Miliary abscesses containing similar parasites were present in the lungs, suprarenals and pancreas, but none were observed in the brain sections. The liver, kidney and spleen tissues were not examined microscopically. A mold, with characteristics like those reported for the parasite mentioned, was grown in culture from the psoas abscess.

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[8] Lipsitz, S. T.; Lawson, G. W., and Fessenden, E. M.: Case of Coccidioidal Granuloma, J. A. M. A. **66**: 1365-1367 (April 29) 1916.

[9] Bowman, W. B.: Coccidioidal Granuloma, Am. J. Roentgenol. **6**: 547-555 (Nov.) 1919.

[10] Helsley, G. F.: Coccidioidal Granuloma, J. A. M. A. **73**: 1697 (Nov. 29) 1919.

[11] Lynch, K. M.: Coccidioidal Granuloma, Including First Reported Case East of the Mississippi, South. M. J. **13**: 246-249 (April) 1920.

[12] Burkhead, C. R.: Coccidioidal Oidiomycosis, J. Kansas M. Soc. **22**: 101-103 (April) 1922.

Although miliary abscesses have not been demonstrated in all of the tissues examined, such lesions in the viscera were sufficiently widespread to afford a basis for the belief that the infection, at least terminally, became systemic.

COMMENT

This report, besides placing on record another instance of coccidioidal granuloma, concerns the possible permanent introduction of the disease into parts of the country which now are not infested. Judging from reports of this infection in Missouri, Kansas and South Carolina, the disease is either more widespread than has been thought, or it is slowly being carried into places which formerly were free. There may be some peculiar intermediate host or carrier in the natural transmission of the disease which makes human infection relatively infrequent and possible only in the natural habitat of such a carrier or host.

EXPERIMENTAL HERPES ZOSTER

PRELIMINARY REPORT *

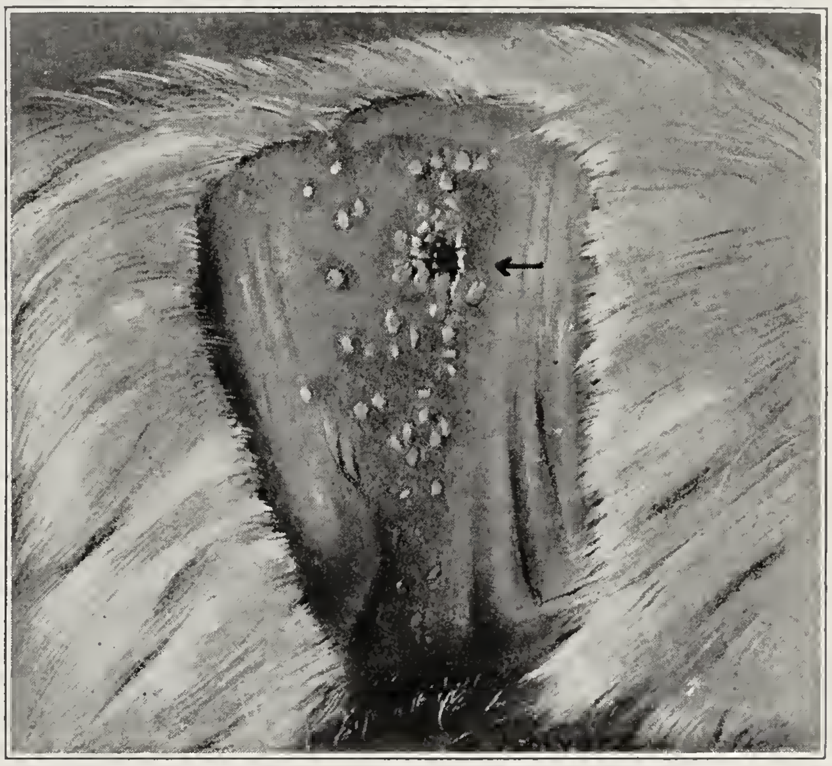
OSCAR TEAGUE, M.D.
AND
ERNEST W. GOODPASTURE, M.D.
PITTSBURGH

During the last three years it has been shown that the vesicles of herpes febrilis or herpes simplex contain a virus that can be readily transferred to the cornea of the rabbit, where it causes a keratitis and a purulent conjunctivitis. The disease can then be passed from rabbit's cornea to rabbit's cornea indefinitely. The rabbit is also susceptible to the virus inoculated directly into the brain, testicle, ovary, suprarenal and certain other organs, though subcutaneous inoculations have yielded uniformly negative results.

Lipschütz[1] inoculated the virus of herpes genitalis from vesicles on the female genitalia on the scarified skin of the thigh of the patient, and observed the appearance of a group of herpetic vesicles at the site of inoculation. Levaditi[2] produced vesicles in the skin of rabbits at the site of inoculation, using a herpetic virus that had been passed from rabbit to rabbit many times.

The experiments reported in this paper were carried out with the virus from a herpes lesion of the lip of a pneumonia patient. The virus was inoculated on the scarified cornea of a rabbit, and transferred at two or three day intervals to the cornea of a normal rabbit. The first rabbit, inoculated Feb. 7, 1923, died of a herpetic encephalitis, and the virus has continued since that time to cause a hundred per cent. mortality among adult rabbits inoculated on the cornea. Our strain of herpes virus is therefore an unusually virulent one for rabbits.

Tumor cells have been found to be particularly susceptible to some of the filtrable viruses, including, according to Levaditi, the virus of herpes. It is now well known that tumor growth can be called forth in mice and rabbits by painting the skin repeatedly with coal-tar at short intervals over a long period of time. It occurred to us that the skin of rabbits and guinea-pigs might become more susceptible to the virus of herpes when there is increased proliferation of the epithelial cells following the first, second or third application of coal-tar. This proved to be true; not only did typical vesicles develop at the site of inoculation of the herpes virus, but groups of vesicles appeared later in the tarred area along the distribution of the spinal nerve that supplied the area of skin inoculated. In some experiments, there resulted a band of vesicles extending across one side of the guinea-pig or rabbit from the middorsal to the midventral line, including the local site of inoculation in its confines, and showing no vesicles beyond the midventral or middorsal line, although the area of tarred skin extended beyond both these lines. The vesicles appear as whitish points surrounded by a red halo. As they increase in size, the red halos of neighboring vesicles may coalesce and the vesicles become more or less flattened pustules measuring from 1 to 3 mm. in diameter. There is a striking resemblance to the herpetic lesions of man. The pustules were shown to be due to the virus of herpes by this experiment: The contents of a pustule were inoculated on the scarified cornea of the right eye of a rabbit. A keratitis and purulent conjunctivitis resulted, and the rabbit's head showed the typical turning toward the right side on the fifth day. Another experiment is also of interest: The three spinal ganglions on the side of the site of inoculation and nearest the site of inoculation and the herpetic eruption were ground up in saline solution and inoculated into the brain of a normal rabbit. This rabbit developed an encephalitis, and the cell-inclusion bodies characteristic of the virus of herpes were found in sections of the brain. It seems, therefore, that when herpetic vesicles appear along the distribution of a spinal nerve on the skin of a rabbit that had been subjected to a preliminary



Herpetic eruption in a guinea-pig following inoculation of the skin at one spot with the virus of herpes febrilis: The vesicles are distributed as in herpes zoster; the skin of the shaved area was subjected to three applications of coal-tar before inoculation; the site of inoculation, now ulcerated, is indicated by the arrow.

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* From the Singer Memorial Research Laboratory, Allegheny General Hospital.

[1] Lipschütz, B.: Arch. f. Dermat. u. Syph. **136**: 428, 1921.

[2] Levaditi, C.: Ectodermoses neurotropes, 1922, p. 179.

treatment with coal-tar, the herpes virus is present in the corresponding spinal ganglion.

In these experiments, it appears that the herpes virus first multiplies at the site of inoculation in the skin and passes up the corresponding spinal nerve to its spinal ganglion; the virus then seems to pass centrifugally along the nerve and its branches to the skin, where, owing to the increased susceptibility produced by the application of tar, it multiplies rapidly and gives rise to characteristic herpetic vesicles. Another possibility is that the virus may travel from the site of inoculation to the main nerve trunk and then centrifugally along other branches of the nerve without first reaching and multiplying in the spinal ganglion. We feel certain that the secondary vesicles did not arise through accidental contamination of the surface of the skin with the virus, or through transfer of the virus by way of the lymphatic vessels of the skin and subcutaneous tissue, or by way of the blood stream. The distribution of the vesicles forces one to conclude that the virus passes along the course of the nerves to the skin, as in herpes zoster in man.

It is suggested that the method of applying coal-tar to the skin of experimental animals as a preliminary procedure to the inoculation may render it possible to transfer to the lower animals some of the skin diseases of man of unknown etiology.

CONSTRUCTIVE HEALTH ACTIVITIES IN PUBLIC SCHOOLS *

JOHN SUNDWALL, Ph.D., M.D.
Director, Division of Hygiene and Public Health, University of Michigan
ANN ARBOR, MICH.

IMPORTANCE OF SCHOOL HEALTH ACTIVITIES

The most far-reaching results to be anticipated in our nation-wide health movement will come from effective health activities in our schools—in our grade schools, high schools and universities. Especially is this true for our public schools. The impressions of childhood and the habits formed in early life are tenacious. Ingrain in our boys and girls health habits; correct physical conditions which are actual or potential handicaps; give them, by means of appropriate, wisely planned and graded instruction throughout their school period, an understanding of the fundamental principles of health promotion and disease prevention; instil in them a keen and impelling appreciation of the fact that the maintenance of sound, active, vigorous and harmoniously developed bodies is a moral obligation they owe to themselves, to their friends, to society and to their country; acquaint them with the methods and facilities at our command for promoting health and dealing with disease and subnormality, and much will be done toward solving our public health problem. "Give us the child and we will return the sound man" should be the challenge of every health worker.

Therefore, sound and wisely planned instruction in and supervision of health in our public schools must be given an important place in any movement which has for its object a sound, vigorous commonwealth.

Fortunately, we are as a nation beginning to realize the paramount importance of and the necessity for efficient school health administration and instruction. Twenty-nine of our states, by legislation, have made the teaching and supervision of school health and physical education compulsory. Others will follow their lead. The deplorable findings of the "draft" examinations, whereby it was revealed that more than one third of our nation's youths could not pass the tests for normal physical efficiency, and statistics compiled by various health agencies showing the prevalence of correctable or preventable physical defects in our school children and in those in the midperiod of life, were responsible for these legislative acts.

Twenty-five of the twenty-nine state actions came between 1915 and 1921. Naturally, school authorities were not prepared to meet the enormous demands for efficient health education and administration in our schools brought about by this sudden intensive and extensive interest in health. The demands for school health workers came as an avalanche. We are now in the process of digging ourselves out and getting our bearings.

School boards, superintendents, principles, teachers and parents are deeply interested in and concerned with this problem, for school health administraion and teaching should be and is of paramount interest to those concerned with public education. The problem, in most quarters, continues to be more or less foggy and obfuscating. Schoolmen, public health workers and others concerned must combine in their efforts to solve this problem and to evolve an efficient school health agency.

LACK OF BALANCE AND COORDINATION IN PRESENT SCHOOL HYGIENE TEACHING AND ADMINISTRATION

One of the chief contraventions to an efficient school health service is the "too many fingers in the pie" situation that maintains at present. Many independent agents are now engaged, or claim to be engaged, in the conservation of the health of school children. Physical education, athletics, instruction in physiology and hygiene, the school's health service, and outside official and voluntary health agencies—these are among the more or less independent active agencies which have a hand in the present-day interest in and administration of school health. The personnel involved in these activities, at one time or another, total or partial service, include: the physical educator, athletic director or coach, teachers of physiology and hygiene, school physician, dentist, school nurse and sometimes others, such as the sanitarian, representatives of the city's health department, and agents representing many voluntary health organizations.

Each of these agencies has played an important rôle in the evolution of school health education and administration. Each agency had its inception as a result of a distinct need. In general, these needs arose with the development of new sciences concerned with health conservation. Instead of the older, established agencies correlating, absorbing and applying new activities added from time to time to the program of school health conservation already on hand, new interests and organizations evolved to arrange for and apply the new phases of the work. Time will not permit going into the origins and functions of these, or of the invaluable contributions each has made and is making to the physical welfare of our school children.[1]

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* Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

[1] This subject is also discussed in "The Training of Teachers and Supervisors of Physical Education and School Health," Mind and Body, July, 1922, and American Physical Education Review, November, 1922.

With these various more or less independent agencies at work, however, there is little, if any, balance and coordination to the work, and a constructive program is sadly hampered. Often there is lack of sympathy, misunderstanding and even friction between them. Some phases are overemphasized, others slighted. The all-important follow up work is usually neglected. The pupil gets little idea as to the relative values of health instruction and practices. No wonder school administrators look askance at these disciples of Hygeia. "Too many cooks spoil the broth."

Furthermore, we must bear in mind that the person in charge of each of these health agencies, if trained at all, has usually been trained in and is interested in only one phase of heatlh conservation, and considers it more or less detached from the other phases. For example, the physical educator is trained in the theories and practices of exercise in its relation to physical development. Yet exercise is only one of a dozen or more approaches to health promotion. The school nurse, as a rule, has specialized along disease control and prevention, which is only one of the negative phases of the promotion of positive health. Examination into the training and interests of most of the persons now engaged in health work in our public schools will reveal the fact that each has his particular specialty "to put over," and that the lack of a broad vision and of adequate training in the fundamentals of health prevent him, as a rule, from seeing the relative value of his particular work and the place it should occupy along with other phases of health work in a genuine program of school health conservation.

REORGANIZATION AND CORRELATION OF SCHOOL HEALTH ADMINISTRATION NEEDED

In order to achieve real and far-reaching results in health teaching and supervision in our public schools, it seems to me that:

1. All agencies concerned with the physical welfare of school children must be correlated under one department of instruction and supervision. This would include physical education, athletics, hygiene instruction, the school's health service and the relationships with outside health agencies.

2. A full-time, adequately trained person should direct this department or activity—let us call it "school health and physical education."

TRAINING OF A NEW TYPE OF SCHOOL HEALTH SUPERVISOR

To achieve this new order of things, the first essential is the production of a new type of schoolman or schoolwoman—one well grounded in modern scientific theories and practices of health conservation.

The school health supervisor must know the fundamentals of health promotion and disease prevention. First of all, this new teacher and supervisor of school health must be trained "up to the minute" in the fundamentals both of health promotion and of disease prevention and control as they apply to humanity in general. Modern public health is emphasizing, more and more, health promotion—positive health and physical efficiency. This phase of public health is also termed physiologic hygiene. It is what the individual himself must know and practice in order to build up and maintain a high powered, smoothly running, efficient body machine, in order that he can carry on his economic burdens satisfactorily and serve best the society in which he lives.

There is no one approach to positive health. Many factors must be given due consideration: Food and nutrition: the balanced diet, quantitative and qualitative daily needs, including water, weight, overingestion, undernourishment and deficiency diseases. Air: ventilation, temperature, humidity, air in motion, air polution, climate and health. Physical activity and exercise: strength, endurance, and overfatigue. Rest and sleep. Bodily poisons: endogenous and exogenous, with particular reference to focal infections, autointoxication, alcohol, drugs and "patent medicines." Degeneration diseases and the rôle they play in our nation's morbidity and mortality. Shelter: clothing, home construction. Mental hygiene: emotional instability, psychoses and neuroses, rationalization, social adjustments. Prevention and correction of bodily defects, based on studies of draft examinations, school examinations and of statistics regarding other age groups. Physical examinations: importance of annual examination for early detection of degeneration diseases, etc., and its relation to life extension and longevity. Sex physiology and hygiene: sublimation of sex thought, imagination and desires, continent life and the single standard of morality, penalties of illicit sexual intercourse, venereal diseases. Heredity and eugenics: rôle of heredity and environment, Mendel's law, transmission of defective qualities, etc. Cancer. Goiter, especially where it is endemic. Accidents and injuries. "Safety first" and first aid.

The other important phase of public health interests and activities is that concerned with the prevention and control of communicable diseases. This is a community problem as well as individual—seeing to it that the other fellow is free from communicable disease germs. To develop a sound, vigorous and well set-up body is of little avail if one's bedfellow has active tuberculosis, or one's cook is a typhoid carrier.

The training of the new supervisor of school health and physical education, so far as the prevention and control of communicable diseases are concerned, should include, in general: (1) nature of communicable diseases: (*a*) historical conceptions, miasmatic theories; (*b*) germs—nature of, classification, distribution; pathogenic organisms—bacteria, protozoa, parasites; (*c*) epidemics and pandemics, historical considerations; (2) sources of diseases and routes of communication; (3) blocking the routes of communicable diseases; (4) the application of 1, 2 and 3 to the problem of school health.

No one can thoroughly understand and efficiently administer school hygiene unless he knows the fundamentals of health promotion and disease prevention and appreciates the relative values of the various "approaches" to positive health and normal development as they apply to those of school age. Efficient school hygiene is the application of these fundamentals to school children, with the proper emphasis on the various phases concerned. A thorough entrance physical examination of all school children with 100 per cent. "follow up" and 100 per cent. treatment is of greatest importance. Proper nutrition, exercise as involved in physical education and play, rest and avoidance of overfatigue, the correction and prevention of defects that are prone to come on during school age or during the preschool period, and mental hygiene with a view of preventing emotional instability are phases or approaches to the building up of a sound, vigorous and harmoniously developed body which should be emphasized in early school life. Efficient school health must be built on sound knowledge of public health.

The new health supervisor must be a teacher. In addition to this drilling in the modern theories and practices of public health, the future health supervisor must be well trained in pedagogy. Future progress in public health will be dependent on the intelligence and education of the people along health lines. Education is our greatest instrument. The teaching of readily assimilable, worth while health practices to school children and training them in correct health habits are of paramount importance. The health supervisor must know not only what to teach but how to teach. We must bear in mind that the most effective health teaching is that which awakens in the boy and girl a keen appreciation for positive health and instils in every pupil a lasting and impelling desire for positive health and physical efficiency. Knowledge of health practices without an impelling desire to practice them is of little value.

The health supervisor must be an administrator and direct the school's health service. Not only must the new school health supervisor be trained in the principles of modern public health and school health and know how to teach health, but he must also be familiar with the methods of administration of health—the machineries of health. He must be able to organize and direct the school's health service.

An efficient school health service must include the following interests and activities:

A. Personal phase:
  1. Promotion of health (personal hygiene).
    (*a*) Physical examinations.
    (*b*) Bureau of records (follow-up system).
    (*c*) Provisions for maintaining positive health.
    (*d*) Prevention and correction of defects—postural defects and those due to disease, defects of special senses, teeth, tonsils, etc.
    (*e*) Mental hygiene—prevention and correction of emotional instability, potential neuropaths.
  2. Prevention of communicable diseases (community hygiene).
    (*a*) Early detection of communicable diseases in the school.
    (*b*) Isolation and treatment of those affected or exposed. Here cooperation with the city's health department, with the homes, with social agencies, and with visiting nurses, etc., is essential.
    (*c*) Blocking the routes taken by communicable diseases; prophylactic measures—vaccination, inoculation, etc.
B. Environmental phase (sanitation).
    (*a*) Location, construction, ventilation, heating and lighting of school building.
    (*b*) Adequate floor space, seats and desks adapted to pupils.
    (*c*) Sewage disposal, water, milk, food supply.
    (*d*) Playground facilities—space, equipment, etc.
    (*e*) Sanitation of school building and playground.
    (*f*) Sanitation of homes through cooperation with outside health agencies.
C. Educational phase (teaching of hygiene).
    (*a*) Graded instruction in health promotion and disease prevention, with auxiliary lectures, placards, posters, moving pictures, etc., for each year.
    (*b*) Inculcation of keen and impelling appreciation of health and the duty of each individual to himself, to society and to his country to maintain at all times health physical efficiency.
    (*c*) Instilling lasting health habits.

The health supervisor must have training in physical education and athletics. Our new supervisor of school health, in order to utilize and correlate properly all physical welfare activities in the schools, must have some training in the theory and practice of physical education and athletics in their relation to health. One must bear in mind that certain objectives in these activities are not related to or are only remotely related to health. For this reason, many physical educators want to see the physical education activities separated from the health activities. Both, however, are supremely concerned with the normal, sound, vigorous and harmonious development of the body, and, because of this, should have a central supervision and administration. It is therefore essential that the supervisor be familiar with all the various objectives in physical education and athletics.

The objectives of physical education and athletics, some of which are inextricably interrelated with the school's health, may be thus outlined:

(*a*) The promotion of health and normal growth by means of proper exercise—gymnastics, games, etc.

(*b*) Harmonious development of the body (Greek ideal). Personality, an erect and self-respecting carriage of the body; neuromuscular control required for prompt and accurate response, and graceful, agile, coordinate and effective movements. (Of greater importance in secondary schools and colleges.)

(*c*) The correction and prevention of abnormalities due to bad posture, asymmetrical development, etc.

(*d*) Activity. The development of a lasting desire to be active—to do many things with a fair degree of strength and endurance. (Of greater importance in secondary schools and colleges.)

(*e*) Recreation. The profitable utilization of the pupils' time during the intervals between mental application—games, sports, gymnastics, etc.

(*f*) The proper guidance of the fundamental interests and instincts of play, rivalry, pugnacity and mastery—through competitive games, sports and athletics.

(*g*) Utilizing every opportunity to develop those important social, mental and moral qualities afforded in physical education and athletics: obedience, subordination, cooperation, reliability, self-sacrifice, friendliness, loyalty, capacity for leadership, sportsmanship, self-confidence, self-control, mental and moral poise, good spirits, alertness, resourcefulness, decision, perseverance, courage, aggressiveness, initiative.

SCHOOL HYGIENE UNDER BOARDS OF EDUCATION OR BOARDS OF HEALTH?

The question has been raised in recent years, both in the press and on the rostrum, as to whether school hygiene should be under boards of education or boards of health. School health supervision had its beginnings in this country with a view of preventing and controlling communicable diseases—in Boston in 1894, in Philadelphia in 1896, and in New York in 1897. Naturally, when this was the chief objective of health work in the schools, school health could be administered most efficiently as a part of the city's health department.

Now that a comprehensive school health program emphasizes more and more the positive health and physical efficiency aspects, the trend is for the school administration to assume the responsibility of school health supervision.

School health activities in the future will be supremely interested in the sound, vigorous and harmonious physical development of its boys and girls. It will be interested in thorough physical examinations and in the 100 per cent. follow up and treatment. It will see to it that a progressive physical record of each pupil accompanies that of his intellectual advancement. The supervisor of school health must be intimately tied up with the school system in general. He is in many respects an "industrial health officer" attached to schools and must be an efficient teacher. Furthermore, physical education and athletics are closely interrelated with school health. These conditions make it imperative, I believe, that school health administration become an integral part of the school system. Of course, the training of our new supervisor must embrace the needs for and methods of "tying up" closely the school's health program with the city health department, and the utilization and assimilation of those things of value which the various voluntary health agencies have to offer.

CURRICULUM FOR TRAINING OF SUPERVISORS AND TEACHERS OF SCHOOL HYGIENE AND PHYSICAL EDUCATION

With a view of training this new type of supervisors and teachers of school hygiene and physical education, the University of Michigan has arranged a four years' program of study. The curriculum is so planned that a comparatively broad general education is combined with specialized training. The subjects making up the curriculum are:

Group 1. Subjects which may be regarded as cultural in character and at the same time of professional value: rhetoric, chemistry, psychology, sociology, public speaking; subjects that acquaint the student with the scientific methods of teaching and with educational administration: educational measurements, educational psychology, educational administration, vocational guidance, high school problems. A liberal allowance is made for elective subjects in the college of literature, science and the arts or in the school of education.

Group 2. Subjects selected with a view of acquainting the student with the structure and functions of the body and its organs and with the normal vital processes. Included in this group are zoology, anatomy, chemistry, general physiology, applied physiology, with particular reference to nutrition, metabolism, growth, neuromuscular physiology, exercise, fatigue, rest, etc. Psychology in Group 1 may well be included in this group.

Group 3. Subjects which should familiarize the student with the fundamentals of right living—health promotion and disease prevention. Further, the student is trained in the recognition of various abnormal body processes which frequently appear during school age, such as various types of physical defects, retrogressive changes and communicable diseases; in measures for their prevention and in proper attention to them, such as reference to a physician or other specialist or outside health agency when advisable. It must be emphasized here that it is not the intention that this group of studies will prepare the student "to handle" personally all the physical abnormal processes which occur in schoolchildren. He should be able, however, to detect early disease processes and retrogressive changes, appreciate the significance of these abnormal conditions, and be able to arrange for the proper treatment by reference to physicians and specialists. Further, he is instructed in the methods of disease control through cooperation with nurses, the city's health department and the homes. Mental hygiene is given due consideration. Bacteriology, general hygiene, physical reconstruction and school health problems are included in this group of studies.

Group 4. Studies which prepare the student to organize and supervise the various interests and activities in physical education and athletics. The following courses are given to both men and women in combined classes: kinesiology, physical reconstruction, history and principles of physical education, and theory and administration of physical education. The course in the theory and practice of physical education and athletics is scheduled for the period from 3 to 6 p. m. daily throughout the four years. On the completion of this group of subjects, students are able to teach and coach the various games. Those desiring additional instruction in coaching football, baseball, track and basketball register for special summer work in coaching.

A four years' course such as we are giving should fit one to plan, organize and administer an effective school health program, utilizing various health agencies, but correlating the approaches of each into a well balanced, comprehensive, constructive program with far-reaching results.

ABSTRACT OF DISCUSSION

Dr. Adelaide Brown, San Francisco: This paper is particularly timely when we are in the throes of having these many, many types of public health service foisted on the public school system. In a recent trip to the Eastern states, I took great interest in this particular subject, and I came to several conclusions that are similar to Dr. Sundwall's. There is no question but that the pedagogue is absolutely necessary if we are going to reach the child's mind. We look at children medically, from the point of view of disease. For that reason, nurses and physicians are poor teachers of children. The best work I saw done was in Baltimore and at Newton Center, Mass. In the one place, the superintendent of the work, although she did not spread her work all over the Baltimore schools, was a trained domestic science worker, and a graduate of an excellent school, and, in Newton Center, the approach was from the pedagogic department of the school. They had an excellent program extending over four years, with the result that the defects are corrected in the school. A splendid system of room gymnastics has been in vogue there. I never before saw children put their feet on the bench in front of them and do trunk exercises. Valuable exercises of the trunk were given in that position. The enthusiasm of the children in this school in relation to health was inspiring. I was told that the work of the children was much better, that their progress was marked, and that the enthusiasm of the class in its work and of the children in their themes on health subjects was great. It was astonishing to see how the children improved in their health habits. When we talk of working out a scheme for the understanding of disease by the children, we should remember that the child, when it finishes in the public schools of America, is 14 years old. Perhaps, in the last year in the grammar school, or in the last two years even, we can initiate a municipal or civic health program that these children could understand. But it seems to me that, if we teach them the fundamental health habits, such as plenty of sleep, balanced diet, regular feeding hours, and not lunching on ice cream and candy, almost all day, and taking pleasure in athletics, the American child will be one of a much stronger race. Whether the health program in childhood should be under a board of education or under a board of health is probably best answered in this way: The public school children are not all the children in any community. There is the child of preschool age; there is the working child, who has a right to physical development and physical guidance; and there is the child in other than public schools. In San Francisco there are more than 15,000 children in the parochial schools. A health program must include all the children. Therefore, I feel exceedingly strongly that in a city such as ours—and I think all the larger American cities have the same problem—the health program should be administered under the direction of the board of health, and that the board of education and the parochial schools and the working children should all be included in a general health program. We shall help children better in that way than by endeavoring to reach them entirely through the public school system. I agree with Dr. Sundwall that physical education programs, health programs, and all methods of teaching health should be worked out carefully, and that a practical program should be submitted to the pedagogic force before it is given to the school children.

INSULIN IN TISSUES OTHER THAN THE PANCREAS

PRELIMINARY COMMUNICATION *

C. H. BEST, M.A.
AND
D. A. SCOTT, M.A.
TORONTO

Shortly after the discovery of insulin in extracts of the degenerated pancreas of the dog, Banting and Best [1] extracted other tissues by the same procedure as that used for the pancreas. Extracts of the liver, spleen, thymus and thyroid glands were prepared. The administration of the extracts of liver and spleen to diabetic dogs produced no appreciable effect on the blood sugar level of the animals. The extracts of thyroid and thymus caused distinct but transient lowerings of the blood sugar. Several of their collaborators have made unsuccessful attempts to prepare insulin from other tissues, such as the spleen and the liver. The increased yields which were obtained from pancreatic tissue in December, 1922, by a modification of the procedure previously used, made it seem advisable to us to reinvestigate this matter.

We have been able to prepare active extracts from the submaxillary, thymus and thyroid glands and from liver, spleen and muscle tissue. These extracts have been repeatedly tested on normal rabbits and have consistently produced a marked lowering of the blood sugar of these animals. A large dose produces typical insulin convulsions in the rabbits. The convulsions are alleviated by the administration of dextrose.

Table 1.—*Results Obtained by Administration of Extracts Other than Pancreas*

Tissue	Weight of Rabbit Gm.	Normal Blood Sugar Per Cent.	Lowest Blood Sugar Observed Per Cent.	Convulsions
Thymus	1,850	0.104	0.035	Very severe
Thymus	2,000	0.124	0.048	Severe
Thymus	1,850	0.104	0.036	Severe
Submaxillary gland	1,850	0.118	0.060	Mild
Submaxillary gland	1,850	0.118	0.066	Severe
Thyroid	1,650	0.130	0.072	None
Spleen	1,450	0.136	0.060	None
Liver	1,000	0.142	0.079	None
Liver	1,450	0.104	0.066	None
Liver	1,700	0.104	0.060	None

The number of units obtainable from 1 kg. of thymus or submaxillary gland tissue exceeds that originally obtained from pancreatic tissue. This yield is, however, only a small fraction of that obtained when pancreatic tissue is treated by our present procedure.

In Table 1 we have collected a few of the results obtained by the administration to normal rabbits of extracts from tissues other than the pancreas.

The blood sugar curve after an injection was followed for at least five hours in the majority of these experiments.

Extracts [2] of thymus gland, liver and spleen have been administered to diabetic dogs. They have consistently produced a marked lowering of the blood sugar and a diminution of the sugar excreted by the animals. A short protocol of one of the most interesting experiments is given:

> The blood sugar of a dog, weighing 9 kg., five days after complete pancreatectomy, was 0.265 per cent. The sugar excretion varied from 5 to 10 gm. a day on a starvation diet. At 10 a. m., the blood sugar was 0.265 per cent. Ten cubic centimeters of thymus extract was injected subcutaneously. At 11:50 a. m., the blood sugar was 0.170 per cent; 2:30 p. m., 0.114 per cent.; 4:30 p. m., 0.095 per cent. The urine was sugar free. The clinical condition of the animal was definitely improved.

In collaboration with F. G. Banting, we have reported [3] the presence in the blood of various animals of a substance which we believe to be insulin. More recently we have observed that under certain conditions, at least, this substance is excreted in the urine.

Table 2.—*Results of Administering Insulin-Like Material from Urine*

Urine	Volume C.c.	Weight of Rabbit Gm.	Normal Blood Sugar Per Cent.	Lowest Blood Sugar Per Cent.
Normal	250	1,500	0.104	0.060
Normal	200	2,000	0.104	0.060
Normal	800	1,200	0.118	0.040*
Diabetic	1,500	1,500	0.118	0.110
Diabetic	1,200	2,200	0.130	0.130
Diabetic	1,400	1,700	0.110	0.136
Diabetic on insulin	1,000	1,500	0.110	0.066
Diabetic on insulin	700	1,500	0.110	0.066

* Conv.

Some of the results of the administration of material from the latter source to normal rabbits are shown in Table 2.

The average daily volume of the normal men from whom the first three specimens in Table 2 were secured was approximately 1,600 c.c. The volumes indicated in Table 2 opposite "diabetic" are one-half the twenty-four hour specimen. The volume of material administered to the rabbits was usually less than 10 c.c., and was prepared by various procedures which will be discussed in a subsequent communication.

Material from this source has been administered to diabetic dogs. The protocol of a typical experiment is submitted:

> Four days after pancreatectomy, the blood sugar was 0.229 per cent. Ten cubic centimeters of the material was injected (equivalent to 800 c.c. of normal urine). Three hours later the blood sugar was 0.210 per cent.; five hours, 0.171 per cent.; nine hours, 0.104 per cent; eleven hours, 0.079 per cent. Sugar excretion of the dog during the twenty-four hours previous to the injection was 65 gm. Sugar excretion during the twenty-four hours following the injection was 6 gm. The diet was approximately the same on the two days. The volume of urine excreted was 500 c.c. on the first day and 100 c.c. on the second day. The animal appeared much brighter on the second day than on the first.

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* From the Insulin Division of the Connaught Laboratories, University of Toronto.

[1] Banting, F. G., and Best, C. H.: Lab. & Clin. Med. 7: 251 (Feb.) 1922; 7: 464 (May) 1922.

[2] Before the extractive was added, the tissues were washed thoroughly with cold water to eliminate as much blood as possible.

[3] Best, Scott and Banting: Proc. Roy. Soc. Canada, May, 1923.

We have secured results which tend to indicate that iis substance, which we believe to be insulin, is xcreted in somewhat greater amounts by pregnant omen than by normal men.

Insulin is present in every tissue we have investigated.

NSULIN TREATMENT OF POSTOPERATIVE (NONDIABETIC) ACIDOSIS *

WILLIAM THALHIMER, M.D.
MILWAUKEE

The possibility of treating various types of noniabetic acidosis with insulin must have occurred to iany, since insulin causes such a rapid disappearance f diabetic acidosis.

We have treated three cases of postoperative acidosis ith insulin,[1] causing almost immediate cessation of omiting and ketosis; and although this is an extremely nall number of cases, they are worthy of publication ecause, with the widespread interest in insulin therapy, ir results may stimulate others to investigate in this eld. The improvement in Cases 1 and 2 was quite as apid and as dramatic as is caused by insulin in diabetic oma. In Case 3 the improvement was not as rapid first with a small dose of insulin, but the condition apidly cleared up with larger doses.

REPORTS OF CASES

Case 1.—Mrs. F., aged 35 years, was operated on for a romyoma of the uterus, May 12, 1923, a supravaginal hysrectomy being performed under nitrous oxid-oxygen anesesia. The patient's condition before and after operation is excellent. Twenty-four hours after the operation, she is considerably nauseated, and eructated gas frequently and omited small amounts. This continued, and twelve hours ter the pulse rate rose from 80 to 120, and a gastric lavage is performed but the solution returned colorless; 500 c.c. 5 per cent. glucose solution was given intravenously over period of two hours. The patient continued to eructate gas d vomit small amounts of bile-tinged fluid almost continusly. Forty-eight hours after the operation another gastric vage was done with the same results. At this time the tient looked markedly dehydrated, had an anxious facies, d was unable to retain any nourishment. The pulse was 126, ft and poor in quality, and the urine showed two plus acene, but no diacetic acid.

Six hundred cubic centimeters of 5 per cent. glucose solun was then given intravenously over a period of two hours, d immediately after this was started, 10 units of insulin was en hypodermically. Three hours after the insulin was en the urine contained only a trace of acetone, the pulse s slower and improved in quality, no further eructations or miting occurred, water was retained, and in twelve hours ange juice and other liquids as well; in twenty-four hours ft diet was retained, and the trace of acetone had disapared from the urine. The convalescence was uneventful om this time on.

The first injection of glucose alone was not followed any relief from the vomiting or the ketosis. The cond injection of both glucose and 10 units of insulin is followed by cessation of vomiting and of the tosis.

Ase 2.—Miss I. O., aged 16 years, was operated on, June 14, 3, for duodenal ulcer, pyloroplasty being performed. The nediate effect of the pyloroplasty was prompt delivery of d from the stomach to the duodenum, and all seemed ll. Then there arose an acute mesenteric ileus with duoal obstruction.

June 16 and July 22, 500 c.c. of 5 per cent. glucose solution was given intravenously.

June 23, the patient was unable to retain food, was vomiting at frequent intervals, and her condition was precarious. The acetone in the urine was three plus. The patient was taken to the operating room, and a rapid posterior, short loop, gastroenterostomy was performed followed by transfusion with 500 c.c. of uncitrated blood.

June 24, the condition remained the same, and the same degree of ketosis was present. At 12:30 p. m., 500 c.c. of 5 per cent. glucose solution was given intravenously, and 10 units of insulin hypodermically. At 5 p. m., the acetone in the urine was reduced to a trace, glycosuria was present, and the pulse was considerably improved. Slight nausea was still present, and since the urine contained sugar it was safe to give another 10 units of insulin, which was done. At 1:30 a. m., the urine was sugar free and acetone free.

June 25, acetone gradually increased in the urine until at 11 a. m. it was again two plus. The blood sugar was found to be 0.1538 per cent.; and although no further nausea or vomiting had developed, in the presence of the increasing ketosis, 10 units of insulin was given. Since the blood sugar was still comparatively high because of unused glucose which had been administered, no further glucose was given, but the blood sugar was carefully watched. It was reduced in two hours to 0.0930 per cent., which was the lowest level reached, and no insulin reaction occurred. In the meantime the patient was retaining nourishment and the acetone was reduced to a trace.

The convalescence was uneventful from this time on, but it was twenty-four hours before the remaining trace of acetone had disappeared from the urine.

Case 3.—K. K., a boy aged 5 years, suffering from residual infantile paralysis of the legs from an attack four years ago, was operated on, July 12, 1923, a transplantation being made of several tendons of the right leg and foot.

July 16, the patient had retained no nourishment and practically no water for four days. Nausea and vomiting had occurred, regardless of the ingestion of fluids. Acetone had been present continuously in the urine in increasing amounts since the day after operation. Today it was three plus. Retention enemas or proctolysis of tap water, 5 per cent. glucose solution and a 2 per cent. sodium bicarbonate had been given at frequent intervals every day and had been absorbed. Saline solution was given intravenously once. The ketosis and vomiting had not been relieved or even alleviated. When I saw the patient at 11 a. m., he was dull and sleepy; he had the appearance of marked dehydration, with deeply sunken eyes, and a very soft, small, easily compressible pulse.

Two hundred and fifty cubic centimeters of 5 per cent. glucose solution was given intravenously immediately, and allowed to run in in an hour. Five units of insulin was given hypodermically. The blood sugar before this procedure was 0.1261 per cent., and two hours after was 0.1439 per cent. The vomiting ceased for about twelve hours, and a small amount of orange juice was retained. The next morning the ketosis was unchanged, and vomiting recurred, indicating that the dose of insulin was too small.

July 17, 500 c.c. of 5 per cent. glucose solution was given intravenously over a period of two hours, and 10 units of insulin as soon as the injection was started. One hour after the injection was stopped, another 5 units of insulin was given. The blood sugar before this procedure was 0.1612 per cent., and two hours after the last dose of insulin it was 0.1290 per cent., showing a definite insulin effect on the blood sugar content. No more vomiting occurred from this time. The urine acetone was diminished in ten hours, steadily decreased, and was completely absent in thirty-six hours. Further convalescence was uneventful.

COMMENT

These results cause one to consider what factors might be common to all types of acidosis or "ketosis." The fundamental nature or cause of the different common types of ketosis is not known. The groups under consideration are diabetic acidosis, postoperative

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* From the Laboratories of Columbia Hospital.

[1] The preparation used was Insulin-Lilly.

acidosis, starvation acidosis, and the acidosis of the toxemic vomiting of pregnancy.

Most observers are agreed that ketosis occurs in diabetes when the perverted metabolism of the body is unable to utilize sufficient carbohydrate to cause complete combustion of the necessary amount of fat, or when insufficient carbohydrate food is given. The essential factor undoubtedly is an abnormality in the carbohydrate metabolism. This phase of diabetes has been extensively and carefully studied, and a great deal has been learned.

The other types of acidosis mentioned have been investigated less, and very little is known about them. The essential facts may be summarized briefly: Ketosis and vomiting occur, although it is not always known which occurs first. These together form a vicious cycle, vomiting causing starvation, and the lack of nourishment further aggravating the ketosis. It has been found, almost empirically, that if carbohydrate is administered by rectum, subcutaneously or intravenously, the ketosis will gradually disappear. The vomiting ceases, and, with the return of tolerance for food, this may be resumed. If ample carbohydrate is given, the ketosis is permanently checked.

Recent investigations of the vomiting and ketosis of pregnancy by Harding and Potter[2] are of great significance in the entire field of nondiabetic ketosis. They have successfully treated many cases of vomiting and ketosis of pregnancy by administering glucose. It took from five to six days, on an average, for these patients to be free from vomiting and ketosis. They determined the amount of total nitrogen, ammonia nitrogen, urea nitrogen and acetone in the urine, and, from time to time, the amount of acetone in the blood, and the carbon dioxid content of the alveolar air. Even in the presence of marked ketosis, the carbon dioxid content of the alveolar air was found slightly lowered in only one case. The "acetone" content of the blood was found lower than in severe diabetes, but the amount of "acetone" in the urine was large, and comparable to the amounts in diabetes.

These authors were surprised to find that a comparatively small amount of glucose, about 50 to 100 gm., given subcutaneously or intravenously, was followed by a rapid clearing up of the case and by reduction of the high urinary total nitrogen excretion to normal. It seems to me that this can be explained by their own facts. Their patients were retaining no food, and were drawing on their own tissues for protein, fat and carbohydrate. In order to obtain the carbohydrate needed, the body had to break down its own protein to render available the 58 per cent. of carbohydrate value in protein. The amount of total urinary nitrogen averaged 7.5 gm. a day when the ketosis was most severe. This represents the utilization of about 45 gm., of body protein, which yields about 25 gm. of available carbohydrate. The burning of this amount of carbohydrate was not enough to prevent ketosis, but, compared to it, from 50 to 100 gm. of glucose is a large, rather than a small, amount of carbohydrate. Indeed, it is not unusual to have patients severely ill of diabetes with a carbohydrate tolerance of not more than 50 gm. (of available carbohydrate) remain both sugar free and "acetone" free on a properly balanced diet.

Harding and Potter arrived at the conclusion, which seems completely justified by their results and data, that if sufficient carbohydrate is supplied in cases o vomiting and ketosis of pregnancy, the ketosis is eradicated, the vomiting ceases, and the breakdown of bod protein stops. Whereas this treatment eliminates thi distressing complication, these authors are still at a los to account for the cause which initiates this condition Their studies, I believe, shed a great deal of light o ketosis and acidosis in general.

I believe that it is fair to presume that ketosis occur when either insufficient carbohydrate is supplied to th body, or the metabolism of carbohydrate is subnormal In either case there is insufficient combustion of th carbohydrate necessary to burn the fat completely; an ketosis, with its attendant symptoms, occurs. I diabetes, ketosis might be caused by either insufficien utilization of carbohydrate or an insufficient amount o carbohydrate food or by a combination of both of thes factors.

In starvation, ketosis must be caused by absence o carbohydrate intake. In both the ketosis of toxemia o pregnancy and of postoperative "acidosis," it seem that some slight abnormality of carbohydrate metabolis may cause the origin of the ketosis, and that a viciou cycle supervenes, causing the symptom complex t persist. When this cycle is broken either by adminis tering glucose so that it can be utilized, or by con trolling the vomiting so that food can be taken, then th condition clears up.

Since insulin, when injected subcutaneously, caus an increase in the rapidity of the utilization of gluco in the body (both in normal and in diabetic patients it seems rational that insulin ought to clear up pos operative ketosis and vomiting more rapidly than gl cose alone. The cases described demonstrate this. Tw of these patients were first given glucose witho insulin, and no improvement followed. Furthe more, I believe, after an extensive experience wi the intravenous use of glucose in postoperati cases, that the cases cleared up more rapidly wh insulin was administered with glucose than h occurred in other cases when glucose was used alon It must be admitted frankly that, with these two facto to consider, it cannot be absolutely determined whi was the more important one. I did not feel justified administering insulin alone in these cases, for with available source of carbohydrate I feared a seve insulin "reaction." In fact, these patients needed flui and carbohydrate nourishment very badly; and t only additional factor introduced was insulin in ord to cause rapid utilization of the glucose injected. O case did offer an opportunity of observing the effect ketosis of one dose of insulin alone. In Case 2, thou the vomiting ceased almost immediately after an admi istration of both glucose and insulin, and the aceto in the urine decreased in a few hours from three pl to one plus, nevertheless the acetone again increas over night to the original amount, although vomiti did not recur. The blood sugar was found to be 0.15 per cent., and a small dose of insulin, 10 units, w given. In two hours the blood sugar decreased 0.0930 per cent., and acetone decreased in the uri from two plus to a trace. Although feeding was ins tuted at once, it was two days before this faint tr of acetone disappeared from the urine.

Encouraged by these results, I tried this treatm in a case of starvation acidosis due to pyloric obstru tion. Here also a reduction of the ketosis and impro ment in the general condition occurred; and altho the patient died several days later of myocardial weakness, the insulin result was similar in all respects to those obtained in the postoperative cases.

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[2] Harding, V. J., and Potter, C. T.: The Excretion of "Acetone" and Nitrogen in Nausea and Vomiting of Pregnancy, Brit. J. Exper. Path. 4: 105, 1923.

It seems almost unnecessary to add a caution about the danger of using insulin without providing the body with at least 2 gm. of glucose for every unit of insulin injected. In these cases of vomiting, carbohydrate food cannot be given and absorption of glucose by rectum is uncertain; therefore glucose should be administered either subcutaneously or intravenously. If glycosuria follows, it is safe to inject more insulin as long as the glycosuria persists. If the urine remains or becomes sugar free, additional insulin injections must be controlled by frequent blood sugar determinations. These patients must be watched even more carefully than diabetic patients who are given insulin therapy. This was felt so strongly that in Case 3, in a child, such a small dose of insulin was given at first that, although vomiting ceased temporarily, the ketosis was unaffected. Only when larger doses of insulin were given the next day did the ketosis as well as the vomiting cease.

Our interest in the entire field of ketosis has been stimulated by this use of insulin. We are investigating at present the possibility of there being a diminished glycolytic power of the blood after anesthesia and operation. This may prove to be an index of a postoperative abnormality in carbohydrate metabolism, just as Miss Perry and I[3] have found a diminished glycolysis in the blood from diabetic patients. If this proves to be so, it would correlate with the postoperative increase in blood sugar.

I believe that injections of insulin and glucose ogether may be a considerable aid in rapidly clearing up ketosis and vomiting of pregnancy, and am anxiously awaiting an opportunity to try this in a series of cases. This treatment will also be tried in cases of cyclic omiting and ketosis in children.

CONCLUSIONS

Injections of insulin and glucose solutions in a small eries of cases of postoperative vomiting and ketosis ave apparently cleared up these conditions rapidly: much more rapidly than has been accomplished, in my xperience, with injections of glucose alone.

Insulin therapy must be given and controlled even more carefully in cases of this type than in cases of iabetes.

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[3] Thalhimer, William, and Perry, Margaret, C.: Diminished Gly-lysis in the Blood in Diabetes, J. A. M. A. **80:** 1614 (June 2) 1923.

Hemolytic Streptococci.—It has long been known that the emolytic streptococci which can infect man are of many fferent antigenic varieties, and the recent work of Dochez, very and Lancefield has indicated that many of these organisms can be divided into at least four groups. According to e earlier work of Pirquet, Dochez and his associates, and unnicliff, the streptococci which are associated with cases scarlet fever seem to constitute a separate type. However, recent cultural studies, Rice has found marked cultural fferences between organisms from this source. This ques-on is still an open one, though the mass of evidence seems point to a general serological similarity between the scar-inal hemolytic streptococci. There are, nevertheless, a rge number of hemolytic organisms which cannot be ouped together, and in which serological reactions seem shade one into the other. In the viridans groups, this terologous condition is still more marked, and studies such those of Kinsella and Swift show that these organisms are varied as are the Type IV pneumococci.—Zinsser: Infec-n and Resistance, the Macmillan Company, 1923.

HEALTH HAZARD FROM AUTOMOBILE EXHAUST GAS IN CITY STREETS, GARAGES AND REPAIR SHOPS

THE VERTICAL EXHAUST AS A PRACTICAL MEASURE OF AMELIORATION *

YANDELL HENDERSON, PhD.
AND
HOWARD W. HAGGARD, M.D.
NEW HAVEN, CONN.

The exhaust gas of automobiles is extremely poisonous. Even when entirely odorless, colorless and free from soot, it is much more poisonous than any ordinary form of smoke. This fact is well established, and in recent years has been widely published both in scientific journals and in popular magazines and the daily papers. Nevertheless, the public is in large part either still ignorant of it, or acts as if it were ignorant. No mere dissemination of information will stop drivers and mechanics from taking chances. Positive protection for the public and removal of danger for the careless individual are needed. The conditions in streets which result in exhaust gas invading shops, offices and even residences have reached a point beyond which they should not be allowed to grow worse.

This paper defines and describes (for the first time, we believe) the conditions now existing in congested streets. The observations were made chiefly in New York, but to some extent also in a smaller city (New Haven, Conn.). They apply in large measure to congested streets in all large cities, and to the business portions even of cities and towns of moderate size. These investigations show the conditions to be much more seriously inimical to health than has heretofore been supposed.

There is a simple, rather obvious, and easily attainable remedy for the more immediately pressing aspects of these conditions. After much study of the problem during this investigation, this remedy is the only one yet suggested which appears practical for public enforcement, and fitted to afford a large measure of amelioration of conditions.

Mechanically, this measure consists in arranging that the exhaust gas of automobiles should be discharged upward and thus out of the respiratory zone of street air, instead of being discharged, as at present, against or along the ground so as to contaminate the respiratory zone of our streets to the greatest possible extent. In garages, vertical exhaust renders the problem of ventilation simple, while under present conditions it is so difficult as to be almost insoluble.

Legally, this remedy requires merely that the state licensing authorities charge an additional $10 to $25 a year on all cars that continue to pollute the air by the present form of low or horizontal exhaust, remitting this charge on cars having vertical exhaust. The cost of altering a horizontal into a vertical exhaust is small. On cars with fixed tops or touring cars with their tops up (and very few cars without tops are used nowadays) the arrangement of a pipe at the back of the car to discharge vertically is not seriously disfiguring.

THE CONDITIONS IN ROADS AND STREETS

In the open air of a country road, or even a city street where traffic is not congested, it would appear that the extent to which the exhaust gas is diluted with air must be sufficient to remove virtually all toxicity. On the other hand, in congested areas, where stalled traffic is of frequent occurrence, the amount of visible smoke and the smell are together sufficient to indicate a degree of contamination of the air distinctly disagreeable, even if not positively unhealthful.

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* From the Laboratory of Applied Physiology, Yale University.
* The data and discussion presented in this paper are abbreviated and generalized from a report to the New York Academy of Medicine.

Neither smoke nor smell is, however, a reliable index of the toxicity of exhaust gas. Carbon monoxid is colorless, nearly odorless, and may be produced in high concentration (from 5 to 6 per cent.) even when accompanied by neither smoke nor smell. The amount depends chiefly, as the investigations of Fieldner and his collaborators in the Pittsburgh Experiment Station of the U. S. Bureau of Mines have shown, on the adjustment of the carbureter, while smoke and smell come chiefly from excess of oil. Unfortunately, with the carbureters in common use, flexibility of adjustment is lacking. The driver is prone to adjust the flow of gasoline to provide the maximum of power obtainable from the engine; and in doing so, as Fieldner and his co-workers have shown, he uses a rich mixture, which is both excessively wasteful of gasoline (up to a third of its fuel value), and likewise is productive of an exhaust gas containing considerable amounts of such products of incomplete combustion as hydrogen, and particularly carbon monoxid.

It is important, therefore, to determine as exactly as possible the concentration of carbon monoxid occurring in the space near, and especially behind, automobiles both when standing and when moving in the open air, as a preliminary to the analysis of conditions occurring in the streets where traffic is most dense. We began our work, therefore, by a series of observations showing the distribution of the exhaust gas back of a car when standing still, but with the engine running. In such observations on a Ford car it was found that the gas is distributed in a cone or horn shaped space which spreads out in the manner shown by the first car on the upper level of the accompanying illustration, so that the head of a man standing a few feet back of a car is surrounded by an atmosphere containing from 4 to 6 parts of carbon monoxid. (Methods of sampling and analysis are given farther on.) When a car is moving at 10 miles an hour, this cone is elongated in the manner shown by the first car in the lower level of the illustration; thus, the occupants of a car following another at a distance of about 30 feet are surrounded by exhaust gas diluted to a concentration of 1 or 2 parts of carbon monoxid in 10,000 of air. Any appreciable wind, of course, affects conditions favorably, while a damp, still day tends to render them worse.

With these general points established, we next proceeded to equip a small car (Ford) with batteries of sampling cans and bags and bottles. The latter utensils were employed for so-called "snap" or "grab" instantaneous air samples, which were usually taken just behind an omnibus or truck, or when traffic was stopped and crowded at a cross street, and especially when it was just starting again. The cans were connected with a pipe leading to a funnel on the wind shield through which air was drawn in as water flowed out through a small opening in the bottom of the can. Such samples were drawn for a quarter, or half, or even three quarters of an hour at a time while the car was being driven through the streets at the speed of other traffic. They represent the average conditions to which the occupants of that car, and indeed every one in these streets, were exposed during the period of the sample.

In general, the attempt was made to obtain samples showing the conditions when traffic was light or of only moderate volume, and again when it was most dense, particularly during rush hours, and both during clear, windy days and on others when the air was damp and still. The following abbreviation of the protocols of the investigations shows the methods employed and the general character of the results obtained.

METHOD OF TAKING SAMPLES

All the samples of street air were taken from a moving car which passed along with the general trend of traffic. The continuous or average samples were taken through a long rubber tube leading from a funnel which was attached to an upright on the side of the car usually beside the driver's seat and at about the height of his head.

All the samples were carried to the laboratory within a few hours and either analyzed immediately or preserved until the next day under conditions which were shown to involve no change in the carbon monoxid content. For the determination of carbon monoxid in the low concentrations occurring in street air, it was necessary to collect samples of at least 1 liter. Three methods were employed:

1. *Rapid Samples.*—For this method of sampling, basketball bladders of thin sheet rubber were used, and the air to be collected was blown into them by means of a hand bulb. The period required for filling was about ten seconds. All such samples were transferred to glass or metal containers before appreciable diffusion of gas through the rubber could occur, as shown by careful tests on this matter.

2. *Nearly Instantaneous Samples.*—Two-quart Mason jars were completely filled with water and closed with a cap. To obtain a sample, the jar was inverted and the cap was removed. The water spilled out in one or two seconds. While the jar was thus filled with the air for examination, the cap was at once put on again and clamped down.

3. *Method of Obtaining Samples for Average Concentration of Carbon Monoxid in the Air for Considerable Periods.*—For this method, an automatic sampling device was used, consisting of a square 4-liter metal can into which two tubes were inserted and soldered. The first ran through the top of the can to within 1 cm. of the bottom, while the second was inserted flush with the surface 2 cm. from the bottom of the can. To the latter tube was attached by means of a rubber connection a glass tube of capillary caliber to afford an outflow such as would drain the can at the desired rate of air sampling. The can was filled with water beforehand. A battery of twelve such cans was usually taken on the car.

Method of Analyzing the Concentration of Exhaust Gas for Carbon Monoxid.—Samples taken directly from the exhaust of a standing car were analyzed by means of the Orsat apparatus using an ammoniacal cuprous solution as the absorbent. This method is correct to about 0.2 per cent.

Iodin Pentoxid Method.—Air samples taken from the street were analyzed by this method in the form worked out by Teague in this laboratory. The method is exacting and complicated, but under carefully controlled conditions yields an accuracy of 0.001 per cent. of carbon monoxid in air, or 0.1 part in 10,000.

The following are quoted as typical observations from a large mass of data. In nearly every case the highest concentrations of carbon monoxid were found in samples taken in stalled traffic or behind omnibuses or trucks.

RESULTS

Sunday, July 13, 1922. Weather clear, temperature 74 F. in the street, fresh to strong northwest wind. Traffic light, chiefly omnibuses and taxicabs, sometimes only three or four cars to one block; maximum, thirty-four cars. Smoke noticeable when traffic stopped at cross streets. Obtained fourteen samples of street air between 3 and 4:30 p. m. on Fifth Avenue between Fourteenth and Eighty-Eighth streets. Analyses showed a range of contamination as follows: lowest, 0.1; highest, 0.64; average, 0.32 parts of carbon monoxid in 10,000 of air.

Saturday, July 19, 1922. Weather overcast with slight rain; temperature 68 F. in street. Traffic light. Obtained sixteen samples between 12:40 and 2 p. m. on Fifth Avenue between Fourteenth and Seventy-Second streets. Lowest, 0.5; highest, 2.6; average, 1.12 parts of carbon monoxid in 10,000 of air. Continuous sample going downtown showed 0.6 parts of carbon monoxid, and another coming uptown showed 0.9 part of carbon monoxid in 10,000 of air.

Wednesday, July 23, 1922. Weather fair, strong west wind. Moderate traffic. Obtained twenty-seven quick samples between 11:50 and 1:05 p. m. on Fifth Avenue from Washington Square to Seventy-Second Street. Lowest, 0.2; highest, 4.6; average, 1.28 parts of carbon monoxid in 10,000 of air. Continuous sample going downtown showed 0.6, while that during drive uptown contained 0.9 part of carbon monoxid in 10,000 of air.

Monday, July 28, 1922. Weather mild. Considerable traffic. Obtained nineteen quick samples on Fifth Avenue between Thirty-First and One Hundred and Twenty-Fifth streets. Lowest, 0.2; highest, 3.1; average, 1.47 parts of carbon monoxid in 10,000 of air. Continuous samples going downtown and uptown showed, respectively, 1 and 0.92 part of carbon monoxid in 10,000 of air.

Thursday, Aug. 8, 1922. Weather mild. Light traffic. Obtained fifteen quick samples on Fifth Avenue between Thirtieth and Eighty-Eighth streets. Lowest, 0.2; highest, 2.9; average, 1.31 parts of carbon monoxid in 10,000 of air. Four continuous samples over different stretches of streets and varying from fifteen to forty-five minutes showed 1.35, 1.1, 1.56 and 1.42 parts of carbon monoxid in 10,000 of air.

Thursday, Sept. 28, 1922. Clear, cool, dry day. Traffic light. Continuous samples were taken from ten to twenty minutes each between 4:30 and 5:30 p. m. in Union Square, Washington Square, East Broadway, Waverly Place and up and down Fifth Avenue. The concentrations of carbon monoxid found were 0.7, 0.6, 1.2, 1.4, 0.9, 1.2, 2.1 and 1.5.

Saturday, Feb. 24, 1923. Weather very cold, with gusty winds. Obtained seven quick samples along Fifth Avenue and in and around taxicab stand at the Pennsylvania Railroad Station. Analyses showed concentrations of 0.65, 1.05, 0.65, 0.4, 0.1, 1.5 and 1.3 parts of carbon monoxid in 10,000 of air.

From these observations it appears that during moderate traffic and on clear, windy days, the conditions in the streets are on the average such as imply no appreciable health hazard. But even at such times a stop back of several other cars resulted in obtaining "snap" samples of air of a fairly high contamination of carbon monoxid. Almost without exception, such relatively high concentrations were found back of omnibuses and trucks with tops. Owing to their large engine power and gasoline consumption, and their frequent stops and starts, when an especially large volume of carbon monoxid is produced, the omnibuses do more to contaminate the air than any other equal number of vehicles, with the possible exception only of large trucks. Owing to the height and width of the omnibuses, they tend to draw after them in their wake a mass of air containing an unusually high concentration of exhaust gas. From their engine power and gasoline consumption it may be estimated that an omnibus or large truck contaminates each minute a volume of air equivalent to a space of its width and height and from 100 to 200 yards in length. Owing to the direction in which the exhaust is discharged, the gas tends to accumulate and hang in the street in a layer only from 5 to 10, or at most from 15 to 20 feet deep. During periods of congested traffic, even the samples drawn continuously for considerable periods yielded on analysis amounts of carbon monoxid which fall little below the "snap" samples mentioned above.

While the results are variable, as might be expected, according to atmospheric conditions and the amount and movement of traffic, the figures obtained show conclusively that one part of carbon monoxid in 10,000 of air is a quite frequent condition in streets where traffic is heavy; and two parts of carbon monoxid are not unusual. Even more than this occurs in limited areas and for short periods.

CONDITIONS AND STANDARDS

With these broad facts before us we may consider to what extent the conditions are unhealthful in the light of the now accepted standards of allowable vitiation of air. The first extensive investigation for the establishment of a standard was carried out by Dr. J. S. Haldane on the air in the London underground railways. At that time (1896), steam engines furnished the motive power for the trains in the London subways, and coke was the fuel. The conditions were very bad, but need not be detailed here. Dr. Haldane was led finally to the conclusion that a maximum of 1 part of carbon monoxid in 10,000 of air was the standard that should be required in the London underground railway system.

Three years ago, in collaboration with the U. S. Bureau of Mines, we carried out an extensive series of investigations to determine a standard for the use of the commissions and engineers engaged in constructing the New York and New Jersey vehicular tunnel. For the tunnel itself a standard allowing a maximum of 4 parts of carbon monoxid in 10,000 of air was finally recommended and adopted. This standard, however, was expected to apply only to passengers making the transit of the tunnel in less than one hour and usually in less than half an hour. It was expressly pointed out that employees and policemen, who would necessarily be in the tunnel for a longer time, should be protected by an extra amount of ventilation of their stations. While somewhat differently expressed, the conclusions reached by Haldane and by us are virtually identical. The following general rule was formulated to apply to periods of not more than a few hours:

When the time is measured in hours and the concentration of carbon monoxid is expressed in parts in 10,000 of air, the physiologic effects may be defined by the equations:

Time × concentration = 3, no perceptible effect.
Time × concentration = 6, a just perceptible effect.
Time × concentration = 9, headache and nausea.
Time × concentration = 15, dangerous.

The meaning of this rule is that, in the specific conditions here under consideration in city streets, the breathing of air containing 1 part of carbon monoxid for four hours by a person sitting at rest and breathing quietly produces essentially the same effect as breathing air containing four parts for one hour.

Physical exertion (even walking at an ordinary pace) and increased breathing accelerate the absorption of carbon monoxid into the blood and thus reduce the figure in the first equation from 3 to 2 or 1, or even less, and affect the other equations correspondingly. In other words, a man walking or working breathes a much larger volume of air than one sitting at rest, and the rate of absorption of carbon monoxid is correspondingly augmented. The conclusion to be drawn from these facts is that the contamination of the air in the more congested streets of American cities during hours of heavy traffic reaches the upper limit, and for shorter periods even exceeds the upper limit, of a well founded health standard. It approximates the concentration that should be allowed only in tunnels, if the persons exposed are to continue to breathe the atmosphere for many hours.

The conditions at present in such streets as those which we have particularly examined are, however, only a partial indication of the health hazard which the near future is practically certain to produce. At present the fuel chiefly sold in the metropolitan district of New York seems to be almost wholly the so-called "gasoline" distilled directly from petroleum. The exhaust gas from such fuel contains, as its sole considerable toxic constituent, the carbon monoxid which arises from the incomplete combustion in engines whose carbureters are set for rich mixtures.

In other sections of the country (the Pacific Coast, for instance, and eastern Massachusetts), much more toxic fuels are already in general use, and are practically certain to be utilized everywhere in the not distant future. In fuels adulterated with cracked petroleum, coal distillate, and other like materials, there is often a high content of benzene and related substances. From the standpoint of the energy obtainable there is no objection to these fuels. Indeed, some of them are distinctly superior in starting cars in cold weather. But to the already too great health hazard of carbon monoxid, they add that of other toxic substances.

The vapor of benzene is now recognized as one of the most harmful of all the vapors occurring in industry. Its effects are cumulative and progressive, resulting in anemia, nervous disorders and probably a heightened proneness to tuberculosis. This hazard will be added to that from carbon monoxid as soon as adulterated fuels come into more general use. Furthermore, the automobile industry is devoting considerable effort to the development of some "antiknock" chemical substance, which can be added to gasoline so as to allow a higher degree of compression in the cylinders without a premature explosion. This would be a considerable technical improvement as regards the efficiency of automobile engines and their economy of fuel. Some of the substances suggested for this purpose are, however, acutely toxic; so much so that their use would add not only to the industrial hazards of workmen in garages, assembling and repair shops, but would seriously threaten the health even of pedestrians on streets of dense traffic.

For these reasons it is essential that now, before worse conditions develop, steps should be taken to ameliorate the hazards to health and life arising from the inhalation of automobile exhaust gas. The enactment of certain requirements either in state law or in city ordinances, and also provisions for supervision of automobile fuels and engine construction, are necessary to this end. The matter cannot be left to the voluntary action of the automobile industry. It is well known to this industry that, as the investigations already referred to in relation to the New York-New Jersey vehicular tunnel have shown, the carbureters on most passenger cars are extremely wasteful of gasoline, and that they are correspondingly productive of an exhaust gas rich in carbon monoxid and of high toxicity. But, as the secretary of one of the largest automobile manufacturers recently remarked to one of us, "We are in business to make and sell cars. We will conform to any requirement regarding health hazards only when the public demands it and the laws enforce it." It must be said in extenuation of this attitude, however, that the perfect carbureter is yet to be invented; and also that drivers of cars are usually negligent or ignorant in the adjustment of the present carbureters to the greatest efficiency and least toxicity in the exhaust gas. Ignorance and neglect of the laws of nature, however, excuse or protect no one from asphyxia.

VERTICAL EXHAUST AS A MEASURE OF AMELIORATION

The exhaust gases from automobile engines are far more toxic than the smoke which rises from the chimneys of dwelling houses or from the smoke stacks of most factories, or the funnels of locomotives. In amount, the total volume of exhaust gas discharged in some single streets is not less than that of a large factory or power plant. For the smoke from dwelling houses and factory furnaces, chimneys are provided, and, indeed, required by law, to discharge as high into the upper air as possible. The reason for this seems to arise from the fact that smoke from coal or wood nearly always carries with it dust and soot that can be seen or which contains substances irritating to the eyes.

It is a striking and surprising fact that in spite of modern scientific knowledge and in spite of the extensive legal protection now afforded the public health, automobiles are almost always built so as to discharge their exhaust gas near the ground, instead of vertically upward as all other smoke and noxious vapors are delivered. If the exhaust gas of automobiles constantly contained soot particles, or what we term "smoke," there would never have been any question that the automobile engine should be provided with a chimney. From a chimney any hot vapor rises in a mass; the gases now mixed with street air, on the contrary, can escape, for the most part, only by slow diffusion. In large cities each new tall building increases the average distance through which gases must diffuse upward, and hence lengthens the time required for them to escape from the streets. Each new boulevard or bridge adds to the number of cars entering the city. The traffic conditions in lower New York, for instance, will be greatly intensified by the opening of the vehicular tunnels to Jersey City two years hence.

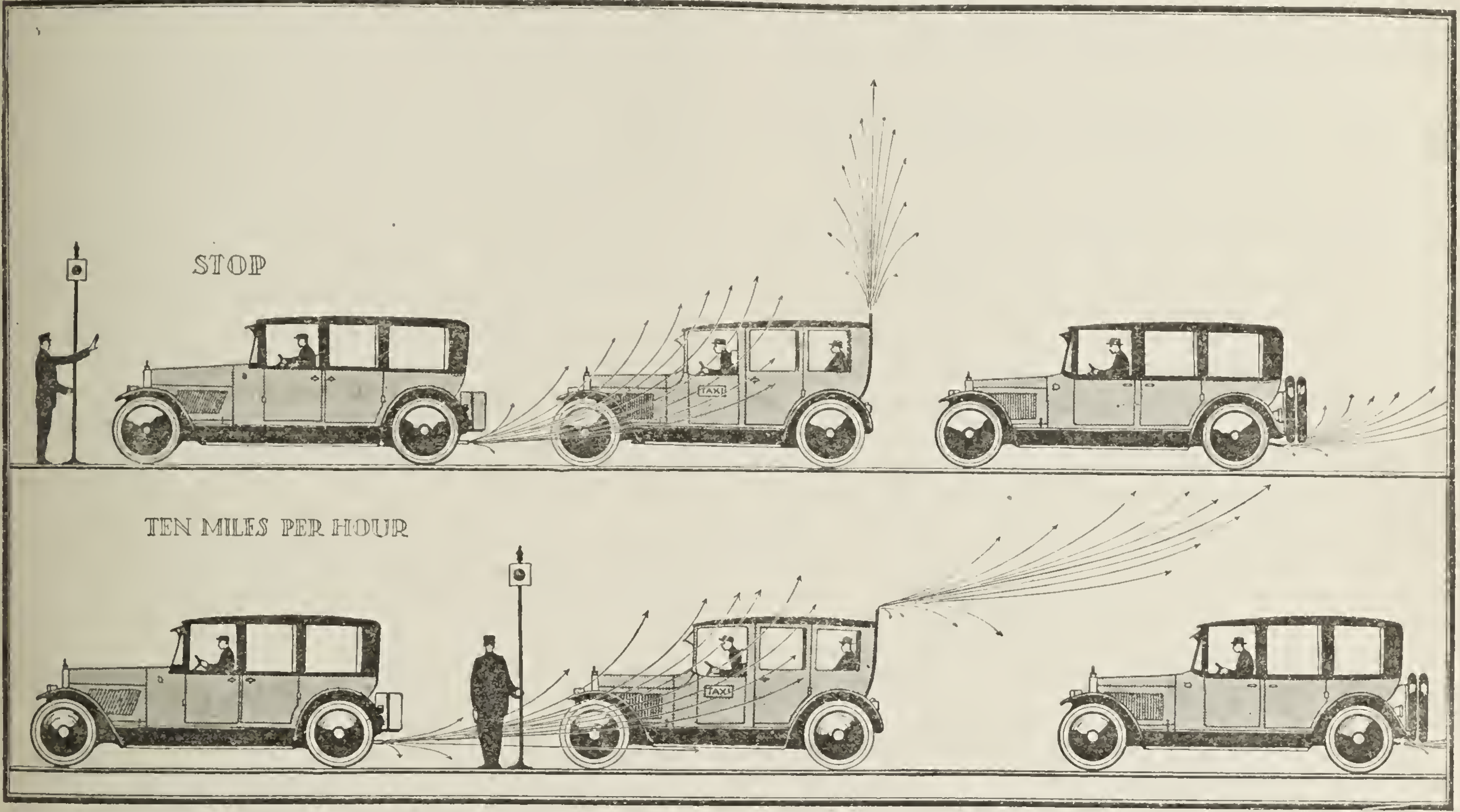
In brief, therefore, the measure of amelioration which seems practicable and efficient is the requirement by law that all trucks and omnibuses, all taxicabs and other commercial vehicles, and all passenger cars with permanent tops should be required to discharge their exhaust gas through a tube extending vertically upward for at least a few inches above the highest point of the roof. In the case of trucks it should rise above the driver's head, and on omnibuses over the heads of the roof passengers. We are convinced that there is nothing impracticable or bizarre, and nothing that will be in any way unfair or oppressive to the automobile industry in this requirement. It is not necessary that, at the present time at least, this requirement should be applied to open cars, or to touring cars when their tops are down, for the percentage of vehicles of this class in large cities is so small that their exemption from the requirement of vertical exhaust would not be serious.

Fortunately, we have been able to observe the working of vertical exhaust on a number of cars, for in some cities it is already the custom for bakery wagons to be fitted with a pipe, which is connected with the exhaust and passes vertically upward at the back of the car. This arrangement prevents vapors from penetrating the inside of the bakery delivery wagon, where it would impart an odor and flavor of gasoline to the food. No appreciable loss of power results, in the opinion of automotive engineers whom we have consulted. Nor is the appearance such that even the owner of the most luxurious limousine would have any just ground of complaint once the slight initial strangeness of the appearance of vertical exhaust was removed by its being universal.

An objection to vertical exhaust which seems to occur to many persons is that exhaust gas would then be likely (they think) to enter houses through any open windows. In fact, however, a little consideration of the principles of ventilation and of the particular conditions involved in this problem indicates that we have at present the worst possible conditions as regards invasion of shops, offices and homes by exhaust gas, and that the vertical exhaust would almost completely prevent this invasion.

This may be shown as follows:

The air of buildings in general enters through the ground floor or even through the basement, and not through any opening in an upper story. The air in buildings is always warmer than that outdoors, except only in the middle of the day in very hot weather. At all other times, even without artificial heating, the breath and warmth from the bodies of persons occupying buildings are sufficient to produce a continual upward movement of the air within the building. When an upper window is opened, unless there is a strong wind outdoors, air passes out and not inward. Steam heat in winter greatly increases the force of this movement. In consequence of this condition, air enters by every opening—doors, windows, gratings, areaways—at the base of the building. As it is warmed, it passes upward, so that even the rooms on the tenth and twentieth floors are supplied with air drawn initially from the street. In an office in the winter time, one breathes the same air as that in the bank at the street level many stories below.



Upper line, distribution of exhaust gas from cars standing still with engine running; first and third cars have horizontal exhaust; second car, vertical exhaust. Lower line, distribution of exhaust gas when cars are running at 10 miles an hour.

Now let us consider the composition and stratification of the air in the streets where there are cars—the air as it is and as it should be. Exhaust gas has about the same specific gravity as air of the same temperature, but, being very hot, it is much lighter than street air. If started upward without too much dilution and admixture with cooler air, the gas would therefore rise in a fairly compact mass and escape out of the street and pass away over the roofs like a puff of smoke. At present, on the contrary, the discharge of exhaust gas within a few inches of the ground, and the draft which follows a moving car, together produce so thorough a mixture of the gas with the street air that the heat is dissipated and there is very little tendency for the gas to rise from the street thereafter. The mixture in the wake of a car is so complete that in the tests for the New York-New Jersey vehicular tunnel it was found that in a tunnel it would make little difference whether air was drawn out at the top and fresh air fed in at the bottom, or vice versa. Thus the present mode of exhaust not only contaminates the air in the streets, and the shops and apartments at street level, but also, owing to the rise of air in the buildings, it produces contamination of the air even in the upper floors of tall buildings. The vertical exhaust, on the contrary, instead of causing the invasion of buildings will render them nearly free from the gas which at present is mixed at street level and is then drawn in and upward as described.

The general point for the vertical exhaust is this. Large as is the volume of exhaust gas produced in the streets, it is probably only a small fraction of the total amount of carbon monoxid discharged into the air of a city. During the winter, when every building is heated, nearly every chimney continually discharges more or less carbon monoxid mixed with carbon dioxid. The total amount of carbon monoxid thus produced is certainly ten times, perhaps a hundred or even a thousand times, as great as that produced by automobiles. Yet this huge amount of gas causes us no trouble, while the relatively small amount from automobiles is of serious concern.

The difference arises from the fact that for the fumes from our coal furnaces we employ chimneys, but for these gases from automobiles we do not, as yet. The remedy for the health hazard of exhaust gas lies, not in some new invention, but in one of the oldest and best known devices, namely, the chimney. The health of the traffic policemen (now in some cases subject daily to typical carbon monoxid headaches) is by itself a sufficient reason for introducing the vertical exhaust.

THE CONDITIONS IN GARAGES AND REPAIR SHOPS

Each winter there occur throughout the country dozens, perhaps hundreds (precise figures are not available) of those deaths in private garages which are so definite in type and so well explained that they should no longer be called "accidents." Recent investigations have shown that even a small car produces one, and a large car or truck two or more, cubic feet of carbon monoxid per minute. When the engine is run idle to warm it on a cold day with the garage doors closed, the atmosphere of a space large enough to hold a car is contaminated to a very dangerous extent (25 parts of carbon monoxid in 10,000 of air) within five minutes, and to a rapidly fatal extent in ten minutes. The danger is insidious. The first indication that the victim receives is that his legs give way under him; he lies helpless until consciousness ceases a few minutes later; and in the accumulating gas, death by asphyxia follows unless chance brings help within a short period thereafter. There is sufficient oxygen in the air for the engine to continue to run, long after it has produced a fatal concentration of carbon monoxid.

In public garages the conditions are less threatening to life, but more continuously inimical to health. This is more distinctly true of the newer buildings than of older structures modified to this purpose, for in the former the walls and roof are nearly air tight. Artificial ventilation is difficult and far from effective; for when an engine is run idle in testing and adjusting, or when the car moves slowly in entering or leaving the garage, the exhaust gas is blown out in such a manner that it is rapidly mixed with the air of the whole, or at least a large adjacent portion, of the garage. Forced ventilation, to be effective, would need to change the entire air of the garage every few minutes. In the winter when it is most needed, ventilation on such a scale is quite impracticable, for it would reduce the temperature of the garage nearly to that prevailing outdoors.

Actually, few large garages have any system of ventilation to speak of other than that of simple diffusion of the gases outward and of air inward. In consequence of this, partial asphyxiation resulting in the typical carbon monoxid headache is a frequent and, in some cases, an almost daily occurrence with many of the employees in the better garages.

In repair shops, the conditions are much worse. In one shop where we made inquiries as to how often and how many of the men go home with a headache, the answer was, "Nearly all of them nearly every day, but we try to arrange not to run tests and make much gas until nearly closing time." In an assembling plant where engines are tested before being placed on the chassis, we were asked to suggest some means of reducing the large amount of time which men lose from work on account of headache and nausea. This report contains our answer. In even the best arranged plants with which we are acquainted, no measures whatever are now employed to diminish the inhalation of the gases which are freely discharged into the air of the shop. In fact, this seems to be the universal condition in such shops, so far as we can learn.

What the ultimate effects of such frequent subacute asphyxiations may be is a problem on which there is not yet sufficient evidence to justify positive assertion. It appears possible that the nervous symptoms always associated with a carbon monoxid headache may lead ultimately to effects in some respects like those of chronic alcoholism, for partial asphyxia and alcoholic intoxication have many points of similarity. We have asked the opinion of several men who are of wide experience in industrial diseases, and have found that without exception they believe that an already existing tuberculosis is in many cases augmented and accelerated by such conditions. Indeed, rapidly fatal cases of this sort have come to our attention. We find also that the medical officers of insurance companies doing an "industrial" business are strongly of this opinion. Precise conclusions on the ultimate effects of frequent subacute inhalations of carbon monoxid lie, however, beyond the scope of this investigation.

Regarding the immediate effects of breathing air containing carbon monoxid in such amounts as are here under consideration, quite positive statements are justified by present knowledge. Thus, it is well ascertained that even a low concentration of carbon monoxid causes and intensifies the development of fatigue. This factor in industrial fatigue is quite certainly influencing many thousands of people in New York and other large and congested American cities daily.

The inhalation of such amounts of carbon monoxid, and the development of such ill effects as frequently occur in garages, are probably also factors in an appreciable number of street accidents and fatalities. The effects of alcohol in the weakening of judgment and in rendering inaccurate the nervous and muscular coordination of driving are well recognized, and the legal penalties for the partially intoxicated driver who has participated in an accident are severe. It is a well established fact that a man who has inhaled such amounts of carbon monoxid as occur in garages is affected by the same kind and degree of weakening of judgment and of accuracy of coordination as a man under the influence of a comparable amount of alcohol. Unlike the alcoholic, however, the driver who has an accident after being partially asphyxiated in a garage or repair shop might well plead his condition as an extenuating circumstance.

Regarding the rate of absorption and elimination of carbon monoxid and the immediate effects, full and accurate knowledge is now available. Our investigations in connection with the ventilation of the New York-New Jersey vehicular tunnel have shown that if only a moderate amount of carbon monoxid has been absorbed into the blood, practically all of it is thrown off within two or three hours in fresh air. But our observations, in accord with others, show also that the ill effects, especially headache, nausea and disturbances of temper and judgment, may last for many hours thereafter. Physiology and pathology have not yet arrived at a complete analysis of the problem of asphyxia. Enough is known, however, to justify the demand, from the standpoint of public health and industrial medicine, that, so far as possible, inhalation of exhaust gas should be prevented.

EFFECTIVENESS OF VERTICAL EXHAUST IN THE VENTILATION OF GARAGES

Through the courtesy of the General Baking Company of New Haven, we have been enabled to make the following highly significant observations: This company uses a number of one ton White trucks, most of them fitted with the vertical exhaust, but one having the ordinary horizontal exhaust. The observations were made in a small garage which is 11 by 20 by 23 feet and is capable of holding three trucks. The following are typical protocols:

1. (*a*) A truck with the ordinary horizontal exhaust was run idle for five minutes in the closed garage. A sample of air taken 4 inches above the roof of the car was found to contain 7 parts of carbon monoxid; another sample taken 5 feet above the floor of the garage, and near the face of the observer, contained 7.3 parts of carbon monoxid.

1. (*b*) After the garage had been thoroughly aired, the truck previously used was removed and replaced by one having the vertical exhaust. The engine was run in the closed garage for five minutes. A sample of air 4 inches above the top of the car was found to contain 16.4 parts of carbon monoxid, while a sample taken 5 feet above the floor of the garage contained 4.2 parts of carbon monoxid.

2. (*a*) In the following experiments, a ventilator in the roof of the garage which had remained closed during the previous experiments was opened. The ventilator is simply a round hole in the roof 16 inches in diameter and with a galvanized iron pipe extending upward for 3 feet. It has a cover to keep out rain. When a car with the horizontal exhaust was run for ten minutes in the garage, a sample taken 4 inches above the roof of the car and a couple of feet below the ceiling of the garage contained 7.4 parts of carbon monoxid, while a sample taken 5 feet above the floor of the garage contained 9.2 parts of carbon monoxid.

2. (*b*) When the experiment was repeated with the vertical exhaust, it was found that when the exhaust was blown against the ceiling at a point 3 feet from the ventilator, the accumulation of exhaust gas in the garage after ten minutes was 3.5 parts of carbon monoxid in a sample taken on the roof of the car, and 2 parts in a sample taken 5 feet above the floor.

2. (*c*) In a similar experiment in which the vertical exhaust pipe was directly under the ventilator, the air in the garage was found after ten minutes to contain only 0.7 part of carbon monoxid at the roof of the car, and only 0.5 part 5 feet above the floor.

From these observations it is clear, in complete accord with a large number of observations which we have made on other garages, that the effect of the horizontal exhaust is to mix the gas almost immediately and completely with nearly the entire air of the garage. The problem of ventilation is thus rendered difficult; in fact, practically insoluble. On the other hand, with the verticle exhaust, natural ventilation by common appliances is sufficient to ventilate a garage effectively. The fire hazard is also reduced, as gasoline spilled on the floor cannot be ignited by the vertical exhaust.

Finally, it may be stated here that we have carefully investigated the other remedies which seem to occur spontaneously to nearly all ingenious minds inexperienced in this field—hose connections to the exhausts of cars in garages, gas mask canisters on the exhausts, and similar suggestions. Full study has shown, however, that for one reason or another in each case these remedies are not practicable. Discussion of them has herefore been omitted here.

CONCLUSIONS

The air in city streets where there is considerable raffic is found to be contaminated with automobile exhaust gas to a degree in excess of proper and well established health standards. The amount of visible smoke is not an index of carbon monoxid content.

The conditions in garages and repair shops are, as a rule, extremely unhealthful. Many mechanics and drivers suffer almost daily partial asphyxiation with headache and other sequelae. Fatal asphyxiations in private garages are fairly common occurrences in the winter.

The conditions in the streets of American cities can be largely ameliorated by the use of the vertical exhaust on omnibuses, trucks, taxicabs, and private cars with tops. Cars without tops are now negligible in numbers in cities.

The horizontal exhaust now generally used mixes the gas throughout the respiratory zone of street air in a layer only about 10 feet deep. It thus dissipates the heat of the gas and prevents it from rising out of the street. The vertical exhaust, on the contrary, starts the hot gas upward with comparatively little admixture of air, and its heat carries it on up out of the street.

With the horizontal exhaust the entire air of the garage is rapidly mixed with exhaust gas. Adequate ventilation of garages is at present virtually not feasible. With the vertical exhaust, the heat of the gas holds it against the ceiling with comparatively little admixture of air, and the gas therefore readily finds its way out through any ventilator in the roof.

Clinical Notes, Suggestions, and New Instruments

SOME FURTHER OBSERVATIONS ON THE ELECTRIC BREAST PUMP*

Isaac A. Abt, M.D., Chicago

For several years it has been my desire to construct a motor-driven milking machine which would be more efficient than the pumps that are offered for sale. Two years ago I exhibited the first model at a meeting of the American Pediatric Society. Since that time, many improvements and modifications have been made in the original model, and numerous clinical tests have been conducted. The new apparatus is much smaller, less complicated, and readily portable.

DESCRIPTION

Suction is obtained by an electrically driven, reciprocating pump with the aid of a vacuum chamber, combined with a special glass nipple shield (Fig. 1). The suction produced is not continuous, but alternates with expulsion. The degree of suction is registered by a gage which may be readily regulated to suit the convenience of the patient by a relief valve at the top of the pump. The vacuum may be increased by turning the relief valve to the right, and decreased by turning the valve to the left. There is a rubber tip attached to the bottom of the vacuum chamber. A longitudinal slit in this tip permits the expulsion of the milk from the chamber into the receptacle.

Vacuum is produced at every suction stroke of the pump, at which time this slit becomes closed, thus permitting the extraction of the milk from the breast into the glass chamber. With the downward, or compression stroke of the plunger, the expulsion of the milk, as already mentioned, is accomplished through the rubber tip. The machine produces approximately forty-five sucks each minute. Experiments have been performed which demonstrate that this rate gives the best results.

The glass chamber and nipple shield are attached to the pump by means of a rubber tube which is sufficiently firm to prevent collapse of the tube. The entire procedure may be carried out under strict asepsis, so that milk passes from the breast through the glass chamber into the desired receptacle without any possibility of contamination by the fingers or hands. The glass chamber and shield, as well as the tube and rubber tip, may be easily sterilized in the usual manner. The machine needs no attention except occasional oiling.

TECHNIC OF APPLYING PUMP

The usual method of cleansing the breast with boric acid solution is employed. The glass nipple shield has been so constructed that the circumference reaches beyond the areolae when the nipple is drawn into the shield. The tip of the nipple should be in a line directly in the center of this opening; otherwise unequal suction is produced, resulting in a shutting off of the milk ducts over a certain sector. When the nipple is directly in the center of the shield, it is observed that the milk flows freely in many fine streams. This milk is collected into the vacuum chamber as already described (Fig. 2). The chamber, rubber tip and rubber tubing should be sterilized before using. Milk may be collected in a sterile bottle.

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* Read before the American Pediatric Society, May 31, 1923.

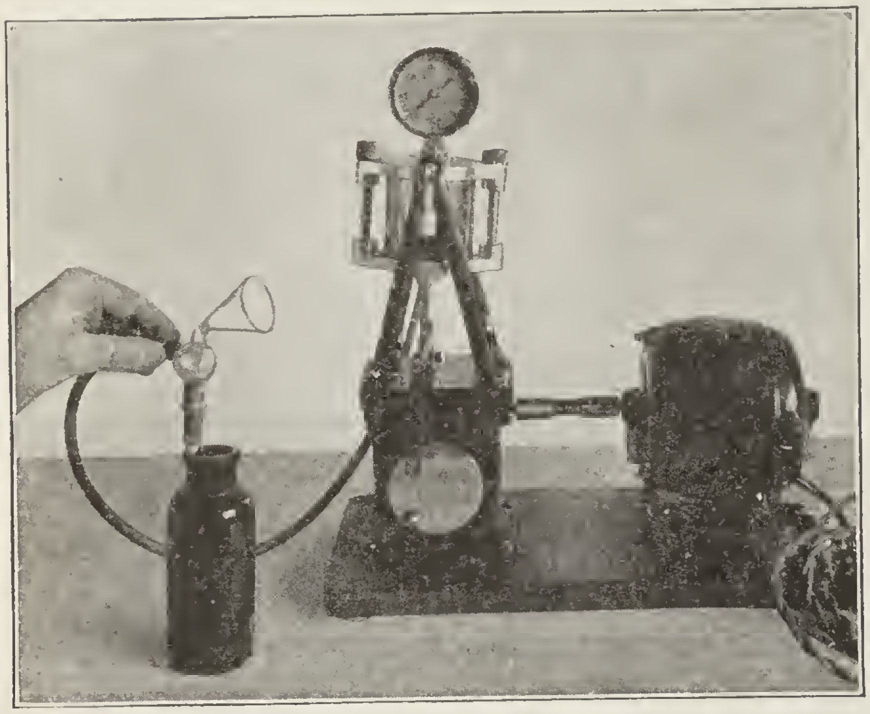

Fig. 1.—Electric breast pump.

Although the pump will express the milk without any further aid, the quantity of milk obtained is always greater when gentle compression of the base of the breast is made. This seems to aid the vacuum, and facilitates a more complete emptying. The base of the entire breast need not be compressed at one time. Good results are obtained by compressing one sector of the breast at a time. The breast may be emptied by the pump in about ten or twelve minutes, and occasionally an added quantity may be obtained by using the pump for fifteen minutes. In some cases, a period of five minutes was sufficient to empty each breast.

When using the machine on a patient for the first time, there is occasionally a delay in the free flow of the breast milk. When the patient has been convinced that the machine is harmless, this retardation of the milk flow is overcome. For this reason, it is best in all cases to demonstrate to the patient the action of the pump by applying the shield to the palm of the hand or the cheek. The amount of pressure in all cases should be low for the first few strokes, and it is best to increase the pressure according to the patient's comfort. Experiments have shown that the best results are obtained with a pressure of from 6 to 8 inches, as indicated by the pressure dial.

ADVANTAGES

The advantages of this breast pump are:

1. The method of expression is aseptic.
2. The secretion of milk is stimulated.
3. Engorged breasts are relieved more readily and more effectively than by manual expression or with the hand pump.
4. The electric pump is beneficial in cases of inverted nipples.
5. No cases of breast abscess or other breast infections resulted in our series.
6. It has been used in a few cases of fissures of the nipple. No pain has occurred, and the fissures healed during the period in which the pump was used.

CLINICAL EXPERIENCES

The pump has been used in procuring a milk supply from the wetnurses at the Sarah Morris Children's Hospital for nearly two years. Prior to the use of the pump, the wetnurses at the hospital expressed their milk by the manual method. On some occasions on which this method has been employed and the breasts were apparently emptied, a considerable amount of milk could be obtained with the electric pump. On the other hand, if the breast is emptied by the electric pump, little or no milk can be obtained by manual expression.

The results obtained by a long series of tests at the Chicago Lying-In Hospital may be thus summarized:

1. In those instances in which adequate secretion of milk was unduly delayed, the use of the pump produced sufficient stimulation to cause an unhampered flow of milk. In the case of newly born babies, the pump was applied to each breast from three to five times daily after nursing. These infants remained under observation, and the flow of milk continued to be sufficient to provide for weight increase after they had reached their homes.
2. The machine was very useful in relieving engorged and painful breasts, in which cases the pressure was reduced so that the vacuum gage registered from 2 to 4 inches instead of the usual 6 to 8 inches.
3. The nurses at the Chicago Lying-In Hospital formerly expressed the breast milk by hand in order to obtain food for the premature babies and those who received an insufficient supply of milk. If the milk must be expressed in a number of mothers, the nurse's hand becomes fatigued and poor results are obtained. The nurses have frequently expressed the opinion that the pump affords them a more efficient method of obtaining milk, less time and labor are consumed, and a greater quantity of milk is obtained. They feel that the machine is almost indispensable. The mothers soon become accustomed to the pump. They suffer no pain, and are pleased with the results. One of the supervising nurses observed that the nipples became softer and could be more readily grasped by the infant.
4. Only a few cases of inverted nipples presented themselves for observation. In these cases, a smaller nipple shield is used at the outset. This small shield pulls out the inverted nipple very readily. After several strokes, the nipple stands out prominently, and the milk flows readily as though the nipple had not been inverted. In some cases, the nipple was drawn out and remained so permanently, although in a fe cases, this did not result.

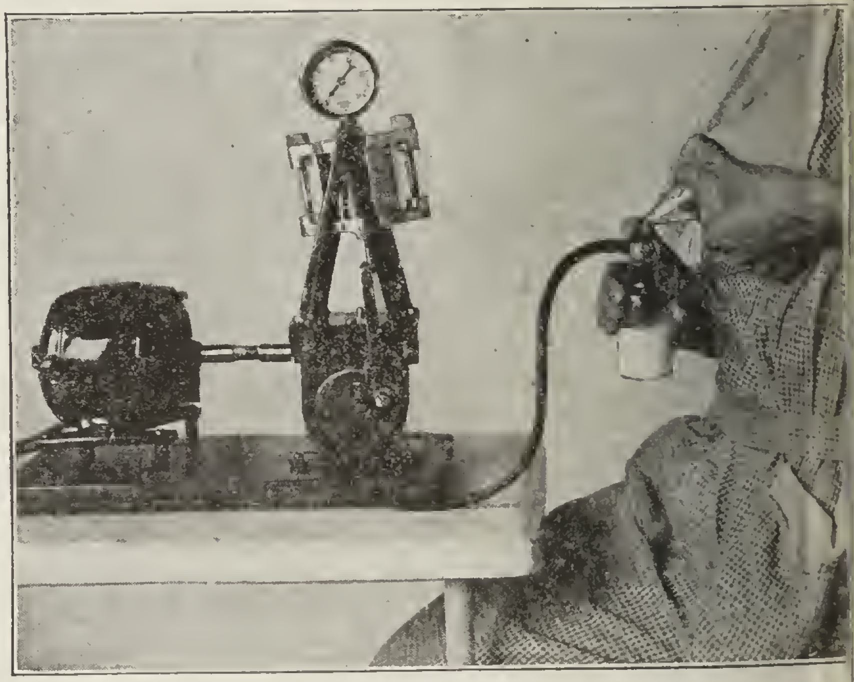

Fig. 2.—Pump in use.

CONCLUSION

It may be said that the electric pump produces an intermitten form of suction without causing pain or injury to the breas It stimulates the breast and increases the quantity of mil It has been tested in a considerable number of cases, an has given more satisfactory results than any artificial metho of expression previously employed.[1]

104 South Michigan Avenue.

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[1] For the present, the machine is being constructed under t direction of Mr. Edward Lasker, Room 900, Wrigley Building, Chicag

INSTRUMENT TO FACILITATE MAKING OF SUTURE HOLES IN CERTAIN BONES

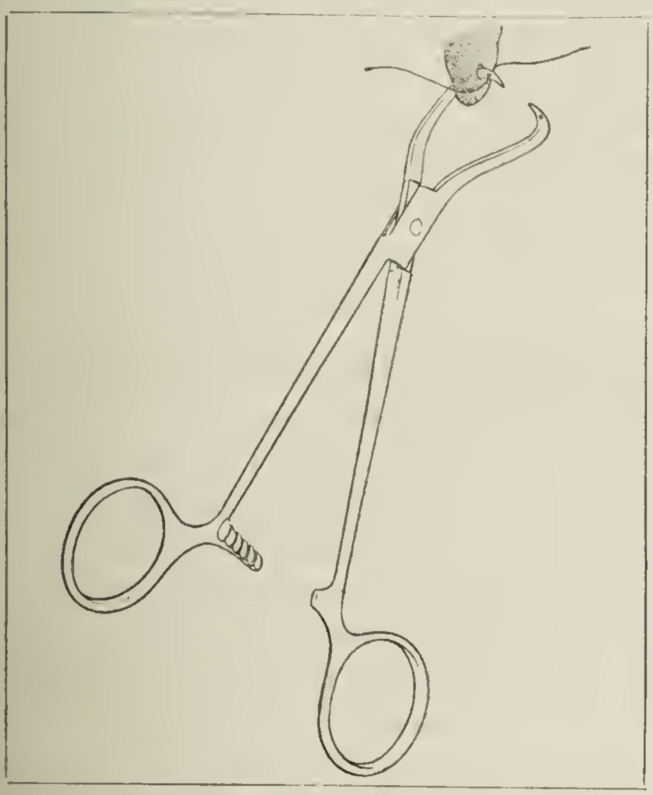
Philip Lewin, M.D., Chicago

This simple instrument for making suture holes in certain bones is especially useful in operations on the patella and the bones of the foot and wrist. It is very handy in all tendon and bone work, particularly in arthrodeses of small bones.

The instrument is not proposed as a substitute for the hand or electric drill. Often the latter instruments are not sterilized and at hand, and delays are always annoying.

The instrument is a modified "June bug" or Backhaus clamp (sometimes called a "towel clip"). Any variety of size, curve and thickness of prongs may be made. It may be used without eyes simply to make the holes, or with eyes, to be used for inserting the sutures after the holes are made. If used without eyes, the suture needles should have the same curve as the hole-making prongs. If the desired shape of prongs cannot be obtained, it is very simple for a good instrument maker to cut off the blades of a pair of Ochsner forceps and braze new prongs on the ends.

By forcing both prongs through the bone, locking the orceps and working the prongs forward and backward once r twice, a very smooth hole is made. Suture material going rough this hole is not cut or frayed by spicules of bone. he hole is not large, and a needle with proper curve will llow the track very easily. If the instrument has an eye in ch prong, after the hole is made, the forceps are unlocked nd one prong is forced through until the eye is exposed. he end of the suture is threaded, the prong extracted, and e suture is in the bone.



Instrument for making suture holes in small bones: prong through ne, with suture material in eye of prong.

7 West Madison Street.

Devitalizing Influence of Heat or Cold When Too Long pplied.—Dr. E. C. Robichaux, Excelsior Springs, Mo., rites: I report this case to call attention to the devitalizing fluence of heat or cold when too long applied: E. F. H., a an, who consulted me, April 3, 1923, ten days previously had d a severe attack of pain in the region of the gallbladder. or twenty-four hours he continuously applied heat over the ea of a cholecystectomy performed eleven years before. nmediately after the heat was removed, an ice-bag was plied without intermission for thirty-six hours. At the st examination, seven days later, no local lesions had peared, nor was more than slight tenderness elicited. Two ys later, intense hyperemia, attended with much pain, veloped in and around the scars. Later, blistering occurred, llowed by considerable exudation of serum and some ughing.

New and Nonofficial Remedies

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application. W. A. Puckner, Secretary.

Protein Mixtures for Diagnosis

"Protein mixtures for diagnosis" are mixtures of two or more pollen, epidermal or food protein preparations.

Actions and Uses.—See Pollen and Epidermal Extracts and Biologically Reactive Food Proteins, New and Nonofficial Remedies, 1923, p. 234. In order that the number of skin tests to determine sensitiveness to proteins may be reduced, it has been proposed to employ mixtures of protein preparations, and if sensitiveness to a given mixture is found, then to make tests with the individual proteins contained in this mixture. There is the objection to this procedure that with patients who react very slightly to one member of a mixture, the dilution which has occurred on account of the presence of other proteins may render a reaction negative. On the other hand, if a patient is highly sensitive to all the proteins of a mixture, cutaneous reactions may give rise to systemic disturbances.

Dosage.—See Pollen and Epidermal Extracts and Biologically Reactive Food Proteins, New and Nonofficial Remedies, 1923, p. 234.

These protein mixtures are used for diagnostic purposes only.

GROUP ALLERGENS DIAGNOSTIC-SQUIBB.—A mixture of two or more Allergens-Squibb in equal proportions.

Actions and Uses.—See preceding description Protein Mixtures for Diagnosis.

Dosage.—See preceding description Protein Mixtures for Diagnosis.

Group Allergens Diagnostic-Squibb are marketed in vials containing 25 milligrams.

Manufactured by E. R. Squibb & Sons, New York. No U. S. patent or trademark.

Group Allergens-Squibb Type I (Beet, Carrot, Parsnip, Radish, Turnip); Group Allergens-Squibb Type II (Cabbage, Celery, Lettuce, Onion, Spinach); Group Allergens-Squibb Type III (Artichoke, Asparagus, Cauliflower, Rhubarb, String Bean); Group Allergens-Squibb Type IV (Cucumber, Egg Plant, Pumpkin, Squash, Tomato); Group Allergens-Squibb Type VI (Apricot, Cherry, Peach, Plum, Prune); Group Allergens-Squibb Type VII (Cantaloupe, Grape Fruit, Lemon, Orange, Watermelon); Group Allergens-Squibb Type VIII (Apple, Banana, Pear, Pineapple, Fig); Group Allergens-Squibb Type IX (Almond, Chestnut, Filbert, Hazel Nut, Peanut); Group Allergens-Squibb Type X (Black Walnut, Brazil Nut, English Walnut, Hickory Nut, Pecan); Group Allergens-Squibb Type XI (Barley, Buckwheat, Corn, Oats, Rice); Group Allergens-Squibb Type XII (Beef, Goat, Horse, Pork, Mutton); Group Allergens-Squibb Type XIV (Chicken, Duck, Goose, Guinea-Hen Turkey); Group Allergens-Squibb Type XV (Blue Fish, Codfish, Haddock, Halibut, Mackerel); Group Allergens-Squibb Type XVI (Butterfish, Salmon, Sea Bass, Sole, Whiting); Group Allergens-Squibb Type XVII (Clam, Oyster, Crab, Lobster, Scallops, Shrimp); Group Allergens-Squibb Type XVIII (Black Pepper, Ginger, Mustard, Paprika, Vanilla); Group Allergens-Squibb Type XIX (Cocoa, Coffee, Tea); Group Allergens-Squibb Type XX (Egg [all proteins], Cow's Milk [all proteins], Goat's Milk [all proteins]); Group Allergens-Squibb Type XXI (Cat [hair], Cow [hair], Dog [hair], Horse [dander], Rabbit [hair]); Group Allergens-Squibb Type XXII (Chicken, Duck, Goose); Group Allergens-Squibb Type XXVI (Micrococcus Catarrhalis, Pneumococcus I, Pneumococcus II, Pneumococcus III, Pneumococcus IV); Group Allergens-Squibb Type XXVII (Staphylococcus Aureus, Staphylococcus Albus, Staphylococcus Citreus, Streptococcus Pyogenes, Streptococcus Viridans).

POLLEN ANTIGENS-LEDERLE (See New and Nonofficial Remedies, 1923, p. 239).

The following products have been accepted:

Annual Salt Bush Pollen Antigen-Lederle; Bermuda Grass Pollen Antigen-Lederle; Cocklebur Pollen Antigen-Lederle; Johnson Grass Pollen Antigen-Lederle; Mountain Cedar Pollen Antigen-Lederle; Mugwort Pollen Antigen-Lederle; Oak Pollen Antigen-Lederle; Orchard Grass Pollen Antigen-Lederle; Perrenial Rye Grass Pollen Antigen-Lederle; Rabbit Bush Pollen Antigen-Lederle; Redroot Pigweed Pollen Antigen Lederle; Russian Thistle Pollen Antigen-Lederle; Spiny Amaranth Pollen Antigen-Lederle; Yellow Dock Pollen Antiger-Lederle.

Prepared by the method given for Pollen Antigens-Lederle (New and Nonofficial Remedies, 1923, page 240).

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

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SATURDAY, AUGUST 4, 1923

THE TRIUMPH OF THE CALORY

For three or four years there has been considerable discussion among pediatricians, some of it in the columns of The Journal,[1] regarding the system of feeding that was formulated during the World War by the Viennese clinician Pirquet. Impelled by an ardent desire to simplify the technic of practical nutrition so as to render the scientific measurement of food more popular, he introduced a new unit of food value, the nem, in place of the calory. This occurred in Europe at a time when the efforts of the United States Food Administration and other educational influences in this country were encouraging a larger interest in the quantitative aspects of the food supply, and consequently in the significance of calories in every-day life. The nem represents the food value of 1 c.c. of cow's milk. A simple calculation, based on a content of 667 calories per liter of milk, indicates that a nem equals two thirds of a calory; a calory is equivalent to 1½ nems.

As calories refer primarily to heat production and combustion, whereas the nem has reference to a universally known food, Pirquet believed that the latter would have a greater "advantage of visualization" and therefore appeal better to the popular imagination. Faber [2] has recently argued, with much justice, that the introduction of Pirquet's food unit, the nem, to supplant the calory is highly undesirable, largely for practical reasons, and presents no advantages that would appeal to an American public. As he points out, the calory is now generally understood and commonly used in practice by the profession in this country. We have learned what it means to "eat by calories." Physicians, nurses and dietitians think of diet in terms of calories; and, as Faber adds, the same may be said of thousands of lay people who are attempting to rid themselves of superfluous flesh by "counting their calories." One can readily "visualize" the fuel values of food as ounces of milk by dividing their calory value by 20.

After all, a unit in any field of measurement, whether of food, fuel or electricity, has little meaning in a practical way unless it is associated with something concrete. Most persons can visualize 10 pounds of flour or sugar because of first-hand experience with it. The same measure—10 pounds—conveys only a vague impression if it is referred to feathers or leather or pearls, which one has not been accustomed to weigh and evaluate in terms of pounds. Familiar though the pound and quart may seem to be to Americans, they are finding it necessary to relearn what purchases may mean when pounds begin to replace quarts in the food market of today. So it is with calories and nems, with grains and grams. They mean little until we learn to associate them with something concrete—with butter, eggs, milk and bread, for example, in definite portions. The student of nutrition and the layman alike must become accustomed to think of the fat of butter, the slice of bread or the large banana as 100-calory portions of food. When this much has been accomplished, it matters little whether we speak in terms of nems or calories. Why, then, give up the calory?

THE SOURCES OF CALCIUM FOR THE BODY

Calcium is an element of fundamental importance for the body. The blood and all the tissues contain it in some proportion. In the skeletal structures it has a major rôle which cannot be assumed by any other element. In view of these well recognized facts and the added circumstance that calcium can be analytically estimated with considerable ease and accuracy, it seems remarkable that our knowledge of its precise behavior and functions in the organism is still so limited. Recently, however, there have been signs of a decided renaissance of interest in the subject. It has been found, for example, that the presence of calcium compounds in the diet is not, of itself, a sufficient guarantee that the element will be "assimilated." Recent studies of rickets, in particular, have indicated that a variety of factors may be involved in the satisfactory "deposition" of calcium in the bones. Again, the data assiduously accumulated through the methods of blood microchemistry show that the circulating medium of the body is normally endowed with a fairly constant content of calcium; and, when this becomes perceptibly lowered, pronounced pathologic conditions are likely to be found. The relation of cause and effect in such conditions, however, is by no means clearly elucidated. Calcium is exceptionally prone to form salts that are quite insoluble, particularly in neutral or alkaline mediums. In this way it is always conceivable that calcium may be "lost" to the body in a functional sense by precipitation in some inert form, such as phosphate, sulphate, oxalate or soaps, as well as by actual deficiency in some respect. Added to these varied circumstances, which give a sort of uniqueness to it among the other physiologically important inorganic elements, is the fact that calcium has a somewhat unusual path of elimination from the body. It is excreted as well as absorbed by the bowel.

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[1] Carter, W. E.: The Pirquet System of Nutrition and Its Applicability to American Conditions, J. A. M. A. **77:** 1541 (Nov. 12) 1921. Correspondence, ibid. **77:** 1756 (Nov. 26), 1837 (Dec. 3), 1911 (Dec. 10), 1988 (Dec. 17), 2080 (Dec. 24) 1921.

[2] Faber, H. K.: A Critique of the Pirquet Feeding System, with Special Reference to Its Underlying Principles, Am. J. Dis. Child. **25:** 339 (May) 1923.

Many of the present-day dietary components of man, as well as the domestic animals, are wofully deficient in calcium. In view of this, attention has naturally been directed to its relative availability from different sources. Milk remains *facile princeps* as a calcium-bearing food; but milk is also rich in fats which are potential sources of insoluble calcium soaps in the intestine. A study of the current textbooks gives the impression that the formation of calcium soaps and a resultant failure of absorption are sometimes causes of the loss of both fats and calcium which may be needed by the body. The observation of "soap curds" in the stools of infants has played a part in diagnosis in the realm of pediatrics. A recent writer has reminded us that it is easy to understand why, in the earlier literature, the idea gained credence that calcium salts insoluble in water or dilute alkali were unavailable, because the content of the small intestine a short distance from the pylorus was believed to be alkaline in reaction. It is now known, thanks to the observations of various American biochemists,[1] that the acidity of the chyme is neutralized only gradually, so that an acid reaction often prevails for a considerable length of the small intestine and even sometimes throughout its entire length. Evidently, this suffices under ordinary circumstances to guarantee adequate solubility of calcium from even the most insoluble compounds so that it can be utilized, provided the diet is adequate in its content of "fat soluble" vitamin. At any rate, the Department of Agricultural Chemistry at the University of Wisconsin has found that, in young animals, there was no difference in the availability of calcium lactate, carbonate, phosphate, silicate or even sulphate when these were fed in liberal amounts as sole sources of calcium for the growing organism.[2] The investigators who determined these facts believe it is undoubtedly the acidity that makes possible the assimilation of the difficultly soluble calcium salts from the intestine. In this onnection we are reminded that such salts as barium ulphate, insoluble in dilute hydrochloric acid, are not bsorbed to any appreciable degree; at least not sufficiently to cause toxic symptoms.

If, then, despite the presence of an abundant source f calcium the "balance" of the latter is often unfavorble, we must look to other factors than solubility to xplain the difficulty. Such a one, there is reason to elieve, is of a vitamin nature, possibly identical with itamin A or the antirachitic vitamin. Green plants nd cod liver oil are already known to contain factors nfluencing calcium assimilation; and there is evidence that these potencies may deteriorate under unfavorable conditions of storage or exposure. Bearing in mind that calcium is both absorbed and excreted through the intestine, it is not impossible that the effective vitamin acts to modify in some way the "permeability" of the intestine in one direction or another for salts of the element. In any event, it seems desirable to keep in mind not only the tissue aspects but also the intestinal possibilities in the problem of calcium utilization by the organism.

THE FUNCTION OF THE CORPUS STRIATUM

There was a time, during the last quarter of the last century, when the localization of cerebral functions on a strictly scientific basis seemed to be near at hand. The possibility of such an accomplishment meant much to clinical medicine as well as to neurologic physiology. With the improvement of surgical technic and the decreasing hazards of operative procedure, greater certainty of diagnosis was called for in connection with pathologic changes in the central nervous system, and particularly the brain; but progress in the acquisition of knowledge regarding the physiology of this organ has been disappointingly slow. It has not been easy to identify specific lesions with special activities of the body. Contradiction and confusion has characterized much of the experimental as well as the clinicopathologic evidence.

The reasons for some of this current uncertainty are not hard to find. Even for the skilled operator, experimentation on the encephalon is admittedly difficult. It is not easy to acquire precision in attempting to produce lesions in well defined areas, and usually they cannot be located satisfactorily except postmortem. Attempts at extirpation of some part involve the concurrent danger of injury to adjacent parts, as well as disturbances in the circulation of structures somewhat remote from the one under consideration. The harm is not always localized, as it was intended to be by the investigator. Furthermore, it has often become questionable whether compensatory functions do not readily develop to obscure the actual damage.

These considerations may help to explain why so little is known in any definite way about the exact functional rôle of the group of nerve cells comprising the corpus striatum. Despite the attempts to destroy definite portions of this structure with chemicals and thus to observe possible symptoms of a lack of part of the striate body, despite efforts to secure positive responses by electrical stimulation of selected portions of the latter, little of importance has been learned. The conjectures of a motor-steadying function of the corpus striatum have not been sustained; and even strong electric stimuli have failed to elicit indications of unmistakable motor control through this region.

Evidence obtained by the clinicopathologic method, by observations of symptoms associated with known pathologic lesions of the nervous system in man, is usually open to the criticism that the pathologic process noted may have been modified by other disturbances of a common origin. This objection does not apply, however, to an ingenious method recently employed by Edwards and Bagg[1] of Cornell University Medical College in the study of neurophysiology. It consists in producing localized lesions in animals by burying, in the nervous structures, small tubes of radium emanation. The outstanding advantages consist in the absence of extensive trauma, and the sterility of the procedure adopted. Lesions so produced were sharply localized, necrotic in character, and showed accompanying phagocytic and edematous processes. The surrounding brain tissue was found to be normal, and some of the larger vascular trunks at the borders of the irradiated fields remained patent. The destruction of large portions of the lenticular and caudate nuclei did not give rise to outstanding defects in the coordinated activities of walking and jumping, even in experiments involving observations over many weeks. Some animals exhibited temporarily signs of dysphagia, dysarthria, conjunctivitis, clumsiness in slow movements, tremor and hypertonia; but all indications of disturbance usually disappeared within a short period. There was no tract degeneration in the spinal cord. In man, hypertrophic cirrhosis of the liver has been associated with progressive lenticular degeneration. In Edwards and Bagg's dogs, structural changes were not observed in the liver or other organs. Although extensive bilateral lesions of the striate body were occasionally attended by tremors and signs of hypertonia exhibited in an unusual bodily posture, there was subsequently return to a normal—or apparently normal—condition. It may seem disheartening to be obliged to record so much of a negative character where something significant has long been awaited; nevertheless, it usually leads to real progress to eliminate the fabric of unwarranted beliefs.

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[1] Long, J. H., and Fenger, F.: J. Am. Chem. Soc. **39**: 1278, 1917. cClendon, J. F.; Culligan, L. C.; Gydesen, C. S., and Myers, F.; J.: Biol. Chem. **41**: 6, 1920.

[2] Steenbock, H.; Hart, E. B.; Sell, M. T., and Jones, J. H.: The vailability of Calcium Salts, J. Biol. **56**: 375 (June) 1923.

Current Comment

BLOOD CELL VOLUME

In considerations of the red cells of the blood, attention has long been directed to their abundance, that is, the number of the erythrocytes present in a unit of the circulating medium. Presently it was noted that the content of hemoglobin in the individual corpuscles may vary to some extent independently of their number; so that, without any change in the latter, the amount of oxygen-carrying blood pigment may be either larger or smaller than usual. In such cases it has been customary to state that the "color index" of the blood has been modified. Conditions are now recognized in which, despite a normal blood cell count, the color index is lowered. From the standpoint of the respiratory functions of the blood, the efficiency of the erythrocytes must then be impaired. Obviously the corpuscles can vary also with respect to structure and volume. Under certain circumstances, nucleated red cells make their appearance. Twenty years ago, Capps[1] emphasized the value of the study of their size also. Although he determined what he designated as the "volume index" in different types of anemias, the subject practically suffered oblivion until it was again brought to notice by Haden[2] at the University of Kansas School of Medicine. His results emphasize in a striking way the great constancy of the volume and hemoglobin content of the normal erythrocytes. Apparently they are "saturated" when the pigment attains a concentration of 34 per cent. in them. Haden believes that a study of the volume of the red cells is of the greatest value in the differential diagnosis of the anemias. Thus, in pernicious anemia the practically constant and the most characteristic blood finding is considered by him to be the large volume of the average red cell. The increase here is greater than the increase in hemoglobin. Supersaturation of the cells with the pigment never occurs. As contrasted with primary anemia, the secondary anemias show an average cell volume never greater than normal, and seldom as large. The color index is correspondingly smaller. Haden believes that the smaller size of the cell in hemorrhagic anemia is probably the direct result and an expression of the long continued drain on the bone marrow. This circumstance may be of definite prognostic value. Let us therefore learn more about red blood cell volume.

THE REWARD OF GENIUS

The Canadian government has awarded Dr. F. G. Banting a life annuity of $7,500 as the discoverer of insulin. In commenting on the award, the New York *Times* points out that professional ethics prevents Dr. Banting from exploiting the commercial possibilities of the remedy and that fame will not pay grocers' bills. "The amount suggested as his honorarium seems large only because such appropriations of public funds are so rare. After all, it is only the interest on $150,000, and compared with the fortunes made by other inventors—the Fords, the Edisons, the McCormicks and their like—it seems absurdly small." The *Times* urges that the action taken by Canada be an example to the rest of the world. "National governments have a duty in this matter, and one which they rarely have recognized. For the most part they have left the maintenance of scientific research to the generosity of individuals or of the few private corporations which have arrived at a realization of what 'pure science' can do for them. . . . A government, if conducted with sufficient intelligence, would change all this. It would establish facilities for determining just what men had rendered or were likely to render services so widely beneficial that everybody should be expected to pay for them. Then it should make due provision for acquiring a discovery or invention of general benefit and offering it freely to anybody in the country, or in the world, who wants to use it." In a recent address before the British Science Guild, Sir Ronald Ross, noted for his discoveries in relation to the control of malaria, also drew attention to the neglect accorded scientists in his country and the United States:

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[1] Edwards, D. J., and Bagg, H. J.: Lesions of the Corpus Striatum by Radium Emanation and the Accompanying Structural and Functional Changes, Am. J. Physiol. **65**: 162 (June) 1923.

[1] Capps, J. A.: J. M. Res. **5**: 367, 1903.

[2] Haden, R. L.: Accurate Criteria for Differentiating Anemias, Arch. Int. Med. **31**: 766 (May) 1923.

> One of the worst cases was that of W. M. W. Haffkine, who in 1896 discovered the inoculation treatment to cure cholera and plague in India. Not being a medical man, Mr. Haffkine could have patented his discovery and made a fortune. But he set to work to manufacture millions of tubes of this vaccine, and thereby saved millions of lives. An ccident occurred, and although he was not responsible, he was made the scapegoat by the authorities in India. He was ounded out of the country, and came home, so to speak, ettered with the chains of Columbus about his feet. He was treated vilely—and he was one of the greatest benefactors of the last century. . . . Walter Reed the Amercan, who discovered that yellow fever was carried by the mosquito, was given some menial employment, feeling pulses, administering castor oil, and looking at dirty tongues for a couple of years. And he was allowed to die apprehensive as o how his wife and family could sustain life.

Sir Ronald advised that there should be some state compensation for the research worker who contributes his work for the benefit of all mankind. It is encourging to find this development of a sound public opinon in favor of properly rewarding scientists. Discoveries uch as that of insulin are not made every day or even very decade. The watchdogs of the public treasury need fear no great drain on the public purse from such wards; and, even if there were a drain, the saving in ives and in the cost of disease would more than compensate for the sums expended.

PROGRESS WITH INSULIN

One of the most important problems that confronted he investigators of insulin was its preparation on a ommercial scale. The problem was twofold. It conerned, first, the extraction of a nontoxic product rom the pancreas and, secondly, the securing of sufcient raw material to afford an adequate amount of nsulin for the needs of the diabetic public. As will e remembered, Dr. J. B. Collip, working with others the University of Toronto, was able to devise a ethod of extraction which permitted manufacture on large scale. In a paper recently published, Dr. Collip as carried his results still further. At the same time at Winter and Smith published their results, he was le to show that an insulin-like substance could be tained from commercial yeast; and Collip, Winter nd Smith and Thalhimer suggested that a similar subance might be obtained from plants. In his recently ublished work, Collip has shown that a substance may obtained from lettuce, onion tops and similar subances which has the effect of lowering the amount of gar in the blood when injected into animals. This bstance has been called "glucokinin." In this issue THE JOURNAL appears a statement by Drs. Best and ott[1] of the University of Toronto which indicates at such a substance may be obtained from practically every tissue in the animal body. The thymus, submaxillary gland, spleen, liver, thyroid and muscle have all yielded the substance; in fact, the extract prepared from the thymus and submaxillary gland tissue exceeded that formerly obtained from the pancreas in the number of units of insulin yielded. In this issue appears also a therapeutic suggestion by Dr. William Thalhimer[2] which is an indication of the broadening of the field of knowledge brought about through the insulin discovery. Whereas the fundamental nature of the condition known as ketosis is not generally understood, most investigators are agreed that this condition occurs in diabetes when the metabolism of the body is unable to utilize carbohydrate, or when an insufficient amount of carbohydrate is given. It has been known empirically, moreover, that if carbohydrate is administered in various types of acidosis, the condition will gradually disappear. With these facts in mind, Dr. Thalhimer administered carbohydrate to patients suffering from ketosis, and no improvement followed. He then gave carbohydrate to the same patients and injected insulin simultaneously in order to cause rapid utilization of the glucose injected. As Dr. Thalhimer points out, investigations are desirable to indicate whether or not there is a diminished glycolytic power of the blood after anesthesia and after operation; if it can be shown that such is the case, the rationale of treatment of such conditions with glucose and insulin will be firmly established.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARIZONA

Hospital News.—The Arizona Deaconess Hospital, Phoenix, was dedicated, June 24. The new institution, which is modern in every respect, represents an investment for buildings, grounds and furnishings of $350,000. Its bed capacity is 105.

CALIFORNIA

Physician Not Guilty.—Dr. Louis L. Jacobs, who was tried at San Diego for the murder of Fritzie Mann, was found not guilty, July 21, it is reported. The jury was composed of eight men and four women.

Physicians' Licenses Restored.—A letter from the California State Board of Medical Examiners states that the license of Dr. Elias P. Case, Oakland, which was suspended, June 28, 1922, for a period of one year, has been restored. It was also stated that the license of Dr. Alfred S. Sander, San Diego, which was revoked, March 20, 1919, has been restored.

Personal.—Dr. and Mrs. Frank Hinman, San Francisco, sailed, July 20, for Australia and the South Sea Islands.——Major Gordon G. Snow, U. S. Army, retired, has become pathologist to the Hollywood Medical Group, Hollywood, it is reported.——Dr. Francis J. McCarthy, San Francisco, has been appointed temporary medical examiner of the sanity commission, to succeed the late Dr. Daniel D. Lustig.

Lack of Funds Handicaps Health Work.—Dr. Walter M. Dickie, secretary of the state board of health, announced, it is reported, that the reduction in the budget for health work will abolish the fund used in epidemic emergencies which amounted to more than $40,000 as authorized two years ago for the control of typhoid fever, diphtheria, smallpox, yellow fever and influenza. The reduced budget also prevents, he said, the state from paying $750 a month to assist the U. S. Public Health Service at San Francisco in controlling bubonic plague, and provides nothing for the prevention and control of malaria, which disease was much reduced in the state by the appropriation of $20,000 voted by the 1921 legislature.

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[1] Best, C. H., and Scott, D. A.: Insulin in Tissues Other Than Pancreas, J. A. M. A., this issue, p. 382.

[2] Thalhimer, William: Insulin Treatment of Postoperative (Nondiabetic) Acidosis, J. A. M. A., this issue, p. 383.

DELAWARE

Personal.—Dr. William T. Chipman, Harrington, has been elected president of the Chamber of Commerce of that city. ——Dr. James Martin, Magnolia, has been appointed by the governor a member of the state department of supplies.——Dr. George W. K. Forrest has been elected mayor of Wilmington.

GEORGIA

Society Reorganized.—The Wilkes County Medical Society was reorganized at a meeting held recently at Washington. Dr. Lewis R. Casteel, Metasville, was elected president; Dr. Charles E. Wills, Washington, vice president; Dr. Addison W. Simpson, Washington, secretary-treasurer. The new Washington Hospital, the construction of which has started, has stimulated interest in society affairs.

Child Health Demonstration Wanted.—Seven counties of Georgia want the health demonstration which the American Child Health Association will establish and support for five years somewhere in the South: Cobb, Decatur, Baldwin, Washington, Telfair, Clark and Wilkes. Representatives of the association will soon visit these counties. It is said that a total of thirty-three communities are seeking the southern unit, which will comprise a mothers' clinic, a baby clinic, a training school for mothers and an educational campaign for better babies.

Personal.—Dr. Henry L. Akridge, Mitchell County, has been appointed county health officer for Glynn County.——Dr. A. Richarl Bliss, Jr., professor of pharmacology, Emory University School of Medicine, Atlanta, has resigned to accept the professorship of physiology and pharmacology at the University of Tennessee.——Dr. William H. Goodrich, Augusta, has been elected dean of the University of Georgia School of Medicine to succeed the late Dr. William H. Doughty, Jr.——Robert F. Maddox, Atlanta, president of the Atlanta National Bank, has been elected president of the state board of health to succeed the late Dr. William H. Doughty, Jr.——Dr. Victor H. Bassett, for many years pathologist in the health department of Savannah, has been elected health officer of that city.

ILLINOIS

Smallpox at Walnut Grove.—Ten cases of smallpox were recently reported in Walnut Grove Township, it is reported. An officer of the state department of health confirmed the diagnosis and established a quarantine.

Coroner's Jury Holds Physician.—Dr. Brice H. Elder, Peoria, was arrested, July 21, charged with the murder of Mrs. Helen Billings as the result of an illegal operation, it is reported. A coroner's jury, it is said, recommended that the accused be held without bail. Dr. Elder was brought before a coroner's jury on a similar charge, it appears, some years ago, but the case never came to trial.

Personal.—Dr. William Schoenneshofer, Streator, has been appointed a member of the board of the LaSalle County Tuberculosis Sanitarium to serve for three years.——Dr. James P. Johnston has been appointed health commissioner of East Moline, to succeed Dr. Henry J. Love, who was recently drowned in the Mississippi river.——Dr. Jacob Milton Furstman, Peoria, has been reappointed health director of the Peoria public schools.——Dr. Ralph McReynolds has been elected president of the Blessing Hospital, Quincy.

Health Educational Campaign.—The state department of public health has arranged an educational campaign which will cover all county fairs of importance and all the larger fairs in the state which are held during the next three months. There will be five field units equipped with motor transportation, motion picture projectors and other equipment for conducting demonstrations and exhibits. Each unit will be housed in a tent. The program at each point will embrace motion picture shows, a poster display, the distribution of special literature and superficial physical examinations for adults. A large number of well baby conferences will also be conducted.

Chicago

Society News.—At the annual meeting of the Chicago Urological Society the following officers were elected: Dr. Joseph S. Eisenstaedt, president; Dr. Harry B. Culver, vice president, and Dr. Thomas F. Finegan, secretary-treasurer.

Norman Bridge Pathological Laboratories.—Mrs. Norman Bridge, wife of Dr. Norman Bridge, professor emeritus, Rush Medical College, has subscribed $100,000 to the fund for the Rawson Memorial Laboratory to be built on the west side. The fund donated by Mrs. Bridge will provide the Norman Bridge Pathological Laboratories which will occupy the fifth floor of the Rawson Memorial Laboratory.

Birth Control Clinic Opposed.—A parents' clinic for the purpose of giving information concerning birth control has been refused a license by Health Commissioner Bundesen, it is reported. Birth control advocates claim, it is said, that there is no law that will prevent holding the clinic and that the consent of sufficient property owners has been obtained to permit establishing the clinic on North Lincoln Avenue. The mayor, on appeal, refused to interfere with the health commissioner's decision, and the entire question was submitted to the corporation counsel for a legal opinion. The committee that has planned the clinic is not affiliated with the Voluntary Parenthood League.

INDIANA

Personal.—Dr. Doris Hoffman, who has accepted the position of resident physician in obstetrics in the Peking Union Medical College, China, sailed from Vancouver, British Columbia, July 26.——Dr. John Harvey Green, North Vernon, has been appointed a member of the state board of health to succeed Dr. J. H. Hewitt, Terre Haute.——Dr. Edward M. Pitkin, instructor in anatomy at the Indiana University School of Medicine, Bloomington, has been appointed medical director of the Martinsville Sanatorium, Martinsville.——Dr. Jacob C. Glass, Greensburg, has been appointed coroner of Decatur County, to succeed Dr. Harley S. McKee, who resigned recently.——Dr. Arthur E. Guedel, Indianapolis, has been reappointed to the city board of health of Indianapolis.

Hospital News.—The contracts amounting to $52,126 for the erection of the new Morgan County Hussey Memorial Hospital, Martinsville, were let, July 3.——The new $500,000 Gary Methodist Hospital, Gary, which has been under construction for the last two years, was recently opened to the public.——The Florence Crittenten Home, Indianapolis, has purchased property at 2044 North Illinois Street on which a well equipped hospital will be erected, it is reported.——Plans presented to the board of trustees by the finance committee of the Indiana University School of Medicine for a nurses' home near the hospital were approved, and the building will be ready for occupancy probably in September.——Plans have been completed for a temporary tuberculosis hospital at Alexandria, to be operated by the county.

IOWA

Personal.—Dr. David N. Loose, Naquoketa, has been elected president of the Jackson County Public Health Association.——Dr. Sara E. Foulks, formerly superintendent of the Davenport Hospital, has been appointed field director of American Women's hospitals in Greece and the islands of the Aegean, it is reported.——Dr. Austin C. Davis, of the department of theory and practice of medicine, University of Iowa School of Medicine, has joined the Mayo Foundation and Clinic, Rochester, Minn.——Dr. Arnold M. Smyth, of the department of pediatrics, University of Iowa School of Medicine, has accepted a position as assistant in the departmen of pediatrics, Yale University School of Medicine.

LOUISIANA

New Orleans Council Approves Hospital Site.—The New Orleans commission council passed an ordinance grantin permission to erect a tuberculosis hospital on the Derby trac in the seventh ward. Thus ends thirteen years of effort t secure an appropriate place to erect a hospital. Presen plans comprise the erection of two buildings, one with fund from the Anti-Tuberculosis League, the other with fund donated seven years ago by Mrs. John Dibert, which no amount to $400,000. The Derby tract includes 54 acres, i is reported.

Drain Swamps with Dynamite.—Under the supervision the state board of health and the U. S. Public Health Servic a demonstration of draining mosquito-infested swamps wit ynamite was made near Natalbany, July 17. The demonration was made to determine the comparative cost of raining with dynamite and the older methods of draining. was witnessed by hundreds of drainage officials, engineers id other officers. Engineers believe, it is said, that dynamite ill be found much more economical, and thus permit antialarial work in districts which cannot afford the excessive ost of the usual drainage methods.

MARYLAND

Society to Establish Hospital.—An ordinance authorizing e West Baltimore Medical Society to establish the West altimore General Hospital, Raynor Avenue and Florence treet, Calverton, Baltimore, has been signed, and the hostal approved by Dr. C. Hampson Jones, commissioner of alth.

Community Health Service.—A center at Annapolis for aternity and child hygiene work is planned by the state partment of health. The Emergency Hospital has offered building for the center.——An orthopedic clinic for the amination and diagnosis of crippled children will be held, ly 23, at Easton by Dr. Robert W. Johnson.

MASSACHUSETTS

Physician Sued.—It is reported that Miss Edith Thornrry, Boston, brought suit against Dr. Henry W. Irving, ly 22, for $25,000 damages, in which it is alleged that, as result of an operation for appendicitis performed Feb. 24, 22, the plaintiff was rendered incapable of motherhood.

MICHIGAN

Insulin Instruction.—Twenty-three physicians from all parts the state attended the first course in the use of insulin ven at the University of Michigan Hospital, it is reported. ie course which was to extend only two weeks for the first oup will probably be extended for the succeeding group. ie hospital will build and conduct a special hospital for abetic patients which will increase the number that can be operly cared for from fifteen to thirty-five, and which was ade possible by the gift of $10,000 by the Rockefeller Foundation. Patients who are unable to pay for insulin, it is said, ll be provided with it without charge.

MINNESOTA

Personal.—Richard E. Scammon, Ph.D., has been appointed ting director of the department of anatomy, University of innesota, during the year's absence of Dr. Clarence M. ckson, chairman of the medical division of the National search Council.——Dr. William J. Mayo, Rochester, Minn., id a paper before the Royal Society of Medicine, London, ne 27, on "Surgery of the Hepatic and Common Bile Ducts." complimentary dinner was given Dr. Mayo by the surgical tion of the society at the Hotel Cecil.

MISSOURI

Hospital News.—The Missouri Pacific Employees' Hospital, Louis, is ready for occupancy. It has a capacity of 300 ls. Dr. Paul F. Vasterling is the chief surgeon.

ersonal.—Dr. James R. McVay, Kansas City, has been ointed a member of the state board of health by the ernor, to succeed Dr. Franklin E. Murphy, who resigned.

reen County Lowers Death Rate.—In 1918, the infant rtality rate in Springfield and Campbell townships, Green inty, was 105 per thousand. Green County then estabied a whole-time health department. In 1919, the infant th rate in the above townships dropped to 96 per thousand; 1920, to 85; in 1921, to 76, and in 1922, to 61. In other rds, Springfield and Campbell townships reduced their int mortality rate 42 per cent. in four years. This, says U. S. Public Health Service, furnishes a striking example what may be done to save infants by carrying out a well anced health program with a well administered health artment.

MONTANA

pecialists Organize.—The Montana State Oto-Ophthallogic Society was organized at a meeting of specialists in te, July 11. Dr. Glenn O. Dayton, Butte, was elected sident, and Dr. Laurence G. Dunlap, Anaconda, secretaryisurer. Semiannual meetings will be held, the first in uary in Anaconda.

NEBRASKA

Personal.—Dr. Clarence M. Hyland, recently connected with Creighton University College of Medicine, has accepted a position as professor of pathology, Bellevue Hospital Medical College, New York.

NEW MEXICO

State Board Officers.—At a meeting of the state board of medical examiners, June 18, the following officers were elected: Dr. L. G. Rice, Albuquerque, president; Dr. H. G. Watson, Gallup, vice president; Dr. W. T. Joyner, Roswell, secretary-treasurer. A law which became effective June 7 provides that a license to practice medicine can be granted only on examination or by reciprocity. To obtain a license by reciprocity, the applicant must have obtained his license by examination, and have a diploma from a medical school whose standard is as high as that required by the Association of American Medical Colleges.

Resolution Endorsing State Health Department.—The New Mexico State Medical Society, at the annual meeting in Albuquerque, passed a resolution which read in part as follows:

> *Resolved*, That the organized physicians of New Mexico are ready and willing to cooperate with the State Bureau of Public Health in its efforts to increase the scope and effectiveness of its work so long as the rights and privileges of the medical practitioner are respected.
>
> *Resolved*, That the work of the State Bureau of Health so far accomplished has the indorsement of the New Mexico Medical Society.
>
> *Resolved*, That the organized physicians of the state pledge themselves to avoid placing an unnecessary burden upon the State Public Health Laboratory, by sending to private laboratories such specimens as can be paid for by their patients, thus relieving the state laboratory of undue expense.

NEW YORK

Southside Hospital Dedicated.—The new Southside Hospital, Bay Shore, L. I., erected at a cost of $250,000, was formally dedicated, July 18.

Hospital News.—A seven-story fireproof building will replace the present structures of the Bikur Cholim Hospital, Brooklyn. It will accommodate about 260 patients; all rooms are to be outside and sunlit, and there will be twelve separate specialist treatment departments. The building will cost $1,000,000.

Personal.—The state industrial commissioner announced, July 17, the appointment of Dr. Leland E. Cofer, New York, as director of the division of industrial hygiene of the department of labor. Dr. Cofer has been an officer in the U. S. Public Health Service for more than thirty years, it is reported.

Insulin Instruction.—The course on insulin treatment of diabetes given at the Clifton Springs Sanitarium, July 23-28, will be repeated once a month. The course comprises lectures on the pathology, chemistry and clinical treatment of diabetes, and demonstrations of the effect of insulin on experimental animals. It is limited to six physicians.

Health Officer Sued.—Dr. Arthur D. Jaques, health officer, Rockville Center, L. I., is being sued for $5,000 damages by a garbage collector, it is reported. Dr. Jaques caused the arrest of the plaintiff some time ago for permitting garbage to fall in the street. The police judge dismissed the case because of insufficient evidence. Shaw now claims that he has suffered personal injury to the extent of $5,000. The village will stand the cost of defending the health officer.

Bond Issue for State Hospitals.—State Hospital Commission statistics indicate the need of the $50,000,000 bond issue which will come before the voters of the state in November. The commission has already outlined a plan for the expenditure of this sum in caring for the insane. Overcrowding is the chief problem at present. The Brooklyn State Hospital, according to this report, has reached the unprecedented figure of 40 per cent. overcrowding; Kings Park, 29.5 per cent., and Central Islip, 30 per cent. To secure attendants and other employees at the small wages now paid is another difficult problem. In thirteen state hospitals there are 7,000 employees. The commission believes that when the public knows the facts, it will support legislation which will provide funds for these institutions.

New York City

New Police Surgeons.—Four police surgeons were appointed by Police Commissioner Enright, July 21. They are Drs. Joseph S. Baldwin, Brooklyn; Edward J. Davin; Edward J. Riley and John J. Loughlin.

Academy of Medicine on Vacation.—It has been announced that the New York Academy of Medicine will be closed during the last two weeks of August in order that the building may be renovated. This is the first time, at least in thirty years, that the academy has been closed to the public so long.

A Convalescent Garden.—The Jewish Hospital, Brooklyn, will be presented with a park situated in the rear of the hospital in Prospect Place, comprising 16½ acres. Nathan S. Jonas is donating the plot as a convalescents' garden in memory of his son, J. Seth Jonas. The ground cost $50,000, and $10,000 is being expended in improvements.

Smallpox on Liner.—The Cunard liner *Caronia* from Liverpool and Queenstown arrived in this port recently with two cases of smallpox among her steerage passengers. Twenty steerage passengers and thirteen in the second class, whose vaccinations did not satisfy the ship's surgeon, were removed to Hoffman's Island before the *Caronia* was allowed to pass quarantine.

Cripples in New York City.—A survey by the New York Society for the Relief of the Ruptured and Crippled indicates that there are about 36,000 cripples in this city, and that 50 per cent. of them are under 16 years of age. Nearly one half of them are not receiving treatment. There are about 3,700 cases that have been diagnosed as due to poliomyelitis, Pott's disease and tuberculosis of the joints. The survey indicates also that about 50 per cent. of cripples are not known to any agency.

Courses on Insulin Treatment.—The courses on treatment of diabetes by dietary regulation and the use of insulin in progress at the Presbyterian Hospital will continue until October 5. The enrolment of physicians has exceeded 400. There are a few vacancies in the September courses, but none in the other courses. It is planned to conduct these courses as long as the demand continues, or until the Rockefeller Fund, which supports them, has been exhausted. Full information may be obtained from Dr. George A. Harrop, Presbyterian Hospital, New York.

Unlicensed Physicians on Hospital Staffs.—In answer to a complaint against the practice of retaining unlicensed physicians on the staffs of city and state hospitals, which practice prevents some fully qualified physicians from obtaining appointments, William Drennan, municipal civil service commissioner, and Bird S. Coler, commissioner of public welfare, have admitted this is being done. They claim, however, it is reported, that there has been no improper selection of appointees, and that nonlicensed physicians have been given these positions, owing to a "serious shortage" of young physicians competent to fill vacancies. They point out that such appointments were made possible by an amendment to the public health law in 1918 as a war emergency. It was understood that the license clause would be restored when conditions became normal. It is said that the Kings County Medical Society will take this matter up at its next meeting, to see that steps are taken to rescind the amendment.

NORTH CAROLINA

Typhoid at Greensboro.—Twenty cases of typhoid fever, with one death, have occurred in Greensboro this season, it is reported. Nine cases were reported the first week in July. The cases are not confined to any particular part of the city.

Clinic for Children Reopened.—The city health department of Greensboro has reopened its clinic for children of preschool age, which was closed several weeks ago owing to the prevalence of measles. Dr. Carl A. Grote is in charge of the clinic, which is held at 3 p. m. at the office of the health department.

OHIO

Columbus Without a School Physician.—There has been no school physician for Columbus since January 1, it is reported. In a recent report of the school committee of the Chamber of Commerce to the board of education it was said that lack of adequate medical inspection was responsible for a large per cent. of last year's failures among school children, and was in part responsible for a mortality rate which is higher than any other city except Cincinnati. There has been no systematic medical inspection this year, it is said, and nurses have been taking care of cases reported to them by principals of the sixty city schools. Prior to Jan. 1, 1923, before the resignation of Dr. Ross Hopkins, school physician, he was the sole medical inspector for the city's school children, who number 35,000. Dr. Ross' assistants were four nurses, it is said. The investigation of the Chamber of Commerce showed that while $75,000 is spent annually for physical training and education less than $8,000 a year has been spent for medical inspection since the resignation of Dr. Hopkins.

OKLAHOMA

Personal.—Dr. Elmer E. Darnell, Clinton, was elected president of the Oklahoma Health Officers' Association recently.——Dr. Ralph C. Meloy, Claremore, has been appointed county physician by the board of county commissioners.

OREGON

State Medical Society Indorses Hospital Officials.—Resolutions were passed by the state medical society, it is reported appealing to the board of control to consider well the experience, suitability and worth of Drs. Robert E. Lee Steiner superintendent of the Oregon State Hospital, Salem, and Lewis F. Griffith, assistant, before forfeiting their services. The resolutions read in parts as follows: "We would deplore any change in these official positions so long as they are so well filled, because the benefit and welfare of the helpless insane must alway be the main consideration.

PENNSYLVANIA

Hospital News.—Plans are being drawn for three units fo the Conemaugh Valley Memorial Hospital, Johnstown, which will cost $700,000.

Personal.—Dr. John B. Lowman, Johnstown, treasurer o the state medical society; has returned from a trip aroun the world.——Dr. Mary J. Baker, Newcastle, has been appointed school physician for the ensuing year.

Lehigh University Opens Health Service Department.—A students' health service department has been established a Lehigh University, Bethlehem. The object of the new department is to safeguard the health and general physica welfare of students. A dispensary will be maintained. Students will be given a thorough physical examination at leas once a year. Their living quarters will be supervised from the standpoint of sanitation. Dr. Raymond C. Bull, major U. S. Army, retired, will be director of the health servic department. He will have regular office hours during which students may avail themselves of free medical service.

Philadelphia

Hospitals Favored in Will.—The residue of the $68,00 estate of the late Mrs. Sarah E. Wiltbank, after the death of her husband, her son and other relatives, will be divide among the Children's Homeopathic Hospital, the Home o the Merciful Saviour for Crippled Children, and the Polyclinic Hospital.

Personal.—Dr. Henry D. Jump has been appointed to th chair of applied therapeutics in the Woman's Medical College. Dr. Jump is on the staffs of the Philadelphia Genera and the Misericordia hospitals.——Dr. Edward E. Montgomery, Philadelphia, will soon retire after fifty years o active practice. He will start in September on a trip aroun the world, which will continue until 1926.——Dr. Herbert M Goddard has been appointed by Governor Pinchot a membe of the board of inspectors of the Eastern Penitentiary.——Dr. Lee H. Bernd was elected president of the Third Divisio Society at its fifth anniversary of the Battle of the Marne July 14.

TENNESSEE

Trachoma Hospital to Be Moved.—The Trachoma Hospital, Morristown, will be moved to Knoxville about September 1, it was recently announced. The Staub home, at Locus Street and Clinch Avenue, Knoxville, has been purchased fo this purpose, and will be moved to the Knoxville Healt Center grounds, remodeled, and enlarged. The entire hospital equipment will be furnished by the federal governmen Dr. J. E. Smith, who has been in charge of the hospital a Morristown, will remain in charge at Knoxville.

VIRGINIA

Smallpox on Train.—A negro passenger having smallpo was recently removed from a train at Acoa. Health officer from Richmond, it is said, removed the patient, declared temporary quarantine, and proceeded to vaccinate all of th passengers.

WASHINGTON

Personal.—Dr. Edward L. Brinson, Bellingham, wa recently appointed county health officer of Whatcom Count

Hospital News.—It is reported that about $125,000 will b expended in remodeling the Northern Pacific Beneficial Association Hospital, Tacoma, and that the work will be completed in three months.

WISCONSIN

Patient Sues Chiropractor.—Walter G. Knoblauch, chiropractor, Milwaukee, is defendant in a suit for $50,000 brought by Mrs. Alvina Faulkner who alleges, it is reported, that too much pressure was used in treating her for an alleged dislocated spine and that as a result she received injuries which made her a cripple.

Board of Medical Examiners Cannot Refund.—An itinerant practitioner paid $250 for a license to practice for the year 1923, then requested a refund when he decided not to practice as an itinerant after March 15. The attorney general held, n an opinion to the secretary of the state board, that there s no provision in the law authorizing the return of any part of the fee after the license has been secured for a definite time, and that the board cannot grant a license for a fraction of a year.

GENERAL

Island Hospital for Drug Addicts Planned.—The officers and directors of the American Narcotic Crusade will soon go to San Clemente Island, near Los Angeles, to inspect the ite for an institution for the treatment of drug addicts. It s planned to construct several buildings on the island.

Scholarships for Nursing.—A $10,000 fund for scholarships in public health nursing has been established by the American Child Health Association, it was recently announced. The cholarships range from $200 to $1,000, and are to provide elected courses in colleges, normal schools and universities, nd special courses in schools for nursing.

Recreation Congress.—A recreation congress will be held in Springfield, Ill., October 8-12, under the auspices of the Playground and Recreation Society of America. The program omprises discussions of athletics for girls, the national hysical fitness campaign, adult recreation, community music, ome play, playground architecture and other topics. The ast congress at Atlantic City, N. J., was attended by 600 elegates from the United States and Canada, which number robably will be exceeded at Springfield.

League of Nations to Study Chemical Warfare.—J. Enrique anetti, assistant professor of chemistry, Columbia University, New York, has been appointed to a committee of the League of Nations, which will investigate the question of chemical warfare. It seems probable, it is said, that the aim of the league to make a thorough study of chemical warfare and to mbody in its report recommendations as to the continuance f such tactics. The American Chemical Society reminds us hat chemical warfare is receiving attention abroad; that aly has organized a chemical warfare service approximately vice the size of our own, and that England and France upport services which correspond to this branch of our serce. Belgium also has organized a similar service. There great activity, it is said, within the chemical industry in ermany, although the only official activity is the chemical arfare defense school.

CANADA

Amendments to Ontario Practice Law.—Ontario has cently secured an amendment to its medical practice act osing the door against osteopaths, chiropractors and other ugless healers unless they hold the qualifications which e medical council requires of physicians. A clause provides at only such students in the province who are at present tually enrolled in the one drugless college may be enabled ter to secure licenses. This implies that no others will be cepted by the licensing body. A new definition of medical actice was also secured which is practically identical with at of New York. This definition reads:

> Every person shall be deemed to practise medicine within the meaning this act who holds himself out as being able to diagnose, treat, rate or prescribe for any human disease, pain, injury, disability or ysical condition, or who shall either offer or undertake by any means method to diagnose, treat, operate or prescribe for any human dise, pain, injury, disability or physical condition.

LATIN AMERICA

Public Meeting to Discuss Leprosy.—A conference was held cently at Paraná in Argentina to discuss ways and means arrest the spread of leprosy in the province. The meeting as held in the theater, the governor presiding, and Drs. vas Jordán, Aberastury, delegate from the national public alth service, Repetto, Nicolini, Chiara, Sobral and Saure re appointed a committee to draft the resolutions to be ted on. Several speakers emphasized that the province had ly a comparatively small number of lepers, but that this was the very reason for strict measures to retain this favorable position.

Personal.—Professor Rabello of Rio de Janeiro recently delivered at the Paris Faculté de médecine an illustrated lecture on the campaign against venereal disease in Brazil. ——The *Gaceta Médica Peruana* of Lima mentions the return to that city from a trip to Europe of Drs. Carlos E. Paz Soldán and Honorio F. Delgado.——Dr. T. A. Tonina of Buenos Aires has retired from his connection with the Hospital de Niños, and was tendered a farewell banquet by the medical staff.——Dr. Carlos Franco, the syphilologist, June 1, gave the first lecture of the series organized by the Mexican Medical Association.——The governor of the state presided at the recent inauguration of the clinic at Guadalajara. Dr. Barriere, professor of clinical medicine, and Sr. Trinidad Vázquez, president of the Sociedad de Estudiantes de Medicina, which organized the celebration, spoke on the occasion.

FOREIGN

Restricting Number of Medical Students in Norway.—The Norwegian government, according to the *Ugeskrift for Læger* (July 12), has ordered that the registration of medical students at the University of Christiania shall be limited to sixty a year.

Distribution of Physicians in Japan.—In view of the increasing infant death rate in Japan, the home office has decided to make a survey through the prefectural government of the physicians, nurses and midwives in towns and villages which appear to be insufficiently provided with duly qualified physicians.

Hospital Ship in Norway.—To ameliorate the lack of hospital facilities of the fishery population of northern Norway, the Red Cross hospital ship *Viking* has been equipped and dedicated to that service. The ship contains a modern operating room, an isolation ward and forty-nine beds, besides a room for the violent insane.

Donation for Treatment of Cancer in Italy.—Senator Pescarolo has donated 200,000 lire to the hospital of Saint John, at Turin, for free hospital service for surgical and irradiation treatment of cancer. In 1913 an institute for medicosurgical radium therapy of cancer was established at the same hospital under the management of Professor Bertolotti, financed by the city of Turin.

The Nieper Endowment.—In honor of the fiftieth anniversary of the medical degree of Dr. H. O. A. Nieper of Goslar, Germany, the Nieper fund of five million marks in favor of hospital patients was organized by the city, while a wholesale firm donated a million and a half to the Nieper endowment for the same purpose. The local medical society presented him with an engraved address, and presented the hospital with a bust of Dr. Nieper.

Chinese Practitioner Jailed.—A Chinese "doctor" of Shanghai was recently convicted of manslaughter and sentenced to nine months' imprisonment for the death of a patient whom he treated for a "swelling" on his neck, it is reported. The doctor offered to cure the malady for $10, and prescribed pills containing mercury, which were all to be taken at one time. It was certified, after analysis of the pills, that they were the cause of death.

Memorial Meeting for Roentgen in Berlin.—The three German societies for physical and applied physical sciences and roentgen rays held a joint meeting at Berlin in the large hall of the university in memory of Roentgen. The president of the republic and scientific notables from all over the country attended, and the importance of Roentgen's discovery was proclaimed by specialists in different branches of science, Levy-Dorn speaking on "The Influence of Roentgen's Discovery on Diagnosis and Treatment."

Sanitation in Palestine.—The incidence of malaria and trachoma in Palestine has been much reduced since the war, by sanitary measures and hospitalization in Palestine, it is stated, as the result, principally, of American agencies. The antimalarial work was formerly under the auspices of the American Hadassah Medical Unit. It has been taken over by the Palestine government, but is still financed by the Jewish Joint Distribution Committee of New York. This unit, which before the World War comprised forty persons, has expanded into an organization of nearly 500 members, with a budget of about $45,000 a month.

Centenary of the Lancet.—The completion of the one hundredth year of the *Lancet* will be celebrated at a dinner in London, Nov. 28, 1923. Sir Donald MacAlister, president of the General Medical Council, will preside, supported by the president of the Royal Society, the president of the Royal College of Physicians, London, the president of the Royal College of Surgeons of England, the chief medical officer of the ministry of health, the president of the Royal Society of Medicine, and the president of the Medical Society of London. Dr. J. H. W. Laing and Mr. H. D. Gillies are acting as honorary secretaries to the dinner committee.

Inauguration of Large Hospital in Belgium.—The official opening of the new hospital at Jette, Saint-Pierre, near Brussels, took place, June 18, in the presence of the king and queen of Belgium and government authorities of the province of Brabant, scientists from universities and hospitals, physicians, surgeons and specialists. The hospital was built at the cost of 30,000,000 francs, donated by G. Brugmann, on the system of a number of separate pavilions occupying a large tract of land in the center of which is a park of turf and flowers, traversed by roads leading to the different buildings, destined for various medical uses. It is located on a plateau overlooking the city.

Personal.—Dr. Recasens, professor of gynecology at Madrid, has been made a commander of the French Legion of Honor since the return of the recent visit of the party of Spanish physicians to France. He has been invited to address the medical faculty of the University of Berlin.——Dr. A. A. F. Baptist of Megen, Holland, was the recipient of a community-wide demonstration in his honor, July 1, in recognition of his twelve years of service there.——Dr. C. U. Ariens Kappers, Amsterdam, director of the Netherlands central institute for research on the brain, has been appointed by the Rockefeller Foundation to give a course of lectures on the anatomy of the brain at the Peking Medical School, and will leave for China in August.——Dr. Piñerúa, professor of chemistry, University of Madrid, will be guest of honor at a banquet given in connection with the unveiling of his bust in his lecture hall by former students on his reaching the age limit.——Dr. Gustavo Pittaluga, Madrid, has been elected to the lower house in Spain.

Deaths in Other Countries

Dr. **Jacob Somme**, Reknes, Norway, March 23, of influenzal pneumonia, aged 57.——Sir **Benjamin Simpson**, late surgeon general and sanitary commissioner with the government of India, June 27, in London, aged 92.——Dr. **José Casari**, Buenos Aires, director of public welfare of the province of Corrientes, and member of the council of hygiene and director general of hospitals.——Dr. **Giovanni Verga**, Turin, orthopedist.——Dr. **A. G. Parrott**, long a medical missionary at Shanghai, China, aged 67. He was born in England, and qualified for medical practice after six years of work in the mission field.——Dr. **Marc Bouilliez**, major of the colonial troops of France, aged 42. Among his published works are his experimental studies of human and animal trypanosomiasis.——Dr. **Pouthiou-Lavielle**, major of the French colonial troops, Hué, Annam.——Dr. **J. Marcorelle**, surgeon of the hospital of Marseilles and former professor at the medical school of that city.——Dr. **Antonio C. Merlano**, professor on the medical faculty of Cartagena, Colombia.

Government Services

Additional Hospitals for Veterans

Bids for the construction of a 200-bed Veterans' Bureau Hospital at Livermore, Calif., will soon be advertised. Another 250-bed hospital will be built later at a place to be selected in southern California.

Examination for U. S. Public Health Service

Examinations for entrance to the regular corps of the U. S. Public Health Service will be held, Sept. 3, 1923, at Chicago, Washington, D. C., and San Francisco. Requests for information should be addressed to the Surgeon-General, U. S. Public Health Service, Washington, D. C.

Additions to Army Hospitals

A new wing to the U. S. Army Letterman General Hospital, Presidio of San Francisco, is being constructed at a cost of $50,000.——A special building will be erected at the U. S. Army William Beaumont Hospital, El Paso, to house the electrical treatment appliances.

Foreign Letters

LONDON

(From Our Regular Correspondent)

July 14, 1923.

The British Empire Leprosy Association

At a meeting held at the foreign office, under the presidency of Lord Chelmsford, it has been decided to form a British Empire Leprosy Association. The movement owes its initiation to Sir Leonard Rogers, whose discoveries in the treatment of leprosy are thought to have brought within the sphere of possibility the ideal of the association—the eradication of the disease within the empire. It was pointed out that the British Empire has more known lepers than any other power in the world, but is doing for its lepers far less in proportion than is being done in the United States. Less than 5 per cent. of our lepers are being cared for in any way, and of these only a small proportion are receiving the recently improved methods of treatment. This is mainly due to the poverty of the countries most affected—India, tropical Africa and the West Indies. A general committee, including leading physicians, authorities on tropical medicine, and public men, was appointed.

New Headquarters for the British Medical Association

The British Medical Association has purchased new and larger premises in Tavistock Square, Bloomsbury, known as the Theosophical College. This is a modern building which was never completed, as it was taken over by the government during the war. The present house of the association has become inadequate for the growing activities of the departments. Both the position and the building are eminently suitable. Bloomsbury is becoming more and more the educational center of London. In it is the British Museum, and a little to the north of the district is University College. Both the museum and the college have been greatly extended in recent years. In Bloomsbury also a site has been selected for the Imperial School of Hygiene, and eleven acres has been bought by the government for the headquarters of the University of London. The new house of the association is near the center of Bloomsbury; it abuts on one of the chief north and south thoroughfares of London and is near the chief northern railway terminals. It has a total floor area of 58,000 square feet, while that of the old premises was only about 18,000. The building was designed by a leading architect, and is of considerable beauty. It stands back from the road, round its own quadrangle. It can provide full facilities not only for the business of the association, but also for all the amenities of a club, if desired.

The Epidemic of Smallpox

As stated in a previous letter, the form of the smallpox epidemic in Gloucester is mild, so mild that it was at first mistaken for chickenpox. But an infant has died from confluent smallpox, which ought to go some way in convincing those who, led astray by the antivaccination campaign, doubt the existence of the epidemic. The action of Dr. Hadwen, the leader of the antivaccinationists, is, even for him, extraordinary. He approached the father of the child with the view to a postmortem examination after the body had been handed over from the hospital for burial. He went to the cemetery for the purpose. The clergyman agreed to delay the funeral but pointed out the risk of infection. The undertaker, however, refused to open the coffin. Dr. Hadwen stated that his object was to examine the eruption and the condition of the organs to determine whether the child had been properly fed. Whether the disease was smallpox or chickenpox, he saw no reason for believing that death would have resulted from either disease. He alleged that patients with flea bites, insect bites, heat rashes, red gum, nettle rash, impetigo and a host of conditions had been carted off to the smallpox hospital. The mischief done by such statements from the mouth of a physician made to the people, the majority of whom would be unable critically to examine them, can be imagined. The number of cases of smallpox admitted to the hospital at Gloucester in the last week was eighty-nine. In the ten weeks, ending July 7, there were outbreaks of smallpox in eighteen counties of England and Wales. During the first half of this period, there were 152 cases and during the second half, 557. In the week ending July 7 there were more than four times as many cases as in the week ending May 5.

The White Man in the Tropics

Lecturing on tropical hygiene at St. Bartholomew's Hospital, Dr. Andrew Balfour stated that women and children were affected to the greatest extent by tropical climates. No matter what hygienic precautions were taken, a change to a cooler climate or higher altitude once a year was necessary. The growth of children in the tropics was stimulated but was not accompanied by a corresponding increase in weight and strength, and after the tenth year, the memory and power of application tended to degenerate. They should, therefore, be sent home to complete their education. The first symptom of the evil effects of hot climates on man was weakening of the will power, and this usually led to laziness and vice. The nervous system was certainly affected by long residence in such regions, in spite of all the safeguards that could be devised. Possibly, atmospheric electrical conditions were a larger factor in this than was at present realized. The many complex problems which arose afforded a great field for research to the biochemist, but, unfortunately, this had not been accomplished in England.

Sir Clifford Allbutt on the Advances of Medicine

The Triennial Gold Medal of the West London Medico-Chirurgical Society was presented to Sir Clifford Allbutt, who in disclaiming his title to the honor said that he thought that his professional brethren looked on him, in the Bismarckian phrase, as an "honest broker" in the medical mart between producer and consumer. The marvels of the present age impressed him deeply. New conceptions and achievements were leading to a greater power over diseases; but what would happen to the medical student of the future with so much to learn, he dared not imagine. Looking back on a long professional life, he could not but regret the passing away of the old style of general practitioner, whose accomplishments and devices and instinctive skill used to fill him with wonder; in the flights of scientific medicine there was some risk of neglecting the craftsmanship of such men.

PARIS

(From Our Regular Correspondent)

July 6, 1923.

Controversy Between Alienists and Neurologists

An annual congress of psychiatrists has been held in France since 1890. In the beginning it was called Congrès de médecine mentale. But, in 1894, the neurologists, more particularly, Professor Brissaud, requested that the name of the congress be changed to Congrès des aliénistes et neurologistes. The alienists approved the change. Since 1894, therefore, the program of the congress has always contained, among other topics, a neurologic subject, and the presidency has been bestowed alternately on an alienist and a neurologist. Many alienists are now beginning to protest against this state of affairs, mainly for two reasons: 1. Very few neurologists attend the congress. At the congress held in Strasbourg in 1920, there were only seventeen neurologists present as compared with 167 alienists. The congress at Luxemburg, in 1921, was attended by eighteen neurologists and 234 alienists. At Quimper, in 1922, there were 148 alienists registered, but only nine neurologists. 2. Three years ago, the Société de neurologie organized an international neurologic conference in July, although the regular congress was to be held and was held within less than a month. Since then the neurologic conference has been held every year.

Dr. Antheaume, director of the *Informateur des aliénistes et des neurologistes*, has instituted an inquiry on the subject, having addressed to 233 French alienists the following questionnaire: 1. Are you in favor of maintaining the congress of alienists and neurologists of France and French-speaking countries under its present title and designation? 2. Are you in favor of reestablishing the congress of mental medicine and assigning to it the name: Congrès des aliénistes de France et des pays de langue française (congress of the alienists of France and French-speaking countries)?

Of the 186 psychiatrists who replied, 155 declared that they were opposed to maintaining the congress under its present title, and recommended that the congress be reorganized.

It is of interest to note the character of the arguments presented by certain well known alienists in support of their opinions. Dr. H. Colin, senior physician of the admission service of the Saint Anne Asylum, does not think that a fusion of psychiatry and neurology is possible. The patients and the methods of observation are not the same, he says. Whereas in neurology the objectivity of certain cardinal symptoms allows of a rapid and, for the most part, accurate diagnosis, in psychiatry, a prolonged observation is often indispensable. This observation requires the participation not only of the physician but also of all his assistants. The analysis of transient functional troubles and of innumerable modifications of intellectual phenomena, together with a psychologic understanding of the patient, his tendencies, his reactions, his emotivity, are also needed. That is why no other branch of medicine requires so long an apprenticeship as the study of mental diseases. It is only after several years' practice that a psychiatrist is qualified to give a prognosis, in many instances. Others regard the fusion of 1894 as a mistake for the reason that it caused the congress to deviate from its principal purpose, which was the study of psychiatry and research on the progress to be secured in the hospitalization and treatment of psychopaths, a matter of no particular interest to neurologists. It has led neurologists to regard psychiatry as simply an emanation or offshoot of neurology, and the result has been that with every congress the field of psychiatry has become more and more restricted until it no longer has sufficient space.

Only a small minority favored the maintenance of the status quo. Professor Cestan of Toulouse holds that neurologists and psychiatrists are united by the closest bonds; for, he explains, neurologic affections and psychoses are the branches of a common trunk. Therefore, no action should be taken that will widen the existing artificial breach, but, instead, an effort should be made to increase the number of scientific contacts. Professor Euzière, dean of the medical faculty, University of Montpellier, is of the opinion that it is now more necessary than ever for psychiatrists and neurologists to collaborate, if for no other reason than that there is a borderland between neurology and psychiatry which neurologists and psychiatrists should explore hand in hand.

The question has also been raised whether the words *"de France et des pays de langue française"* (of France and French-speaking countries) should be retained in the designation of this congress. Dr. Fauvel of Quimper thinks these words are superfluous and that it goes without saying that French-speaking countries are included; for instance, Belgium and Switzerland are always represented at our congress of medicine and our congress of surgery. On the other hand, this designation has the disadvantage of seeming to exclude representatives from Anglo-Saxon countries. It will be a distinct gain to facilitate their participation in the congress of psychiatry.

Stipends for Students

The municipal council of Paris has assigned to the University of Paris the sum of 50,000 francs to be used in aiding students of French nationality to secure proper lodging.

Pseudoscientific Endocrinology

To read certain articles on the endocrine glands, one might easily imagine oneself transported to the time of scholasticism or to the period when Molière made medical jargon the butt of his wit. Note, for example, these lines taken from an article entitled, "Duality and Glandular Interchange," which appeared in the *Journal des praticiens:* "We may say, then, that the contents of the vascular glands are a heavy gaseous substance, capable of expansion and compression. This gaseous substance controls the vitality of the organism, and presides over the formation of embryonal life, and the growth of fetal and extra-uterine life. All the vascular glands communicate with one another and constitute our central cavity, which is filled like a sac by the vital gaseous body which is our soul, our character, our personality; the presence of which determines our life and the absence of which brings death. . . . As the result of castration, the genital level of the inferior pole of the axis of the body is lowered, while the pressure of the superior thyroidal pole is raised."

Scientific Expedition to Madagascar

A scientific expedition is being fitted out for Africa under the direction of M. C. Moureu, professor at the Collège de France, who will be assisted by M. Lepape, head of laboratory work in the Institut d'hydrologie of Paris and by M. Henri Moureu, preparator. The main purpose of this expedition is to study the mineral waters of Antsirabé, which are said to resemble the waters of Vichy and also to possess radioactivity. M. Moureu and his collaborators intend to make researches on the chemical composition of these waters; also their content in helium and in rare gases.

BELGIUM

(From Our Regular Correspondent)

July 10, 1923.

Medical Congress of Ghent

At the request of the organizing committee of the Exposition des travaux des invalides de la guerre, the medical section of that committee arranged for a congress to be held at Ghent, April 15-16, 1923, for the purpose of dealing with certain questions pertaining to war disabilities. The delegates of the allied nations to the "Exposition" responded readily and, with a number of Belgian physicians, helped to make the congress a success.

The congress studied especially questions pertaining to the pathology of the war injured: prosthesis, reeducation, traumatic neuroses and the formulation of a "ready-reckoner" for estimating the degree of disability. Special mention should be made of the study of the sequels of "gassing." Drs. Spehl and Dautrebande reached the conclusion that the disorders observed are due mainly to a chronic anoxemia. They pointed out the functional derangement from which the different organs suffer under the influence of defective respiration, and emphasized the dangers from this chronic state, the most important of which is a symptom complex which is usually designated by the term "neurasthenia." It is difficult to determine whether the disorders observed at the present time in the so-called "*petits gazés*" (those who received only a small dose of gas) are due to the original gas intoxication or to other causes that may or may not be connected with the war, the manifestations of which resemble those of neurasthenia. It seems likely that an inquiry now being conducted will settle the question.

New Researches on Epidemic Encephalitis

Before the Société belge de biologie, Bessemans and Van Boecker reported recently the results of their researches on the infectious agent in epidemic encephalitis. Of ninety-one animals inoculated by diverse methods with pathologic material taken from patients suffering from encephalitis (brain, spinal fluid, abdominal and thoracic viscera, serum and whole blood, pharyngeal secretions, gastric secretions, urine and filtered salts), sixty-four survived; eighteen succumbed from accidental affections; seven rabbits and two guinea-pigs died with suspicious clinical symptoms and histopathologic changes. With material taken from the brain of these seven rabbits the disease was transferred in two instances to the third and fourth generation. Then the various strains were found to be no longer virulent.

Reforms in Medical Education

This important discussion, which was begun more than a year ago at the Royal Academy of Medicine of Belgium, the principal conclusions of which we have already reported, has now been brought to a close with a very important suggestion from Dr. De Beule of Ghent. After completing the organization of medical studies, the academy found it necessary to consider the medical profession itself. As the law now stands, any graduate physician in Belgium may launch forth as a specialist in any branch of medicine. De Beule has raised his voice against this abuse of privilege. He states that there is a tendency to overdo specialization at the present time. It is a well known fact that, during his university studies, the student acquires only a very elementary conception of the different specialties. How often, however, have we seen young physicians, who, during their internship, devoted themselves more particularly to some specialty or other and afterward spent two or three months at some foreign university (where all they did, very frequently, was to view patients from a distance) attach to themselves a pompous title of specialist, fearing nothing and ready to do anything or to undertake any case, no matter how difficult. This state of affairs, the writer insists, should no longer continue, but nothing other than a change in the law can put a stop to it. Would it not be feasible to create a diploma based on bona fide postgraduate study, the purpose of which would be to furnish evidence of having passed a severe test, not only in theory but in practice as well, before a competent body, which should not consist exclusively of members of the instructional corps but should include also eminent specialists? A young physician desiring to specialize in any branch of medicine should be the holder of such a special diploma.

In conclusion, De Beule proposed the following somewhat radical resolution:

> No one may call himself a specialist or practice a specialty, or be in charge of a special service in a hospital, dispensary or a private or public institute, unless he is the holder of a diploma bearing on the specialty concerned.

The personal influence of Dr. De Beule carries great weight in this matter, for he is regarded somewhat as the head of the younger school of Belgian surgeons. Then, again, his views seem to be the reflection of the present-day attitude toward this subject.

The academy did not ratify completely De Beule's views, but it was sufficiently influenced by his opinion to declare the need of organizing at every university special courses of instruction for doctors of medicine, surgery and obstetrics, with the view to furnishing adequate training for specialists. It may be said, therefore, that this discussion constitutes a landmark in the evolution of medical opinion in Belgium.

VIENNA

(From Our Regular Correspondent)

July 2, 1923.

Infant Mortality in Austria

In a report by the board of health on mortality statistics of infants, the slowly improving conditions in this country are well illustrated. In 1913, the average for each hundred babies born alive was 17.88 deaths within the first year; in 1919, it was 16.93. The years of the war are not taken for comparison, as these figures would give an erroneous impression. In 1919, the figure stood at 15.77. It remained nearly the same in 1920 and 1921, and then fell to 15.06 in 1922. Vienna had a ratio of 15.60 in 1913. In 1919, it was 19.88, and in the succeeding years 15.05, 13.07 and 12.82. The figures show distinctly that the strenuous efforts of the authorities to enlighten the public on the necessity of early medical help and the modern methods of feeding are giving good results.

Infectious Diseases in 1922

In Austria the diseases that are notifiable are scarlet fever, diphtheria, typhoid, dysentery, epidemic meningitis, puerperal sepsis, exanthematous typhus, smallpox, Asiatic cholera and trachoma. Measles is no longer notifiable. The number of cases reported in the year 1922 were, in the order mentioned, 2,658, 2,807, 2,303, 1,196, 18, 293, 23, 4, 0 and 320. The four cases of smallpox occurred in Vienna, and were all imported from southeastern Europe. Dysentery, trachoma, exanthematous typhus and epidemic meningitis were also reported chiefly from Vienna because all these cases are sent to the large clinics there. Cholera has been nonexistent for two years; this is a source of merited pride to the sanitary administration. The outbreaks of the other diseases were promptly subdued without difficulty. While the central provinces of the Federated Republic of Austria—the name of which we boast—remain comparatively free, the frontier districts, especially those bordering on Jugoslavia and Hungary, are rather more exposed to the influence of the unsettled conditions that prevail in these parts of Europe.

Special attention centers around the incidence and mortality of tuberculosis. This disease is not notifiable yet; but exact statistics are available from the reports of the hospitals, the poor-law medical officers of health, and the mortality reports. From 1911 to 1919, the average annual mortality from this cause was 17,622; from 1919 to 1921, it was 17,972. Herein are visible the results of the war, which in many men caused a latent infection to flare up. A drop is expected in the next three years, when the improving conditions of life will become effective and the reinfections or exacerbations resulting from the privations caused by the war will have died out. The mortality rates for each thousand of the population were: in Vienna—from 1911 to 1914, 3.07; in 1919, 5.33; in 1920, 4.00; in 1921, 2.86 (an average of 4.03 for the three years last mentioned); in the provinces, between 2.43 and 2.59 for the years 1911 to 1914; and 2.20 and 2.77 for 1919 to 1921. For the whole country the average figure in the first three years was 2.70; in the last three years it was 2.93. There is remarkable uniformity in the figures for the various provinces with little difference between the industrial and rural provinces.

Wagner-Jauregg's Malaria Treatment of General Paralysis

An interesting paper was read a few days ago before the Vienna Neurologic Society by Professor Wagner-Jauregg on his observations since 1908. In 1887 he had suggested treatment of patients suffering from general paralysis by subjecting them to an attack of fever; he had observed that marked improvement took place if such a patient happened to acquire erysipelas, typhus or influenza. He experimented with tuberculin (Koch), then a new substance. With this he produced fever in general paralytics, and, by combining this treatment with mercurial inunctions and injections, was able to improve the symptoms markedly in several cases. These experiments were reported before the International Medical Congress of 1909, in Budapest. Some of the patients shown at that time are still alive and well. When arsphenamin was introduced by Ehrlich, the combined tuberculin-arsphenamin treatment was tried, with similar results, and, in 1911, eighty-six cases were reported by Dr. Pilcz from the Wagner clinic. Of these eighty-six patients, twenty-three were rendered fit for their usual occupations and were practically "cured" of the general paralysis. The condition of these patients remained stationary for periods ranging from two to seven years, some even until now, twelve years later. If relapses occurred, another series of combined injections was given, generally with satisfactory results. In the course of his observations, Wagner experimented also with polyvalent typhoid vaccine, used alone or in conjunction with tuberculin, mercury and arsphenamin. The effects are more prompt, and the fever-producing factor is safer. Not satisfied with the variable results obtained, he at last resolved to imitate the rare instances of superimposed infectious disease, and, in 1917, he infected nine patients with the plasmodium of tertian malaria. The patients were allowed to suffer eight or ten attacks of fever; quinin was then given, and was followed by a series of injections of neo-arsphenamin. The result after two years was: six patients permanently free from symptoms—after six years they are still well and working—the other three only little improved. In 1919, the experiments were undertaken on a large scale, and since that time more than 300 patients have been subjected to the treatment. After a preliminary report before the meeting of the German Natural Scientists at Mannheim in 1920, an extensive paper was presented, in 1922, at Leipzig, before the same society, comprising 294 cases with 202 complete remissions—i. e., fitness for work in the former occupation, and freedom from symptoms of disease—otherwise termed recovery. Wagner-Jauregg thinks that the earlier a patient is put under this treatment, the better are the chances for recovery. Improvement often starts only after the fever attacks are over; it then continues for some time and must be stimulated in many patients by a repeated series of injections. As the cases comprise all stages and ages of illness, he believes that there is no better method for treating this condition than the combined malaria-arsphenamin treatment; a prolonged remission can always be expected and, in about 50 per cent. of the cases, permanent recovery may be anticipated. Early recognition of the disease is therefore almost a guaranty of permanent cure.

BERLIN

(From Our Regular Correspondent)

June 30, 1923.

A Mutual Stock Company to Insure Policyholders Hospital Care

Among the financial burdens that at present weigh most heavily on many persons of the middle class may be mentioned the cost of medical attendance; hospital care and treatment, especially, have become so expensive that a stay in a hospital is impossible for many, or necessitates the greatest sacrifices. Whereas those persons who, on the basis of the federal insurance act, are compelled to carry health insurance, are relieved of the burden through the protection afforded by the health insurance societies, all whose income is such as to exclude them from participation in the social insurance plan are dependent on their own resources. In social welfare circles a solution for this difficult problem has been sought for some time, but the question has not been solved. The situation has recently become so acute that it has been decided to make a new attempt to aid the persons affected. After much preliminary investigation, in which those familiar with social problems assisted with their advice, a mutual stock company (the "Salus," as it will be called) has been formed, which will essay to provide hospital care and treatment (presumably for a period of thirteen weeks in the year) for those strata of the population, chiefly of the middle class, that do not come within the scope of compulsory insurance and yet lack adequate means. For this service a small annual premium will be charged. In addition to the board of directors and the supervisory council, an administrative council will be chosen, on which, besides the authorities, also the trade unions concerned and social welfare organizations will be represented. The company will be entitled to take up other lines of insurance and to work in common, in any way desired, with other insurance companies, and to participate in undertakings that are in harmony with the purpose of the original project. The shares of the company will have ten detachable coupons and a renewal certificate, in the name of the owner. The profits of the stockholders will not be allowed to exceed 6 per cent. of the cash price paid for the shares. The utilitarian purpose of the undertaking can best be preserved by granting a low rate of interest and devoting excess profits to the real purpose of the corporation, in order that all persons insured and their families may be assured adequate hospital care and treatment.

The insured is guaranteed, after the lapse of a certain time, dating from the day of admission to the hospital, for a period of thirteen weeks (taken continuously or collectively) within a given year, the payment of all charges for hospital care and treatment, provided the physician in charge of admission to the institution concerned certifies to the need of hospitalization. The insured may choose any hospital on the list endorsed by the corporation. Section 4 describes the conditions on which the insurance is based and the limitations as to employment and indulgence in sports, certain restrictions being imposed on service in the army and navy, aeronautics, hunting, certain dangerous sports, mountain climbing, automobiling, bicycling and the use of motors.

Decrease in the Meat Supply of Germany

According to the *Klinische Wochenschrift*, the consumption of meat in Germany has decreased from 52 kg. for the period immediately preceding the war to 26 kg. in 1922. The consumption of pork, which, not only on account of its protein content but also by reason of its fat, may be regarded as the chief article of food, has been affected most. Comparing the records of February, 1923, with those of 1913, we find the decrease apportioned thus: beef, 13 per cent.; veal, 32 per cent.; mutton, 47.6, and pork, 68 per cent.

Economic Distress of German Physicians

Lest I be accused of giving a too pessimistic account of the economic situation in Germany today, I will quote some extracts from an article by a well known Berlin physician, which appeared in one of the largest Berlin dailies:

"The number of physicians who have been compelled largely to give up their medical practice and devote themselves to other work, is constantly increasing. One meets physicians everywhere—in the banks, in industrial plants, employed as traveling salesmen or as insurance agents—and not only the younger physicians but the elderly as well. But the demand for positions is greater than the supply. The Berlin "chamber of physicians" is ever ready to do all in its power to procure situations for medical men, but unfortunately it is often very difficult to satisfy all requests, since retrenchment seems to be in order on every hand, and in response to its numerous petitions to banks, chemical works, etc., for the most part courteous but yet discouraging replies are received. A large percentage of the young physicians, when they set up their practice, are compelled to take on some outside work to aid in their support. Forenoons, at the bank; afternoons, consultation hour; evenings, study, is the daily round of many young medical men. The wretched economic situation exerts a bad effect on their further medical training. Whereas formerly the postgraduate courses of the Kaiserin Friedrich-Haus were well attended, scarcely a vacant seat being found, today the attendance is only a third of what it was previously. The depression of the culture level of the middle classes has taken on a disastrous form when it begins to lay hold of the physicians. Solicitude for the material necessities of life puts a damper on cultural development and aspirations."

Seventieth Birthday of Professor Strümpell

June 28, the director of the medical clinic in Leipzig, Professor Strümpell, celebrated his seventieth birthday. His name is well known to all medical men, especially to students who have used his textbook, which during the last forty years has passed through twenty-four German editions and has been translated into nearly all cultural languages. This excellent work shows the essential qualities of Strümpell as a writer on scientific medicine: the results of his own researches, his experience in many branches of internal medicine, his prominence in the field of nervous diseases, and his excellent didactic ability. Strümpell studied under Wunderlich, E. Wagner, Ludwig, Cohnheim and Weigert. In 1875 he became assistant director of the Leipzig Medical Clinic. He became a professor at the university and was later appointed director of the Medical Policlinic. Among his numerous works, those of neurologic content (as already mentioned) prevail; for example, "Diffuse Cerebral Sclerosis," "The Nature of Tendon Reflexes," "Spastic Spinal Paralysis," and "The Physiology of Sleep." Another work deserving particular mention is a treatise on "A Spindle-Shape Enlargement of the Esophagus," chronic ankylosis of the spinal column. From Leipzig he was called to Breslau as director of the medical clinic. About fifteen years ago, he again took up the work as director of the medical clinic in Leipzig. Strümpell is universally esteemed as an upright man, of noble character, and through his affable manner and kindly ways he has gained for himself a host of friends.

Marriages

William Defendorf Wolff, Rochester, N. Y., to Miss Minnie Durant Smith of Cleveland, at New York, June 30.

Willard Cole Rappleye, New Haven, Conn., to Miss Elizabeth Templeton Cunningham of Pine Orchard, July 20.

James Onslow Nolan, Kannapolis, N. C., to Miss Nellie Tyler Morris of Greensboro, at Burlington, June 20.

David Maurice Siperstein, Minneapolis, to Miss Helen Weingarten of New York, in June.

Jesse Robert Gerstley to Miss Adelaide Frances Kohn, both of Chicago, July 25.

James Ernest Stokes to Miss Rebecca Marsh, both of Salisbury, N. C., June 28.

Galn R. Wright, Newark, N. J., to Miss Ruth Anderson of Philadelphia, May 8.

Henry A. Herzer to Mrs. Ella Jacobs, both of Albion, Mich., July 10.

Elbyrn Grady Gill to Miss Ruth Meals, both of Roanoke, Va., June 16.

Deaths

William Wood Russell, Baltimore; University of Pennsylvania School of Medicine, 1890, Philadelphia; member of the Medical and Chirurgical Faculty of Maryland; and the American Gynecological Society; associate professor of clinical gynecology, Johns Hopkins University Medical Department; formerly on the staffs of the Johns Hopkins Hospital and the Hospital for the Women of Maryland; aged 57; died, July 11, at Santa Barbara, Calif.

Evander McNair McIver, Jonesboro, N. C.; University of North Carolina School of Medicine, Chapel Hill, 1908; member of the Medical Society of the State of North Carolina; served in the M. C., U. S. Army, during the World War; for four years county physician; member of the state legislature; aged 46; died, July 11, of acute nephritis.

Albert Novatus Blodgett, Boston; Medical School of Harvard University, Boston, 1871; member of the Massachusetts Medical Society; formerly superintendent of the Massachusetts Charitable Eye and Ear Infirmary and on the staff of the Massachusetts General Hospital; aged 75; died, July 3.

William Conrad Kessler, Philadelphia; Jefferson Medical College of Philadelphia, 1913; member of the Medical Society of the State of Pennsylvania and the American Urological Association; served in the M. C., U. S. Army, during the World War; aged 35; died, July 13, of appendicitis.

Caroline Stowe Merwin, Tsinanfu, China; Medical Department University of California, San Francisco, 1902; for eighteen years served as a medical missionary and head of the Louisa Y. Boyd Hospital, Tsinanfu; formerly a practitioner in Oakland, Calif.; aged 51; died, July 10.

Charles Edwin Beavers ⊕ Barry, Ill.; Northwestern University Medical School, Chicago, 1899; served in the M. C., U. S. Army, during the World War; aged 55; died, July 18, at the Blessing Hospital, Quincy, of septicemia, following a carbuncle.

Bernard N. Webster, Rice Lake, Wis.; Hahnemann Medical College and Hospital, Chicago, 1886; member of the State Medical Society of Wisconsin; aged 60; died, July 1, at the Hahnemann Hospital, Chicago, of pericystitis and pulmonary edema.

Charles Leonidas Hoyle, Springhill, La.; Southern University Medical Department, Greensboro, 1874; formerly member of the state legislature; aged 73; died, June 30, at Warren, Ark., of paralysis.

William Samuel Shipp ⊕ Battle Creek, Mich.; University of Michigan Medical School, Ann Arbor, 1903; past president of the Calhoun County Medical Society; aged 47; was shot and killed, July 25.

John Mordecai Anderson, Montgomery, Ala.; New York University Medical College, 1891; member of the Medical Association of the State of Alabama; aged 57; died, June 30, of pneumonia.

Charles Napoleon Brosius ⊕ Shamokin Dam, Pa.; Medico-Chirurgical College of Philadelphia, 1907; served in the M. C., U. S. Army, during the World War; aged 45; died, July 16, of heart disease.

Oliver Gard, Frankfort, Ind.; Rush Medical College, Chicago, 1869; Civil War veteran; formerly mayor of Frankfort; aged 81; died, July 19, at the Methodist Episcopal Hospital, Indianapolis.

Judson Worthington Hastings, Feeding Hills, Mass.; Medical Department of Columbia College, New York, 1881; member of the Massachusetts Medical Society; aged 70; died, July 3.

Henry Sherry, Pasadena, Calif.; Chicago (Ill.) Homeopathic Medical College, 1880; College of Physicians and Surgeons, Chicago, 1890; aged 59; died, July 14, of influenza.

James Byard Wright, La Veta, Colo.; Louisville (Ky.) Medical College, 1892; member of the Colorado State Medical Society, aged 53; died, July 1, following a long illness.

Mary Ann Dearlove, Oak Park, Ill.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1888; aged 84; died, July 20, of embolism, following a fracture of the leg.

Anthony Joseph Strange, Independence, La.; Medical Department of the Tulane University of Louisiana, New Orleans, 1901; aged 41; died, May 2, of paresis.

Axel Aberg ⊕ Alamosa, Colo.; Denver and Gross College of Medicine Medical Department University of Denver, 1905; aged 60; died, June 7, of cerebral hemorrhage.

Joseph W. Studley, Marion, Ind.; Medical College of Indiana, Indianapolis, 1881; member of the Indiana State Medical Association; aged 72; died, July 21.

Isaac Newton Busby, Brooklyn, Iowa; Bennett College of Eclectic Medicine and Surgery, Chicago, 1887; Civil War veteran; aged 83; died, July 17, of senility.

Charles Malancthon Rhodes, Harrisburg, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1900; aged 51; died, July 12, following a long illness.

Abel Sutherland Holcomb, New York; Bellevue Hospital Medical College, New York, 1894; aged 56; died, July 16, at Saranac Lake, of tuberculosis.

Edwin Elmer Oder, Hammond, Ind.; Cincinnati (Ohio) College of Medicine and Surgery, 1877; aged 71; died, July 18, following a long illness.

Samuel Patton, Kingsport, Tenn.; Medical Department University of Tennessee, Memphis, 1882; aged 64; died, July 11, following an operation.

Purl Culver Plasterer, Hamilton, Ohio; American Medical College, Indianapolis, 1897; aged 54; died suddenly, July 14, of cerebral hemorrhage.

Frederick William Schellhase, Evansville, Ind.; Homeopathic Medical College of Missouri, St. Louis, 1880; aged 81; died, June 1, of senility.

Frank Harris Durstine, Montclair, N. J.; University of Michigan Medical School, Ann Arbor, 1875; aged 75; died, July 13, of heart disease.

John Manley Cain, Calahan, N. C.; College of Physicians and Surgeons, Baltimore, 1879; aged 74; died, June 14, at a hospital in Statesville.

George Delos Kennedy ⊕ Mandarin, Fla.; Michigan College of Medicine and Surgery, Detroit, 1904; aged 42; died suddenly, July 13.

Frank Bernhardt Fastabend, Chicago; College of Physicians and Surgeons, Chicago, 1905; aged 54; died, July 22, of heart disease.

Lora Coates Jackson Blackman, Brooklyn; Boston (Mass.) University School of Medicine, 1880; aged 67; died, May 12, of myocarditis.

George Edward Lemmer ⊕ Danbury, Conn.; Bellevue Hospital Medical College, New York, 1885; aged 68; died, May 4, of pleurisy.

Edward B. Hobson, Jerseyville, Ill.; Rush Medical College, Chicago, 1867; aged 80; died, June 27, at Kansas City, Mo., of senility.

Z. D. Massey, Sevierville, Tenn. (licensed, Tennessee, 1889); formerly postmaster of Sevierville; aged 59; died, July 13.

George William May ⊕ Cascade, Iowa; State University of Iowa College of Medicine, Iowa City, 1897; aged 57; died, July 9.

John Joseph Bell ⊕ Harbour Creek, Pa.; College of Physicians and Surgeons, Baltimore, 1901; aged 54; died recently.

Stephen Clay Todd, Grand Rapids, Mich.; Eclectic Medical Institute, Cincinnati, 1868; aged 82; died, July 10, of senility.

Franklin H. Seiss ⊕ Takoma Park, Md.; College of Physicians and Surgeons, Baltimore, 1880; aged 63; died, July 7.

John C. Urquhart, Los Angeles; L.R.C.P., Edinburgh, Scotland, 1882; aged 66; died, July 4, following a long illness.

Noah S. Kite, Pine Bluff, Ark.; Memphis (Tenn.) Hospital Medical College, 1886; aged 83; died, July 4, of senility.

Frederick George Phillimore, Boston (licensed, years of practice); aged 56; died, July 7, of heart disease.

Robert H. Calvert, South Bend, Ind.; Medical College of Ohio, Cincinnati, 1869; aged 73; died, July 18.

Joseph W. Trout, Dayton, Ohio (licensed, Ohio, 1896); aged 70; died, July 5, following a long illness.

William T. Gemmill, Forest, Ohio; Eclectic Medical Institute, Cincinnati, 1872; aged 73; died, July 3.

John H. Soothill, Santa Cruz, Calif.; Chicago (Ill.) Medical College, 1883; aged 62; died, July 12.

Frank E. Howald, Atlanta, Ga.; Eclectic Medical Institute, Cincinnati, 1885; aged 62; died, July 14.

Gustavus A. Gamble, Salt Lake City, Utah (licensed, Utah, 1907); aged 62; died recently.

⊕ Indicates "Fellow" of the American Medical Association.

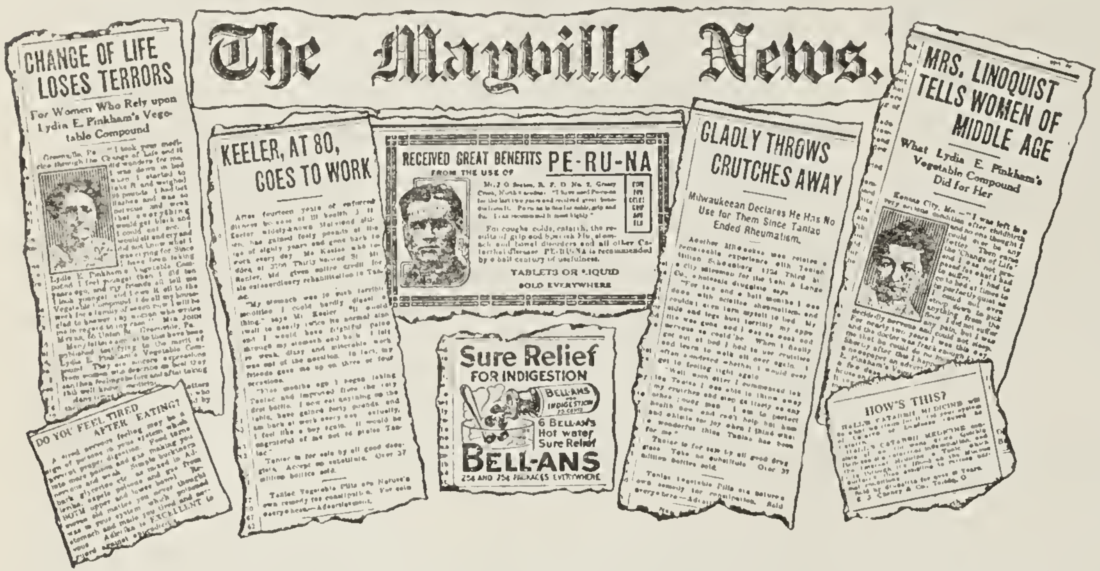
The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

DRUG AND "DRUGLESS" ADVERTISING

A Country Newspaper that Plays Both Ends Against the Middle

According to the mid-Victorian conception, the advertising pages of a newspaper were simply common carriers, open to any one who could pay the advertising rates and would furnish copy that would go through the mails. Most reputable newspapers of today concede at least a certain degree of moral responsibility for their advertising pages, the degree of responsibility varying with the standards of the paper.


The Mayville News.
CHANGE OF LIFE LOSES TERRORS
For Women Who Rely upon Lydia E. Pinkham's Vegetable Compound
KEELER, AT 80, GOES TO WORK
RECEIVED GREAT BENEFITS FROM THE USE OF PE-RU-NA
TABLETS OR LIQUID SOLD EVERYWHERE
GLADLY THROWS CRUTCHES AWAY
Milwaukeean Declares He Has No Use for Them Since Tanlac Ended Rheumatism.
MRS. LINOQUIST TELLS WOMEN OF MIDDLE AGE
What Lydia E. Pinkham's Vegetable Compound Did for Her
DO YOU FEEL TIRED AFTER EATING?
Sure Relief FOR INDIGESTION
BELL-ANS
6 BELL-ANS Hot water Sure Relief
25¢ AND 75¢ PACKAGES EVERYWHERE
HOW'S THIS?

Some "patent medicine" advertisements appearing in the same issues of the Mayville (Wis.) *News* that carried advertisements deprecating the use, and denying the value of drugs in general.

Some country newspapers, and a few metropolitan ones, are still living in the last century, so far as their advertising ethics are concerned. An interesting example has recently been brought to our attention. In the town of Mayville, Wis., there is published the Mayville *News*. A correspondent sends us pages from a few recent issues of this paper directing our attention to a number of small advertisements of the "reader" type common to the country paper. These consist of two or three line notices sprinkled in between items of local interest. The advertisements in question purport to be quotations from various sources deprecating the use of drugs and tending to give the impression that drugs in the treatment of disease are useless or harmful, or both. For example:

> "A drug or substance can never be called a healer of disease."
> "We dare not expect drugs to cure."
> "Drugs, with the exception of two, are valueless as cures."

These are samples. Each alleged quotation is credited to some physician, known or unknown, and one might suppose that the information or misinformation was being published by the editor for the edification of the readers of his paper, if there were not the telltale "Adv." after each item. Of course, the source of these advertisements need not mystify those who are familiar with the devious methods of the "drugless healing" cults. The strong family likeness of these small advertisements to some of the material sent out by the advertising departments of some of the chiropractic "colleges" makes their origin fairly obvious. Whether the items in question are paid for by the local chiropractor—who openly patronizes the same paper—or are part of a general chiropractic advertising propaganda, the advertising department of the Mayville *News* doubtless knows.

The thing that appeals to one's risibilities, however, is the fact that on the same pages of the Mayville *News* where these statements derogatory to drugs are printed appear large and blatantly headed advertisements of the crudest of "patent medicines." The readers of the Mayville *News* are asked to believe that an 80-year-old gentleman whose stomach "would swell to nearly twice its normal size" was completely relieved by "Tanlac" (alcohol 18 per cent.), and that a Milwaukee cripple, after using the same preparation, was able to throw away his crutches. A distinguished citizen of Grassy Creek, N. C., assures the readers of the Mayville *News* that "Peruna [Alcohol 12 per cent.] is fine for colds, grippe and flu." Then there is the case of the lady from Greenville, Pa., who was having "hot flashes" and "was so nervous and weak that everything would get black." She is now able to do all her housework for a family of seven, due, we are told, to the recuperating properties of "Lydia Pinkham's Vegetable Compound (alcohol 15 per cent.)." Still another lady, this one from Kansas City, Mo., who was affected in much the same way and whose "doctor was frank enough" to tell her that he could do nothing more for her, "Tells Women of Middle Age what Lydia E. Pinkham's Vegetable Compound Did for Her."

The inhabitants of Mayville who have read in the *News* that they "dare not expect drugs to cure" will be surprised to learn from the same issue that "Bell-Ans" is a "sure relief for indigestion" while "Adlerika is excellent to guard against appendicitis." Having been led, by the Mayville *News,* to believe that drugs and combinations of drugs are useless they may decline to accept the pronouncements that "Hall's Catarrh Medicine" will positively "rid your system of catarrh or deafness or deafness caused by catarrh" and that "Othine" will remove freckles "under guarantee."

Evidently the publisher of the Mayville *News* does not expect his readers to take his advertisements seriously. One wonders if he, himself, keeps a straight face when he accepts money from certain of his advertisers.

Correspondence

CONTROL OF VENEREAL DISEASE

To the Editor:—In THE JOURNAL, July 14, appears an editorial on the control of venereal disease. As far as this relates to gonorrhea, there is one important phase which hitherto has lacked the consideration which its relation to the problem has warranted. I refer to the treatment of the all too common acute uncomplicated anterior urethritis in the male.

Considering how widespread gonorrhea is, that it is socially deplorable, morally objectionable and economically wasteful in times of peace, and that in times of war it is a serious menace to the success of military enterprise, one wonders at the almost complete absence of any earnest attempt to improve the generally accepted methods of treatment, which are far from efficient. Syphilis has attained scientific approval, and has thereby achieved some dignity; gonorrhea has not, and perhaps for this reason fails to evoke enthusiasm among those whose mental gifts and bent for originality would enable them to make valuable contributions.

But there is much that can be done while waiting for the laboratory to make the discovery that will stimulate renewed interest in the disease. The duty of setting the standard for adequate treatment and contributing to its progress devolves on the specialist in urology. This is a responsibility which he should not shirk or treat with contemptuous indifference as being beneath his technical capacity or his more scientifically endowed knowledge. Otherwise the treatment becomes merely the performance of mechanical routine, devoid of productive thought and sterile in result.

While in programs for the control of venereal disease most stress is properly placed on immediate prevention, not enough consideration has been given to the infected individual. Now, if there were some well-planned, coordinated attempt to improve our present methods of treatment or evolve new and better ones, there might result an earlier elimination of the organisms and consequently of a possible focus for further dissemination. It would be quite analogous to the prompt control of contagious syphilitic lesions by the early administration of the arsphenamins.

What seems to be most necessary with the agencies at hand is that: 1. Urologists realize that gonorrhea, especially in its early stages, is the most urgent problem with which they have to deal. 2. They change their attitude toward it and give it the same conscientious consideration that is, say, at present allotted to the preoperative and postoperative care of the prostatic patient. 3. Those treating the disease who are not specialists follow them in this change of spirit and regard gonorrhea as a serious charge on their responsibility and not a pot-boiler. 4. The subject be more frequently presented in papers at gatherings. It is noteworthy that it seldom appears on urologic programs. With abundant material it is preeminently fit for clinical investigation. By ignoring it, urologists sacrifice one opportunity they have of rendering a service to public health.

Melville Silverberg, M.D., San Francisco.

"ANOMALY OF THE APPENDIX"

To the Editor:—In the Cincinnati *Lancet-Clinic*, Dec. 23, 1911, I reported the case of an appendix similar to the one reported by Dr. Willour in The Journal, July 21, and in addition referred to another case taken from the *Australasian Medical Gazette*, July 20, 1911, as abstracted in The Journal, Sept. 16, 1911. In my own case, in addition to the appendix communicating with the bowel at both ends, the intervening loop of bowel had been caught under the appendix so as to produce partial obstruction.

A good many years ago I reported a case in which the appendix extended directly upward from the cecum, and attached itself to the gallbladder, and then perforated so that bile could pass directly from the gallbladder to the cecum. The bile ducts were normal and there was no way of determining how much bile passed through the new opening.

While on the subject of the appendix I might add that some years ago in making a hysterectomy I found the appendix packed full of fecal matter and removed it. Examination showed it to contain eleven full sized and fresh grape seeds. There was no evidence of any inflammatory trouble.

The most interesting, and possibly romantic, foreign body that I ever found in the appendix was in the person of a young woman. The foreign body was a hair from a man's mustache. The identity was promptly recognized by the patient, to whom I presented it as a souvenir.

J. F. Baldwin, M.D., Columbus, Ohio.

Little Toe Reflex.—L. Poussepp reports in the *Presse médicale*, June 16, 1923, a new reflex in patients with lesions of the extrapyramidal tracts. It consists of a laterad movement of the little toe following slight excitation of the external border of the sole with the handle of the hammer. He found this reflex in cases of epidemic encephalitis, and also in two cases of cerebrospinal syphilis with ophthalmoplegia. In a patient with Babinski's sign, he noted the absence of this reflex, which he has found only in connection with symptoms of extrapyramidal lesions.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

REMOVAL OF TATTOO MARKS

To the Editor:—Would you be kind enough to give me some information on the removal of tattooing?

A. C. Farlinger, M.D., New Liskeard, Ont.

Answer.—Answers to this question have been published in The Journal frequently. The principle of treatment of these marks is to excite an inflammatory process by means of chemical irritants so as to cause destruction of the superficial layers of the skin. Two methods have been devised, the method of Variot and the method of Brault.

Variot's plan of treatment, according to Brocq, is as follows: First, he places on the tattoo marks a concentrated solution of tannin, and tattoos this in. Then a silver nitrate pencil is rubbed vigorously over the surface until the surface becomes black from the formation of silver tannate in the superficial layers of the skin, and the surface is then washed with water. In the next few days a slight inflammatory reaction occurs, and over the surface treated a cloudy adherent dark crust forms. After the third or fourth day there is no pain except when there is movement of the muscles under a large crust. Occasionally there is a little suppuration under the crusts; but, if secondary infection is avoided, no severe inflammation occurs. After fourteen or sixteen days the crust comes off spontaneously, the corium and the epidermis underneath have been repaired, and the locality of the mark is recognizable only by a superficial pink cicatrix which gradually becomes of normal color. A couple of months after the operation, the scar is hardly noticeable.

Brault's method of removing tattoo marks consists in tattooing the region, previously rendered aseptic, with a solution of 30 parts of zinc chlorid to 40 parts of water. The needles with which the tattooing is done are dipped in this solution for the tattooing. If properly done, the resulting inflammation is slight, and after a few days there forms a superficial crust which remains about a week and then falls, leaving a slight, eventually almost imperceptible, scar. This method succeeds in a few cases, but requires skill and care in its application in order to obtain good results and to avoid suppuration and deep cicatrization.

COLLOID CALCIUM—"COLLOSOLS"

To the Editor:—Please inform me concerning colloidal calcium. I understand that it is used in England in the treatment of insanity with some success; also inform me how it is used, by the mouth or hypodermically. Any information you have will be appreciated.

R. A. R., M.D., W. Va.

Answer.—In the *British Medical Journal*, Jan. 14, 1922, E. E. Prest recommended a new "Collosol" brand of so-called colloidal calcium for the treatment of tuberculosis. In the *Lancet*, Nov. 4, 1922, T. C. Graves discusses "Colloidal Calcium in Malnutrition, Chronic Sepsis and Emotional Disturbances." Graves states in his article that his attention was called to a colloidal calcium preparation by Prest's article; "later at my suggestion Mr. J. F. Ward, B.Sc., Chief Chemist of the Crookes Laboratories, kindly prepared a colloidal form of calcium and lecithin." The publications of both Prest and Graves serve as uncritical endorsements of another addition to the Collosol preparations. Most of the Collosol preparations have been commented on unfavorably both by the Council on Pharmacy and Chemistry and by The Journal. As was pointed out by the Council and recently reaffirmed by the excellent work of Prof. A. J. Clark (*Brit. M. J.*, Feb. 17; April 28, May 12, 1923), some of the preparations were not true colloids at all! Thanks to the timely reports of warning of the Council on Pharmacy and Chemistry, the preparations are not being pushed in the United States, though they are being actively exploited in England.

As to the work of Graves on colloidal calcium: The conclusions reached concerning the beneficial action in the treatment of "Emotional Disturbances" do not seem justified by the character of the evidence he presents. Such results as he reports are common experiences without the use of medication. The metal calcium is, itself, so reactive that it is highly improbable that a colloidal form of it (as distinguished from the calcium salt) could exist in the presence of water; it was not surprising to note, therefore, that the preparations used by Prest and by Graves were not colloidal "calcium," but *compounds of calcium*, the latter claimed to have been rendered colloidal. There is no basis either in theory or on evidence presented for administering a calcium salt in colloidal form; if advisable soluble compounds of calcium, such as the lactate and chlorid may be administered hypodermically. The Journal has stated ("Collosols"—British Colloids Limited, Queries and Minor Notes, March 4, 1922) that: "No scientific evidence has been presented to show that therapeutic values of water soluble drugs are enhanced by administration in colloidal form. It is true that in the case of certain insoluble substances—such as the metallic silver and its insoluble combinations—the fine state of subdivision inherent to the colloidal state may permit application for therapeutic measures and, therefore, may be of value." In his report to the British Medical Association, Clark says: "The pharmacological tests employed failed to show any marked difference between the action of the 'colloidal' preparations tested and the action of the same substances in true solution."

CHANGES IN NERVOUS SYSTEM IN DEMENTIA PRAECOX AND GENERAL PARALYSIS

To the Editor:—What have pathologists reported in regard to changes in neuroglia tissue in dissimilar conditions, say dementia praecox and paresis. ——— M.D.

Answer.—In dementia praecox the glia changes are not constant and are probably more closely related to the intercurrent conditions that cause death, such as tuberculosis and arteriosclerosis. In the more acute catatonic cases, satellitosis, cytoplasmic and even ameboid cell transformations have been described. Nerve cell destruction, however, is not obvious, and hence there are not many changes in the glia.

In general paralysis, on the other hand, ganglion cell destruction is extensive, and inflammatory changes are marked. The glia shows both progressive and regressive alterations—neuronophagy; cytoplasmic and ameboid transformations with numerous lipoid and other chemical substances in the cell bodies; and extensive fiber formation about the vessels and beneath the pia, etc.

Much has been written on the glia in the last few years, but apparently the only textbook that considers them exhaustively is in German (Spielmeyer, W.: Histopathologie des Nervensystems, Berlin, Julius Springer, 1923). Numerous articles have appeared in the various volumes of Nissl's "Histologische und histopathologische Arbeiten" since 1909. The following references are also of interest:

Gurd, A. E.: *Am. J. Insan.* **77**: 201 (Oct.) 1920.
Fuller: *J. Nerv. & Ment. Dis.* **53**: 457, 1921.
Hassin, G. B.: *Arch. Neurol. & Psychiat.* **2**: 24 (July) 1919; **3**: 130 (Feb.) 1920, and in other volumes.

TREATMENT OF PARALYSIS AGITANS

To the Editor:—I have been attending a man, aged 48 or 50, who is affected with a slow progressive type of paralysis agitans of five years' standing. Prior to the beginning of the symptoms, he had been in excellent health; but he had been laboring under considerable strain and responsibility in connection with charitable, educational and religious changes here. Parathyroid, electricity and other treatment have been given with no result. Calcium lactophosphate compound is what he is now taking. Sleeplessness and constipation are his most unpleasant symptoms; constipation has troubled him only within the last three or four months. Has pituitary extract been of any value in these cases? In the light of present speculation do arsphenamin, mercury, the iodids or the salicylates warrant attention in nonspecific cases? If present investigation has revealed any noteworthy treatment or cause of significant bidding, I will be very grateful for an expression from you on the subject. ———, M.D., Salem, Va.

Answer.—There is no remedy yet known that will arrest the degenerative type of paralysis agitans. In some of the cases due to epidemic encephalitis, the patients recover spontaneously, and some are reported as being relieved by arsphenamin. This drug, however, has no effect in the true Parkinson's disease. The endocrine preparations have been administered but without definite result. As palliative measures, warm baths, passive exercises and occupational therapy may help, though they must be watched as they may increase the rigidity. Scopolamin will often relieve the rigidity, and the pains and stiffness may sometimes be helped with acetphenetidin, acetylsalicylic acid, and drugs of that type. No one hypnotic can be recommended. The baths and occupation suggested may help. Morphin should be avoided, as the condition is chronic. Bromids, sulphonethylmethane, sulphonmethane and barbital, may be tried in various doses and combinations, care being taken to avoid cumulative effects and the formation of a habit.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Alaska: Juneau, September 4. Sec., Dr. Harry C. De Vighne, Juneau.

Massachusetts: Boston, September 11-13. Sec., Dr. Charles E. Prior, Room 144, State House, Boston.

New Hampshire: Concord, September 13-14. Sec., Dr. Charles Duncan, Concord.

THE TEACHING OF PHYSIOLOGY IN MEDICAL SCHOOLS *

SUTHERLAND SIMPSON, M.D., D.SC.
Ithaca, N. Y.

In two recent addresses,[1] the relation between the pure biologic sciences and their application to the practice of medicine is considered, criticisms of the teaching in the better medical schools are offered, and suggestions are made for its improvement. Both show evidence of that "healthy discontent without which there is no real progress."

Regarding the subject with which I am more immediately concerned, probably every teacher of physiology in a medical school is conscious of many of the defects pointed out, and is desirous of making his teaching as useful to the student and practitioner of medicine as possible; nevertheless, it is the business of the physiologist to teach physiology and that of the clinician to point out its clinical applications. The tendency to lay special emphasis on those sections of the subject which the clinician of the present day may regard as most important, to the exclusion, necessarily, of other sections, would, to a large extent, interfere with the advancement of the science of physiology and prevent the opening up of new fields. It is noteworthy that, in the past, investigations which the physicians of that time regarded as of only purely academic interest have subsequently led to revolutionary changes in the practice of medicine and surgery. The modern sciences of bacteriology and immunology, today of the utmost importance in surgery and medicine, are founded on the purely scientific work of the chemist Pasteur. The physiologist must keep in advance of the practical medical man, and should alone be the judge of what is important and what is not, in his own chosen field.

When all has been said, however, and while the great fundamental principles of the science and the facts on which they are based must be kept constantly in the foreground, if a choice of subject for illustration has to be made, no harm can come from making a selection which will have an application in the practice of medicine, if fundamental principles are not sacrificed.

After many years' experience, it is my conviction that the first consideration in the teaching of any subject is to arouse and keep alive the interest of the student. This can never be done by loading his mind with a mass of detail so as to get over the ground covered in the textbook. Beginners and the younger men are the chief sinners in this respect. The student should never be allowed to assimilate information without criticism; he should be taught, above all things, to look for evidence and assess its value. To quote from Lewis, "Do medical men show unusual discrimination when they come to weigh the pros and cons of a new problem? Are their explanations weighed in the critical spirit which their physiological teachers have tried to instil into them? Are they unusually acute in assessing the value of evidence? I do not answer these questions negatively, but lack the assurance to answer them affirmatively. If they are to be answered negatively, does it not mean that there is some weakness in physiological teaching, for physiology is the chief philosophical subject which they study? And may not this defect, if it exists, in part, at least, result because they learn to philosophize upon questions which are soon forgotten in the daily routine of practice?"

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* From the Cornell University Medical College.

[1] Bevan, A. D.: Revision of the Curriculum, abstr. J. A. M. A. **80**: 779 (March 17) 1923. Lewis, Thomas: Relation of Physiology to Medicine, Brit. M. J. **2**: 459 (Sept. 25) 1920.

To be of lasting value, the information should be obtained at first hand, and a spirit of searching criticism should be inculcated. For medical men, in particular, it is dangerous to build theories on insecure foundations. "Medicine owes no debt of gratitude to those who teach her theories without proof."

AN ILLUSTRATIVE EXPERIMENT

With this preamble, it may not be out of place to describe a type of experiment which may be of great value to a medical student taking physiology in his freshman year, and which can be carried out with no great trouble and without any elaborate apparatus or preparation. The number of entering students admitted to this division of Cornell University Medical College is limited to thirty. In physiology, for mammalian work, the class is divided into five groups of six each, under a leader who is one of the students chosen by the other members of the group and not on the instructing staff. This leader is responsible to the teacher for the conduct of he group.

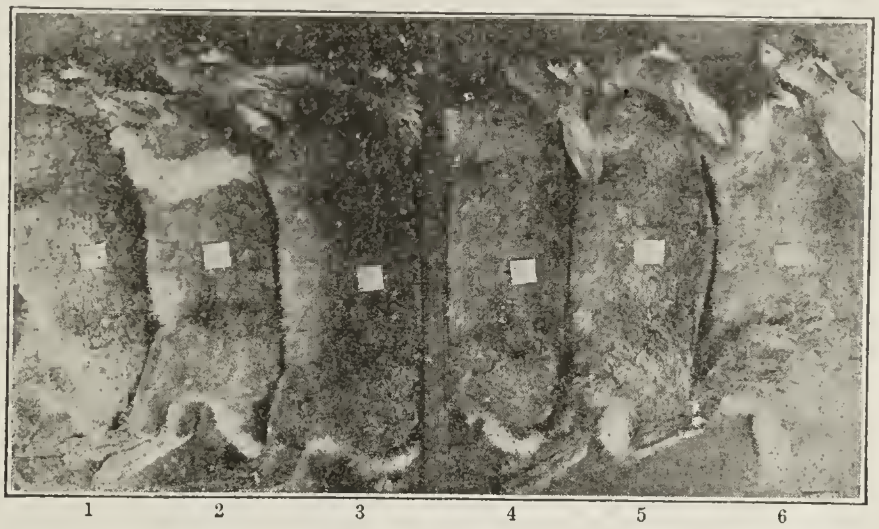

Fig. 1.—Rabbits—five of same litter—from which the uteri in Figure 2 were removed, June 7, 1921, ninety-seven days after double ovariectomy: Rabbit 3 is 3 weeks older than the others; Rabbit 6 is the normal control.

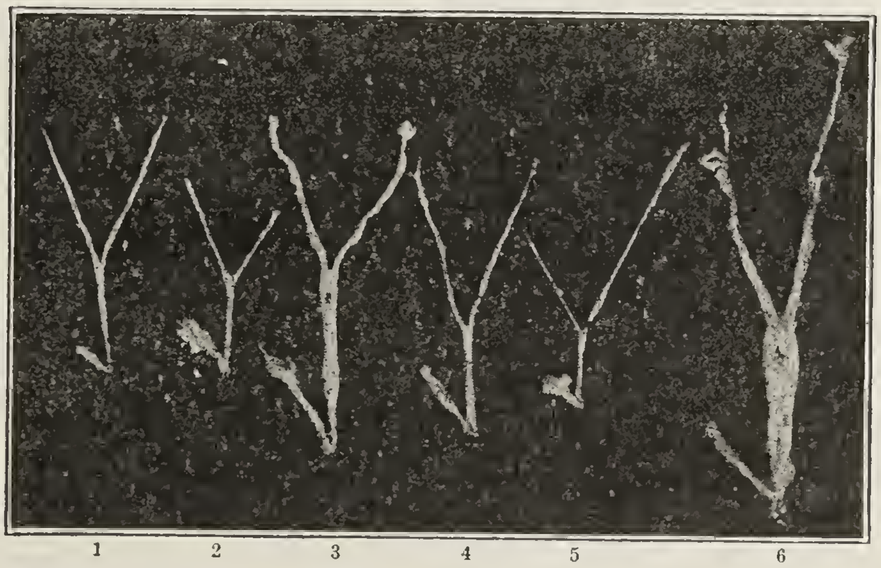

Fig. 2.—Uteri removed from rabbits in Figure 1: that of Rabbit 3 is considerably larger than those of the others, and that of Rabbit 6, the control, much larger.

In the section of endocriology, the following experiment is performed to lemonstrate the intimate relationship between the iterus and ovaries. To take he year 1921 as a concrete example, five female rabbits f the same litter, born Jaiary 22, were used. Four iad both ovaries removed, nd the fifth was kept as a ontrol. As we did not have litter which contained six emales, Group 3 used one of nother litter born January 1, hat is, three weeks earlier han the first. After double variectomy, March 2, the one litter being thirty-nine days ld and the other sixty, the animals that had been operated on ere kept in the same pen along with the control, and under xactly the same conditions as regards feeding and attention. hey were weighed once a week, and the weights in grams ere plotted to show the rates of growth.

June 7, ninety-seven days after the ovaries had been moved, the animals were killed by chloroform, the uterus nd the vagina to the point at which it is joined by the rethra were carefully dissected out, and all were photoraphed side by side, in the same order as the rabbits from hich they had been removed. They were labeled in numeral order from left to right, the sixth being the control. his is a clear demonstration of the profound influence which ic normal ovary exerts on the uterus, and it is obtained by the student himself at first hand. In other years, unilateral ovariectomy has been performed on one or two of the rabbits, and bilateral on the others.

The experiment was carried out entirely by the students themselves. As preliminary preparations, I, with the help of the group leaders, removed both ovaries from a young rabbit, as a demonstration. This is not shown in the illustration.

For the actual operation, the instruments were sterilized by boiling, the animal was anesthetized by ether, the hair was removed from the abdomen by a solution of sodium sulphid, and the skin cleansed with soap and water and disinfected with tincture of iodin. The animal was covered by sterilized gauze, through which the skin incision was made.

After removal of the ovaries, the opening was closed with horsehair sutures, and the wound was painted with iodin. The whole proceeding was carried out under the direction of the instructor, who, however took no actual part in the operation. Recovery was rapid, and in no case did the wound become infected. All the animals lived, and remained healthy until killed by chloroform.

EFFECT OF SUCH AN EXPERIMENT

An experiment of this kind is followed with the keenest interest by the student, and a spirit of emulation among the groups is encouraged. The importance of cleanliness in a surgical operation and of care in the administration of an anesthetic is learned. The student is made to feel a personal responsibility in the progress of the case and in the final result. No matter whether he is destined to be a medical practitioner or a teacher and investigator, such an experiment will appeal to him.

Stinson Hall.

California February Examination

Dr. Charles B. Pinkham, secretary, California Board of Medical Examiners, reports the written and oral examination held at Los Angeles, Feb. 12-15, 1923. The examination covered 9 subjects and included 90 questions. An average of 75 per cent. was required to pass. Of the 34 candidates examined, 17 passed and 17 failed. Of the twenty-one candidates who took the drugless practitioners' examination, 7 passed and 14 failed. One candidate was granted a license to practice as a midwife, and 2 candidates were licensed as chiropodists. One hundred and nineteen candidates were licensed by reciprocity. One candidate received an osteopathic license by reciprocity, and one candidate a chiropodist license by reciprocity. Eleven candidates were licensed on government credentials. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Stanford University		(1922)‡	82.1, 87.2, 88.7
University of Colorado		(1922)	87.7, 89
Northwestern University Medical School		(1921)	83.7
Rush Medical College		(1922)	86.6, 90.6

University of Illinois	(1922)	80.4
Harvard University	(1922)	88.8
University of Michigan Medical School.......(1921),*	(1922)	87.2
University of Minnesota Medical School	(1922)⁑	83.8
University of Pennsylvania..............(1921) 91,	(1922)	82.6
McGill University	(1922)	83.7
University of Berlin, Germany	(1922)†	75.7

FAILED

Denver College of Medicine	(1895)	69
Chicago Homeopathic Medical College	(1891)	60
Hahnemann Med. Coll. and Hosp. of Chicago...(1892) 67,	(1897)	66
University of Louisville	(1891)	60
Baltimore Medical College	(1898)	58
Detroit College of Medicine	(1898)	60
Barnes Medical College	(1896)	56
University Medical College, Kansas City, Mo	(1892)	50
University of Nebraska College of Medicine	(1903)	65
Albany Medical College	(1881)	72
Medical College of Ohio..................(1887) 66,	(1894)	49
Aichi Prefecture Special Med. Sch., Nagoya, Japan	(1921)†	59.3
Kumamota Special Medical School, Japan	(1919)†	41.8
University of Kharkov, Russia	(1917)†	66.3
University of Tomsk, Siberia, Russia	(1911)†	64.1

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
University of Alabama	(1917)	Alabama
University of California	(1920)	Mass.
Stanford University.........(1916) New York,	(1917, 2)	Hawaii
Gross Medical College	(1895)	Washington
University of Colorado	(1916)	Illinois
George Washington University	(1908)	Illinois
Howard University	(1919)	Alabama
Emory University	(1921)	Florida
Chicago College of Medicine and Surgery	(1916)	Illinois
College of Physicians and Surgeons, Chicago..(1894),	(1899)	Wisconsin
(1902) Washington, (1905, 2), (1906), (1907, 3) Illinois		
Hahnemann Med. Coll. and Hosp. of Chicago	(1912)	Illinois
Harvey Medical College	(1898)	Illinois
Illinois Medical College	(1905)	Illinois
Northwestern University Medical School	(1906, 2)	Iowa
(1908) Montana, (1910), (1911) Illinois, (1910) Oklahoma		
Rush Medical College..................(1882) Iowa,	(1889)	Washington
(1897), (1905), (1916) Illinois		
University of Illinois	(1913)	Illinois
College of Physicians and Surgeons, Keokuk	(1896)	Illinois
Keokuk Medical College	(1898)	Illinois
Keokuk Med. College, College of Phys. and Surgs	(1903)	Kansas
(1907) South Dakota		
State University of Iowa College of Medicine	(1893)	S. Dakota
(1904), (1918) Iowa		
Louisville Medical College	(1902)	S. Carolina
Southwestern Homeopathic Med. Coll. and Hosp	(1905)	Colorado
University of Louisville...............(1907) Utah,	(1915)	Kentucky
Flint Medical College of New Orleans	(1903)	Louisiana
Baltimore Medical College	(1901)	W. Virginia
College of Physicians and Surgeons of Baltimore	(1911)	Montana
Johns Hopkins University	(1918)	Maryland
Harvard University	(1902)	Iowa
Tufts College Medical School	(1920)	Mass.
Detroit College of Medicine........(1889) Montana,	(1908)	Michigan
Hamline University	(1904)	N. Dakota
University of Minnesota Med. Sch...(1909), (1915),	(1922)	Minnesota
Barnes Med. Coll......(1900) Iowa, (1908) Idaho,	(1911)	Missouri
Ensworth Medical College	(1906)	Kansas
Homeopathic Medical College of Missouri	(1889)	New York
Missouri Medical College.......(1895) Washington,	(1899)	Missouri
St. Louis College of Physicians and Surgeons	(1904)	Illinois
(1906) Idaho, (1920) Colorado		
St. Louis University School of Medicine	(1904)	Illinois
University Medical College, Kansas City, Mo	(1903)	Missouri
Washington University Medical Department	(1901)	Oklahoma
(1908) Missouri, (1912) Arizona		
John A. Creighton Medical College	(1896)	Nebraska
Lincoln Medical College....................(1900),	(1901)	Nebraska
Omaha Medical College	(1894)	Iowa
University of Nebraska..................(1919),	(1921)	Nebraska
Columbia University Coll. of Phys. and Surgs	(1895)	New Hamp.
(1903) New York		
New York Homeo. Med. Coll. and Flower Hospital	(1869)	New York
(1906) Ohio		
University of Buffalo	(1904)	Utah
Leonard Medical School	(1904)	W. Virginia
Cleveland Homeopathic Med. College........(1904),	(1905)	Ohio
Eclectic Medical College	(1903)	Nebraska
Starling Medical College	(1893)	S. Dakota
Cleveland College of Physicians and Surgeons	(1894)	Kansas
University of Oregon	(1917)	Oregon
Jefferson Medical Coll. of Philadelphia......(1906),	(1912)	Washington
(1912) Iowa		
Medico-Chirurgical College of Philadelphia	(1916)	Oregon
University of Pennsylvania..........(1913) Hawaii,	(1921)	Texas
University of Pittsburgh	(1918)	Penna.
Western Pennsylvania Medical College	(1900)	Penna.
Meharry Medical College...........(1905) Georgia,	(1911)	Texas
(1913) Tennessee, (1915) Mississippi		
Memphis Hospital Medical College..(1903) Arkansas,	(1910)	Montana
Sewanee Medical College	(1894)	Indiana
Vanderbilt University ....(1900) Tennessee,	(1913)	Kentucky
University of Vermont College of Medicine	(1913)	R. Island
Milwaukee Medical College	(1904)	Wisconsin
McGill University	(1900)	Iowa
Queen's University Faculty of Medicine	(1893)	N. Dakota
(1899) Minnesota, (1904) Indiana		
Trinity Medical College	(1897)	Washington
University of Toronto..........(1905) Washington,	(1908)	N. Dakota
National University, Athens, Greece	(1913)†	Illinois
Chiba Special Medical School, Japan	(1918)†	Nevada

ENDORSEMENT OF CREDENTIALS

College	Year Grad.	Endorsement with
Columbian University ....(1897),	(1901)	U. S. Army
Georgetown University	(1914)	U. S. Army
Louisville Medical College	(1897)	U. S. Army
University of Maryland School of Medicine	(1908)	U. S. Army
Harvard University...........(1900) U. S. Navy,	(1913)	U. S. Army
Tufts College Medical School	(1914)	U. S. Army
St. Louis University School of Medicine	(1904)	U. S. Army
Jefferson Medical College of Philadelphia	(1914)	U. S. Army
University of Vermont	(1910)	U. S. Army

* No grade given.

† Graduation not verified.

‡ This candidate has finished his medical course and will receive the M.D. degree on completion of a year's internship in a hospital.

⁑ This candidate has finished his medical course and received an M.B. degree and will receive the M.D. degree on completion of a year's internship in a hospital.

Book Notices

The Story of Man and Woman. A Study of the Sexual Relation in This Life and the Life to Come: Its Physiology, Psychology, Morals and Theology. By David P. Jackson, M.D. Cloth. Price, $2. Pp. 252. Philadelphia: Dorrance & Co., Inc., 1923.

This unusual volume presents a strange conglomeration of scientific fact regarding sex, of scriptural quotation regarding the relation of man and woman and of opinion and theory not supported by scientific evidence. It begins with a careful study of the lives of Adam and Eve as reported in the scriptures, accepting life in the Garden of Eden as fact and citing Alexis Carrel's experiment with the growth of cells as evidence to prove it. This plan is generally followed throughout the book. The author cites legendary belief or opinion, and then attempts to justify it by modern scientific fact, frequently stretching interpretations greatly. In the process, the whole plan of the book reaches its ultimate fallacy in the final chapters describing "Paradise Restored," in which the author paints a picture of the typical heaven of the evangelists, and describes marital conditions as they will there exist. Although presumably serious, the book is unequaled as humorous literature.

Enlargement of the Prostate. Its History, Anatomy, Etiology, Pathology, Clinical Causes, Symptoms, Diagnosis, Prognosis, Treatment; Technique of Operations, and After-Treatment. By John B. Deaver, M.D., LL.D., Sc.D., John Rea Barton Professor of Surgery, University of Pennsylvania, Assisted by Leon Herman, B.S., M.D., Urologist to the Methodist Episcopal Hospital, Philadelphia. Second edition. Cloth. Price, $7. Pp. 358, with 142 illustrations. Philadelphia: P. Blakiston's Son & Co., 1922.

A monograph has the advantage of being able to devote more space to the discussion of a special subject than is possible in a textbook or a system. In the present volume, the use of diagrams would have saved much superfluous description, especially in the chapters on embryology, anatomy, pathology and the methods of examination. In the first named, there is only brief reference to the work of Lowsley, which has greatly changed the views of the majority of urologists as to the development of the prostate. The space devoted to comparative anatomy could be better assigned to a more detailed description of the various forms of prostatic enlargement, and more illustrations of drawings of specimens and of cystoscopic views from the very large material at the disposal of the authors. There is no reference to the recent studies of Tandler and Zuckerkandl on the two principal types; namely, an intravesical and a subvesical form of protrusion. The division into prostates in which (*a*) the adenomatous element and (*b*) the fibrous tissues, respectively, predominate is commendable, because this is not well understood by many. The same is true of those cases in which one finds only hyperplasia of the muscular and fibrous elements, sufficient to cause clinical symptoms, but disappointing as to findings at operation. The discussion of enlargements of the subcervical glands and of median bars is abreast of present views, but here again one would expect more illustrations of such conditions in a monograph on a special subject. One can warmly endorse the recommendation to search for diverticula of the bladder during cystoscopy, which should be done at some stage in every case before operation. The value of cystograms in determining the size and number of such diverticula is emphasized; but here, again, one has the right to xpect a few typical roentgenograms of this complication. he importance of recognizing the presence of diverticula nd perhaps removing them in order to improve the number f good end-results is not sufficiently dwelt on. In view of he rapid development of blood chemistry in relation to the rognosis and treatment of prostatic enlargement, the section evoted to this subject seems inadequate. The now almost bsolete method of determining the size of the prostate by ombined rectal and intravesical (sound) examination could ell be omitted. The value and necessity of routine roentgen-ay examination of the upper third of the femora, of the elvis and lower spine for metastases of a possible malignant rostate, as Bumpus has shown, should be included in future ditions. One is greatly impressed by the masterly analysis f causes of primary mortality, especially in view of the large xperience of the authors, whose treatise is based on the tudy of 372 perineal and 814 suprapubic prostatectomies. he prophylactic treatment of cases in which there are recur-ent attacks of epididymitis due to a badly infected bladder, y ligation of the vasa deferentia, can be warmly endorsed. n the discussion of preoperative and postoperative complica-ons, one misses a more detailed description of the more ecent methods of gradual decompression of the overdistended ladder. The frequency with which a diaphragm forms etween the prostatic bed and the bladder after operation so at a bilocular condition follows should be more fully dwelt n. The same is true of infected diverticula whose persis-nce may be the cause of a pyuria which does not disappear ntil the diverticulum is removed. The great strides made the study of the newer urinary antiseptics will undoubtedly ad to their inclusion in a future edition. The authors elieve that there is a field for perineal prostatectomy, and at the hard, fibrous prostate is more easily enucleated by is route. They also hold that the removal of median bars r operations for the relief of the contractions of the vesical eck should be performed by the suprapubic route. The emaining chapters are devoted to the technic of operations, nd here the large experience of the authors is of great assis-nce in elucidating the steps of the various operations. The ethods of other surgeons are presented in an impartial anner.

DIE KRANKHEITEN DES HERZENS UND DER GEFAESSE. Ein kurzge-sstes, praktisches Lehrbuch. Von Dr. Heinrich Hochhaus, Geh. Med.-at, Professor a. d. Akademie f. Praktische Medizin. Bearbeitet und erausgegeben von Dr. G. Liebermeister, Leit. Arzt der Inneren Abteil-g des Städt. Krankenhauses Düren. Paper. $2. Pp. 313, with 72 ustrations. Berlin: Julius Springer, 1922.

This is a brief textbook with many good features, but so etchy in character that it will be of little help to either udent or practitioner. Many topics are scantily touched on, d with facts far from up to date. We may cite as examples art block, auricular fibrillation, acute infarction of the yocardium, subacute infectious endocarditis (endocarditis nta). The volume will in no sense take the place of the rger German works, such as Romberg's, on diseases of the art.

THE HEALTH SPEAKER'S HANDBOOK. By Iago Galdston, M.D. Paper. . 51. New York: The New York Tuberculosis Association, Inc., 1923.

This brief manual on health education from the lecture atform sets forth Dr. Galdston's crystallized experiences ined in service as a speaker on health subjects. The thor calls attention to the need for more extensive public alth education, and emphasizes the fact that teaching by e spoken word is the oldest and most effective, as well as e most intricate and difficult, method. Not all who talk n teach, but to teach should be the chief aim of health talks. nder the heading of the speaker is discussed that indefinable mething called personality; then the voice, vocabulary, owledge and training, all in some detail. The subject atter, the audience, suggestion for preparation and delivery health talks, and finally the adjuncts to the lecture, such the distribution of literature and use of motion pictures, e discussed with a special section on talks to industrial rkers. Illustrative outlines are presented of a series of lks to various groups, one to printers, one to physicians, d another to mothers. The rapid development of the radio has enormously increased the domain of public speaking. Health talks have become a daily feature of many of the broadcasting stations. To those who have occasion to make health talks through this medium or in person, this brief manual presents many helpful suggestions.

FOIE & PANCRÉAS. Par J. Castaigne, M. Brulé, H. Garban, Noël Fiessinger, G. Faroy. Second edition. Paper. Pp. 522, with 40 illustrations. Paris: A. Maloine et Fils, 1923.

This is, indeed, worthy of a place in the system of medicine and therapy published under the direction of Emile Sergent, L. Ribadeu Dumas, and L. Babenneix. It is characteristic of the modern tendency of French works to include almost exclusively a French bibliography. As a result, the important recent contributions of Eppinger, Brugsch and others in the study of icterus are unfortunately omitted. The work otherwise is quite complete, furnishing to the clinician as well as to the research worker the essence of what is known concerning diseases of the liver and pancreas. In addition to the exposition of that which has already been accomplished and accepted, many interesting original observations and theories are offered. Prognosis and therapy are not neglected. Such fantastic statements as "Xanthoma is an indication of cholesterinemia, making one think of cholelithiasis, and constitutes for gallstones what the tophus does for gout" are frequent. The value of many liver function tests, long since abandoned in this country, is emphasized in the diagnosis and prognosis of liver disease. Those who are interested in the much discussed dissociated icterus will find an excellent and complete description. The recent work on picric acid icterus is also dealt with. Physical diagnosis of both liver and pancreas is completely gone into. As the book was written before the advent of insulin, this phase of pancreatic pathology and therapy could not be discussed by M. Farey in his thorough treatise on the pancreas. The work is recommended to those who desire a complete survey of the knowledge concerning diseases of the liver and pancreas as represented by the modern French school.

THE PATHOLOGICAL PHYSIOLOGY OF SURGICAL DISEASES. A Basis for Diagnosis and Treatment of Surgical Affections. By Professor Dr. Franz Rost, University of Heidelberg. Authorized Translation by Stanley P. Reimann, M.D., with a foreword by John B. Deaver, M.D., LL.D., Sc.D. Cloth. Price, $6. Pp. 535. Philadelphia: P. Blakiston's Son & Co., 1923.

This is an unusually interesting book. Essentially surgical in its point of view, it is the work of a surgeon who is a trained biologist. This, in itself, would promise a useful and direct treatment of physiologic problems, and augur well for the selection and emphasis of such problems as commonly confront the observing surgeon and internist. The material is taken up in chapters devoted to the gastro-intestinal tract and its appendages, the spleen, the peritoneum, the urogenital apparatus, the hypophysis and the thyroid, the chest cavity, the central nervous system and the extremities. The difficulty of properly developing a great number of established facts and complex theories into an organic and compact treatise without confusing the reader or overwhelming him in a maze of detail is obvious. But because of his grasp of the subject, Rost has succeeded in making the book readable and in keeping the focus of his argument clear and sharp. He has done this, too, without ever becoming superficial. The translation leaves nothing to be desired. The book should be of great value not only to the surgeon but also to the internist and to the pathologist.

OEUVRES DE PASTEUR. Réunies par Pasteur Vallery-Radot, Médicin des Hôpitaux de Paris. Paper. Tome Premier: Dissymétrie Moléculaire. Price, 50 francs, net. Pp. 480, with illustrations. Tome II: Fermentations et Générations dites Spontanées. Price, 65 francs net. Pp. 644, with illustrations. Paris: Masson et Cie, 1922.

The publication in five stately volumes of Pasteur's collected works, rather long delayed, is another noteworthy tribute on the occasion of the centennial of his birth. It is altogether appropriate that the editor is Pasteur's grandson and the son of Pasteur's biographer. It may be permitted to say that Pasteur is fortunate in his biographer and in his editor. The editorial work, the paper, the form and the craftmanship are worthy of the contents. Pasteur's works ought to be in every medical and scientific library of any consequence in order that his epochal contributions to crystallography, fermentation, infection and immunity may be referred to and studied without inconvenience by students of the present and coming generation.

Medicolegal

Courts May Require Submission to Taking of Roentgenograms—Expert Testimony

(Van House v. Canadian Northern Ry. Co. et al. (Minn.), 192 N. W. R. 493)

The Supreme Court of Minnesota, in affirming a judgment for $3,000 damages in favor of the plaintiff for injuries alleged to have been sustained while alighting from a train, says that the nature and extent of her injuries were important issues. About three months after her injury, she was taken in an automobile to Warren, Minn., where she was examined by a physician who subsequently gave testimony in her behalf. In connection with the examination, roentgenograms were taken of the lower portion of her spine. Basing his testimony in part on the showing made by the roentgenograms, the physician gave it as his opinion that the plaintiff had sustained a compressive fracture of the fifth lumbar vertebra and, as a consequence, would suffer more or less pain for the remainder of her life. In the course of his cross-examination, he was asked to produce the plates, and answered that he had left them at Warren, 150 miles more or less from the place of trial. Complaint was made because the trial court denied the defendants' motion for a continuance until the plates could be obtained and examined by the defendants' medical experts, and their subsequent request that the plaintiff be required to go to the office of a local physician to have another roentgenogram taken. The supreme court does not think that there was an abuse of discretion in the denial of the motion for a continuance.

Whether the court should have required the plaintiff to submit to the taking of another roentgenogram was a question not free from doubt. There is little authority on the subject. Such as the supreme court has found is to the effect that trial courts have broad discretionary powers in this regard. At the instance of the defendants, the plaintiff had been requested to submit and had submitted to a physical examination by four physicians, two of whom testified in her behalf and two in the defendants' behalf. None of them said that they were unable to form an opinion as to the nature or extent of her injuries without a roentgen-ray examination. Undoubtedly, they would have had a better foundation for their opinions if they had seen roentgen-ray plates. It was within the power of the court to grant the defendants' request, for it is a matter of common knowledge that the art of taking roentgen-ray photographs has been so developed that danger or serious inconvenience to the patient no longer attends their taking. But it does not follow that a court has no discretion on such a request. Under all the circumstances, the supreme court cannot say that there was an abuse of discretion in the denial of the request.

Two physicians who had examined the plaintiff were asked to give their opinion as to whether her story of her ailment or the symptoms of injury she manifested were feigned or real, and answered that they believed the pain of which she complained was real. They had testified that they found a point of marked tenderness low on the spine, but no external evidence of injury. The defendants insisted that, when there are no marks of injury, it is error to permit a physician to express an opinion as to the genuineness of a patient's complaints of pain. There was testimony that the plaintiff winced whenever pressure was applied at a certain point over her spine. In a minor degree, this was an involuntary manifestation of pain, and it was competent for the physicians to express an opinion as to whether the pain was real or pretended.

When instructing the jury on the subject of damages, the trial court said that the testimony given by the physicians was "entitled to considerable weight." The defendants insisted that this was error. It is to be noted that the instruction applied to the physicians who testified for the plaintiff as well as to the defendants' physicians, so it would seem that, if there was error, it was neutralized. However, it was immediately followed by the statement that when the physicians disagree the jury must determine for itself the value of the testimony, and by a further instruction that the extent of the plaintiff's injuries should be determined by the consideration of all the testimony, and not that of the physicians only. The charge as a whole was not open to serious criticism.

Care Required in Paroling Insane Persons

(Austin W. Jones Co. v. State (Me.), 119 Atl. R. 577)

The Supreme Judicial Court of Maine, in overruling exceptions to a verdict in favor of the plaintiff, says that on May 9, 1920, certain buildings and personal property owned by the plaintiff were destroyed by a fire which, it was contended, was kindled by a man who had been a patient at a state hospital for the insane. This action against the state for damages was authorized by a legislative resolve which provided: "The liabilities of the parties shall be the same as the liabilities between individuals." By the express legislation in this case, the state laid aside the protecting shield furnished by the common law, and entered this contest on the same terms of respondeat superior (let the superior, or master, answer) as would govern if the state were a private individual. It appeared that the patient had been committed to the hospital, Feb. 15, 1920; that his psychosis was dementia praecox, paranoid type; and that, under date of April 25, 1920, he was paroled into his mother's custody, by the superintendent of the hospital. It appeared, too, that the man had delusions of persecution.

Was the superintendent of the hospital negligent in granting parole under these conditions? In other words, did he fail to observe that degree of care which the law requires for the protection of the interests likely to be injuriously affected by the want of it? It should not require argument or citation of legal authorities to prove the necessity and propriety of the various methods provided by law to protect both the afflicted person and the community at large from the ill effects of insanity. Among those methods is that of restraint by lawful commitment to a hospital provided for the custody and treatment of the insane. While the statute law of Maine provides that the superintendent of a hospital for the insane may permit any inmate to leave the institution temporarily in charge of his guardian, relative or friend, or even by himself, for a period not exceeding six months, yet reason and good sense demand that such permission should not be given if the safety and welfare of the patient, or the community at large, are to be jeopardized by such permission. And it equally follows that the degree of care to be exercised in giving such permission should be commensurate with the particular nature of the patient's mental affliction and the possible or proportionate risk consequent on his enlargement.

It would be unprofitable, and perhaps invidious, to discuss the professional opinions of the distinguished medical men who testified at the trial. From their testimony, and from all the testimony in the case, the jury passed on the issue of negligence. There was evidence, if credible to the minds of the jury, to sustain the view that this patient was a dangerous man to be at large; and that a reasonably prudent man possessing the learning, and having had the experience, which were possessed and had by the superintendent of the hospital, would not have paroled the man after so short a term of confinement, when he was suffering from a mental ailmen which made him a dangerous man to be at large, and withou more critical and careful examination of the patient's condition at the very time when the parole was granted. Parol under these circumstances must be regarded as an abuse o discretion. To be sure, it was the verdict of laymen on th question largely affected by professional learning, but it wa a question of fact to be determined by a jury, under th judicial procedure of this state, and this court is not convinced that the finding should be disturbed by the court.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Atlantic Medical Journal, Harrisburg, Pa.

26: 501-574 (May) 1923

Specialism and Cooperation. G. E. De Schweinitz, Philadelphia.—p. 501.
What Types of Goiter Should Receive Medical Treatment. D. Guthrie, Sayre, Pa.—p. 506.
Surgical Treatment of Goiter. H. L. Foss, Danville, Pa.—p. 508.
Roentgen-Ray and Radium Treatment of Goiter. G. W. Grier, Pittsburgh.—p. 516.
Differential Diagnosis of Diseases of Pancreas. G. E. Holtzapple, York, Pa.—p. 523.
Etiology of Uveitis. B. Chance, Philadelphia.—p. 528.
Practical Points on Cataract Extraction. J. B. Corser, Scranton, Pa.—p. 536.
Diabetes and Life Insurance. H. J. John, Cleveland.—p. 539.
*Ophthalmia Neonatorum. L. Lehrfeld, Philadelphia.—p. 543.

Statistics on Ophthalmia Neonatorum.—Of forty-nine cases of ophthalmia neonatorum traced by Lehrfeld, two resulted in complete blindness in both eyes, one in partial blindness of the right eye, two in disturbance of vision, as evidenced by small maculations in the left eye, and one case of the same degree in both eyes. Further study of these forty-nine cases showed that six were really not cases of ophthalmia neonatorum since they occurred in persons at the ages of 1 year, 2 years, 5 years, 8 years, 9 years and 25 years. A startling fact is that a prophylactic was used in only twenty instances out of thirty-five in 1920, and in twenty-two instances out of thirty-three in 1921. If such omission occurs among the actual gonorrheal cases, there must necessarily be a large number of babies born annually who do not receive this all important prophylactic treatment.

American Journal of Diseases of Children, Chicago

25: 339-410 (May) 1923

*Critique of Pirquet Feeding System. H. K. Faber, San Francisco.—p. 339.
*Mongolism in One of Twins and Etiology of Mongolism. T. Halbertsma, Haarlem, Holland.—p. 350.
*Ulcerative Stomatitis and Its Treatment by Intravenous Injection of Arsenic. E. A. Morgan, Torcnto.—p. 354.
*Treatment of Vascular Nevi with Radium. R. H. Rulison and S. McLean, New York.—p. 359.
Atresia of Duodenum and Right Internal Hernia. Report of Case. J. J. Morton, New Haven, Conn.—p. 371.
Myelogenous Chloroma. Report of Case, with Necropsy. N. C. Foot and G. Jones, Cincinnati.—p. 379.
Schick Test Performed on More Than 150,000 Children in Public and Parochial Schools in New York (Manhattan and Bronx). A. Zingher, New York.—p. 392.
Water Content of Infants' Blood During Periods of Rapid Increase in Weight. H. Bakwin, New York.—p. 406.

Criticism of Pirquet Feeding System.—Faber maintains hat practical and theoretical reasons both militate against he general adoption of the Pirquet system of feeding. The itting height on which it is based cannot be measured with ufficient accuracy, and even slight errors in this measurement ead to serious errors in calculating the nutritional status of he individual and his food requirements. The Pirquet index of nutrition has a misleading resemblance to a percentage of normal weight, into which it cannot readily be translated. The Pirquet theory that sitting height and intestinal area are in close correspondence is neither susceptible of proof nor onsonant with probability. Its corollary, that sitting height nd food requirements bear a relationship to each other, while based on false premises, is probably true, but depends or its validity on the fact that sitting height and body surace show a certain degree of correlation. This correlation is not close enough to permit the accurate calculation of ody surface from sitting height. Finally, the introduction f Pirquet's food unit, the nem, to supplant the calory is ighly undesirable, largely for practical reasons, and preents no advantages that would appeal to the American public.

Etiology of Mongolism.—The conclusion that mongolism is germinal in origin is deduced by Halbertsma from the fact hat mongolism occurs in one of twins. An examination of these cases reveals that all have resulted from a two-egg pregnancy. Cases of mongolism in both twins of different sex are unknown; of like sex, there are cases described; this is in accordance with the theory that mongolism must be regarded as the result of defects inherent in the germ plasm.

Ulcerative Stomatitis Treated by Intravenous Injection of Arsenic.—While the local application to the gums of Bowman's solution, which consists of a solution of potassium arsenite, 12 c.c.; wine of ipecac, 12 c.c., and glycerin, 8 c.c., was effective, the relief was not always permanent. It seemed reasonable to Morgan to assume that arsenic administered intravenously would be more apt to reach these deep foci and thus effect a more lasting cure. Twenty-five cases were treated in this manner and the results have always been satisfactory. In eight cases Bowman's solution was used locally in conjunction with an intravenous injection of an arsenical salt such as neo-arsphenamin. Improvement was marked in from two to four days, and cure was effected on an average of five and three-fourths days. In seventeen cases no treatment was used other than the intravenous injection. Improvement was noted on an average two and one-half days after injection, and complete cure was recorded on an average of five and three-eighths days. One child that had been treated for eighteen days with local applications of Bowman's solution without visible improvement was completely cured eight days after intravenous medication was given.

Radium Therapy of Vascular Nevi.—Rulison and McLean state that not all angiomas respond equally well to radium treatment. The port wine mark is very obstinate, since the flat nevi generally are more refractory than the raised. Many nevi of small size situated on covered parts are easily destroyed by more rapid methods. The scar following the skilful use of carbon dioxid snow is often insignificant. Telangectasis, classed with nevi, is better treated by electrolysis. Surgery often gives brilliant and rapid results. In certain selected, raised vascular nevi of the face, radium therapy yields results which probably cannot be achieved by other methods, especially if the treatment is commenced in early infancy.

Annals of Clinical Medicine, Baltimore

1: 337-407 (May) 1923

Dangers and Duties of Hour. H. A. Hare, Philadelphia.—p. 347.
Eventration of Diaphragm: Report of Case. H. G. Beck, Baltimore.—p. 362.
Use of Schick Test and Toxin; Antitoxin Immunization; Bibliographic Review. R. D. Moffet, New York City.—p. 372.
Certain Consideration of Thyroid Disease from the Standpoint of Etiology, Diagnosis and Clinical Management. F. Smithies, Chicago.—p. 381.

Annals of Medical History, New York

5: 1-94 (March) 1923

Anatomical Habitat of Soul. H. M. Brown, Milwaukee, Wis.—p. 1.
Eponymic History of Ganglion Semilunare (Gasseri). H. Viets, Boston.—p. 23.
Riolan and Harvey. J. Donley, Providence, R. I.—p. 26.
William Edmonds Horner. W. S. Middleton, Madison, Wis.—p. 33.
Review of an Early Paper on Malaria. J. E. Sands, Philadelphia.—p. 77.

Archives of Dermatology and Syphilology, Chicago

7: 721-872 (June) 1923

*Bismuth in Treatment of Syphilis. J. V. Klauder, Philadelphia.—p. 721
*Id. J. G. Hopkins, New York.—p. 745.
Lichen Nitidus. H. E. Michelson, Minneapolis.—p. 763.
*Dermatomycosis in Porto Rico. A. L. Carrion, San Juan, Porto Rico.—p. 773.
Biologic Reactions of Arsphenamin. V. Its Reactions with Plasma Proteins and Certain Hydrophilic Colloids and Relation of These Processes to Phenomenon of Protection. J. Oliver and E. Douglas, San Francisco.—p. 778.
Prophylaxis of Syphilis from Writings of Daniel Turner, M.D. (Honorary), Yale, 1723. J. E. Lane, New Haven, Conn.—p. 800.
*Intravenous Injection of Glucose in Treatment of Dermatologic Conditions. J. L. Carrera, Buenos Aires, Argentina.—p. 805.
Bromin Eruption by Placental Transmission. J. P. Costello, St. Louis.—p. 806.

Bismuth in Treatment of Syphilis.—Klauder's report is based on an experimental study of bismuth as a spirocheticidal drug in rabbit syphilis. The relation between the therapeutic active dose and the lethal dose is discussed; and also the clinical results from the use of bismuth in the treatment of fifty syphilitic patients in the three stages of syphilis, the majority of whom presented a cutaneous manifestation of the disease. The bismuth preparations employed were the French preparation of sodium and potassium tartrobismuthate in aqueous solution and in olive oil, potassium tartrobismuthate in acqueous solution and bismuth trioxid in olive oil and by inunctions. The chemistry of the bismuth tartrates is discussed. All of the bismuth preparations employed in the study were administered intramuscularly. The doses ranged from 0.1 to 0.2 gm. The interval between injections ranged from every other day to every fourth day. Untoward reactions of bismuth therapy in syphilis are given. Lesions of primary, secondary and tertiary syphilis were involuted after a total administration of the bismuth preparations employed, in amounts ranging from 0.3 to 1.5 gm. The four plus Wassermann reaction of patients in early secondary and late secondary stages of syphilis became negative, in the majority of cases, following a total administration of about 2 gm. of the bismuth preparations employed. The four plus Wassermann reaction of tertiary syphilis required varying amounts of bismuth treatment and cannot be stated arbitrarily. The antisyphilitic effect of bismuth is noted for some time after the administration of the drug. The employment of 50 per cent. bismuth inunctions in the treatment of human syphilis exerted a feeble spirocheticidal action. Klauder states that bismuth therapy is particularly advantageous in the treatment of syphilitic patients who are hypersensitive to arsphenamin so that the use of the latter drug is restricted or contraindicated.

Bismuth Treatment of Syphilis.—Of about fifty patients so far treated by Hopkins with bismuth, two developed a stomatitis which subsided promptly on interruption of the injections. No other toxic effects were noted. Many of the patients have gained weight and improved in general nutrition under treatment. Experiments on rabbits show that sodium and potassium tartrobismuthate has marked spirocheticidal power and a curative action on syphilitic lesions in these animals; that in single injection it is about as effective as neo-arsphenamin and more effective than mercuric salicylate. The observations on early active human cases show that it accomplishes at least a temporary apparent cure. Its effect on latent cases suggests that it may be useful in the treatment of those which are resistant to other drugs. These results are in general agreement with those reported by others and indicate that bismuth is a powerful antisyphilitic agent. There is as yet no reason to suppose that it will replace other drugs, the efficacy of which has been proved by long experience; and at present the treatment of syphilitic patients by bismuth alone is held to be justifiable only in an attempt to appraise its therapeutic value.

Dermatomycosis in Porto Rico.—The cases described by Carrion are three good examples of a type of dermatomycosis observed in Porto Rico, whose differential features are a tendency to generalization and a marked troublesome pruritus, other symptoms being identical with those of the regular fungous dermatoses.

Intravenous Injection of Glucose in Skin Diseases.—About seventy injections of a 59 per cent. solution of glucose were given by Carrera at intervals of three or four days, from 16 to 30 c.c. being used for each injection. This treatment was well tolerated. He failed to obtain results in the treatment of Hebra's disease, in Wilson's dermatitis exfoliativa, in Dühring's disease, in psoriasis and eczema; but obtained good results in several kinds of pruritus, including anal and vulval. He agrees with Covisa and Berjarano that glucose causes improvement in edema of the legs due to varices or ulcers.

Boston Medical and Surgical Journal

188: 889-928 (June 7) 1923

Factors Apparently Influencing Development of Pellagra in Massachusetts. G. C. Shattuck, Boston.—p. 889.
Control of Communicable Diseases. A. J. McLaughlin, New York.—p. 892.
*Acute Ascending Meningomyelitis, Possibly Resulting from Arsphenamin Therapy. H. R. Viets, Boston.—p. 895.
Mortamines or Faulty Food Factors. F. L. Burnett, Boston.—p. 897.
Diet During Pregnancy. H. F. Day, Boston.—p. 904.

Acute Ascending Meningomyelitis Resulting from Arsphenamin.—The case reported by Viets would seem to fall into the acute spreading myelitis group of Collier, ascending in character, with definite meningeal involvement. It varied somewhat in character from other reported cases in its great rapidity of development and the completeness of the cord involvement. A possible etiologic factor is suggested in an arsphenamin reaction somewhat analogous to encephalitis hemorrhagica. The probability of the case being one of thecal hemorrhage, spreading poliomyelitis or acute ascending polyneuritis (Landry's) seems to be ruled out by the history, course, and spinal fluid findings.

188: 929-974 (June 14) 1923

Physical Examination of Apparently Healthy Individuals: Its Importance, Limitations and Opportunities. R. I. Lee, Cambridge.—p. 929.
Early Diagnosis of More Common Upper Abdominal Conditions. J. B. Deaver, Philadelphia.—p. 937.
*Obstetric Case Presenting an Unusual Group of Complications. L. E. Phaneuf, Boston.—p. 942.
*Study of Natural Position in Sleep and Its Relation to More Affected Lung in Pulmonary Tuberculosis. D. Zacks, O. S. Pettingill and A. H. Stanhope, Middleton.—p. 946.
Simple Blood Transfusion (Citrate Method). H. M. Clute, Boston.—p. 948.
Transfusion of Blood. D. S. Adams, Worcester.—p. 949.
Convalescence: V. Winifred Masterson Burke Relief Foundation. J. Bryant, Boston.—p. 951.

Suspension of Uterus Should Not Cause Dystocia.—The case reported by Phaneuf is said to show the importance of selecting a type of suspension which when performed during the child-bearing age will not cause dystocia. The round ligaments should be utilized to support the uterus, while the fundus of the uterus should always be left free, and not anchored, in any way, to the anterior abdominal wall. Phaneuf believes that uterine prolapse before the menopause should be treated by proper vaginal plastics, to give the necessary support, and by suspending the uterus, by the round ligaments, merely to hold it in proper position. Dystocia is very apt to result if the uterus is attached high enough on the abdominal wall to take up the slack in the anterior and posterior vaginal walls in an attempt to overcome the associated cystocele and rectocele. The patient whose case is cited had been delivered twice through her pelvis and following the suspension, which had become a fixation, had a miscarriage and so much dystocia with the last pregnancy that a cesarean section was made imperative.

Natural Position in Sleep.—It would appear from the study made by Zacks and others, that the natural posture of rest in sleep will vary inversely with the length of the period of observation. The more prolonged the period of observation, the greater the tendency of the subjects to appear in the "either side" column. There does not appear to be any definite relation between the natural posture assumed in sleep and the side affected by tuberculous disease. In eighty-two cases analyzed, the left side and the right side were equally affected, both as to frequency and extent of lesion. It is the author's impression that in artificial pneumothorax, even in the classical one-sided lesions, the collapse must be gradual or the disease will spread to the well or better side more rapidly or will tend to involve either the larynx or intestine. They strongly believe that general, physical, mental, and emotional rest, preferably bed rest, for a period varying with the individual indication, must be enforced upon the tuberculous subject and the earlier the better if he is to gain the most benefit of the present accepted rational treatment.

Endocrinology, Los Angeles

7: 379-518 (May) 1923

*Pineal Gland, Especially in Relation to Problem of Its Supposed Significance in Sexual Development. K. H. Krabbe, Copenhagen.—p. 379.
Prevention of Exophthalmic Goiter. I. Bram, Philadelphia.—p. 415.
*Hyperthyroidism: New Clinical Sign. H. H. Lissner, Los Angeles.—p. 431.
Exophthalmic Goiter Following Varicella and Mastoiditis in Child with Status Thymolymphaticus. H. Wheelon, Seattle.—p. 437.

Pineal Gland and Sexual Development.—In the clinical picture of pineal gland tumors, Krable says, pubertas praecox coincides with teratoma formation in the pineal gland. Thus it is possible in a number of brain tumors in children to diagnose with great certainty that the tumor is a teratoma of the pineal gland. However, knowledge of the function of the pineal gland is defective. It is certain that this organ has a function in man and in the majority of mammals, and that this function is partly an internal secretion, but an internal secretion which is not indispensable to life. Finally, there is total lack of knowledge of the influence of this internal secretion in the body and, particularly, the hypothesis that the secretion plays a rôle in the development of puberty is, to date, completely without significant evidence.

New Sign of Hyperthyroidism.—The sign elicited by Lissner is a bruit, heard just behind and below the sternoclavicular junction. It is unlike the murmur over the gland when it is visually or palpably enlarged. In fact, it may be present when both these factors are absent. This sound is hissing or siren-like in character, is differentiated from the whirring or water-wheel churning sound heard over the gland itself. The sound is said to be distinctive of hyperthyroidism, or of potential hyperthyroidism. It is heard more frequently on the right side than on the left, but in marked cases, when there is considerable evidence of thyreotoxicosis, it is present on both sides. It is not transmitted to any of the other blood vessels of the neck or superficial vessels of the trunk or extremities, and Lissner has never heard it over the superior thyroid vessels. It is increased by deep inspiration, and is not lost during expiration. It is systolic in time and is lost during the rest period in the cardiac cycle. Accompanying the hissing bruit, but with no definite degree of constancy, is a palpable thrill in the cubital artery.

Georgia Medical Association Journal, Atlanta

12: 177-228 (May) 1923

Simple Goiter—Its Local Prevalence. C. H. Watt, Thomasville.—p. 177.
Use and Ahuse of Radium. A. D. Little, Thomasville.—p. 180.
Removal of Angiomata with Radium. C. Swanson, Atlanta.—p. 181.
False Localizing Signs Resulting from Increased Intracranial Pressure. M. Harbin, Rome.—p. 184.
Birth Control and Physician. N. A. Alpert, Atlanta.—p. 185.
Importance of Knowledge of Thrombo Angitis Obliterans to Southern Physician. S. J. Sinkoe, Atlanta.—p. 188.
Infantile Diarrhea. M. M. McCord, Rome.—p. 190.
Why Adenoids Often Permanently Injure Features, Mind and Health. E. S. Colvin, Atlanta.—p. 193.
Consideration of Eye, Ear, Nose and Throat Conditions at Georgia State Sanitarium, Milledgeville, Ga., with Report of Cataract Operations Performed. B. McH. Cline, Milledgeville.—p. 195.
Problem of Mortality in Surgical Statistics. R. M. Harbin, Rome.—p. 197.
Case of Accidental Vaccination for Smallpox Which was Mistaken for Anthrax. J. H. Kite, Atlanta.—p. 200.
Sulpharsphenamin in Treatment of Syphilis. E. S. Osborne, Savannah.—p. 202.
Use of Veratrum Viride in Pneumonia. C. Van Wood, Cedartown.—p. 204.
Removal of Safety Pin from Esophagus. J. H. Buff, Atlanta.—p. 205.

Journal of Experimental Medicine, Baltimore

37: 601-732 (May) 1923

*Studies Based on Malignant Tumor of Rabbit: I. Spontaneous Tumor and Associated Abnormalities. W. H. Brown and L. Pearce, New York.—p. 601.
*Id. II. Primary Transplantation and Elimination of Coexisting Syphilitic Infection. L. Pearce and W. H. Brown, New York.—p. 631.
Stable Suspensions of Auto-agglutinable Bacteria. P. H. De Kruif and J. H. Northrop, New York.—p. 647.
*Antagonistic Growth Activating and Growth Inhibiting Principles in Serum. A. Carrel and A. H. Ebeling, New York.—p. 653.
Surface Tension of Serum: V. Relation Between Time-Drop and Serum Antibodies. P. Lecomte du Nouy, New York.—p. 659.
Absorption of Specific Agglutinins in Homologous Serum Fed to Calves During Early Hours of Life. T. Smith and R. B. Little, Princeton, N. J.—p. 671.
*Studies on Total Bile: III. Bile Changes Caused by Pressure Obstacle to Secretion; Hydrohepatosis. P. D. McMaster, G. O. Broun and P. Rous, New York.—p. 685.
Id. IV. Enterohepatic Circulation of Bile Pigment. G. O. Broun, P. D. McMaster and P. Rous, New York.—p. 699.
*Botulism: Manner in Which Toxin of Clostridium Botulinum Acts on Body. Effect on Autonomic Nervous System. E. C. Dickson and R. Shevky, San Francisco.—p. 711.

Spontaneous Malignant Tumor at Site of Pulmonary Syphilitic Lesion.—A malignant tumor which developed at the site of a primary syphilitic lesion in the scrotum of a rabbit, about four years after inoculation, and which eventually led to the death of the animal, has formed the basis for an extensive series of investigations by Brown and Pearce, beginning with the study of the spontaneous tumor. The present report contains the clinical history of the animal from the time of inoculation to its death and the results of pathologic examinations. The conclusion is reached that the growth in the scrotum represented a neoplasm of epithelial origin which was composed of cells allied to those found in the bulb and root sheath of the hair. The evidence presented was sufficient to warrant the assumption that the factor of foremost importance in the development of the tumor was constitutional rather than local.

Transplantation of Spontaneous Malignant Tumor. — Several attempts were made by Pearce and Brown, to transplant a spontaneous malignant tumor in a syphilitic rabbit before a method was devised which proved successful on account of the vigorous granulomatous reaction which was aroused by the introduction of tumor fragments into these tissues. This difficulty was overcome by the use of intratesticular inoculations. With this method, a good growth was obtained in nearly all animals. It appeared possible, however, that a syphilitic infection had been transmitted along with the tumor, and hence treatment with arsphenamin was instituted as a means of eliminating this infection. A study of the transplanted tumor in the first and second generations showed that it possessed a high degree of malignancy. Metastases occurred at an early period in the majority of animals, and while some of them appeared to recover, the indications were that more than 50 per cent. might be expected to succumb to the effects of the tumor growth within a period of six or seven months. The method of intratesticular inoculation now in use is described in detail.

Growth Activating and Inhibiting Principles in Serum.—The substances precipitated by carbon dioxid from the serum of chickens, 1 or 2 years old, slightly increased the activity of pure cultures of a 10 year old strain of fibrobalsts, which is interpreted by Carrel and Ebeling as being an indication that a growth promoting substance had been obtained from the serum. The rate of growth of fibroblasts was slower in serum deprived of its globulins and the increase of the inhibiting effect of the treated serum is thus manifested. It would appear that the inhibiting action of serum is referable to one or several growth activating substances which precipitate by carbon dioxid, and to one or several growth retarding substances which remain in the supernatant serum after the precipitate has been thrown down by centrifugation.

Bile Changes Due to Obstacle to Secretion.—In bile that is secreted against an abnormally high pressure, as during partial obstruction, McMaster, Brown and Rous found the pigment, cholate, and cholesterol outputs all cut down, and so much more than was the fluid bulk that the concentration of the substances per cubic centimeter of bile was notably lessened. The fluid obtained at the greatest pressure compatible with secretion contained traces only of the typical biliary constituents. The bearing of these alterations in the bile on the consequences of partial biliary obstruction is discussed. An analysis of the liver changes following biliary obstruction brings out their essential likeness to the changes that occur under similar cirumstances in glands in general and the kidney in particular. The major physiologic factors concerned in the development of hydronephrosis and in the liver changes after biliary obstruction are identical. The authors suggest that the term hydrohepatosis as applied to the liver condition would be useful not merely to designate it but to indicate the principles underlying its development. In clinical instances of biliary obstruction, the likeness to hydrohepatosis is often hidden because of the activity of the gallbladder to render the stasis bile dark and thick. There is, then, a concealed hydrohepatosis, differing merely by the character of the duct content from the manifest hydrohepatosis with "white bile" that is found when the gallbladder fails to act.

Effect of Botulism Toxin on Nervous System.—A survey of the results of the experiments made by Dickson and Shevky, that in botulinus intoxication in cats, dogs, and rabbits there is a specific effect on the portions of the autonomic nervous system which Gaskell described as the bulbosacral and prosomatic outflows of connector fibers, respectively, which results in a blocking of the nerve impulses of these nerves. The experimental as well as the clinical evidence indicates that there is no damage to the nerves of the thoracicolumbar outflow. The exact location of the damage has not been ascertained nor has the mechanism by which the nerve impulse is blocked been determined. The experiments show, however, that the lesions in these portions of the nervous system are not of central distribution but are peripheral, and that the block cannot be due to an organic break in the conduction apparatus but must be due to some derangement which is relatively unstable. A discussion of the application of the results of these experiments to the clinical manifestations of botulism is promised after the effect of the toxin on the skeletal motor nerves has been described.

Journal of Infectious Diseases, Chicago

32: 401-490 (June) 1923

Infectious Abortion in Domestic Animals. I. Infection of Swine and Rabbits. H. M. Weeter, Chicago.—p. 401.

*Serologic Classification of B. Botulinus. I. Preparation of Antiserum. P. Schoenholz and K. F. Meyer, San Francisco.—p. 417.

Effect of Temperature on Velocity of Reaction in Hemolysis. W. E. Gouwens, Chicago.—p. 421.

Thermal Death Time of Spores of Clostridium Botulinum. 2. Differential Staining of Living and Dead Spores. G. S. Burke, San Francisco.—p. 433.

Hydrogen-Ion Studies. VII. Hydrogen-Ion Concentration Range of Precipitin Reaction (Sheep Serum). E. F. Hirsch, Chicago.—p. 439.

*Bacteriologic Study of Vulvoginitis of Children. R. A. Anderson, O. T. Schultz and I. F. Stein, Chicago.—p. 444.

Biologic and Serologic Studies of Bacillus Mucosus Group. Comparison of Strains from Granuloma Inguinale with Strains from Respiratory Tract. J. C. Small and L. A. Julianellee, Philadelphia.—p. 456.

*Two "Food Poisoning" Outbreaks Apparenty Due to Bacilli of Paratyphoid Enteritidis Group. E. O. Jordan and J. C. Geiger, Chicago.—p. 471.

Final Hydrogen-Ion Concentration in Paratyphoid Enteritidis Group. E. Yuri, Chicago.—p. 479.

*Experimental Gangrene. B. S. Kline, Cleveland.—p. 481.

Serologic Classification of Bacillus Botulinus.—The observations made by Bronfenbrenner, Schlesinger and Calazans, that *B. botulinus*, Type A, can be differentiated from Type B by means of serologic tests, have been confirmed by Schoenholz and Meyer and they have furthermore, shown by means of agglutinin and agglutinin absorption tests that the A types can be subdivided into at least three and possibly four groups, while the B types can be divided into at least two groups.

Bacteriology of Vulvovaginitis.—In a series of forty-two cases of vulvovaginitis among children that were examined bacteriologically by Anderson, Schultz and Stein 35.7 per cent were due to the gonococcus, and 64.3 per cent. were nonspecific. In 53.3 per cent. of the specific cases, the gonococcus was isolated in pure culture. In the remainder, the specific diagnosis was based on the presence within leukocytes of morphologically typical, gram-negative diplococci. In the nongonorrheal cases a mixed flora was present, but streptococci of intestinal origin appeared to be the most important agents. Staphylococci, colon bacilli and gram-positive bacilli were frequently encountered, probably as secondary invaders or harmless symbionts. Uncleanliness and local irritation are believed to be an important, and probably the primary, factor in the nonspecific cases, the condition thus established being maintained or made worse by bacterial localization. In the latter part of the process, bacteria of intestinal origin appear to be most important. Cases in which filth and irritation appeared to be the chief factors yielded most readily to the routine therapeutic procedures which were applied in all cases. Quarantine and exclusion from school are not believed to be necessary in the nongonorrheal cases.

Paratyphoid Bacillus Causes Food Poisoning.—The features of special interest in the outbreak of food poisoning investigated by Jordan and Geiger are: (1) the occurrence of three outbreaks, apparently due to a "cream sauce," in substantially the same group of persons; (2) the isolation of *B. paratyphosus* A from the milk used in making the sauce and also from the stool of one of the persons affected; (3) the apparent lack of an immunization process, as evidenced by the repeated attacks experienced by one and the same person. In another food poisoning outbreak *B. paratyphosus* B was found in meat contained in a meat sandwich but the exact source of contamination of the meat could not be discovered.

Experimental Gangrene.—In the presence of devitalized tissue, Kline was able to produce gangrene experimentally in guinea-pigs with material from dental caries and pyorrhea alveolaris, Vincent's angina and pulmonary gangrene containing spirochetes and fusiform bacilli. The experimental production in the rabbit of pulmonary gangrene with material from a carious tooth containing spirochetes and fusiform bacilli is further evidence that the apiration of these organisms from lesions in the mouths of human beings may lead to pulmonary gangrene.

Journal of Laboratory and Clinical Medicine, St. Louis

8: 495-562 (May) 1923

*New Points in Physiology of Digitalis Therapy. O. H. Brown, Phoenix, Ariz.—p. 495.

*Hyperglycemia. Study of 2,000 Blood Chemical Analyses. H. M. Feinblatt, Brooklyn.—p. 500.

*Investigation on Picramic Acid Methods for Blood Sugar. H. C. Sweany and E. M. Johnson, Chicago.—p. 506.

Preservation of Natural Colors in Gross Specimens. O. Klotz, Sao Paulo, Brazil.—p. 514.

*Ventricular Fibrillation in Man with Temporary Cardiac Recovery. F. A. Willius, Rochester, Minn.—p. 518.

*Duodenectomy, Report of Experiment Four Years After Operation. F. C. Mann and K. Kawamura, Rochester, Minn.—p. 523.

Clinical and Laboratory Procedures in Pediatrics. A. Levinson, Chicago.—p. 525.

Simple Method for Computation of Metabolic Determinations by Use of Slide Rule. M. W. Hollingsworth, Anaheim, Calif.—p. 538.

New Animal Holders and Mouth Gags. J. Lepak, Chicago.—p. 542.

Technic for Removal and Transplantation of Rat and Mouse Tumors. D. C. A. Butts, Philadelphia.—p. 545.

Physiology of Digitalis Therapy.—The effect of dilatation of the heart on the size of the lumen of the coronary arteries was studied by Brown. As a heart dilates, the coronary arteries are stretched in length and narrowed in diameter, with the consequence of a reduced blood carrying power which may easily reach 50 per cent. or more. At such times, then, the heart is doing more work than ordinarily, and with less than usual nourishment. A heart that is dilated or in danger of being dilated needs digitalis, and in amounts to overcome or prevent the dilatation. The amounts needed may be much more than what has commonly been considered the proper dosage.

Hyperglycemia.—Out of 2,000 routine blood sugar determinations made by Feinblatt, eighty-one yielded readings in excess of 150 mg. per hundred cubic centimeters. Thirty-four of these patients presented clinical evidences of diabetes mellitus. The remaining forty-seven patients were considered nondiabetic. The nondiabetic series furnished a heterogeneous group, and in only fourteen patients could the diagnosis account for the hyperglycemia. A study of the relation between hyperglycemia and glycosuria served to emphasize the fact that the renal blood sugar threshold varies in different persons and in the same person under different circumstances. In diabetes a high threshold value may exist, and this tends to increase in proportion to the severity of the disease.

Picramic Acid Method for Determining Blood Sugar Not Reliable.—It has been demonstrated by Sweany and Johnson that the picramic acid methods for the estimation of blood sugar are unreliable in certain pathologic conditions. It has also been established that the presence of phenol or potassium phenyl sulphate in blood produces a false sugar result when these methods are employed. From results obtained on pathologic subjects and by the addition of sugar to blood filtrates it would seem to indicate that the modified method of Folin and Wu for the estimation of blood sugar possesses many advantages over any of the other methods studied. It is suggested that the picramic acid methods may be used to determine the presence in the blood of "reducing substances other than glucose."

Ventricular Fibrillation with Temporary Recovery.—A case is presented by Willius in which the patient showed progressive cardiac failure. During the syncopal attack fibrillation of the ventricles occurred. The patient lived thirty-four and a half hours after the attack. This case is the second instance of temporary cardiac recovery in man observed following ventricular fibrillation.

Successful Duodenectomy.—Mann and Kawamura report one experiment in which the animal (dog) was in good condition four years after duodenectomy. The duodenum was removed and the continuity of the gastro-intestinal tract maintained by an end-to-end anastomosis of jejunum to stomach. The first portion of the jejunum thus assumed the position normally occupied by the duodenum. The common bile duct and pancreatic ducts were transplanted into this transposed portion of the jejunum at approximately the same distance from the pylorus and from each other as they occurred normally. The experiment is of interest, (1) in showing the effect of removal of the duodenum; and (2) the effect of transplantation of the common bile and pancreatic ducts. The animal remained in perfect health and maintained its normal weight for four years following removal of the duodenum, and there is no reason to believe that the duodenectomy would ever have affected the health of the animal, had it been allowed to live longer. The experiment therefore definitely proves that in the dog the duodenum is not essential to life or good health, and that whatever function it may have can be compensated for by the remainder of the intestinal tract. It is also shown that the transplantation of the bile and pancreatic ducts can be carried out successfully so that the respective glands will remain practically normal for a long time.

Journal of Metabolic Research, Morristown, N. J.

2: 547-985 (Nov.-Dec.) 1922

*Insulin in Treatment of Diabetes Mellitus. F. G. Banting, W. R. Campbell and A. A. Fletcher, Toronto.—p. 547.
*Ketosis, Acidosis and Coma Treated by Insulin. W. R. Campbell, Toronto.—p. 605.
*Blood Sugar Following Insulin Administration and Symptom Complex-Hypoglycemia. A. A. Fletcher and W. R. Campbell, Toronto.—p. 637.
*Insulin in Hospital and Home. E. P. Joslin, H. Gray and H. F. Root, Boston.—p. 651.
*Clinical Observations on Insulin. R. M. Wilder, W. M. Boothby, C. J. Barborka, H. D. Kitchen and S. F. Adams, Rochester, Minn. —p. 701.
*Effects of Insulin in Severe Diabetes. J. R. Williams, Rochester, N. Y. —p. 729.
*Effect of Insulin on Metabolism of Diabetes. R. Fitz, W. P. Murphy, and S. B. Grant, Boston.—p. 753.
*Use of Insulin in Juvenile Diabetes. H. R. Geyelin, G. Harrop, M. F. Murray and E. Corwin.—p. 767.
*Clinical Use of Insulin. R. T. Woodyatt, Chicago.—p. 793.
*Clinical Observations with Insulin. I. Use of Insulin in Diabetic Treatment. F. M. Allen and J. W. Sherrill, Morristown, N. J.

Insulin in Treatment of Diabetes.—In this paper Banting, Campbell and Fletcher discuss more fully some of the problems which have arisen in the treatment of diabetes mellitus with insulin. The clinical histories and protocols of a number of severe diabetics are presented, and interesting features of their treatment are discussed. Suggestions are made as to the criteria on which to judge the requirement of insulin in various cases, and as to the mode of treatment to be adopted.

Use of Insulin in Diabetic Coma.—Two cases are reported by Campbell as typical of the successful results obtained in the treatment of diabetic coma by insulin. One illustrates the use of subcutaneous injection of insulin, and the other the employment of insulin intravenously in order to obtain more rapid effects. It is considered advisable to use carbohydrate in addition to insulin in order to prevent hypoglycemia and to reduce the combustion of fats to a minimum. The results of treatment in each case were satisfactory from a clinical point of view. Three fatal cases of coma are reported because of the additional light thrown on the treatment of this condition. Two of them present complications—one, influenzal pneumonia; the other pyemic abscesses of the kidney—both sufficiently severe to cause a fatal outcome. In both these cases, despite the severe complications, the administration of insulin had a definite effect on the ketones. The third case presented a syndrome so far as known not previously seen in diabetes, which may represent an end stage of ketone poisoning.

Blood Sugar Following Insulin Administration.—In most patients there is a considerable range in the amount of insulin which will result in a fall of the blood sugar to the normal fasting level. When a dose in excess of this amount is given a further fall in the blood sugar level occurs and, at the same time, there results a group of symptoms which is quite characteristic. A relationship between the lowered blood sugar level and the occurrence of these clinical phenomena appears to be so well established that Fletcher and Campbell refer to them as hypoglycemic reactions. The severity of the reaction depends on the blood sugar level, but the blood sugar level alone does not entirely account for the disturbance. The phenomenon is possibly associated with the physicochemical properties of the sugar remaining in the blood stream after insulin has been administered. In the treatment of hypoglycemia the most satisfactory results are obtained with glucose but quite good results are obtained with other sugars. Orange juice has been used successfully in controlling the symptoms, probably because of its content of glucose and levulose. Epinephrin 1:1,000, 1 c.c., furnishes a ready means of controlling hypoglycemia when the patient is unconscious. In the most severe cases it is better to give epinephrin and then give glucose intravenously as well, as there may be delayed absorption from the alimentary tract. In less severe cases glucose may be given as soon as the patient can swallow.

Insulin Treatment of Diabetes.—Eighty-three patients have been treated by Joslin, Gray and Root with insulin. In large measure these were chosen from the severer surviving diabetics cared for since 1898. One patient, after discharge from the hospital, omitted insulin several weeks later in his home while on an increased diet. He reentered the hospital in coma and died in seven and one-half hours. There were no others which could be attributed to insulin and no other deaths from coma occurred in hospital among the 204 patients admitted for diabetes during this period on insulin administration. The average number of units of insulin given to fifty-three of the patients for an average period of sixty-three days was 712, or 11 units a day. The blood sugar at the beginning of treatment averaged 0.24 per cent. and at the end of treatment 0.19 per cent. The greatest percentage gain in weight was 25 per cent., and the average 7.6 per cent. Patients at all ages, from 2 years to 77 years, responded equally well to treatment, but the youngest patients show the greatest gain in weight. Cases of short and long duration also responded equally well to treatment. The greatest number of units given in twenty-four hours was 100. A total of thirty reactions have occurred in eleven of the eighty-three patients during the administration of 5,153 doses of insulin. During the reactions the blood sugar at no time fell below 0.03 per cent. All reactions occurred between a quarter of an hour and three and three-quarters hours following injection of insulin. The importance of diarrhea in rendering patients liable to hypoglycemic reactions is suggested. General infections were uninfluenced by insulin, save that complicating acidosis was lowered. Local infections appeared to heal more rapidly. The omission of insulin resulted in the reappearance of glycosuria which did not reach its height until the fifth and last day of the omission of the drug. The administration of insulin by the mouth in two cases was without effect. Patients treated in the hospital with insulin continued successfully the treatment at home, due to additional training in diet as well as in insulin medication.

Clinical Studies on Insulin.—The studies reported by Wilder et al. are so diverse that it is difficult to draw a brief summary, or to record the conclusions in detail. There seems to be no question regarding the very definite effect of insulin on sugar metabolism, and the authors are convinced of its great value in the treatment of the more severe forms of diabetes in the emergencies of this condition (acidosis, infection, and so forth).

Effects of Insulin in Severe Diabetes.—A series of forty-four cases of diabetes was studied by Williams over periods of time varying from twenty to 250 days. Of these, thirty-seven cases were unusually severe, nine patients being in coma when treatment was begun. Four deaths occurred. Two of these can be directly attributed to insufficient insulin, and two were from causes unrelated to the diabetes. The forty living patients have gotten along with far greater comfort and strength than was experienced before the institution of the insulin treatment. The feeding of high diets and attempting to make their utilization possible by large doses of insulin has not been satisfactory. The best treatment, apparently, is a diet which will enable the patient to meet the energy requirements of light work with sufficient insulin to insure the metabolism of the food. Williams says that experience to date does not warrant the conclusion that the natural function of the pancreas in cases of severe diabetes is either increased, regenerated or diminished because of the use of the extract.

Effect of Insulin on Metabolism of Diabetes.—The evidence accumulated by Fitz, Murphy and Grant from the study of the cases reported in regard to the effect of insulin on the metabolism of diabetes confirms in every way that already brought forward by Banting and Best and their associates.

Use of Insulin in Juvenile Diabetes.—In a series of nine children, aged from 2 to 15 years, suffering from severe diabetes, treatment with insulin has been followed by certain definite results: (1) arrest of the downward course of the disease; (2) achievement of a total food intake approximating the normal age requirement in calories; (3) steady gain in weight and growth, with increase in mental and physical vigor; (4) absence of severe or permanent ill effects. Since these results have been observed over periods of only three to eight months, conclusions as to the continued beneficial effect of insulin over a period of years Gevelin et al. assert are not warranted.

Clinical Use of Insulin.—This report presents, in brief, the results obtained by Woodyatt in the treatment of about 150 diabetics. Old cases with low fixed tolerance limits have been found difficult to keep sugar free at all times, owing to unavoidable variations of diet, insulin dosages, exercise, etc., and it would not seem necessary that they do so, since they seem to have no natural tolerance to lose. On the other hand, all cases that have a considerable natural tolerance or power to regain such should be kept sugar free if possible, and it has been found to be possible in most cases.

Value of Insulin in Treatment of Diabetes.—Allen and Sherrill describe in detail their clinical experience with insulin, from the beginning of its therapeutic trials in the United States. The 161 patients in their series comprise the largest group yet treated with insulin under conditions of thorough and prolonged control. Manifestly, an abstract of this paper is made an impossibility because of the wealth of details. However, from a practical standpoint, three points seem worthy of emphasis by repetition. It is feasible for patients at their homes to remain free from glycosuria and nearly free from hyperglycemia under combined treatment by diet and insulin. Overnutrition makes freedom from glycosuria difficult, and exposes to acidosis, infection and other dangers. Insulin revolutionizes the results of diabetic treatment when properly employed, but it cannot atone for lax or inaccurate dietary methods.

Philippine Journal of Science, Manila

22: 467-555 (May) 1923

Undescribed Crane Flies from Formosa and Luzon (Tipulidae, Diptera). C. P. Alexander, Amherst, Mass.—p. 467.
Achilixius, New Genus, Constituting New Family of Fulgoroidea (Homoptera). F. Muir.—p. 483.
Indo-Malayan Rhynchitinids (Curculionidae). V. E. Voss.—p. 489.
Additions to Herpetologic Fauna of Philippine Islands, III. E. H. Taylor.—p. 515.

South Carolina Medical Association Journal, Greenville

19: 505-532 (June) 1923

Simple Methods Which Aid in Detection of Early Nephritis. G. R. Wilkinson, Greenville.—p. 506.
Twelve Years in Rural Health Work. L. A. Riser, Columbia.—p. 509.
Public Health Program of New South. W. S. Leathers, Jackson, Miss.—p. 513.
Salivary Calculus. S. C. Hays, Clinton.—p. 519.
Urology: Prostatic Obstruction. M. Weinberg, Sumter.—p. 521.
Obstetrics and Gynecology. R. E. Seibels, Columbia.—p. 522.
Dermatology and Syphilology. J. R. Allison, Columbia.—p. 523.
Surgery: Duodenal Ulcer. Choice of Operative Procedure and Technic of Pylorectomy. S. O. Black, Spartanburg.—p. 524.

Tennessee State Medical Association Journal, Nashville

16: 1-40 (May) 1923

Pelvic Infections. H. M. Tigert, Nashville, Tenn.—p. 1.

Virginia Medical Monthly, Richmond

51: 147-220 (June) 1923

*Case of Abdominal Pregnancy. J. B. Jones, Petersburg.—p. 147.
Painless Labor. R. L. Raiford, Sedley.—p. 152.
Nasal Accessory Sinuses and Optic Nerve Disturbances. J. E. Diehl, Norfolk.—p. 155.
Hysterectomy and Ovarectomy for Benign Tumors and Suppurative Disease in Six Hundred Women. G. P. La Roque, Richmond.—p. 156.
Sehrt Aorta Clamp for Control of Postpartum Hemorrhage. M. P. Rucker, Richmond.—p. 162.
Certain Phases of Arterial Hypertension. W. W. Herrick, New York.—p. 163.
Transfusion of Blood. C. Williams, Richmond.—p. 168.
Treatment and Prognosis of Chronic Cardiac Lesions. T. N. Davis, Lynchburg.—p. 172.
Chronic Cardiac Diseases; Pathology and Diagnosis. F. C. Rinker, Norfolk.—p. 174.
Roentgen Ray and Radium Treatment of Infected Tonsils and Adenoids. E. U. Wallerstein Richmond.—p. 177.
Bacteriophage. E. C. L. Miller, Richmond.—p. 180.
Dental Reclamation Through Medical Revolution. J. B. Williams, Richmond.—p. 182.
Correction of Dentistry and Practice of Meedicine. M. Call, Richmond.—p. 186.
Ethmoiditis. E. G. Gill, Roanoke.—p. 193.
Ethmoiditis. W. L. Mason, Richmond.—p. 196.
Case of Complete Heterotaxia with Electrocardiographic and Roentgen-Ray Studies. W. E. Killinger, Victoria.—p. 198.
Physician and Quack. J. E. Rawls, Suffolk.

Abdominal Pregnancy.—At about the end of the thirty-eighth week Jones operated on his patient and delivered her of a live baby. The placenta was entirely arched over by the sigmoid, receiving its blood supply from the mesosigmoid and left broad ligament. The patient had been under continuous observation for many months.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Brain, London

46: 1-146 (May) 1923

Certain Tonic or Postural Reflexes in Hemiplegia; So-Called "Associated Movements." F. M. R. Walshe.—p. 1.
Oculomotor Nucleus of Tarsius and Nycticebus. J. I. Hunter.—p. 38.
Lethargic Encephalitis and Herpes Febrilis, Z. Szmanowski and N. Zylberlanst-Zand.—p. 49.
Dystrophia Myotonia (Myotonia Atrophica). W. J. Adie and J. G. Greenfield.—p. 73.
*Iron in Brain. A. Gans.—p. 128.

Iron in Brain Indicative of Disease.—The iron reaction reveals the existence of iron particularly in the nuclei of the extrapyramidal motor system, which owing to the researches of Wilson and the Vogts are of particular interest at present. In Wilson's disease and Westphal's pseudosclerosis there is an association of progressive degeneration of the nucleus lentiformis and of the liver; also in the lesions of paralysis agitans localized in the globus pallidus and substantia nigra; postencephalitic Parkinsonism with characteristic alterations in the substantia nigra; the affection of the globus pallidus, and in some cases of certain parts of it only, in poisoning by carbonic monoxid, manganese, hydrocyanic acid and after strangulation; the diseases of the putamen described by the Vogts as "status marmoratus" and "status dysmyelinisatus" and the "Kernicterus" of Schmorl. The method adopted by Gans has been developed by Spatz. The existence of iron in the nervous system can be demonstrated in either the fresh or fixed state, and macroscopically or microscopically, but the most striking results are obtained by examining the fresh brain macroscopically. A section of the brain is placed in a concentrated deep yellow solution of ammonium hydrosulphid. After some seconds the globus pallidus and the substantia nigra always show a greenish grey color. It is important to observe the beginning and the order of succession of the coloration, since, when they are completed the difference in intensity is not so clear as at first. After some minutes, when these centers have become dark, other parts begin to react; of these the nucleus ruber shows the strongest reaction, and next the nucleus dentatus cerebelli, the corpus Luysi, the putamen and nucleus caudatus. The difference in the staining of the putamen and of the globus pallidus is of great importance; it may be associated with their different ontogenesis and phylogenesis, and with their specific vulnerability. This is seen not only in the rather rare diseases of the extrapyramidal motor centers, for the majority of cases of general paralysis show it with a striking clearness, even those in which during life extrapyramidal motor symptoms were not observed. In the putamen and nucleus caudatus typical cellular infiltrations are found, while the globus pallidus is free or nearly free of them, the lamina medullaris externa forming a sharp demarcation. The iron reaction gives very interesting results in the brain of patients who suffered from general paralysis. Lubarsch found iron pigment without exception in more than a hundred cases of general paralysis. Gans has also found the reaction always positive in general paralysis, even in a brain which remained for some months in liquor formaldehydi.

British Medical Journal, London

1: 1005-1042 (June 16) 1923

*Treatment of Uterine Fibroids: Operation or Radiation? W. F. Shaw.—p. 1005.
Activity of Capillary Blood Vessels and Its Relation to Certain Forms of Toxemia. H. H. Dale.—p. 1006.
Endocrines, Vitamins and Subtleties. L. Williams.—p. 1010.
Operation for Atrophic Rhinitis (Ozena). J. Adam.—p. 1013.
Acute Otitis Media with Jugular Bulb Thrombosis. E. Watson-Williams.—p. 1014.
Epinephrin as Potential Factor in Hyperthyroidism. D. J. Harries.—p. 1015.
Case of Torsion of Gallbladder. H. C. Jonas.—p. 1016.
Ileocolic Intussusception Caused by Meckel's Diverticulum and Simulating Ectopic Gestation. H. H. Greenwood.—p. 1016.
Case of Rat Bite Fever. J. O. Symes.—p. 1017.
Ringworm and Its Treatment. J. Robertson.—p. 1017.
*Foreign Bodies in Stomach Removed by Operation. A. G. Brand.—p. 1018.

Operation or Radiation for Uterine Fibroid.—Small fibroids, not larger than an orange, which are not producing symptoms, Shaw leaves alone, but he keeps the patient under observation, as there is a possibility before the menopause of the tumor causing increased hemorrhage or increasing in size, and after the menopause of becoming malignant. If the patient is very anemic, the tumor should be treated by radiation to stop the hemorrhage and allow her general health to improve, but the tumor should be removed later. In all other cases the tumor should be removed by hysterectomy or myomectomy — myomectomy being preferred for women in the childbearing period who desire a family and when a useful uterus can be left, panhysterectomy for cases with a badly lacerated cervix in addition to the fibroid, and supravaginal hysterectomy for the remainder.

Tumor of Stomach Really Swelling Due to Foreign Bodies.—Epigastric pain, vomiting, and a movable mass in the region of the gall bladder were the main symptoms in Brand's case. He operated and removed from the stomach seventeen keys, the largest of which was 3⅝ inches in length; two coins (one with a ring through it); three safety pins (one open); one button, one engineer's split pin, and one pencil sharpener. The tumor which was felt before operation was gone.

Calcutta Medical Journal

17: 145-192 (April) 1923

*Possible Function of Suprarenals in Kala-Azar. D. N. Banerjee and J. C. Saha.—p. 145.
War Neuroses. S. K. Ray.—p. 151.
Lethality of Cinchona Derivatives on Bacillus Typhosus and Flagellates. S. L. Sarkar.—p. 162.
Main Principles of Cardiologic Practice. S. C. Bose.—p. 164.
Case of Fever Due to Colon Bacillus Infection Simulating Malaria. H. C. Banerjee.—p. 171.
Case of Ruptured Ectopic Gestation Simulating Abdominal Tumor. J. C. Chatterji.—p. 171.

Insufficiency of Suprarenals in Kala-Azar.—From the fact that in kala-azar Banerjee and Saha found hypoglycemia and symptoms similar to those of suprarenal insufficiency, they conclude that there is insufficiency of the suprarenals in kala-azar which may be the result of a deficiency due to structural changes of the suprarenals, deficiency due to neutralization of the toxic substances by the whole amount of epinephrin present, or exhaustion of the glands by any of these factors.

China Medical Journal, Shanghai

37: 351-452 (May) 1923

*Cases of Dermatitis Caused by Liparid Moth, Euproctis Flava Bremer. R. G. Mills.—p. 351.
Practical Suggestions for Performing the Sachs-Georgi Test for Syphilis. S. D. Joffick.—p. 372.
*Simplified Precipitation Test for Diagnosis of Syphilis. S. Cochran and Fuh-Hsin Yu.—p. 382.
Suspension of Uterus. J. R. B. Branch.—p. 387.
Hysteropexy: Simple, Safe and Effective Operation for Prolapse of Uterus. J. L. Maxwell.—p. 393.
Preparation of Surgical Solution of Chlorinated Soda. J. Cameron.—p. 403.

Liparid Moth Causes Dermatitis.—An analysis of forty-seven cases of urticarial dermatitis in Koreans and foreigners is presented by Mills. The moth *Euproctis flava* Bremer, a member of the well known family *Liparidae*, was shown to be the cause in nineteen patients and the circumstantial evidence in the remaining cases is very strong. Irritation began at the point of contact, commonly the neck, and spread by contiguity and by dissemination through clothing and bedding. The covered tender parts of the body were more affected than the tougher, hairy portions. There was no evidence of direct infection from one person to another. The lesion consisted of papules with red areolae, tending to vesiculation, which left irregular brownish discoloration after involution. Itching was intense, and scratching, exercise, profuse perspiration and undue heating of the skin aggravated the condition. The best treatment is: 1. Mechanical removal of hairs from the skin by sea bathing, alkaline washes or salves followed by antipruritic lotions or ointments. 2. Avoidance of known aggravating conditions. 3. Washing of all clothing and bedding contaminated with the hairs.

Simplified Precipitation Test for Syphilis.—Cochran and Yu describe a modification of Kodama's test which they have used with good results in more than 2,000 cases.

Japan Medical World, Tokyo

3: 19-41 (Feb.) 1923

*Biologic Changes of Bacillus Typhosus Met with by Passing It Through Immune Serum Medium and Immunized Animal Body. S. Yanagisawa.—p. 19.
*Influence on Hepatic Tissue of Feeding Various Nutrients in Excess of Normal Requirements. K. Kusano.—p. 26.
*Hitherto Unknown Action of Heat on Testicles. N. Fukui.—p. 27.
Opium Abuse and Its Control in Japan. M. Miyapima.—p. 28.

Biologic Changes in Typhoid Bacillus Obtained by Culture.—By cultivating the typhoid bacillus in the immune serum broth, Yanagisawa asserts a strain which has a weaker agglutinability and is less liable to be absorbed can be obtained, but these changes are only transitory in nature; and the proper nature of the bacillus is regained by being passed through the animal body twice or recultivating on common agar. The results of the anti-infectious experiment with the treated bacilli and the immune serum proved that they have more incomplete combinations with the immune substances than the normal strain has. The typhoid bacillus that has been passed through the immunized animal body has a clearly augmented and more spontaneous agglutinability. This change in the biologic nature of the bacillus is permanent. The passed bacilli have a remarkably augmented susceptibility to the specific opsonin and thus show a high percentage of phagocytosis. They also have a higher antigenic power than the bacilli that have been passed through the normal animal. A stronger active immunization developed in the mouse to which the treated bacilli had been injected as vaccine, than was met with in the case of common vaccine.

Influence of Overfeeding on Liver Tissue.—Kusano endeavored to determine the cause of pathologic changes of the so-called Laennec's hepatic cirrhosis. The author was able to cause a circular type of cirrhotic changes in the liver of rabbits by feeding with carbohydrates (cane and grape sugar), protein (casein) and peptone. The changes in the liver vary with the food. With carbohydrate feeding the atrophic changes of the parenchyma appear after a long period of feeding. On the other hand, the atrophic change is very marked in the early stage with feeding protein or its splitting product. The supporting tissue is increased in all cases, but it is more marked with protein than with carbohydrates. When each element of the nutrition is given in excess simultaneously the changes are very marked. The characteristics of the changes are the combination of these produced by each element. With regard to Laennec's cirrhosis, the changes in the experiment animals are different from those occurring in man. However, the author concludes that ordinary foods, taken in ordinary amount by man, produce Laennec's cirrhosis according to the internal conditions.

Action of Heat on Testis.—Fukui noted that the application of heat—from 40 to 50 C.—to the testis causes regressive changes in the generative cells.

Journal of Oriental Medicine, Dairen, Manchuria

1: 39-75 (May) 1923

Antidiphtheritic and Antitetanic Serums. T. Suzuki.—p. 39.
Retarding Effect of Sodium Chlorid on Fat Absorption. S. Hattori.—p. 51.
Presence of Yeast in Symbiosis in Animal Body. K. Saito.—p. 57.
Study of Skull Found in Old Tomb Stone of Lio Dynasty Near Sho Hokuzan, Kinshu, Manchuria. K. Koyono and H. Miyamoto.—p. 59.
*Eruptive Disease in Nurslings. J. Shima.—p. 61.
Content of Fibrinogen and Fibrinferment in Internal Diseases. T. Yamaguchi.—p. 63.
Influence of Medicaments on Spayed Uteri of Rabbits. S. Hara.—p. 65.
*Examination of Bilirubin in Blood Serum. J. Murakami and H. Nishida.—p. 68.
Tappeiner's Photodynamic Phenomenon in Acid and Alkali Solutions. H. Yanagihara.—p. 71.

Eruptive Disease in Nurslings in China.—Shima has seen ten of these cases. The usual symptoms are fever, lethargy and diarrhea. The fever continues for about two or three days. The eruption generally resembles that of measles; in a few cases it is not unlike that of scarlet fever. The eruption appears on the first or second day after the decline of fever and continues for three or five days. Afterward there are no signs of desquamation or pigmentation. The blood findings are leukopenia; lymphocytosis; decrease in eosinophil leukocytes. There is no contact infection between patients.

Determination of Bilirubin in Blood a Diagnostic Aid.—Murakami and Nishida have found the determination of bilirubin in the blood useful for diagnosis of gallstones, jaundice, poisonings, malignant anemia and heart insufficiency.

Lancet, London

1: 1091-1142 (June 2) 1923

Glimpses of Higher Medicine. A. E. Garrod.—p. 1091.
Empyema in First Two Years of Life. H. C. Cameron and A. A. Osman.—p. 1097.
*Congenital Defect of Pectoral Muscles. E. B. Morley.—p. 1101.
Experimental Production of Fatal Nephritis. C. C. Twort and H. E. Archer.—p. 1102.
*Case of Cerebral Abscess in Child. J. P. Parkinson and L. R. Broster.—p. 1107.
*Case of Hydatid Disease. H. C. Lees and J. Ramsay.—p. 1107.
Case of Complete Inversion of Uterus. H. Cohen.—p. 1108.

Congenital Defect of Pectoral Muscles.—Eight cases of defect of the pectoral muscles are described by Morley, all in healthy males, showing four different degrees of defect. In no case was the patient aware of the condition and no lack of muscular power could be discovered. In no case was the nipple absent or displaced. In all cases some representative of the pectoral anlage was present, even if only a small clavicular slip. In one case, there was some degree of bilateral defect; in the remaining cases, five were on the right, two on the left. In two cases totally different types of congenital abnormality were found in other members of the family.

Cerebral Abscess in Child.—In the case cited by Parkinson and Boster, that of a child, aged 4 years, the abscess of the brain was secondary to lung disease. It eroded through the bone of the skull and formed a tumor beneath the scalp. There was no optic neuritis, no vomiting, no headache, except after a fit, and the child seemed quite well, except for the signs of bronchitis. When the tumor first appeared it resembled a subperiosteal gumma, the edges being hard, while the center fluctuated. This idea of a gumma was supported by the fact that the father was suffering from a syphilitic nerve lesion. The Wassermann reaction in the blood was negative, and the evacuated pus contained staphylococci. It was also peculiar that the abscess tracked directly through the bone to the exterior, without leaving any pus in the extradural space.

Hydatid Disease of Kidney.—Ramsay relates the case of a man who passed in the urine "a thick fleshy substance with a thin covering." Examination of the substance showed a thin-walled collapsed cyst of about the size of a walnut, and three fragments of a cyst or cysts, the latter slightly blood-stained. Typical hooklets were found on microscopic examination.

1: 1143-1198 (June 9) 1923

Lecture on Choroid Plexuses and Ventricles of Brain as a Secreting Organ. J. Bland-Sutton.—p. 1143.
*Bed Isolation and Conveyance of Infection within Ward. F. Thomson.—p. 1146.
*Treatment of Diabetes Mellitus with Insulin and Carbohydrate Restriction. G. Graham and C. F. Harris.—p. 1150.
Technic of Blood Platelet Counting in Man. R. G. Bannerman.—p. 1154.
Dual Personality. R. W. Riggall.—p. 1155.
Case of Coexisting Uterine and Ectopic Gestations. J. A. Berry.—p. 1157.
Syphilis Isontium in School Children. H. Sheasby.—p. 1158.

Ward Contagion and Bed Isolation.—In Thomson's experience "bed isolation" can do a great deal to prevent cross infection, and in certain circumstances is a most useful method of isolation.

Insulin and Carbohydrate Restriction in Treatment of Diabetes.—In two severe cases and in one milder case, a diet was given consisting almost entirely of protein and fat, but including 16 gm. of sugar in the form of vegetables; the caloric value varied according to the condition of the patient. A dose of insulin was given once a day, or very occasionally twice a day. No extra carbohydrate was given until the blood-sugar before the insulin injection had been below 0.12 per cent. for a considerable number of days. This plan differs from that which has been used by Banting. The usual plan adopted has been to give insulin two or three times a day together with a certain amount of carbohydrate. The two patients in this series with severe diabetes keep well and continue to improve. It would appear that, provided too much destruction has not taken place in the initial attack of the disease, there is some chance that the surviving beta cells of the islands of Langerhans may recover their full activities. In order to treat patients on these lines it is essential that a certain number of determinations of the blood sugar should be made. The patient should be treated at first with the usual method of two days' starvation in order to get the urine sugar free, if possible. Whether this is successful or not the diet should be gradually increased to about 1,260 calories, made up of protein and fat, with 16 gm. of sugar in the form of vegetables. The blood sugar should then be determined in order to gage the dose of insulin required. If the blood sugar is normal a dose of 5 units may safely be ordered for an adult; if it is higher than 0.13 per cent. a dose of 10 units can probably be given in safety. On the next day the morning blood sugar should be determined, and the blood sugar again determined four to six hours after the insulin injection. If the blood sugar falls below 0.10 per cent. and no unpleasant symptoms occurred, it may be assumed that the dose is a suitable one. If the blood sugar does not fall so low as 0.10 it is probably better to make no change for another seven days. Then the blood sugar before and four to six hours after the injection should again be determined. If the blood sugar has now fallen below 0.10 per cent. the dose may be considered as suitable. If the blood sugar has not fallen low enough the dose should be increased. Afterward the blood sugar should be determined before the insulin injection at least once a week or fortnight until it falls to normal. The dose should be diminished if any symptoms of overdosage occur. After the blood sugar has fallen to normal the caloric value of the diet can be increased and bread gradually added.

Medical Journal of Australia, Sydney

1: 487-514 (May 5) 1923

Suggestion, with Examples Taken from Mental Hospital Practice. J. Bostock.—p. 488.
Allen Treatment in Case of Diabetes Mellitus; Evidence of Hereditary Factor in Incidence of Diabetes. Late I. E. Ashby.—p. 493.
Aneurysm of Abdominal Aorta as Basis for Delusions, with Some Other Unusual Features. R. F. Jarrett and J. Bostock.—p. 498.
Puerperal Infection; Ligature or Excision of Veins. A. J. Nyulasy.—p. 499.

1: 515-542 (May 12) 1923

Surgical Treatment (Ollier's Method) of Tuberculous Disease of Shoulder Joint. E. D. Ahern.—p. 515.
Problems of Acute Osteo Myelitis. N. G. Sutton.—p. 517.
*New Test for Pancreatic Efficiency: An Aid to Diagnosis of Gallbladder Disease and Certain Obscure Dyspepsias. F. L. Apperly and G. Cameron.—p. 521.
Tuberculous Disease of Hip Joint. C. P. B. Clubbe.—p. 524.
Recurrent Subluxation of Hip of Traumatic Origin. A. V. Meehan.—p. 529.
Resistant Syphilis Controlled by Bismuth Injections. E. H. Molesworth.—p. 529.

Test for Estimating Alkali Producing Power of Pancreas.—The test described by Apperly and Cameron is a test for estimating the alkali producing power of the pancreas, one of its most important functions and one for which no other test is used. To measure this alkali directly is probably impossible, it can be measured indirectly by making use of the fact that gastric acidity is normally limited by a reflux of pancreatic alkali from the duodenum, while acid introduced artificially into the stomach is neutralized in a greater or less time by this reflux. The amount is 250 c.c. of a 0.4 per cent., solution of hydrochloric acid. The factors acting on this are (1) pancreatic alkali and (2) the difference between the tensions in the stomach and duodenum, that of the latter being higher on account of the stimulatory effect of the acid on the duodenal mucosa. The rate of neutralization gives a rough comparison of the rates of production of pancreatic alkali in different people, provided there is no obstruction, organic or tonic, to the normal duodenal reflux. The test is carried out in exactly the same way as in the fractional test meal, except that the hydrochloric acid is substituted for the gruel meal. When there is pancreatic defect, the rate of neutralization becomes much reduced, giving a more nearly or even an almost horizontal curve. It is not claimed that this test gives any more complete information about pancreatic function than do other tests, but there is no other test which gives any information regarding the amount of alkali available for reflux into the stomach and regulation to its acidity.

Medical Journal of South Africa, Johannesburg

18: 223-246 (April) 1923

*Administration of Vaccine Per Os in an Outbreak of Enteric Fever. J. H. H. Pirie and A. J. Orenstein.—p. 224.
Tests for Determination of Physical Fitness. E. H. Cluver.—p. 228.
"The Parting of the Ways." S. M. de Kock.—p. 233.

Oral Vaccination for Typhoid.—Pirie and Orenstein report good results from the oral administration of a vaccine made from seven strains of *Bacillus typhosus* including the Rawlings and Hopkins strains, and four isolated in South Africa. The scheme of dosage aimed at was for each patient to receive on three successive days one bile pill and one dose of 40,000 million typhoid bacilli. Of twenty patients, sixteen had been vaccinated and four not. Of the sixteen vaccinated, five died; of the four not vaccinated, three died. Those vaccinated were admitted late in the disease, showing that they were probably in the incubation stage when vaccinated. However, the outbreak was declining prior to the date on which vaccination was commenced, hence the value of Besredka's vaccination cannot, therefore, be said to have been demonstrated definitely on this occasion, but the course of events subsequent to the administration of the vaccine has been such that the authors are of opinion that reasonable grounds exist for presumption of its efficacy.

Sei-I-Kwai Medical Journal, Tokyo

42: 1-7 (April) 1923

*Effects of Human Placenta and Bovine Corpus Luteum on Growth of Transplanted Animal Tumors. R. Nishii.—p. 1.

Effects of Human Placenta and Bovine Corpus Luteum on Tumor Growth.—Nishii's experiments showed that by the subcutaneous injection of human placenta and bovine corpus luteum no rapid growth of transplanted rat carcinoma and rat sarcoma could be induced. As regards the transplantability of rat sarcoma, there was noted a somewhat high percentage of positive inoculations in injected groups.

Annales des Maladies Vénériennes, Paris

18: 257-336 (April) 1923

*Comparison of Neo-Arsphenamin, Mercury and Bismuth. R. Gonin.—p. 257.
*The Saint-Etienne Antisyphilis Dispensary. C. Laurent.—p. 272.
Colloidal Bismuth in Treatment of Syphilis. Lacapère.—p. 285.
Acute Bubo from Soft Chancre. Gougerot and P. Blum.—p. 287.
Meningeal Reaction After Lumbar Puncture. B. Saad.—p. 293.

Spirillicidal Action of Neo-Arsphenamin, Mercury and Bismuth.—Gonin finds that bismuth is inferior to neo-arsphenamin in its action on the spirochetes in syphilitic lesions. Mercuric cyanid had no action on spirochetes.

Results of Antisyphilitic Fight in Saint-Etienne.—Laurent reports on the work of his free dispensary. The chief remedy used is neo-arsphenamin, in six to eight weekly injections, increasing to 0.9 and 1.05 gm. respectively. The treatment is repeated, but he observed only few recurrences in patients who had had a negative Wassermann reaction for more than a year. A positive reaction is a valuable aid for inducing patients to continue the treatment after disappearance of manifest lesions. During the four years of the work of the dispensary the number of new infections decreased to less than one half, both in the dispensary and in private practice. He quotes his colleague, the military surgeon Grimaud, to the effect that while the gonorrheal infection of the soldiers could be usually traced to the regulated prostitution, not one case of syphilis was contracted in licensed houses. All his last seven cases of syphilis were due to intercourse with married women and uncontrolled prostitution. Married women who were exposed to infection from unfaithful husbands, were treated prophylactically with Lacapère's method (three intravenous injections of 0.45 and 0.6 neo-arsphenamin). He deplores the fact that physicians overlook frequently the necessity of prophylactic treatment.

Archives des Maladies de l'Appareil Digestif, Paris

13: 305-408 (April) 1923

Multiple Carcinoma of Digestive Tract. Cottin and Saloz.—p. 305.
*Digestive Hemoclastic Crisis. A. Girault.—p. 320.
Bronzed Diabetes. E. Prado Tagle.—p. 340.
Survey of New Investigations on Gastric Ulcer. L. Lamy.—p. 345.

Digestive Hemoclastic Crisis in Certain Affections of the Digestive Tract and in Cholelithiasis.—Girault found Widal's test alimentary hemoclastic crisis practically constantly in cases of gastric cancer and ulcer and in cholelithiasis. Radical operations are followed within a month by disappearance of the symptom. Gastro-enterostomy only delays the appearance of the hemoclastic shock. The rapid change after operations seems to indicate that the disturbance of the liver is only functional.

Archives de Médecine des Enfants, Paris

26: 129-196 (March) 1923

Pituitary Dystrophies in Pediatrics. P. Lereboullet.—p. 129.
*Osteochondritis as a Congenital Malformation. F. Calot.—p. 150.
Preventive and Curative Value of a Vaccine Against Scarlet Fever. M. de Biehler.—p. 161.
Febrile Prolonged Urticaria. P. Haushalter.—p. 165.
Amebic Dysentery in Paris Child. Perrin, Remy and Zuber.—p. 168.
Mongolian Blue Spot in Alger. Gillot et al.—p. 170.
Sporotrichosis in Children. J. Comby.—p. 172.

Osteochondritis Juvenilis as a Congenital Malformation.—Calot analyzes three cases which have been offered to controvert his theory. He finds that even these cases show that so-called coxa plana is an overlooked congenital malformation.

Médecine, Paris

4: 485-560 (April) 1923

Obstetrics and Gynecology in 1922. L. Devraigne.—p. 485.
*Sterility of Tubal Origin. B. Cunéo.—p. 488.
Atypical Forms of Tuberculosis of the Sex Organs of Women. A. Siredey.—p. 494.

Malignant Chorio-Epithelioma of Uterus. G. Picot.—p. 499.
*Some Menstrual Disturbances. Fontoynont.—p. 502.
Uterine Prolapse and Its Treatment. H. Duclaux.—p. 506.
*Suspicious Death of Infants. M. Duvoir.—p. 508.
*Cryotherapy of Uterus. L. Bizard and R. Rabut.—p. 511.
*Management of Contracted Pelvis. A. Couvelaire.—p. 517.
Vaginal Cesarean Section. C. Jeannin.—p. 519.
*Amnio-Chorionic Pocket. L. Demelin.—p. 523.
*Syphilitic Affections of Sex Organs. E. Lévy-Solal.—p. 526.
Treatment of Ruptures of Uterus. J. Lemeland.—p. 535.
*Gastro-Intestinal Hemorrhages of the New-Born. H. Vignes.—p. 538.
*Treatment of Epidemic Pemphigus of the New-Born. G. Sauphar.—p. 542.
Serodiagnosis of Pregnancy. R. Daunay.—p. 547.

Sterility of Tubal Origin and Its Treatment.—Cunéo reviews the topography of the adnexa and the pathologic changes of tubes, which may cause sterility. In occlusion of the fimbriæ, the best operative method is to use the ovary to keep the tube open (ovario-salpingorrhaphy).

Some Menstrual Disturbances.—Fontoynont deals with menorrhagias in malaria. He believes they are caused by increased fragility of blood corpuscles. Quinin, which is necessary in treating the malaria, has a bad influence on menorrhagia. He recommends administration of dry serum by mouth in the period between menstruations. He prefers serum from animals that have been bled repeatedly.

Suspicious Death of Infant Due to Latent Bronchopneumonia.—Duvoir emphasizes the importance of seeking for evidences of bronchopneumonia in cases of sudden death of babies. Sometimes the mother accuses herself of having choked the child accidentally.

Cryotherapy of Uterus.—Bizard and Rabut use the freezing method (cryocauterization) in chronic affections of the cervix.

Therapeutic Indications in Moderate Narrowing of Pelvis.—Couvelaire advises cesarean section in every case of disproportion between head and pelvis that is early diagnosed.

Amniochorionic Pocket.—Demelin discusses the complications which may occur if the amniotic membrane is separated during labor from the chorion by transudation of fluid. The diagnosis is made by finding another sac. A caput succedaneum may develop before the second membrane (amnion) breaks. The membrane may descend to the vulva, while the head remains at the upper narrow diameter or above it. The uterus then follows closely the shape of the body and forms one or two bands. Labor makes no progress in spite of artificial rupture of the second membrane; meconium may appear and the heart sounds of the fetus begin to change. Attempts at version or high forceps usually fail in such cases. Even extraction after basiotripsy is difficult. The original cause of the condition is a wrong direction of the uterus contractions, due to malformation of the sac or laxity of abdominal muscles. In the beginning of labor, changing to recline on the side opposite to the inclination of the uterus should be tried. A large compressing dressing is applied if the presentation is correct. Otherwise tampons under the bandage may correct it.

Syphilitic Affections of Sex Organs.—Lévy-Solal emphasizes the possibility of a syphilitic etiology for sterility which resists other treatment. In a rachitic pelvis, hereditary syphilis may have been an important predisposition.

Gastro-Intestinal Hemorrhages of the New-Born.—Vignes recommends transfusion of mother's blood in severe cases of melena of the new-born. He injects slowly 20 c.c. of blood into the sagittal sinus at the posterior angle of the anterior fontanel. In six out of nine severe cases thus treated, the infants recovered. The mortality is 50 per cent. in average cases.

Treatment of Epidemic Pemphigus of the New-Born.—Sauphar points to the inconsistency of calling the pyodermia with large quickly developing pustules, which occurs in babies, a pemphigus. Syphilitic pemphigus appears in the first weeks and is only exceptionally found in the second month. It affects the extremities almost exclusively, while the so-called epidemic pemphigus is usually localized on the buttocks, and around the abdomen. It is practically an impetigo; the etiology is infectious (usually staphylococcus) and the affection should be treated accordingly. Change of alimentation has no influence. Ointments are not advisable in such infectious processes, because they spread the germs. A firmer paste is preferable. He had still better results with Milian's lotion: brilliant green 0.25 gm., crystal violet 0.25 gm., 90 per cent. alcohol 150 gm. The diseased skin is washed with soap and the lotion is applied on a piece of cotton. It is neither toxic, nor caustic. The effect was almost instantaneous.

Nourrisson, Paris

11: 81-144 (March) 1923

*Tuberculous Ostearthritis in Infants. A. Broca.—p. 81.
*Roger's Disease in Infants. Gautier and Megevand.—p. 93.
Dystrophia of the Occipital Bone. Morlot and Remy.—p. 99.
*Mental Disturbances in Tetany. H. Lemaire.—p. 103.
*Survey of Hereditary Syphilis. G. Blechmann.—p. 114.
Experimental Rachitism. A. B. Marfan.—p. 121.

Tuberculous Ostearthritis in Infants.—Broca has found tuberculous arthritis exceptional before the age of 6 to 8 months. Diagnosis of the resulting pseudoparalysis is easy when located in articulations accessible to palpation. The child does not move the limb, and cries if it is lifted; local pressure will show that the tender point is close to the epiphysis. With signs of rachitis in a child fed from bottle with oversterilized milk, specific treatment for scurvy should be tried, even if the gums are normal. If the pain is located in the upper femur or in the spine, diagnosis is more difficult, but restricted movements of the hip, and curving of the spine suggest a tuberculous lesion. The radiograms of two children showed an opaque line, probably from extravasated blood, at the junction of the shaft of the femur and the epiphyseal cartilage. This was accepted as differentiating scurvy from rachitis. Broca always suspects scurvy with pain in the limbs. He has seen children, near to death, cured in a few days by lemon juice, after several physicians had given the diagnosis of Pott's disease. The spine was stiff and curved, but the pain was manifest only when the limbs were touched. He believes Pott's disease is rare in infants, and that it is frequently confused with rachitic curvature of the spine. When the seated child stoops with a general curve of the back which quickly disappears when placed prone, and lordosis appears in the dorsolumbar region when the feet are raised, Pott's disease may, as a rule, be excluded. One infant, aged 16 months, showed dorsolumbar kyphosis when sitting on its mother's lap, but when placed on its abdomen a slight hump persisted at the two lower dorsal vertebrae. The prognosis is unfavorable, as in all surgical tuberculosis in infants. Laxity of joints and muscular weakness in infants with rickets facilitate sprains which are easily diagnosed in superficial joints, but are frequently misinterpreted in the hip joint. He does not treat infants for coxalgia, but he does not allow them on their feet. When suppuration occurs, the infant seldom survives.

Roger's Disease in Children.—Gautier and Megevand had recently four patients, three infants, aged 1 and 6 months, and a girl, aged 12 years. The most important symptom was the systolic murmur in the upper part of the precardiac region, on the median line, not always accompanied by a thrill. In one of the infants the murmur was scarcely perceptible. One of the infants is not ordinarily cyanotic, but becomes cyanosed, when the murmur disappears for a few seconds.

Mental Disturbances in Tetany of Early Childhood.—Lemaire found twenty-two children with mental disturbances among forty cases of tetany. These disturbances, which may be emotional, such as rage and fear, or perceptional, such as visual hallucinations, appeared mostly at the age of 2 or 3 years, but some became evident in the fifteenth month. The emotional outbursts are pathologic, and frequently terminate in a swoon, apnea or spasms of the glottis. The convulsions and emotional disturbances always became attenuated and disappeared under treatment with calcium chlorid and phosphorated cod liver oil, but the muscular hyperexcitability resisted the treatment, which therefore had to be intensified and prolonged to effect a complete cure.

Survey of Hereditary Syphilis.—Blechmann has interrogated French and foreign specialists on hereditary syphilis, and has found that most authorities recognize an increasing frequency of early manifestations of inherited syphilis. Denéchau reported 50 per cent. syphilitic in a children's hospital. Barbier and others had found an increase in Parrot's disease; Lesage had abandoned mercury in treatment. Pinard uses arsenic. Hallé thinks mercury would have cured every case that has yielded to arsenic. Morquio of Montevideo advocates inunction with 2 gm. mercurial ointment daily, for breast-fed infants, and 2 gm. potassium iodid for the mother. Most pediatrists prefer alternate use of mercury and arsenic. Renault divides hereditary syphilis into three groups of which the first includes palmoplantar pemphigus, cutaneous and mucous eruptions, Parrot's pseudoparalysis, enlargement of liver and spleen, and a special anemia. He treats this group with intravenous injections of neo-arsphenamin in doses of 1.33 cg. per kilogram, repeated weekly, ten times, or until cured, renewing the series after an interval of two or three months if necessary. Hallé believes reported cures illusory, and desires statistics of reexamination two or three years later, which he thinks would show a great number of deaths, probably attributed to other causes. Marfan has a good opinion of the eutrophic action of both arsenic and mercury. Findlay and others insist on the supreme importance of systematic treatment of the mother during pregnancy. Pinard urges that the only rational way to prevent the birth of damaged babies is to inform the parents; others suggest "incrimination of the preceding generation," or "treatment without explaining its nature," bearing in mind the safeguarding of the family as well as of the infant.

Presse Médicale, Paris

31: 505-516 (June 6) 1923

Titration of Organic Acids in Acidosis. Labbé et al.—p. 505.
*Artificial Pneumothorax in Children. Armand-Delille et al.—p. 506.
*Pathology of the Sympathetic System. C. Abadie.—p. 510.
Roentgen Examination of Thoracic Aorta. A. Mougeot.—p. 511.

Artificial Pneumothorax in Children.—The experiences of Armand-Delille and his co-workers in this line have already been mentioned in these columns. This report is illustrated. They confirm the feasibility of the procedure in children. The pneumothorax proved a success in all but five of the twenty-two cases, among 230 tuberculous children, in which conditions indicated the advisability of compressing the lung.

Pathology of the Sympathetic Nervous System.—Abadie recalls his statements, in 1897, that glaucoma is not a disease of the eye but of the sympathetic nerve innervating the vessels of the eye. Later he wrote "Probably along the whole chain of the sympathetic system, disturbances in the innervation of the vessels are liable to induce pathologic conditions in certain organs and viscera. We ascribe these pathologic conditions to the organ itself, when in reality they are secondary to the hampering of the circulation from the primary disturbance in the nerve supply." Time has confirmed the correctness of this view. Leriche's success with periarterial sympathectomy in treatment of causalgia, mal perforant, Raynaud's disease, etc., is further testimony in this line. Abadie suggests that possibly this same mechanism is responsible for certain pathologic conditions in the kidney. If this proves to be the case, a harmless periarterial sympathectomy might correct the abnormal conditions in the circulation, and arrest the kidney disease, just as we strive to influence glaucoma.

Revue de Médecine, Paris

40: 129-192 (March) 1923

*Tuberculosis of the Spleen. M. Roch.—p. 129.
New Alkaloid from Calabar Bean in Therapeutics: Geneserin. E. Lebrun.—p. 182.
Recent Literature on Cerebrospinal Fluid. Godlewski.—p. 189. Cont'd.

Tuberculosis of the Spleen.—Roch remarks that medical treatment is generally futile but surgical measures have often given brilliant results. After elimination of leukemia, malaria, syphilis, cirrhosis of the liver and amyloidosis, the diagnosis of tuberculosis or tumor in the spleen is almost certain, and operative measures should be advised without delay. The entire spleen may not have to be removed if the lesion can be excised, but this exposes to complications more than splenectomy.

Revue Médicale de la Suisse Romande, Geneva

43: 129-208 (March) 1923

*Respiratory Disturbances in Epidemic Encephalitis. Roch.—p. 129.
Treatment of Syphilitics. G. Cornaz.—p. 133.
Bacillary Dysentery; Eight Cases. de Morsier and Guder.—p. 149.
Treatment of Varices and Leg Ulcers. F. Blanchod.—p. 155.
Recent Literature on the Pituitary. G. Bickel.—p. 161.
Tertiary Ulcerative Syphilid of Uterine Cervix with Positive Wassermann Reaction in Unsuspected Syphilis. P. Sylvestre.—p. 171.
Case of Early Malignant Syphilis. P. Sylvestre.—p. 172.
Ophthalmia Neonatorum. E. Bourquin.—p. 177.
Propaganda Against Venereal Disease. E. Lardy.—p. 179.

Respiratory Disturbances in Epidemic Encephalitis.—Roch was inclined at first to ascribe to hysteria the paroxysms of dyspnea presented by a young man after an acute attack of epidemic encephalitis. But he finally accepted them as sequelae of the disease; he has found a few instances of similar respiratory disturbances on record. His patient hid in a corner when the distress, cyanosis and suffocation developed suddenly. The attacks sometimes returned every hour but were less frequent when the mind was diverted. Others have reported paroxysms of tachypnea, "respiratory tics," Cheyne-Stokes breathing or pauses of several seconds between breathing movements. Babinski has published a case with paroxysms during which there were only six respirations to the minute.

43: 273-336 (May) 1923

*The Tuberculosis Bill. E. Olivier.—p. 273.
*Time Curve of Sedimentation. E. Gueissaz.—p. 296.
Manual Vibratory Massage. V. de Senarclens.—p. 305.
Sciatica and Phlebitis in Serum Sickness. S. Katzenelbogen.—p. 316.
Hermaphrodism. P. Yakowleff.—p. 319.

The Tuberculosis Bill in Switzerland.—The public health service of Switzerland has published the text of a proposed law to regulate the application of measures against tuberculosis, and Olivier proposes certain modifications. He pleads for compulsory notification of every case.

Sedimentation of Red Blood Corpuscles as Aid in Diagnosis.—Gueissaz remarks that the sedimentation velocity test gives conflicting findings in obstetric cases. The speed of sedimentation is accelerated when there is a focus of inflammation or a cancer, and also in the second half of pregnancy. Under other gynecologic conditions, the findings are conflicting.

Archivio Italiano di Chirurgia, Bologna

7: 113-220 (April) 1923

*Tumors and Cysts in the Pancreas. P. Marogna.—p. 113.
*Access to Base of Brain Through Brow. P. Bastianelli.—p. 140.
*Nonspecific Epididymitis and Orchitis. G. Crescenzi.—p. 145.
*Cystadenoma of the Bladder. G. Sacchi.—p. 161.
*Neoformation of Bone and Cartilage from Grafts. B. Polettini.—p. 169.
*Benign Tumors of External Genitals. F. de Gironcoli.—p. 177.
Calculi in Both Kidneys and Right Ureter. F. Rossi.—p. 204.

Tumors and Cysts of the Pancreas.—Marogna reports a case of a tumor in the pancreas of a woman aged 45 which proved to be an actual hypernephroma of the pancreas, due to aberrant suprarenal tissue. In the second case the tumor was a primary sarcoma of the tail of the pancreas, and the man succumbed to sarcomatosis of the viscera three months after its removal. The stump of the pancreas was ligated and buried; in both, the stump was transformed into fibrous tissue to such an extent that there seemed to be no danger of escape of pancreatic juice into the abdomen. In a third case the tumor proved to be a cyst in the pancreas and 2 liters of fluid were removed from it. The fistula persisted for seven months before final healing. Marogna has demonstrated on animals the feasibility of suturing the pancreas stump directly to the bowel as an outlet for the pancreatic juice after resection of the head of the pancreas. Kausch and Tenani have applied this technic successfully. In case a fistula should persist refractory to all measures, Tusini suggests joining the fistula directly with the intestine, but has had no clinical experience with this method. The Cammidge reaction in the three cases reported was constantly negative; attempts to promote the healing of the fistula in the third case by dietetic measures had no effect.

Access to Base of Brain Through the Brow.—Bastianelli reports the application of the Schloffer-Duret frontal method, without exenteration of the orbit, in a case of brain cyst in a boy of 15. The technic followed was similar to that of Frazier's operation on the pituitary through the anterior cranial fossa in 1913. Bastianelli's patient survived eighteen days, and the operation allowed extensive access to the base of the brain exposing to direct inspection the optic nerve, the chiasm and the sella turcica. There seemed to be a cyst to the left of the sella; fluid weighing about 150 gm. escaped, followed by profuse hemorrhage from the depths. The boy seemed to be doing well after the operation for two weeks, when rapidly fatal meningo-encephalitis developed. The hemorrhage must be ascribed to the sudden change in pressure after removal of the fluid. In combating the hemorrhage, the bone flap was torn off, so the skull could not be closed as intended, and this was probably responsible for the secondary infection. Necropsy was not allowed. Bastianelli improvised an incubator to preserve the bone until he was ready to suture it in place: He implanted the bone flap in the subcutaneous tissue of the gluteal region of an elderly person.

Nonspecific Epididymitis and Orchitis.—Crescenzi gives details of five cases in which only the staphylococcus could be cultivated from the urine, and nothing to suggest tuberculosis or syphilis was found at the operation.

Cystadenoma of the Bladder.—The growth was successfully removed by a suprapubic incision as profuse hematuria compelled intervention. The woman, aged 50, had previously been treated for cystic tumors of the mamma, multiple myomas of the uterus and a subcutaneous lipoma.

Formation of Bone and Cartilage from Grafts.—Polettini calls attention to the growth of bone and cartilage which he obtained in a large proportion of rabbits in which he had grafted scraps of cartilage, bone or aorta under the skin of the ear. Nothing of the kind was ever observed when the grafts were implanted in the back. The region consequently, as well as the substance implanted, is a factor in the outcome.

Nonmalignant Tumors of External Female Genitals.—Gironcoli compares—with seventy-five cases on record—two cases from his own service. In one of his cases the tumor was 12 cm. long, grew from the labium on a pedicle 3 cm. long, and weighed 500 gm.

Rivista di Patologia nervosa e mentale, Siena

28: 61-124 (May 15) 1923

*Lesions of the Optic Nerve. D. Cattaneo.—p. 61.

Degeneration and Regeneration in the Visual Apparatus After Lesions in the Optic Nerve.—This entire number is devoted to Cattaneo's study of this subject, with five colored plates of the histologic findings. The research was done on rabbits, fowls and pigeons.

Anales de la Facultad de Medicina, Montevideo

8: 171-290 (February) 1923

*Metrorrhagia in Diabetes. A. Navarro.—p. 171.
Mammary Plus Perimammary Cancer. A. Lamas.—p. 175.
Fracture of Skull with Anarthria. M. Albo.—p. 180.
*Acute Postoperative Ileus. L. P. Bottaro.—p. 182.
*Stenosis of the Esophagus. C. Butler and J. C. del Campo.—p. 193.
*Suicide by Multiple Stab Wounds. J. May.—p. 197.
Hypoglycemia Following Parenteral Injection of Sugar. Varela Fuentes and Rubino.—p. 215.

Metrorrhagia in Diabetes. — Navarro relates that the metrorrhagia, ten years after the menopause, in one of the three cases reported, subsided when the diet was regulated to combat the mild diabetes which had been known for several years. The cervix was rather large, and when the metrorrhagia returned, a year or two later, during his absence from town, the physician consulted advised resection of the cervix. Fatal diabetic coma developed in twenty-four hours after the operation. In Navarro's second case, the uterine hemorrhage was alarmingly profuse, and persisted after twice curetting. The urine showed 3.2 per cent. glucose, and under alkali, bromid and antipyrin, the diabetes was brought under control, and there has been no return of the metrorrhagia for two years to date. This patient was a nullipara, aged 32. In the third case the metrorrhagia developed at the age of 79. The woman is robust, but for fifteen years has had to diet occasionally to keep the urine free from glucose, and during the last eight years a tendency to metrorrhagia has been observed during the periods of glycosuria. Navarro interprets this as a simple metritis of diabetic origin. The slight hemorrhages subside each time under irrigation with Labarraque's solution and antipyrin and caffein tablets.

Acute Postoperative Ileus.—Three cases in rapid succession were recently encountered in Bottaro's service. In each the bowel had been kinked by adhesions. A hematoma at the stump of the adnexa was the source of the adhesions in all. The ileus became manifest eight to fifteen days after the laparotomy; the indication for the second operation was the local lively antiperistalsis, which persisted notwithstanding lavage of the stomach and mechanical forcing along of the contents of the bowel. In one case delirium from stercoremia, with grave ophthalmia, persisted for two weeks, and the final recovery is ascribed to the systematic treatment with hypertonic sugar solution, up to 2 liters a day, by the vein. Bismuth and camphorated oil were also used; the profuse diuresis during this period was the only basis for hope of a favorable outcome. The woman, aged 44, had borne ten children and aborted five times.

Stenosis of the Esophagus.—There was a fistula into the trachea in both of the two cases described, in men aged 41 and 61. One died, but the other improved under neo-arsphenamin treatment on two different occasions within the year, but he now complains of recurring pains in the thorax.

Suicides from Multiple Slashing Wounds. — May gives twelve illustrations of cadavers with several slashing knife wounds in which it was dubious whether they could have been self-inflicted. The parallel direction of the cuts and the accessibility of the regions are instructive. The suicide generally stands, and often stands in front of a mirror, and although the wounds may be numerous, usually only one is grave enough to be fatal. In case of murder, there is usually only a single wound. If the victim struggles, other slashes are given, but in widely diverging directions; some may cross the primary wound. The slant of the cut is generally transverse, while the slash of the suicide's knife is generally downward and forward, and he turns back the clothing from the region. The assassin strikes through the clothing. The correspondence between the clothing and the wound is very significant, especially with simulated suicide. One of the cases described had seventeen self-inflicted wounds on the skull and others on the abdomen, left forearm and neck. The man died the same day and necropsy showed acute edema of the lung.

Archivos Latino-Amer. de Pediatría, Buenos Aires

17: 241-320 (April) 1923

*Facial Paralysis in Infants. E. Davidsohn.—p. 241.
*Leprosy in Children. E. Meirelles.—p. 250.
Stripes of Scleroderma in Girl of Seven. Salvador Burghi.—p. 270.
*Tumor in Left Occipital Lobe. J. M. Obarrio.—p. 282.
Bronchopneumonia with Aphasia in Girl of Eight. E. M. Claveaux.—p. 296.
Phlegmonous Conjunctivitis. Two Cases. J. Salterain and J. Bonaba.—p. 301.

Facial Paralysis in Infants.—Davidsohn describes instances of congenital, obstetric, and acquired types of facial paralysis in infants. The congenital form is usually bilateral, is accompanied by other paralyses, especially ophthalmoplegia, and seems to be permanent. The obstetric is usually unilateral, and lasts only for a few days or weeks, but exceptionally it may persist after improving to a certain extent under electricity. The nerve responds normally to electric tests, but the mind seems to have lost control of it, just as speech is lost when a child early becomes deaf. It may be possible to overcome it by training later. Acquired facial paralysis may follow local or general infectious processes. When facial paralysis follows diphtheria, it usually subsides spontaneously, but in Wolff's case it persisted for five weeks, showing a partial reaction of degeneration, and then disappeared three weeks later after antitoxin treatment (12,000 units). One infant with inherited syphilis developed paralysis as whooping cough and varicella developed together, but it subsided when neo-arsphenamin treatment was continued.

Sudden high fever in one infant, aged 11 months, was accompanied by facial paralysis, with reaction of degeneration. The fever subsided in three days but the paralysis persisted. A month later another infant in the same house presented the identical clinical picture, and four weeks later two other children in the house developed acute epidemic poliomyelitis, and one died. The facial paralysis in the first two cases subsided after a few months, although the reaction of degeneration had been complete at first. The isolated facial paralysis was diagnosed at the time as a form of acute poliomyelitis but, in spite of the hygienic measures adopted, the three other cases followed at intervals of four, two and six weeks. Facial paralysis of rheumatic origin has not as yet been reported in an infant.

Leprosy in Children.—Meirelles reports a total of 116 cases of leprosy in children, at Rio de Janeiro, in the last twenty-one years. Only 3 were infants; 6 others were between 2 and 6 years old. He urges separation from leprous parents at once after birth. Congenital leprosy seems to be extremely rare, the cases in children being all from contagion. Both parents were leprous in one family and one child living with them developed leprosy at the age of 7, while a second child, entirely removed from this environment at once after birth, has developed to sturdy manhood.

Tumor in Occipital Lobe.—Obarrio calls attention to the symptoms in the boy, aged 9, with bilateral choked disk, which enabled the localization of the brain tumor and its successful removal. The left eye was blind; the reaction of the retina to light, the way in which the child looked to the right of a person in order to see him, and kept his head turned to the right, were instructive, as were also the visual hallucinations, and the way in which the figures seen in the hallucinations moved from left to right, and slanted downward. The hallucinations were of a man on a bicycle, a cart with white and black horses, etc., but no hallucinations of fire.

Brazil-Medico, Rio de Janeiro

1: 277-286 (May 19) 1923

*Sensibility of Lungs to Normal Stimulant. M. Ozorio de Almeida.—p. 277.
Parallel or Tail-to-Tail Copulation in Differentiation of Mosquitoes. C. Pinto.—p. 278.

Peabody's Method of Studying Excitability of the Lungs by Carbon Dioxid.—Ozorio de Almeida declares that the results obtained by Peabody in his clinical studies of respiration agree perfectly with those of his own research. The whole allows the calculation of a standard index, which he calls the "coefficient of regulation of pulmonary ventilation." This coefficient is the index of the true excitability of the respiratory centers, as it reveals the sensitivity of the respiratory apparatus to its normal stimulant.

Revista de Medicina y Cirugía de la Habana, Havana

28: 361-392 (May 25) 1923

Child Welfare Work in Cuba. Gonzalo Aróstegui.—p. 361.
*Anomalies of Obturator Artery. Elpidio Stincer.—p. 382.

Anomalies in Obturator Artery.—Stincer has occasionally found the obturator artery very large and tortuous, branching from the femoral artery about 3 cm. below Poupart's ligament. It crossed the femoral vein and passed through the femoral ring into the pelvis. Without anastomoses, it wound its way to the subpubic passage, and then continued the usual course. This anomaly is liable to entail edema of the leg by compression of the femoral vein. Two illustrations accompany the article.

Siglo Médico, Madrid

71: 453-476 (May 12) 1923

*Balmis' Vaccination Mission. A. Gimeno.—p. 453.
Trauma of Skull and Brain. V. Fidalgo Tato.—p. 457. Cont'd.
*Malarial Retinitis. M. Marín Amat.—p. 460.
Vacuum Extraction of Cataract. L. Koeppe.—p. 461. Cont'n.

Balmis' Vaccination Mission. — Gimeno relates that the Spanish government in 1803 organized an expedition to take Jenner's new vaccination to the Spanish territories in the New World. Balmis was in charge of the expedition, and the party consisted of two other physicians, several orderlies, and twenty children who carried vaccine lymph inside their arms. The mission spent three years in the New World, passing from arm to arm the lymph brought from Europe, and carrying it beyond America to Oceania and Asia. Porto Rico was the first stop, then Caracas. Humboldt in 1811 referred to this mission as certain to be always memorable in the annals of history. Balmis worked in Havana and Yucatan, Pastor in Guatemala and Tabasco and Salvany in northern South America, all reuniting in Mexico. Balmis then sailed with twenty-six children for the Philippines and China. Vaccine had already been sent from Europe to China, but it had always spoiled on the way. Balmis reached home in 1806, having carried Jenner vaccination entirely around the world. During his absence, war in Europe had been continuous. The Portuguese had introduced vaccination into Argentina, Peru and Chile, a few months before Salvany reached there, a year and a half after the Balmis party had reached the New World.

Ocular Lesions from Malaria.—Marín Amat reports a case of bilateral diffuse choroidoretinitis and unilateral iritis. There was a history of recent malaria for which the man had taken 4 gm. of quinin in two and a half months, and had had no fever for the month since. Under eight parenteral injections of 4 or 2 c.c. of milk in nine days the lesions subsided, and after two days of quinin, normal vision was completely restored.

Archiv für Gynäkologie, Berlin

118: 445-655 (May 12) 1923

*Transplantation of Ovaries. P. Sippel.—p. 445.
*Retroperitoneal and Mesenteric Tumors. H. H. Schmid.—p. 490.
*Reciprocal Relations Between Endocrine Glands. Serdjukoff.—p. 560.
*Pathogenesis of Eclampsia. I. Obata.—p. 586.
*Puerperal Gangrene of the Uterus. E. Lehmann.—p. 625.
*Septic Abortions. E. Mathias and F. Pietrusky.—p. 645.

Transplantation of Ovaries.—Sippel relates that for years a special study has been made in the women's clinic at Berlin of ways and means for improving conditions with infantile genital organs and in the premature menopause. Ovarian extract by mouth or injection always failed, and never was anything observed suggesting rejuvenation in the Steinach sense. Better results were obtained with transplantation of ovaries which was done in 57 cases. In 9, the woman's own ovary was reimplanted and this almost always succeeded in warding off the premature menopause. The results were very satisfactory in 16 of the remaining 48; in 15 no effect was apparent; in 3 the graft sloughed. The effects did not become manifest till from several weeks to six months after the grafting. In all the cases of failure, the graft had been entirely absorbed and nothing remained but fibrous tissue. The outlook is promising with homotransplants of ovary in cases of infantilism and deficient ovarian functioning; also to ward off a premature menopause after castration, and in certain cases of premature menopause and premature senility. The influence from the autograft generally dies out in from one to three years; with homotransplants it does not last more than a few months. If no effect is apparent, a second grafting may prove successful. The outlook is less favorable when the entire genital apparatus shows infantile conditions, and when the thyroid is generally also defective. There is often a tendency to obesity, doughy face and puffy eyelids with total amenorrhea. No benefit was ever observed from ovarian transplantation in such cases, even with or without supplementary thyroid treatment. The details of all the experiences, both with donor and recipient, are given. Some of the cases demonstrated that the impulse for menstruation comes from the ovum. The ovum can develop to maturity in the total absence of a uterus, or, without ever coming to full maturity, it can induce such ovarian disturbances that operative relief is indispensable. In several cases of severe hemorrhages at puberty the uterus was found infantile; the ovaries were well developed but without a trace of corpus luteum. Only when and while the implant contains functioning corpus luteum is there any chance for true menstruation. Other uterine hemorrhage is a sign of an irritation and not a menstrual process.

Retroperitoneal and Mesenteric Tumors.—Schmid reports three cases of a solid tumor of the mesentery or retroperitoneal space, and compares them with 297 cases he has compiled. The total mortality was 17.6 per cent. The progress of surgery is reflected in the figures of 66.6 per cent. mortality before 1901; 25 per cent. in 1910, and 7.5 per cent. in 133 cases since 1903. The operation is always difficult and tedious. About 50 per cent. of these solid tumors are malignant and women are affected twice as often as men. He summarizes each of the 297 cases.

Mutual Relations Between Endocrine Glands.—Serdjukoff is inclined to agree with those who regard the internal secretions as a highly differentiated phase of general metabolism. An extreme instance of the mutual relations between the endocrine organs is described in which the thyroid, the suprarenals, and the uterus all shared in inducing the severe clinical picture. The uterus presented a cavernous metritis, with periodic erectile phases, and the whole clinical picture vanished as if by magic after hysterectomy. He urges more careful research on the internal secretion of the uterus.

Neutralization of Placenta Toxin.—After confirming on mice and rabbits the toxic action of placental extract, Obata experimented with antiserums of various origins. His research disproves the assumption that the fetus is the source of the toxin inducing eclampsia. The woman's serum seems to lack an antitoxin which normally binds the placental toxin. The serum of women with eclampsia proved unable to neutralize the placental toxin in his tests. His research failed to reveal features of anaphylaxis in eclampsia.

Puerperal Gangrene.—Lehmann shows by a case described that puerperal gangrene of the uterus is the same process as metritis dissecans. It should be called gangrenous phlegmonous metritis. Perforation may occur spontaneously.

Septic Abortion.—In the three years before the war, 15 cases came to necropsy at Breslau, while there were 40 cases in the three years following the war. The women were married in 34 of the 55 total cases.

Klinische Wochenschrift, Berlin

2: 813-860 (April 30) 1923

*Gastroptosis. K. Faber.—p. 813.
*Tetany. E. Melchior.—p. 818.
Theory of Action of Cinchophen. M. Dohrn.—p. 819.
Increased Action of Auricles and Electrocardiogram. Mosler.—p. 821.
*Abortive Treatment of Gonorrhea. Scholtz and Richter.—p. 823.
Preparation of Culture Mediums. Kuczynski and Ferner.—p. 826.
*Mastic Reaction in Cerebrospinal Fluid. V. Kafka.—p. 829.
"Distribution of Roentgen Dose." F. Dessauer.—p. 832. Reply. H. Holfelder.—p. 834.
Incision in Angina Ludovici. A. Niedermeyer.—p. 835.
Addenda to: Agglutination of Fornet's Tuberculosis Reagent in Surgical Tuberculosis. Kohler.—p. 835.
*Spirochetes of Pallida Type in Nonsyphilitic Rabbit. W. Worms.—p. 836.
*Trypanocidal Substances in Human Serum. Rosenthal and Freund.—p. 836.
*Wassermann Reaction in Cerebrospinal Fluid. M. and R. Stern.—p. 836.
Postencephalitic Parkinsonism with Psychic Disturbances. A. Genzel.—p. 837.
Treatment of Wounds in General Practice. W. v. Gaza.—p. 838.
Medical Examination of Students in Tübingen. W. Weitz.—p. 841.

Gastroptosis.—Faber believes that atony of the stomach is a functional disturbance, which does not cause gastroptosis. On the contrary, gastroptosis predisposes to atony, with retarded evacuation. Atony may be found in dyspepsia without gastroptosis. A second form, which he calls roentgenologists' atony, clinically corresponds to a dilatation. It does not always retard evacuation. It sometimes does not induce any subjective symptoms.

Tetany.—Melchior reports the results of more than 1,000 applications of tests after operations. He found an increase of the electric excitability of the ulnar nerve in 30 per cent. of the patients whose operations were for diseases not connected with the thyroid gland. After operations for goiter, the excitability increased in 85 per cent. However, from nine months to more than two years later only three patients still presented the hyperexcitability. Though tetany depends on the parathyroids, these results show that a nonspecific injury (operation) may play a part in it. They also contribute to the explanation of "surgical tetany" after an operation, since latent tetany does not seem to be very rare.

Abortive Treatment of Acute Gonorrhea with Intravenous Injections of Glucose.—Scholtz and Richter report further favorable results with their method of abortive treatment of gonorrhea. They inject 40 c.c. of a 50 per cent. solution of glucose intravenously, and, two hours later, inject locally a colloidal silver preparation. The local treatment is repeated five times daily, and the concentration of the drug increased usually in five days up to 2 per cent. They give four injections of glucose in the first week and two to three in the second. The injection should be given very slowly, and the vein should be as little injured as possible. They had only nine recurrences among fifty-nine patients treated for one to two weeks. Cases with complications, even if only a thickening of Littré's glands, and gonorrhea in women (especially cervical) were not favorably influenced. They believe that the immediate bactericidal power of the local injections is not the most important factor in treatment. They lay more stress on the appearance of a pus consisting of detritus from disintegrated leukocytes. Whenever an injected preparation is not followed very soon by formation of this "silver pus", the preparation used should be changed.

Mastic Reaction in Cerebrospinal Fluid.—Kafka compares the different methods of the colloidal reaction with mastic in cerebrospinal fluids.

"Spontaneous Appearance of Spirochetes of the Pallida Type in an Isolated Nonsyphilitic Rabbit."—Worms inoculated *Spirochaeta dentium* into rabbits. After fourteen days he observed erosions resembling primary syphilis, and they contained spirochetes, which could not be microscopically distinguished from *Spirochaeta pallida.*

Trypanocidal Substances of Human Serum.—Rosenthal and Freund find that human serum contains only trypanocidogenic substances, which are not active before being injected into the animal.

Some New Investigations on the Wassermann Reaction in Cerebrospinal Fluid.—Stern and Stern found that the ultrafiltrates of cerebrospinal fluids which had reacted positively give negative reactions. Ultrafiltrates from the blood serum, however, retained their full potency. This is probably due to the protecting action of serum albumin on the euglobulin fraction which contains the reacting substance.

Medizinische Klinik, Berlin

19: 561-596 (April 29) 1923

Köhler's Disease of Metatarso-Phalangeal Joints. Axhausen.—p. 561.
*Indications for Allaitement Mixte in Infants. A. Reuss.—p. 565. Conc'n.
*Regulation and Significance of Tonus of Blood Vessels. E. F. Müller.—p. 569.
*Ossification of Cartilages of Ribs. H. Wernscheid.—p. 572.
*Mental Efficiency After Hard Bodily Exertion. M. Flockenhaus.—p. 574.
*Examination for Syphilis in Medical Practice. H. Gelbenegger.—p. 575.
Thyroid Treatment of Anemia. H. W. Wollenberg.—p. 579.
Preventive Vaccination Against Varicella. M. Soldin.—p. 579.
Alleged Injury of a Telephone Operator by Electric Current. E. Stier.—p. 582.
Gynecology of Practitioners. E. Runge.—p. 584. Cont'n.
Survey of Medical Jurisprudence. P. Horn.—p. 585.

Indications for Mixed Infant Feeding.—Reuss points out that the secretion of milk starts usually on the third or fourth day after delivery. The single amount taken by the baby in the first two days rarely exceeds 10 or 20 gm. Hence the physiologic loss in weight. There is never an indication for mixed feeding in a baby born at full term, before the third or fourth day, even if the loss in weight is considerable and fever occurs.

Regulation and Significance of Tonus of Blood Vessels.—Müller discusses his experiments on the influence of intracutaneous injections on the number of leukocytes. He demonstrated the intimate relation of the skin to the regulation of the tonus of blood vessels by the experimental leukopenia. It is due to retention of leukocytes in the dilated abdominal vessels. These experiments confirm Glaser's explanation of Widal's hemoclastic crisis as due to changes in the tonus of the vegetative nervous system. Increase of the sympathicotonus prevents alimentary leukopenia in individuals who would otherwise show it.

Ossification of Costal Cartilages.—Wernscheid found in 8 per cent. of children with pulmonary tuberculosis, ossification of the cartilages nearest to the hilus. In four of these six cases the cartilage of the first rib was also ossified. The youngest child was 9 years old. A marked ossification is frequent in benign pulmonary tuberculosis.

Mental Efficiency After Hard Bodily Exertion.—Flockenhaus found immediately after a Marathon run a distinct increase in mental efficiency, when compared with the results of the day before.

Serologic Examination for Syphilis as Obligatory Method in Medical Practice.—Gelbenegger performed systematically the Wassermann test in 1,303 patients of a hospital. It was positive in ninety-five patients. It was negative in thirty-three patients with sequelae of syphilis, but unexpectedly positive in seventy-two patients, in whom neither the history, nor the clinical signs gave at first any evidence of syphilis. He discusses these cases and demonstrates the advantages of a routine examination, though the reaction seems to have been certainly not specific in several instances.

Mitteil. a. d. Grenzgeb. d. Med. u. Chir. Jena

36: 151-440, 1923

*Acute Pseudodysenteric Colitis, Postoperative Gastro-Intestinal Hemorrhage and Ulcers. W. Goldschmidt.—p. 151.
*Thrush Fungus from Standpoint of Gastric Ulcer. E. Kirch and E. Stahnke.—p. 174.
*Typhoid Cholecystitis. E. Fraenkel.—p. 201.
Influence on Metabolism of Extensive Operations for Goiter. E. Grafe and E. v. Redwitz.—p. 215.
Diffuse Cavernous Hemangioma of Rectum. Hennig and Schütt.—p. 235.
*Skeletal Changes as Cause of Calcification. F. Schulze.—p. 243.
*The Thyroid Question. B. Breitner.—p. 265.
*Relations Between Endocrine Glands. Demel et al.—p. 306.
Physical-Chemical Research on the Thyroid. F. Starlinger.—p. 334.
Chvostek Phenomenon in Connection with Postoperative Tetany. S. Jatrou.—p. 356.
Slight Fever After Thyroidectomy for Goiter. E. Just.—p. 381.
Form of Goiter and Iodin Content. H. Homma.—p. 389.
Constitutional-Somatic Types of Different Diseases. V. Orator and H. Pöch.—p. 393.
*Form of Goiter in Connection with Function. E. Gold and V. Orator.—p. 401.
*New Viewpoints in Testing Action of Drugs. V. Orator.—p. 420.

Disturbance in Blood Supply of Digestive Tract.—Goldschmidt's heading includes three different affections, acute colitis, postoperative gastro-intestinal hemorrhage and ulcers, each of which, he says, is traceable to some local disturbance in the blood supply or innervation. This disturbance may result from trauma, disease or an operation. Each segment of the bowel may react in a different way to the influence affecting it, and to different degrees of the same factors. A retroperitoneal hematoma, for example, may entail acute pseudodysenteric colitis or ileus, as the case may be. Thrombosis or paralysis of the vessels, and injury of nerves, direct or by way of the central nervous system, are other factors, but hematomas predominate.

Thrush Fungus and Gastric Ulcer.—The extensive clinical and experimental research related fails to connect *Oidium albicans* with the etiology of chronic gastric ulcer.

Typhoid Disease of the Gallbladder.—Fraenkel reports that the gallbladder of a boy, aged 8, a chronic carrier, was removed as the last resource to restore him to normal life. He was entirely free from symptoms of any kind, and the gallbladder showed no signs of active inflammation although containing typhoid bacilli. It is evident from this and the other cases cited that slight inflammatory processes caused by typhoid bacilli can heal completely, but when there are gallstones—preceding lesions—the bacilli may induce abscesses and necrosis. This is exceptional in the previously healthy gallbladder, and there is evidence to show that typhoid bacilli may sojourn for years in the gallbladder without injuring its walls. In the insane, removal of the gallbladder of chronic carriers may be advisable, but never in the healthy, he reiterates, as the outcome is always dubious, at the best, and is often entirely negative.

Calcification in Disease of the Bones.—Schulze describes two cases of osteomyelitis in boys of 11 and 16 in which the destruction of bone tissue, releasing calcium, had entailed the deposit of calcium in the arteries.

The Thyroid Question.—Breitner presents evidence to sustain his assumption that a special structure of the thyroid corresponds to special function.

Relations Between Endocrine Glands.—Demel, Jatrou and Wallner removed, transplanted or implanted ovaries, thymus tissue and suprarenals in rats, recording the effect on the thyroid, with and without resection of the vagus.

Form of Goiter in Relation to Function.—Gold and Orator in sixty-five cases of goiter, compare the nature of the goiter with the functional symptoms. All confirm the difference between diffuse hyperplasia and adenoma, from the clinical and functional as well as the anatomic standpoint.

Functional Drug Tests of Vegetative System.—Orator's summaries of the clinical picture and response in sixty-three patients demonstrate that most persons react to pilocarpin and to epinephrin in the same way, vigorously or weakly to both. The thyroid controls the reaction.

Monatsschrift für Geb. und Gynäkologie, Berlin

61: 1-368 (Jan.) 1923

Variations of Birth Mechanism with Cephalic Presentation. R. T. v. Jaschke.—p. 1.
Pregnancy in Deformed Uterus. O. v. Franqué.—p. 4.
Influence of Childbirth on Capillary Circulation. Hinselmann.—p. 11.
*Treatment of Dysmenorrhea and Sterility. Schmidt.—p. 23.
*Congenital Syphilis. F. Klee.—p. 29.
Torsion of Ovarian Tumor from Twisting the Body. H. Sellheim.—p. 36.
*Improved Technic for Roentgen Therapy in Gynecology. H. Kufperberg.—p. 41.
Roentgenography in Pregnancy and Childbirth. Id.—p. 49.
*Treatment of Placenta Praevia. W. Stoeckel.—p. 52.
*Mixed General Anesthesia. H. Hellendall.—p. 63.
*The Legal Term for Pregnancy. H. Füth.—p. 87.
*Causes of Backache in Women. P. Haendly.—p. 97.
*Tuberculosis and Pregnancy. O. Pankow.—p. 109.
*Biologic Reactions in Diagnosis of Adnexitis. H. Borell.—p. 132.
*Twilight Sleep in Obstetrics. W. Krönig and L. Schönholz.—p. 161.
*Ether After Laparotomies. K. Frankenstein.—p. 180.
*The Eclampsia Question. F. Engelmann.—p. 187.
*Transfusion of Blood in Obstetric and Gynecologic Cases. K. Hoffmann.—p. 215.
Biologic Processes in Irradiated Cancer. E. Opitz.—p. 232.
Susceptibility of Streptococci to Heat. W. Zangemeister.—p. 248.
Laceration of Vagina During Delivery. C. Everke.—p. 250.
*Ovarian Epilepsy. Id.—p. 256.
Internal Examination by Midwives. E. Martin.—p. 259.
Connection of Chronic Appendicitis with Dysmenorrhea. Eick.—p. 264.
*Prophylaxis and Treatment of Cracks in Nipples. E. Hinderfeld.—p. 273.
Etiology of Posterior Parametritis. C. W. Bischoff.—p. 277.
Disturbances in Third Stage of Labor, and Treatment. J. Strecker.—p. 283.
Relation of Obesity to Sterility. H. A. Dietrich.—p. 297.
*Danger of Infection with Submucous Myomas. H. H. Schmid.—p. 302.
Operations on Large Intestine in Gynecology. A. Rieck.—p. 321.
*Puerperal Endometritis and Thrombosis. M. Schmidtmann.—p. 328.
Italian Literature on Gynecology, 1915-1920. F. d'Erchia.—p. 339.

Fehling's Treatment of Dysmenorrhea and Sterility.—Schmidt says that this method has given satisfaction for ten years at the Bonn women's clinic, but he can find no reference to it in modern textbooks. A fenestrated cannula, 5 cm. long, with flaring mouth, is introduced into the cervix, after curettement, and is left for three days. Then the cannula is changed, and the uterus cavity flushed with 1 liter of a 1 per cent. solution of liquor formaldehydi. The change of cannulas and the irrigation are repeated two or three times, with three day intervals. The woman must stay in bed for five days to allow oversight of the temperature. If it runs up, the cannula must be removed. Of his seventy-seven dysmenorrhea patients, 30 per cent. were entirely cured and 9 per cent. much improved; 17 per cent. were cured for a year or two, but 44 per cent. were not benefited. Conception followed in from one to eight months in 35.5 per cent. of the thirty-one cases of sterility.

Congenital Syphilis.—Klee analyzes conditions in 709 obstetric cases of certain syphilis in 1921, and the effects on the infants of treatment of the mothers.

Roentgenography in Gynecology.—Kupferberg discusses the latest methods for dosage and application of roentgen rays to women.

Treatment of Placenta Praevia.—Stoeckel compares the mortality in the cesarean section group with that in other groups. He proclaims anew the advantages of systematic cesarean section and refutes the objections to it. He prefers the abdominal intraperitoneal technic.

Twilight Sleep-Mixed Anesthesia.—Hellendall discusses opium-scopolamin-ether narcosis, reviewing his experiences in 674 cases with this combination of twilight sleep and inhalation anesthesia for gynecologic operations. In conclusion, he remarks that an oxygen apparatus must always be ready at hand, as dangerous mishaps are liable to be encountered.

The Legal Term of Pregnancy.—Füth declares that the legally accepted term of 302 days is too short, citing three cases from private practice in which the interval between conception and delivery was at least 329, 334 and 339 days.

Backache in Women.—Haendly states that 25 per cent. of 500 female patients complained of pain in the sacral region or above. Only 25 per cent. of the patients with displacement of the uterus complained of pain, but 50 per cent. of all those with adnexitis, and 90 per cent. of those with ptosis of the bowel complained of backache; 90 per cent. in this last group applied for relief on this account. The women with sagging viscera who were free from backache were all young, under 30. The backache with enteroptosis is a fatigue symptom.

Pregnancy and Tuberculosis.—Pankow says that manifest tuberculosis is influenced unfavorably by pregnancy in fully 75 per cent. of the cases. We have no means for determining beforehand the favorable cases, and hence, instead of trying to individualize, we must make a principle of interrupting pregnancy in all cases of manifest tuberculosis in the first and second stage. In the third stage, the interests of the child should be considered, as it may develop normally if removed at once from the consumptive mother. He adds that the decision to interrupt pregnancy is facilitated by the fact that the children of mothers with manifest tuberculosis seldom survive the first year. With latent tuberculosis, the standpoint is exactly the reverse.

Biologic Reactions in Diagnosis of Adnexitis.—Borell remarks that the tuberculous, gonococcic and septic foci all respond to the so-called specific tests in the same way. Hence they are useless in differential diagnosis.

Twilight Sleep in Obstetrics.—Both the drug and the hypnosis twilight sleep are discussed. They depend for success on amnesia, and the authors suggest that by combining the two methods the desired result might be obtained with minimal means.

Ether After Laparotomies.—Frankenstein pours into the abdominal cavity no more than 30 or 50 c.c. of ether, having found that this serves perfectly to promote peristalsis after the laparotomy. He never witnessed any suggestion of shock in his 423 cases with this treatment. Fully 69 per cent. have been seen since, and nothing to suggest formation of adhesions could be discovered, with one exception, although adhesions had been found at the operation in 32 per cent.

The Eclampsia Question.—Engelmann had a maternal and fetal mortality of 10 per cent. in his 222 cases of eclampsia in the last twelve years. Treatment is by hastening delivery, venesection to 500 c.c., infusion of Ringer's fluid or hypertonic sugar solution, and systematic use of chloral or other sedatives.

Blood Transfusion in Obstetrics and Gynecology.—Hofmann urges immediate reinfusion of the blood after rupture of tubal pregnancy with much hemorrhage. If transfusion of blood is not practicable in treatment of hemorrhage, blood that is not aseptic can be given by the rectum.

Ovarian Epilepsy.—Everke reports the case of a woman, aged 39, who for five years had had epileptiform seizures every two weeks. For six months excessive uterine hemorrhages had much weakened her. On assumption of cancer of the uterus, panhysterectomy was done, and the seizures have never returned during the twenty years since. He has treated two other patients by ovariectomy, and neither has had any return of the convulsions since. In these and in another case the convulsions were connected with menstruation and coitus interruptus. In the latter case, correction of the sexual life alone and the resulting pregnancy banished the seizures permanently.

Treatment of Cracked Nipples.—Hinderfeld applies a cap of the thinnest lead to the nipple, after dropping on it 2 or 3 drops of a solution of 0.5 gm. lead acetate and 0.2 gm. of gum acacia in 30 gm. of distilled and sterilized water. The cap has a broad flat brim and is held in place by two cross strips of plaster. It is removed only to allow the infant to nurse, the nipple being wiped off with a sterile sponge. He insists that prophylaxis and treatment should aim not to toughen the nipple but to keep it soft and flexible.

Danger of Infection with Submucous Myomas.—Schmid urges removal of the uterus rather than excision of a submucous myoma, as 6.4 per cent. of sixty-three women treated by excision at the Prague clinic died.

Puerperal Endometritis and Thrombosis.—Schmidtmann has found other lesions so constantly that he thinks that therapeutic ligation of veins has little chance of arresting the process.

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*Ambard Laws of Elimination of Urea. R. Bauer and W. Nyiri.—p. 257.
*Atypical Tuberculosis of the Kidney. S. P. Fedorow.—p. 264.
Acidification of the Urine by Madder. A. Bauer.—p. 274.
*Spontaneous Rupture of the Kidney. A. Szenes.—p. 276.
*Total Extirpation of Bladder. S. P. Fedoroff.—p. 290.

The Ambard Laws of Elimination of Urea.—Bauer and Nyiri present evidence to sustain the reliability of the Ambard ureosecretory constant as an index of the functional capacity of the kidney. They add that the normal range is wider than was supposed at first, and the Ambard constant does not depend entirely on the urea. The urea content of the serum may be high with healthy kidneys, and low with kidney diseases. Biologic phenomena do not lend themselves well to mathematical equations. Admitting all these drawbacks, the Ambard constant may give good practical results.

Atypical Tuberculosis of the Kidney.—Fedorow expatiates on the importance of the inflammatory process in the kidneys which may be considered a pretuberculous nephrocirrhosis, for which the tubercle bacillus is responsible but in which no tubercles are found. The blood pressure was normal in one of the five such cases he describes in detail. There are no special symptoms to distinguish this form from typical renal tuberculosis, and it can be surmised only from the small number of leukocytes in the urine and the widely scattered single tubercle bacilli or involution forms. He thinks we cannot deny the possibility of a spontaneous cure by shriveling of the one kidney involved. When bilateral, a spontaneous cure seems to be out of the question. With persisting hematuria, pains and persistent fever, nephrectomy should be considered as under other conditions.

Spontaneous Rupture of the Kidney.—Extensive bleeding into the bed of the kidney and profuse hematuria called for nephrectomy; the cure has been complete since. There was a history of occasional attacks of pain in the region during the three years preceding.

Total Extirpation of Bladder.—Fedoroff states that none of the eleven patients treated by a two-stage operation died from the effects of the operation in Bystrow's series (1912) and none in Fedoroff's own five cases, including three physicians. Transplanting the ureters into the bowel puts an almost complete end at once to the pains; the patients are able to sleep, and rapidly recuperate. In one case of villous cancer, there have been no signs of recurrence during the six years to date. This patient was a woman, and the urethra was removed with the bladder. The ureters were implanted in the sigmoid flexure. One patient, a physician, was treated during twenty years for multiple papillomas which eventually became villous cancer. He survived five years after extirpation of the bladder, and for nearly three years felt well and was able to resume his practice. The fatal outcome was not due to pyelitis but to return of the malignant papillomas, probably from inoculation during the removal of the bladder. Roentgenotherapy then gave great relief. The transperitoneal technic is safer and easier. Electrocoagulation after opening the bladder may succeed in certain cases, but if the tumors return, Fedoroff advises not to wait too long before removing the bladder.

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THE ABSORPTION OF DRUGS *

CARY EGGLESTON, M.D.
NEW YORK

Most of the drugs employed as therapeutic agents depend on their entrance into the blood stream, either in sufficient concentration or in sufficient total quantity, for the development of their therapeutic actions. Adequate knowledge of their absorption is therefore of fundamental importance to the development of a rational drug therapy. Modern textbooks on pharmacology, however, while discussing in detail the actions of each of the more important drugs, generally pass over the problems of their absorption with only a word or two, if, indeed, they mention them at all. Books and articles on therapeutics are usually even worse offenders. In fact, there seems to be a more or less general assumption that if a drug is soluble in water it will be absorbed in a satisfactory manner when introduced into the alimentary canal or injected into the subcutaneous or intramuscular tissues. A few seem to take the opposite stand, namely, that most drugs are absorbed so poorly from any channel of administration that, to secure therapeutic effects, they must be injected intravenously.

Both of these views are obviously erroneous, and I have chosen the absorption of drugs as the subject of my address with the hope of arousing interest in the investigation of its many problems rather than with the idea of throwing much light on them. Limitations of time and space restrict the scope of the discussion, and since the alimentary canal remains the commonest and most important site for the administration of drugs, I shall confine my remarks to considerations of absorption following oral administration, touching but briefly on absorption from the rectum.

The most recent review of the physiology of intestinal absorption[1] reveals the wide divergence of opinions as to its mechanism and concludes with the statement that "the mechanism of intestinal absorption is qualitatively explained by the known laws of osmosis." The process, however, may be modified by various physicochemical factors, and it has been shown[2] that the diffusion of water through a membrane depends for its direction and rate on a charge conferred on the water molecules by the membrane. This depends, further, on the chemical nature of the membrane and on the valence, concentration and sign of the charge of the ions which are in contact with it. Although our knowledge of the laws of physicochemical processes is as yet insufficient to explain all of the observed phenomena of intestinal absorption, it is unwise to cloak our ignorance in the well worn phrase, "vital activity." Recognizing the strides that have been made, we should, rather, be spurred to greater activity by the appreciation of the gaps that remain. Leaving the subject of the mechanisms involved in the physiology of absorption with this brief indication of their complexity and as yet unsettled status, I turn to problems of more immediate bearing on the therapeutic use of drugs.

SOLUBILITY AND ABSORBABILITY

The relation between the solubility of a drug in water and its absorbability is by no means so simple as is implied by the common statement that, since a particular modification of a drug is soluble, it is more readily absorbed than is another which is relatively insoluble. The subject has not received the consideration its importance merits, and many factors are involved in this seemingly simple relationship. Little attention seems to have been given to the fact that the fluid in the digestive tract is not water, but is a complex solution of varying composition and is capable of reacting with many drugs to render them soluble.

It is probable that many alkaloids are absorbed in the form of their readily soluble hydrochlorids, irrespective of the form in which they are administered, being converted in the stomach and first portion of the duodenum by the action of the free hydrochloric acid present. The average single dose of quinin and its salts is 0.6 gm. (10 grains). This dose of the hydrochlorid requires only 12 c.c. of water for its solution; the commonly used sulphate requires 500 c.c., and the alkaloid more than 900 c.c., yet it is well known that all three are absorbed with approximately equal rapidity and facility. The alkaloid quinidin, which demands 2,000 parts of water for solution, has recently been proved by Lewis[3] to be absorbed as rapidly by man as is its dihydrochlorid, which dissolves in 3.6 times its weight of water. Comparative studies on the absorbability of quinidin, its sulphate, bisulphate, and dihydrochlorid show that where any small time differences occur they bear no necessary relation to the question of solubility. It would be interesting to know the relative rates of absorption of these four compounds in patients with total achlorhydria and in normal persons, when introduced into the lower duodenum through a tube.

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* From the Department of Medicine, Second (Cornell) Medical Division, Bellevue Hospital, and the Department of Pharmacology, Cornell University Medical College.

* Chairman's address, read before the Section on Pharmacology and Therapeutics at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

[1] Goldschmidt, S.: Physiol. Rev. **1**: 421 (July) 1921.

[2] Loeb, J.: J. Gen. Physiol. **1**: 717 et seq. (July) 1919.

[3] Lewis, Thomas: Am. J. M. Sc. **163**: 781 (June) 1922.

Lewis also noted that the bisulphate (soluble in seven parts of water) was somewhat less rapidly absorbed than the other preparations. This is a suggestive observation, since it is an accepted fact that the intestinal mucosa is nearly impermeable to the sulphate ion. The bisulphate showed some delay in absorption, while the sulphate did not, and it is tempting to suggest that the difference is due to the fact that the former, being acid and containing twice the number of sulphate radicals, is less readily converted into the hydrochlorid by the dilute acid present in the stomach. Investigations should be undertaken with the corresponding quinin salts to test this theory.

The alkalis of the intestinal fluid below the first portion of the duodenum also play important rôles in facilitating the solution of many drugs, and the range of possibilities here is much greater than in the case of the gastric hydrochloric acid. Shortly after the insoluble barbital (veronal) was introduced into therapeutics, the readily soluble barbital sodium (medinal) was brought out with the claim that its solubility greatly enhanced the rapidity of its action on account of its more rapid absorption. Unpublished experiments by Hatcher and Eggleston showed that in animals there was no difference in the rates of absorption of these two drugs, and more accurate clinical observation reveals this to be true also in man. Both substances pass through the stomach without absorption, and, in the small intestine, barbital is probably rapidly converted into its sodium derivative, which promptly passes into solution and undergoes absorption. Many other illustrations of the influence of the composition of the intestinal fluid on solubility and absorption might be cited, such as the solution of acetylsalicylic acid (aspirin) and cinchophen.

The amount of fluid passed into the alimentary canal has been estimated to be about 9 liters a day, the greater part of which is being continually reabsorbed. This is a sufficient volume of fluid to dissolve a large amount of a relatively insoluble drug, even if it underwent no change which increased its solubility. Comparatively few drugs are given in larger single doses than 1 gm. (15 grains), yet there is enough fluid present to dissolve 6 gm. of a drug as insoluble as the alkaloid quinin. Under such conditions, however, it is necessary to take into consideration the degree of insolubility, the size of the dose, and the rapidity of absorption demanded in treatment.

Finally, certain properties of the drug itself in relation to its absorption may far outweigh the question of its solubility. Thus, among simple chemical compounds there are those to which the intestine is practically impermeable, such as the cathartic salts, all of which are freely soluble. Here the explanation of their resistance to absorption is simple, but the behavior of the more complex organic compounds offers many baffling problems. Among these, the relation between solubility in water and absorbability may be diametrically opposite to what would be anticipated. A striking example of such a reversed relation is found in ouabain (crystalline strophanthin) and crystalline digitoxin. Ouabain is readily soluble, yet is very poorly absorbed from the digestive tract, while digitoxin, which is almost insoluble, is readily absorbed.

Summing up the foregoing remarks, it may be said that the matter of solubility of a drug in water bears no necessary relation to the question of its absorbability from the gastro-intestinal tract.

INFLUENCE OF FOOD ON ABSORPTION

Consideration of conditions in the alimentary canal itself leads at once to the problems of the influence of food on absorption. During the processes of digestion, all of the activities of the mucosa are stimulated. Secretion of gastric and intestinal juices is enhanced, motility increases, the capillaries are dilated, and the local circulation is more rapid and more abundant. All of these factors increase the conditions favoring the solution of many drugs and at the same time enhance the general absorptive powers of the mucous membrane. Were these the only factors introduced by the presence of food, the absorption of drugs given with or immediately after meals would almost certainly be increased in both rate and completeness. But food may retard absorption, through too great dilution of a drug; by the large amount of colloid present; by combining with the drug to form a less absorbable compound, or in other ways. No general rules can be laid down, therefore, as to the influence of meals on the absorption of drugs, and this factor must be determined separately for each drug. The results of properly conducted studies of this problem should prove of great value to practical therapeutics.

The increased circulation during digestion may facilitate absorption, and it is probable that mild degrees of congestion from other causes have a similar effect. Several drugs have been shown to be absorbed more promptly when administered in dilute alcohol than when given in water. Other mild irritants, by inducing slight local congestion, will probably be found to produce the same result. If the drug itself is irritant, this property may facilitate its absorption if it is administered in sufficiently dilute solution. Higher degrees of local irritation, however, seem to delay absorption. Whether this is due to injury to the epithelium is not known, but such a mechanism seems probable. Inflammatory processes affecting the intestine may be expected to induce similar changes in absorption, but in general they probably tend to inhibit rather than to facilitate the process. It is well known, for example, that in the case of even a mild degree of peritonitis absorption may be brought to a virtual standstill. In inflammatory conditions, however, too many other alterations take place to permit of trustworthy analysis of this problem at present. Local ulceration of the mucosa, on the other hand, may enhance the absorption of some drugs, especially those toward which the membrane is normally more or less impermeable.

Anemia of the alimentary canal probably always impairs absorption of drugs as well as of the products of digestion. A diminished blood flow, either local or general, may act in the same direction, as suggested by the observation that the absorptive function of the digestive tract is impaired in athreptic infants.[4] On the other hand, even a high degree of stasis and congestion in the splanchnic area, as seen in the congestive type of heart failure, has little appreciable effect on the rate of absorption of digitalis.

The range and degree of the influence of these circulatory changes requires extensive investigation before any generalizations can be made with safety. Many studies of their influence on absorption from loops of intestine have been made in animals, but the conditions of study are too abnormal to justify the transference of the results to man.

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[4] Marriott, W. M.: Some Phases of Pathology of Nutrition in Infancy, Am. J. Dis. Child. 20: 461 (Dec.) 1920.

Nausea is of frequent occurrence during illness and has as one of its phenomena the more or less prolonged closure of the pylorus. This delays the passage of he stomach contents into the duodenum, and might therefore be expected to retard the absorption of most drugs, since the duodenum and upper part of the small intestine are the regions from which absorption is most active. The importance of nausea in relation to absorption, however, seems to be limited to two classes of drugs. First, to those which are apparently absorbed only from the first portion of the duodenum, where the reaction is acid. This class is best represented by the alkaloids, which are probably absorbed to a very slight extent only after their precipitation by the alkalis of he small intestine. Second, to those drugs which are normally absorbed with great rapidity from the small ntestine below the first part of the duodenum. When he rate of absorption is measured in minutes, the delay caused by the closure of the pylorus may be significant. But as the closure seldom continues uninterrupted for more than a few minutes at a time, its retarding influence on absorption is too slight to be noticed with most drugs. This has been proved to be the case, for example, with digitalis, the absorption of which requires from one to four hours. It is interesting, in this connection, to note that nausea probably has no other nfluence on the rate of absorption of drugs than that due to their increased time of retention in the stomach.

Little attention seems to have been given to the influence of gastro-intestinal disease on absorption, and much useful information may be expected from studies n this field.

The questions raised in the foregoing pages have dealt mainly with some of the factors that may affect he processes of absorption, and suggestions have been made as to the directions in which these several factors may exert their influences. The more abstruse problems of physical chemistry and the behavior of semipermeable membranes have purposely been omitted, because I wish to direct attention to problems which offer more immediate prospects of solution by methods more or less readily available in the hospital and at he bedside. Some of the succeeding problems are especially suitable for clinical investigation, and the results obtained should be of immediate application to herapeutics.

RATE OF ABSORPTION

The rate of absorption after oral administration may e determined for man in different ways. If the drug roduces definitely determinable actions, the interval o the appearance of one or other of these may be aken as the measure of the rate of absorption. This method is peculiarly valuable to therapeutics, for it measures the time required for the absorption of an mount of the drug sufficient to produce one or more f its characteristic actions. It does not, however, how the maximal rate of absorption, nor does it reveal he course of absorption, which may vary from moment to moment, or the completeness of the absorpon of a single dose. Despite these inherent shortcomings, the method has yielded most satisfactory results, and it should be applied, under conditions of dequate control, to the investigation of a number of rugs. Its relative ease of application to man should specially commend it to the attention of the clinician.

The time of appearance in the urine following oral dministration may also be used to measure the rate f absorption of many drugs. Drugs suitable for this method of study, however, must be excreted in the urine in detectable form. The rapidity of their appearance after injection into the blood stream should also be known. If, in addition, the proportion of an intravenous dose which is eliminated by the urine has been determined, it is also possible to approximate the extent as well as the rate of absorption from the alimentary canal. This method has been employed extensively in studies on the absorption and elimination of the iodids, and it should be extended to the study of many other drugs which have not yet been adequately investigated, perhaps largely because of minor technical difficulties associated with their detection.

Where tests are available for the detection of small amounts of a drug in the blood stream, the rate of absorption can be measured quite precisely by determining the time of the first appearance of the drug in blood drawn from a vein. When quantitative tests can be applied, the course of absorption can be determined, as well as its approximate completeness. Theoretically, this is the ideal method, but unfortunately it is possible to apply it to only a limited number of drugs, and the technic of recovery of a drug from the blood is often quite complicated, difficult, and fraught with many sources of error. Further work along such lines, however, should materially extend the possibilities of this method. In this connection, it should be borne in mind that most drugs leave the blood stream within a few minutes, so that quantitative studies of absorption will usually have to depend on the determination of curves of concentration, based on series of tests made at increasing intervals of time after administration. Such frequent taking of blood samples, however, is a serious disadvantage of the method.

One or another of these methods has been followed in the study of the absorption of a few drugs, such as the digitalis bodies, quinidin, the iodids and the salicylates. In each instance, the results obtained have materially improved the therapeutic application of the drugs in question. In view of the success that has followed these investigations, it is remarkable that efforts have not been made to apply similar methods to a variety of other drugs in common use. It is to be hoped that such studies will be undertaken in the near future. If as much energy were expended along these lines as has been devoted to the subject of intravenous medication, there would truly be but small need for attention to the latter fad.

UNIFORMITY OF ABSORPTION

The degree of uniformity of absorption is just as important as is the rate, and is determinable by the procedures outlined. This too, however, is a subject to which little careful attention has been directed by both pharmacologists and clinicians, yet it lies at the very root of a rational drug therapy. Uniformity of absorption must be considered from two points of view: that of rate and that of certainty in different individuals or on different occasions in the same individual. The intestinal mucosa, particularly in the duodenum, probably absorbs the first portion of many drugs quite rapidly and then slows down so that absorption of the last portions is much delayed. Evidence favoring this view is found in several studies made on ligated loops of intestine. The mechanism of such a process is probably determined by many factors, as yet chiefly speculative. Succeeding portions of the intestine probably also differ in their capacity to absorb most drugs, so that the rate of absorption may vary with the onward movement of the intestinal contents. This phase of the subject, however, is relatively unimportant as compared with that of certainty, for it makes but little difference whether or not a drug is absorbed at a fixed rate, while it is of the utmost value to know whether or not a drug can be relied on to be absorbed with a reasonable degree of certainty. If it cannot, its therapeutic value must always remain a matter of considerable speculation. Lack of certainty of absorption of strophanthus, for example, is the sole reason why it cannot be given orally to man with sufficient safety to permit its use.

ABSORPTION FROM RECTUM

So far I have confined my remarks to absorption following oral administration. Absorption from the rectum offers most of the problems reviewed, and investigations of this subject are even more meager than are those concerned with absorption from other channels. Some drugs seem to be taken up from the rectum quite as rapidly and as effectively as when given by mouth, some possibly better; but most are probably much less satisfactorily absorbed. Except in a few isolated instances there are no trustworthy data on rectal absorption and on the relation between the rectal and oral doses. It has been suggested that, as the lower hemorrhoidal veins empty into the inferior vena cava, drugs absorbed through them might be effective in smaller doses than by mouth, since they avoid passage through the liver. This suggestion lacks substantiation, but is worthy of special investigation, as is, in fact, the whole subject of the rectal administration of drugs.

The liver is capable of fixing and destroying or otherwise eliminating a great many drugs. This fact has been used as one of the arguments against oral administration, as compared with other methods, since drugs so given generally enter the systemic circulation only after initial passage through the liver. A few drugs may be absorbed through the lymph channels and escape immediate carriage to the liver. The argument theoretically is weighty, but, unfortunately for those who advance it, it is abundantly controverted on every side by general clinical experience. The time required for destruction or fixation by the liver has been left out of account. This may vary from a few minutes to many hours, as has been demonstrated in animals. Even with a drug that is fixed or destroyed rapidly, a more or less considerable proportion will usually escape change in the liver and enter the general circulation. The oral dose of such a drug will, therefore, merely have to be made sufficiently large to allow for the portion which is destroyed during the first passage through the liver. This will almost certainly mean that the oral dose will be materially greater than that for subcutaneous or intramuscular injection, but does not necessarily render either of the latter methods preferable to the former.

A point of much greater importance in this connection, however, is the relation between the rate of absorption from the intestine and the rate of removal by the liver. On this subject there is almost no information, but the fact that most drugs are more or less effective by mouth suggests that the rate of liver destruction is generally considerably slower than is that of intestinal absorption. Certainly the assumption that liver fixation or destruction is a serious bar to effective oral administration is not warranted by the common experience of therapeutists.

This brings me to the last problem of which I wish to speak—that of the relation between the rate of elimination and the duration of action of a drug on the one hand and the rate of its absorption from different channels of administration on the other. This relationship, more than any other factor, determines the mode of administration, the dosage and the frequency of repetition of drugs, except for those few agents whose actions may prove life-saving in circumstances of great urgency, such as strophanthin in cardiac failure and epinephrin in shock. Important as this relationship is in therapeutics, it has seldom been the subject of systematic investigation. Until much more definite information is available, oral administration must unquestionably remain the most satisfactory and the most precise method.

The dose of a drug may be defined as that amount which will just suffice to produce the desired effect in a given patient under the particular existing conditions. This dose cannot be known in advance, for it is not the same in different patients, nor even in the same patient at different times. By oral administration, fractions of this dose can be given as often as necessary, until the desired dose is absorbed and the action sought has been developed. By varying the size of the fractions and the frequency of repetition, the required dose can be approximated with greater certainty and precision than by any other method, and the rapidity with which the effects are developed may also be controlled with some degree of accuracy.

CONCLUSION

Finally, let me repeat that it has been my endeavor to arouse a more general interest in the manifold problems of the absorption of drugs on the part of both pharmacologists and clinicians. I am well aware that many points have been omitted from the foregoing discussion, and that many have been treated in a brief and sketchy manner, largely because of the dearth of facts. But it is just this tremendous lack of precise knowledge that has led me to bring the subject to your attention. I regard it as a reproach to men who profess to follow a learned calling that they should ignore a subject so fundamental as the absorption of the drugs which they daily administer. If I have been able to awaken in you the desire to investigate some of the problems mentioned, I shall feel that my task has been accomplished.

34 East Seventy-Fifth Street.

Opsonins.—Realizing that there was a more definite basis for phagocytosis than was embraced in the older conceptions Wright introduced the idea of opsonins to designate the presence in the blood serum of substances which render the various bacteria subject to phagocytosis. The normal blood serum contains such opsonic material for the various bacteria with which it may be infected, but this varies greatly toward the different organisms. Thus we may find individuals showing much more opsonin (a higher opsonic index) toward one organism than toward another. This explains in a way, the well known fact that different people are variably susceptible to the same disease, while the same individua may be strongly resistant toward infection with one organism, but easily a victim of another infection. Regarding thei chemical nature very little is known. There seems to be a certain amount of evidence which points to the fact that thes opsonins belong to the class of globulins, while Simon and Lamar have shown that they are apparently associated with the euglobulin fraction. . . . The opsonins are thermolabile and are usually destroyed by heating for ten minutes t 60 C.—Webster: Diagnostic Methods, Philadelphia, P. Blakiston's Son & Co., 1923.

SOME TOXIC EFFECTS OF DIGITALIS *

WILLIAM D. REID, M.D.
BOSTON

The administration of digitalis in the treatment of heart affections may be said to have been revolutionized since the work of Eggleston[1] in 1915. This student of digitalis has demonstrated that it is possible to use the body weight of the patient for the estimation of the approximate total amount of the drug which would be required to obtain its therapeutic effects. The question of dosage in the use of digitalis has at last been put on a sound basis. There is abundant evidence that the "Eggleston method" of digitalis administration has been of great benefit to those in need of its action, and the question arises whether any harm has resulted from the larger dosage which the method implies.

Opportunity has been afforded in the heart laboratory of the Boston City Hospital to study the effect of digitalis on a large number of patients. A variety of untoward results have been observed, and it is my purpose to report certain of these, with some discussion of their significance.

It is desirable, at this point, to emphasize that the average case of heart disease was successfully treated, but this report deals with those in which toxic effects were observed. Their nature was sufficiently important to warrant publication, but the reader is cautioned against passing judgment on the quality of the therapy administered in a large metropolitan hospital.

THE EGGLESTON METHOD OF DIGITALIS ADMINISTRATION

In prescribing digitalis according to the method of Eggleston, digitalization, i. e., the full therapeutic effect of the drug, may be obtained when the patient has been given 0.15 cat unit per pound of body weight. Hatcher and Eggleston[2] have shown that, when using digitalis preparations of standard potency, there is one cat unit to 1 c.c. of the tincture, 0.1 gm. of the leaf, and 10 c.c. of the infusion, respectively. More recently, Eggleston and Wyckoff[3] have changed the dosage recommended to 0.1 cat unit per pound of body weight of the patient.

The arithmetic necessary to calculate the amount of the drug needed to digitalize a patient has become, therefore, very simple. The approximate amount will be 1 c.c. of the tincture, or 0.1 gm. of the leaf[4] for each 10 pounds of body weight of the patient. This is accomplished by the simple procedure of inserting, in the figure representing the patient's weight in pounds, one decimal for the tincture, and two for preparations of the dried leaf. Thus, if the patient weighs 156 pounds, the approximate dose at which digitalization may be expected would be 15.6 c.c. of the tincture and .56 gm. of the dried leaf. Many of the preparations, such as digitan (digipuratum), are put up in pills containing 1 decigram (0.1 gm. or 1½ grains), and therefore, in the case just cited, one would give 15.6 of the pills. When using pills not of the 0.1 gm. strength the number of pills required would, of course, be that of which the sum of the digitalis content equaled the number of grams of the leaf in the original calculation, i. e., 1.56 gm. in the example cited.

The studies of Pardee[5] have shown that the body disposes daily, on an average, of 22 minims of the tincture of digitalis of standard potency. It is necessary, therefore, when the administration of the drug is continued over a series of days, to subtract the amount that may be estimated to have been eliminated, or otherwise disposed of, in order to ascertain the total amount of digitalis which may be considered active in the patient at any one time. There are, it is true, considerable variations from one individual to another in the rate at which digitalis is used up; Pardee encountered as low a daily rate as 10 minims, and as high as 40 minims. For the purpose of analysis of the digitalis therapy in the cases to be reported below, 22 minims, or 1.5 c.c. will be deducted for each day that the drug was administered. It is admitted that if the individual patient happened to dispose of the drug at a higher or lower rate, an error will unavoidably affect the calculations. This error, however, will be relatively small in the courses covering but a few days; and, since the amount of digitalis given was usually large, it does not appear to affect seriously the estimation of the total digitalis active in the patients.

The following cases have been selected from those seen during the past two years' work of the heart laboratory of the Boston City Hospital. They do not comprise all in which toxic effects were noted; many had to be excluded, owing to the absence of certain details, such as a statement of the body weight or a sufficiently accurate record of the digitalis administration. The work is not offered as being comparable to such a carefully controlled study as that of Eggleston and Wyckoff,[3] but, on the other hand, it is believed that a comparison of these clinical observations to the more accurate data reported by the authors referred to is not without considerable practical value. No attempt is made to include all of the toxic effects of the drug; they have already been well described by other observers, and reviewed by Robinson.[6]

COUPLED RHYTHM

Case 1.—*History.*—A woman, aged 55, whose condition was diagnosed as auricular fibrillation, the type of heart disease being undetermined (probably arteriosclerotic), developed coupling on the eighth day of treatment, which was associated with extreme nausea and a little vomiting. The digitalis was omitted, and the symptoms and coupling disappeared after three days.

Digitalis Record.—The weight of the patient was 132 pounds (60 kg.). She was given 4 c.c., and then 4 c.c. a day, in divided doses, for eight days. The total amount of digitalis given was 36 c.c. Subtracting 12 c.c. leaves 24 c.c. as the amount of digitalis available in the patient at the time of the coupled rhythm. Twenty-four c.c. equals 181 per cent. of 13.2 c.c., the amount indicated for digitalization by the Eggleston method of calculation.

Case 2.—*History.*—A woman, aged 64, whose condition was diagnosed as arteriosclerotic heart disease, with auricular fibrillation, developed coupled rhythm and vomiting on the eighth day. The digitalis was omitted, and the coupling ceased after one week.

Digitalis Record.—The weight of the patient was 105 pounds (47 kg.). She was given 4 c.c. a day, in divided doses, for seven and one-half days. The total digitalis given amounted to 30 c.c. Subtracting 11.2 c.c. leaves 18.8 c.c., which is 179 per cent. of the 10.2 c.c. indicated.

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* From the Heart Laboratory of the Boston City Hospital.

* Read before the Section on Practice of Medicine at the Seventy-ourth Annual Session of the American Medical Association, San rancisco, June, 1923.

[1] Eggleston, Cary: Digitalis Dosage, Arch. Int. Med. **16**: 1 (July) 915.

[2] Hatcher and Eggleston: Observations on the Keeping Properties of Digitalis and Some of Its Preparations, Am. J. Pharm. **85**: 203, 1913.

[3] Eggleston, C., and Wyckoff, J.: The Absorption of Digitalis in Man, Arch. Int. Med. **30**: 133 (Aug.) 1922.

[4] I do not use the infusion, nor was it employed in the cases reported here; so further mention of it will not be made in this paper.

[5] Pardee, H. E. B.: Principles of New Method of Administering Digitalis, New York M. J. **110**: 1064 (Dec. 27) 1919.

[6] Robinson, G. C.: The Therapeutic Use of Digitalis, Medicine **1**: 1 (May) 1922.

Case 3.—*History.*—A man, aged 45, whose condition was diagnosed as rheumatic heart disease, with auricular fibrillation and mitral involvement, developed coupled rhythm on the eighth day. Digitalis was omitted, and the coupling disappeared in five days.

Digitalis Record.—The weight of the patient was 175 pounds (79 kg.). He was given 2 c.c., and then 8 c.c. a day, in divided doses, for eleven days. The total amount of digitalis given was 90 c.c. Subtracting 16.5 c.c. leaves 73.5 c.c., which is 420 per cent. of the 17.5 c.c. indicated.

Case 4.—*History.*—A man, aged 52, whose condition was diagnosed as Pick's disease (chronic multiple serositis), arteriosclerosis and heart failure of the congestive type, developed atrioventricular rhythm and ventricular extrasystoles, which caused a coupled rhythm on the fifth day, and persisted for three days after the omission of the digitalis.

Digitalis Record.—The weight of the patient was 140 pounds (63 kg.). He was given 8 c.c., and then 3 c.c. a day for four days. The total amount of digitalis given was 20 c.c.[7] Subtracting 6 c.c. leaves 14 c.c., which is 100 per cent of the 14 c.c. indicated.

In these four cases, the amount of digitalis given bears to the calculated amount, of 1 c.c. to every 10 pounds of body weight, the relation of 181, 179, 420 and 100 per cent., respectively. The occurrence of a coupled rhythm in Case 4, although the calculated dosage of digitalis had not been exceeded, is noteworthy. This man's heart is evidently prone to develop arrhythmias, for various subsequent electrocardiograms have shown atrioventricular rhythm, intraventricular block, and auricular fibrillation. Patient 16, in the report of Eggleston and Wyckoff,[3] developed coupled rhythm at a dosage estimated to be close to that of therapeutic digitalization.

ACCELERATED SINUS RATE WITH PARTIAL HEART BLOCK

Case 5.—*History.*—A woman, aged 33, whose condition was diagnosed as convalescence from influenza, and visceroptosis, developed symptoms of weakness, palpitation and precordial pain of moderate severity. The cardiac and general physical examinations were fully normal, save for evidence of poor nutrition and visceroptosis. With the exception of tonsillitis, there was no history of disease of etiologic significance as regards heart disease. The blood Wassermann reaction was negative. All symptoms were of recent origin; a cough with moderate expectoration persisted. Three basal metabolism tests were reported as + 17, + 13.3 and + 14.2 per cent., respectively.

Digitalis was administered, and the heart rate, which had been from 90 to 100, rose to from 130 to 140 without irregularity. On the third day, vomiting and much prostration appeared; the patient was very apprehensive. Examination revealed the heart to be 138; the rhythm was regular, excepting for occasional short periods when the rate was halved. Pressure on the left vagus readily slowed the rate to 69, but the moment the compressing finger was removed, the original rate of 138 returned. On the basis of the regular tachycardia so readily relieved by vagal pressure, my clinical diagnosis was paroxysmal tachycardia of auricular origin, or possibly auricular flutter with a varying degree of heart block. The electrocardiogram showed a sino-auricular tachycardia with a partial auriculoventricular heart block, causing a variation from a 1 : 1 to a 2 : 1 rhythm. The P-R interval varied from 0.28 to 0.36 second, or a failure of the ventricle to respond to the auricular impulse. On discontinuance of the digitalis, the vomiting and prostration disappeared in from twelve to eighteen hours, and normal rhythm was resumed after about two days.

Digitalis Record.—The weight of the patient was 108 pounds (45 kg.). She was given 4 c.c., and then 1 c.c. from three to five times a day, for three days. The total amount of digitalis given was 12 c.c. Subtracting 3 c.c. leaves 9 c.c., which is 83 per cent. of the 10.8 c.c. indicated.

Case 6.—*History.*—A man aged 61, whose condition was diagnosed as hypertensive heart disease and chronic nephritis, on the third day of digitalis therapy experienced a change in the heart rhythm to a regular irregularity; there were periods of heart beats at the rate of 73 a minute, alternating with others at a frequency of 48. The irregularity was present only when the beats shifted from the higher to the lower rate, or vice versa. It was clear that dominant rhythm was still present, and fibrillation of the auricles could be excluded. Auricular flutter was considered the probable diagnosis, but the graphic record showed a sino-auricular tachycardia with partial auriculoventricular heart block. The auricular rate was 146 a minute, while that of the ventricle alternated between 73 and 48.6, according to whether the latter responded to every second or third auricular impulse. The digitalis was omitted, and the arrhythmia ceased after a few hours. Eighteen hours later, the polygram showed normal rhythm with a rate of 78, and an a-c interval just under 0.3 second (the maximum normal).

Digitalis Record.—The weight of the patient was 140 pounds (63 kg.). He was given 2 c.c., and then the same dose five or six times a day for two and one-half days. The total amount of digitalis given equaled 26 c.c. Subtracting 3.75 c.c. leaves 22.25 c.c., which is 159 per cent. of the 14 c.c. indicated.

These two cases are of interest because of the unusual effect of digitalis. The clinical imitation of paroxysmal tachycardia or auricular flutter was striking. The occurrence of partial heart block during digitalis therapy is common but, so far as I am aware, the elevation of the rate at which the sino-auricular node initiates impulses is very rare. A similar action was noted by Halsey[8] in experimental work on dogs. He found that occasionally, with or without previous slowing or the occurrence of ectopic beats, digitalis caused a marked acceleration of the sinus rate.

The first patient was obviously very intolerant to digitalis, the dosage of which was slightly less than that calculated for her body weight. The elevation of the basal metabolism in the three determinations was not, in my opinion, sufficiently great to justify a positive diagnosis of hyperthyroidism. There were various features in the clinical picture and in the presence of a subsiding acute infection to suggest that the vagus nerve was in an abnormal condition and particularly susceptible to the influence of digitalis. Even if the assistance of an electrocardiogram had not been available, the appearance of excessive vomiting was a good clinical guide for the cessation of the administration of digitalis.

Patient 6 was benefited by several courses of digitalis during his long stay in the hospital, and displayed this unusual arrhythmia but once. At the time of the sino-auricular tachycardia and partial heart block, he was nauseated and prostrated, but did not vomit.

AURICULAR FIBRILLATION

Case 7.—*History.*—A man, aged 56, whose condition was diagnosed as hypertensive heart disease, had partial heart block (P-R interval, 0.24 second) on the thirteenth day and auricular fibrillation on the twenty-fifth day. Digitalis was omitted, but the fibrillation of the auricles continued.

Digitalis Record.—The weight of the patient was 154 pounds (70 kg.). He was given an average of 6.6 c.c. a day for twenty-five days. The total amount of digitalis given was 153.8 c.c. Subtracting 37.5 c.c. leaves 116.3 c.c., which is 755 per cent. of the 15.4 c.c. indicated.

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[7] In this and in some of the subsequent reports, the total amount of digitalis differs, owing to the omission of some doses for reasons such as that the patient was asleep. I have excluded all cases save those in which I am certain of the amounts given.

[8] Halsey, J. T.: The Digitalized Dog's Heart as Affected by Amyl Nitrite or Atropine, Studied Electrocardiographically, J. Exper. Med. **25**: 729 (May) 1917.

CASE 8.—*History.*—A man, aged 38, whose condition was diagnosed as cardiovascular syphilis, marked heart failure and aortic insufficiency, and in whose case an electrocardiogram on the second day showed: partial auriculoventricular heart block (P-R interval, 0.26 second), intraventricular block (right bundle branch), occasional ventricular extrasystoles, and a heart rate of 75, was given digitalis. On the ninth day its administration was discontinued, owing to toxic symptoms. The electrocardiogram disclosed auricular fibrillation, intraventricular block and a ventricular rate of from 50 to 69. Normal rhythm returned after about one week.

Digitalis Record.—The weight of the patient was 160 pounds (73 kg.). He was given digitalis in divided doses for nine days. The total amount of digitalis given was 75 c.c. Subtracting 13.5 c.c. leaves 61.5 c.c., which is 384 per cent. of the 16 c.c. indicated.

It cannot be stated with conviction that in the foregoing two cases digitalis and the onset of the auricular fibrillation bear the relation to each other of cause and effect. However, such a relationship has been observed in experimental work [9] on animals, and in man, Danielopolu [10] has reported three cases, and Mackenzie,[11] one. As noted by these observers, the onset of the fibrillation occurred at the height of the digitalis effect; in fact, only after enormous doses had been taken. The work of Lewis [12] and his co-workers on the nature of auricular flutter and fibrillation disclosed data about the action of vagal stimulation on the auricular tissue which make the appearance of auricular fibrillation as a result of an intense digitalis-induced stimulation of the vagus nerve seem more easy to credit.

PAROXYSMAL TACHYCARDIA OF VENTRICULAR ORIGIN

CASE 9.—*History.*—A woman, aged 50, whose condition was diagnosed as auricular fibrillation, probably associated with hypertensive heart disease, was nauseated on the third day, and vomited slightly on the fifth day; paroxysms of tachycardia arising in the ventricle appeared on the fifth day and soon became permanent. Death from progressive heart failure ensued on the seventh day.

Digitalis Record.—The weight of the patient was 200 pounds (90 kg.). She was given 8 c.c., and then divided doses for four and six-tenths days. The total amount of digitalis given was 50 c.c. Subtracting 6.9 c.c. leaves 43.1 c.c., which is 215 per cent. of the 20 c.c. indicated.

CASE 10.—*History.*—A man, aged 63, whose condition was diagnosed as arteriosclerotic heart disease, with auricular fibrillation, developed slowing of the heart and occasional extrasystoles on the second day, vomited twice on the fourth day, had ventricular tachycardia on the fifth day, and died suddenly during the succeeding night.

Digitalis Record.—The weight of the patient was 160 pounds (72 kg.). He was given 16 c.c., and then 2 c.c. from four to six times a day for five and three-tenths days. The total amount of digitalis given was 88 c.c. Subtracting 8 c.c. leaves 80 c.c., which is 500 per cent. of the 16 c.c. indicated.

CASE 11.—*History.*—A woman, aged 88, whose condition was diagnosed as arteriosclerotic heart disease, with auricular fibrillation, had marked edema of the dependent parts. On the second day, the heart rhythm suddenly became regular, with a rate of 160. On the morning of the third day, the electrocardiogram showed the rhythm to be paroxysmal tachycardia of ventricular origin; this changed to ventricular fibrillation, and the patient died suddenly.

Digitalis Record.—The weight of the patient was 135 pounds (61 kg.) before the onset of the edema. She was given 4 c.c., and then 2 c.c. in repeated doses for two days. The total amount of digitalis given was 23 c.c. Subtracting 3 c.c. leaves 20 c.c., which is 148 per cent. of the 13.5 c.c. indicated. (The ventricular tachycardia appeared after only 11 c.c. of digitalis had been taken, but there is a great probability that the drug had already been administered by the patient's physician before admission to the hospital.)

CASE 12.—*History.*—A man, aged 47, whose condition was diagnosed as auricular fibrillation and myocardial insufficiency, the type of heart disease being undetermined, developed paroxysmal tachycardia arising in the ventricle on the morning of the fifth day. The duration of the individual paroxysms was usually less than one minute. The digitalis was omitted, and after about twenty-four hours, the runs of ventricular tachycardia ceased. The underlying rhythm of auricular fibrillation with ventricular extrasystoles persisted until the patient died two months later.

Digitalis Record.—The weight of the patient was 190 pounds (86 kg.). He was given 12 c.c., and then divided doses until the fifth day. The total amount of digitalis given was 49 c.c. Subtracting 6 c.c. leaves 43 c.c., which is 226 per cent. of the 19 c.c. indicated.

CASE 13.—*History.*—A woman, aged 60, whose condition was diagnosed as auricular fibrillation, with probably arteriosclerotic heart disease, on the fifth day had nausea, prostration and paroxysmal tachycardia of ventricular origin. The administration of digitalis was omitted, and the paroxysms, of an average duration of several hours, ceased after three days. Death from persistent heart failure occurred one week later.

Digitalis Record.—The weight of the patient was 155 pounds (70 kg.). She was given 8 c.c., and then divided doses for five days. The total amount of digitalis given was 35.3 c.c. Subtracting 7.5 c.c. leaves 27.8 c.c., which is 179 per cent. of the 15.5 c.c. indicated.

These five cases of paroxysmal tachycardia of ventricular origin are of decided interest. In view of the paucity of reports of this arrhythmia, the cases will be reported in more detail in a subsequent paper.

Ventricular ectopic tachycardia has been noted in experimental work, such as that of Levine.[13] Case 16 in the series of patients studied by Eggleston and Wyckoff [3] showed this rhythm following the administration of digitalis. A good recovery followed. Levy [14] and Oppenheimer and Mann [15] observed ventricular tachycardia in the course of quinidin therapy. More recently, Schwensen [16] of Copenhagen reported two cases, ending in death, which he attributed to the action of digitalis. Robinson and Herrmann [17] have emphasized the frequent association of paryoxysmal tachycardia of ventricular origin with an infarct of the coronary artery, and have pointed out that the diagnosis requires proof by an electrocardiogram, and that, even then, the differentiation from paroxysmal tachycardia arising in the auricle is not always certain.

The occurrence of ventricular ectopic tachycardia, though rare, is of distinct practical importance. In each case, the appearance of a regular tachycardia during the treatment of auricular fibrillation caused a clinical diagnosis of auricular flutter to be entertained. If correct, then the usual decision would be to administer more digitalis in the hope of at least slowing the ventricular rate. It need hardly be argued that if more digitalis is given to a patient in whom the drug has already caused ventricular ectopic tachycardia, a serious error is made, and the possibility of the death of the patient is increased.

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[9] Lewis, Thomas: The Mechanism and Graphic Registration of the Heart Beat, New York, Paul B. Hoeber, 1920, p. 343.

[10] Danielopolu: Arythmie complète chèz l'homme provoqué par la digitale: rôle du systeme modérateur, Bull. et mém. Soc. de biol. **79:** 97, 1916.

[11] Mackenzie: New Methods of Studying Affections of the Heart, II, Action of Digitalis on the Human Heart, Brit. M. J. **1:** 702, 1905.

[12] Lewis, Thomas: Heart **7:** 117, 127, 131 (April); 293 (Aug.) 1920; **8:** 193 (May) 1921.

[13] Levine, S. A.: The Action of Strophanthin on the Living Cat's Heart, J. Exper. Med. **29:** 485 (May) 1919.

[14] Levy, R. L.: Clinical Studies of Quinidin, Arch. Int. Med. **30:** 451 (Oct.) 1922.

[15] Oppenheimer, B. S., and Mann, Hubert: Results with Quinidine in Heart Disease, abstr. J. A. M. A. **78:** 1752 (June 3) 1922.

[16] Schwensen, C.: Ventricular Tachycardia as a Result of the Administration of Digitalis, Heart **9:** 199 (April) 1922.

[17] Robinson, G. C., and Herrmann, G. R.: Paroxysmal Tachycardia of Ventricular Origin, and Its Relation to Coronary Occlusion, Heart **8:** 59 (Feb.) 1921.

CONTROL CASES

As far as the foregoing thirteen cases are concerned, it would appear that the dosage was usually far in excess of that needed to produce the maximum therapeutic effect according to the Eggleston method of computing the amount in relation to the weight of the patient in pounds. The question promptly arises, however, as to the potency of the tincture of digitalis administered. A very good answer to this question should be obtainable from the results on other patients treated with the same preparation.

Consequently, I have selected nine patients in whom there occurred marked slowing of the ventricular rate, often with the removal or considerable reduction of the pulse deficit, and a definite reduction in the T wave in Lead 2 of the electrocardiogram. Both of these are generally conceded to be reliable criteria of the therapeutic action of digitalis. There was in addition ample clinical evidence of the therapeutic effect of the drug.

A glance at Table 2 will best show the results. In Cases 16 and 18, in which two courses of digitalis were given, the difference in the amount of the drug administered may well be explained by the fact that the larger totals coincide with the longer courses. This permits a greater reduction in the total effective digitalis if these patients happen to have a higher rate of excreting or other disposal of the drug. Thus, it should be recalled that Pardee[5] showed that in some patients the daily using up of digitalis was as high as 40 minims, while the calculations used in this paper have been based on the average rate of 22 minims.

In Cases 21 and 22, and particularly in the latter, the totals are well over the expected amounts. In Case 22, since vomiting was present, it is probable that the point of maximum therapeutic action of digitalis was exceeded, but also it seems necessary to consider an insusceptibility of this patient's heart to the drug, or a poor rate of absorption from the intestinal tract.

Table 1.—*Cases Showing Toxic Effects*

Case No.	Body Weight, Pounds	Total Digitalis C.c.*	Relation to Amount Calculated by Eggleston Method Per Cent.	Number of Days to Course of Digitalis
COUPLED RHYTHM				
1	132	24	181	8
2	105	18.8	179	7.5
3	175	73.5	420	11
4	140	14	100	4
PARTIAL HEART-BLOCK WITH ACCELERATED SINUS RATE				
5	108	9	83	2
6	140	22.25	159	2.5
ONSET OF AURICULAR FIBRILLATION				
7	154	116.3	755	25
8	160	61.5	384	9
VENTRICULAR ECTOPIC TACHYCARDIA				
9	200	43.1	215	4.6
10	160	80	500	5.3
11	135	20†	148†	2†
12	190	43	226	4
13	155	27.8	179	5

* After subtraction of 1.5 c.c. daily for the number of days the drug was administered.

† Patient probably had digitalis, amount unknown, before admission to the hospital.

It is also emphasized that the cases cited as controls were not originally studied with the idea of ascertaining the exact moment at which the maximum therapeutic effects of digitalis were first present. They should not be considered, therefore, as presenting the same degree of accuracy as those reported by Eggleston and Wyckoff.[3] These observers, furthermore, pointed out the difficulty of determining just when maximum therapeutic effects have been achieved. Even in their studies of the average doses producing the initial effects of digitalis (a point, it is repeated, that can be more accurately determined than that of the maximum therapeutic action), they report in their Table 4 a range of variation as high as 59 per cent. below, and 57 per cent. above, the average doses. With these facts in mind, it is almost surprising to find how closely the total amounts of digitalis given approach those computed by the Eggleston method. It seems justifiable to conclude, therefore, that the tincture of digitalis administered in the cases reported in this paper was effective at a total dosage approximating that indicated by calculations based on the Eggleston method.

Table 2.—*Control Cases*

Case No.	Body Weight, Pounds	Total Digitalis C.c.*	Relation to Amount Calculated by Eggleston Method Per Cent.	Number of Days to Course of Digitalis
14	160	11.5	71	5
15	142	12	83	5
16	180	17.5	97	12
16†	180	16.5	91	4
17	118	12	101	16
18†	162	20.5	120	41
18	162	15	92	10
19	160	18.2	114	4
20	200	23.1	115	5
21	148	24	162	3
22	110	27	245	5

* After subtraction of 1.5 c.c. daily for the number of days the drug was administered.

† There was an interval exceeding three weeks, during which no digitalis was administered.

POOR ABSORPTION OF DIGITALIS

Case 23.—*History.*—A man, aged 38, whose condition was diagnosed as hypertensive heart disease and chronic nephritis, was given large amounts of digitalis with no untoward effects. The electrocardiogram on the twenty-fourth day showed. partial heart block, the P-R interval measuring 0.26 second, heart rate, 64, and marked inversion of the T wave, especially in Lead 2.

Digitalis Record.—The weight of the patient was 145 pounds (65 kg.). He was given 25 minims of digitalis three times a day for twenty-four days. The total amount of digitalis given was 118.3 c.c. Subtracting 36 c.c. leaves 83.2 c.c., which is 567 per cent. of the 14.5 c.c. indicated.

Patient 7, although partial heart block and later fibrillation of the auricles appeared, had surprisingly little in the way of symptoms of digitalis toxicity. The total dose in this case, it should be noted, was 755 per cent.. of the amount calculated by the Eggleston method.

In both Case 7 and Case 23, the digitalis therapy was prescribed for the relief of cardiac insufficiency associated with a normal sinus rhythm. In such patients, it is often less easy to observe the therapeutic benefit of digitalis. The striking point, however, in these two cases, Cases 7 and 23, is the enormous amount of the drug that was taken without evidence, at least in Case 23, of serious toxic effects. Since the same preparation of digitalis was administered to these two patients as to the others described in this report, it seems reasonable, as mentioned above, to believe that either their hearts were unusually insusceptible to the action of the drug, or else the latter was poorly absorbed from their intestinal tracts. Perhaps both of these factors were in operation.

TINCTURE USED

Further information as to the tincture of digitalis used in these cases was sought from the hospital pharmacy. It was learned that the tincture is made in 5 gallon lots about three times a year. In March, 1922, specimens were submitted to the Department of Pharmacology of Harvard Medical School, and to the Antitoxin and Vaccine Laboratory, Massachusetts Department of Public Health. The former, using the one-hour frog method, reported that the preparation was 14 per cent. under the pharmacopeial strength, whereas the latter, by the guinea-pig method of Reed and Vanderkleed, found it was at least 25 per cent. stronger than the standard requirements.

It is realized that the potency of the several lots of digitalis tincture may have varied. However, examination of the dates at which the various cases were treated shows an almost even distribution by months for those in which toxic effects were noted and those I have used as control cases; only one patient in each group was treated in 1921, the remainder being treated between March, 1922, and April, 1923. This fact tends to reduce the number of tinctures used. In my opinion, the data presented under the control cases is sufficient evidence of the potency of the tincture of digitalis administered in the cases reported above.

COMMENT

In the extensive literature pertaining to the action of digitalis, three of the toxic effects reported in this paper, i. e., accelerated sinus rate with partial heart block, the onset of auricular fibrillation, and ventricular ectopic tachycardia, are relatively rare. The first and last of these arrhythmias may simulate the clinical picture of flutter of the auricles, for which digitalis is usually indicated. In case, however, the condition is not auricular flutter but paroxysmal tachycardia rising in the ventricle and resulting from the administration of digitalis, it is the height of folly to give more of the drug, which might increase the chance of the sudden change to ventricular fibrillation, which spells death. I have seen this error made, and in one case I obtained electrocardiograms of the change to fibrillation.

A word about the method of prescribing digitalis: One finds written directions to repeat the dose "every three hours," and in other cases "every four hours." It takes several hours for a dose of digitalis to be absorbed so that its effects may be observed, and Eggleston[18] has clearly pointed out that after the first few doses, the drug should not be administered more frequently than at six-hour intervals, so that sufficient time may elapse to disclose the effect of the preceding dose before another is given. This has greater importance, of course, if relatively large doses are being used. A minimum interval of six hours is one of the safeguards which Eggleston has set for the protection of patients treated by his method and it should not lightly be set aside.

In some instances, the order is written to repeat the dose unless there is vomiting or the pulse rate reaches 60. There is no objection to these directions provided too great reliance is not placed on their protective influence. It must be emphasized that there are some patients who may be seriously or even fatally poisoned by digitalis, and yet emesis does not occur. Also it frequently happens that the onset of ventricular extrasystoles, if the latter are felt at the wrist, may prevent the pulse rate from dropping to 60 a minute.

The calculation of the approximate amount of digitalis required to obtain its therapeutic effects in a patient is now very simple. Many of the patients are affected by serious forms of heart disease, and it seems fair to state that, in the enthusiasm for the brilliant results obtainable by using the large doses of the drug, sufficient respect should be retained for its toxic effects. The physician should be very conscious of the relation of the patient's weight in pounds to the total amount of digitalis estimated to be active in him at any given moment. If any signs or symptoms appear that might be due to toxic effects of digitalis, the relation of the amount of the drug already given to that calculated by the Eggleston method should promptly be determined, and the result used in the decision as to the further administration of the drug.

SUMMARY AND CONCLUSIONS

In thirteen cases in which untoward results followed the administration of digitalis, the records were analyzed to obtain information regarding the appearance of these toxic effects in relation to the total amount of the drug estimated to be then effective in the patients, and to the amount of digitalis indicated according to the Eggleston method of calculating this.

The toxic effects here described are: coupled rhythm, partial heart block with an acceleration of the sinus rate, the onset of auricular fibrillation, and paroxysmal tachycardia originating in the ventricle.

Partial heart block with an increase of the sinus rate, and of ventricular ectopic tachycardia, closely simulates the clinical picture of flutter of the auricles. Continuing the administration of digitalis, especially in cases of the latter arrhythmia, is dangerous.

The tincture of digitalis administered to the patients described in this report was effective at a total dosage approximating that indicated by calculations based on the Eggleston method.

When using a large dosage of digitalis, the physician should know at all times the relation of the amount of the drug already administered to that which would be expected to be the approximate amount for therapeutic effect.

If signs or symptoms appear that may be toxic effects of the drug, and if calculation shows that the amount already given is near or above the Eggleston dosage, additional digitalis should be administered cautiously, if at all.

East Harlem Health Center Demonstration.—An increase of 81 per cent. in the services of health agencies to 112,000 people, with an increase of but 9 per cent. in cost, is the record announced by the East Harlem Health Center, which is experimenting in the coordination of health work by bringing together for cooperative effort twenty-two health and social agencies. The New York Chapter of the American Red Cross, sponsor for the demonstration, has guaranteed its existence by providing $168,000. Among the outstanding accomplishments of this demonstration are: (1) successful practical coordination, (2) greatly increased efficiency with only slight increase in cost, (3) enlistment of interest of the people, (4) intensive demonstrations, and (5) highly successful follow-up in school health work.—*Public Health Rep.* **38**:1581 (July 13) 1923.

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[18] Eggleston, Cary: Administration of Digitalis by "Eggleston Method," J. A. M. A. **74**: 733 (March 13) 1920.

THE FAVORABLE PROGNOSIS OF AURICULAR FIBRILLATION *

T. HOMER COFFEN, M.D.
PORTLAND, ORE.

Auricular fibrillation in man has generally been considered a result of myocardial damage.[1] Observations in many cases by many observers make it appear that heart function may not be seriously impaired by this rhythm. Whether this abnormal cardiac rhythm, resulting from profound disturbance in the auricles, throws an added burden on the heart's efficiency, or whether it is one of several unimportant signs of impaired cardiac function, is worthy of consideration. Symptoms and signs of decreased cardiac reserve are found in hearts without this rhythm; etiologic and predisposing factors may be the same as are found in auricular fibrillation, and yet the patients present very similar clinical courses. Some hearts develop this rhythm so insidiously that the patient is but little inconvenienced, even though it becomes permanent. Others, after a period of decompensation coincident with the inception of the new rhythm, are tided over and compensate well for years. Still others show brief paroxysms of this arrhythmia, with spontaneous restoration of normal rhythm. Again, it may appear in young hearts in the course of decompensation incidental to acute endocarditis, disappearing with a return of compensation.[2] These facts make it appear that the condition, per se, may not be the cause or the effect of myocardial disease.

INCIDENCE

Auricular fibrillation is the most frequent of all irregularities of the heart.[3] From 60 to 90 per cent. of decompensated hearts, and most irregular hearts with a rate of 120 or over, are probably in this condition.[4] Flint observes that when there is no history of rheumatism, the condition is associated with advancing years, occurring most frequently in the sixth to the seventh decades. It is the usual arrhythmia accompanying decompensation in rheumatic mitral stenosis.[5] It is found more commonly in men than in women (Table 1). If one divides the cases into rheumatic and nonrheumatic groups, the sexes are about equally divided, because mitral stenosis is frequent in rheumatic female subjects, and atheroma in men.

Table 1.—*Relation of Fibrillation to Sex, According to Various Authors*

Author	Men, Per Cent.	Women, Per Cent.
Lewis (Cohn, in Nelson's Loose Leaf Medicine **4:** 333, 1920) 189 cases	60	40
Semerau (Cohn, in Nelson's Loose Leaf Medicine **4:** 333, 1920) 193 cases	70.15	29 85
Willius (Clinical Electrocardiography, 1922, p. 66) 500 cases	53.6	46.4
Levine (Am. J. M. Sc. **154:** 43 [July] 1917) 128 cases	50	50

Table 2.—*Relation of Various Diseases, According to Various Authors*

Author	Exertion, per Cent.	Articular Rheumatism, per Cent.	Syphilis, per Cent.	Infective Disease per Cent.	Atherosclerosis, per Cent.	Renal Disease, per Cent.	Exophthalmic Goiter, per Cent.	Adenoma Thyroid, per Cent.
Lewis (after Cohn) 152 cases	....	66.3	0.7	0.7	17.7	8.5	....	....
Frey (after Cohn) 100 cases	....	31.0	....	4.0	32.0	9.0	5.0	....
Semerau (after Cohn)	6.3	26.1	6.3	3.6	36.1	4.5	0 9	....
Willius* 500 cases	....	30.6	....	....	69.4	....	27.9	20.5

* He estimates (Clinical Electrocardiography, p. 66) that 9 per cent. of exophthalmic goiter and 70 per cent. of toxic thyroid adenomas show auricular fibrillation.

ETIOLOGIC AND PREDISPOSING FACTORS

Besides rheumatism with valvular endocarditis and arteriosclerosis, both of which are apt to be accompanied by myocardial weakness, various other factors are of prognostic significance. Among these are prolonged effort, infective diseases, thyroid disease and renal disease[6] (Table 2). Effort, sometimes slight and sometimes violent, may produce it. This occurs most often in middle life or in rheumatic hearts.[7]

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* Read before the Section on Practice of Medicine at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

* Because of lack of space, this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the author's reprints. A copy of the latter will be sent by the author on receipt of a stamped addressed envelop.

[1] Years ago, physiologists noted that there was fibrillation of the ventricles just before death in experimental animals, and that fibrillation of the auricles was less apt to be fatal, since the auricles recover normal rhythm more easily than the ventricles. "The auricles, when in a state of fibrillation, present an entirely different aspect than during normal action; the walls of the auricle stand in diastolic position; systole, either complete or partial, is never accomplished; the wall, as a whole, is stationary, but careful examination of the muscle reveals an extremely active condition; it appears to be alive with movement; rapid, minute and constant twitching or undulatory movements are observed in a multitude of small areas upon its surface" (James Mackenzie: Diseases of the Heart, 1914, p. 216). "The movement as a whole is more or less incoordinate, and therefore ineffectual" (Thomas Lewis: Mechanism and Graphic Registration of the Heart Beat, 1920, p. 444). The story of the discovery that this form of arrhythmia is due to fibrillation of the auricle is nothing short of dramatic. Lewis' explanation of a circuitous pathway of the contraction impulse in the auricular wall, and the more recent use of quinidin, have reawakened interest in the subject. While there are now numerous references to the use of quinidin in auricular fibrillation, the following are among the first to appear: Levy, R. L: Restoration of the Normal Cardiac Mechanism in Auricular Fibrillation by Quinidin, J. A. M. A. **76:** 1289 (May 7) 1921. Lewis, Drury, Iliescu and Wedd: Restoration of Normal Cardiac Mechanism in Auricular Fibrillation, Brit. M. J. **2:** 514 (Oct.) 1921. White, P. D.; Marvin, H. M., and Burwell, C. S.: The Action of Quinidine Sulphate in Heart Disease to Abolish the Circus Movement of Auricular Flutter and Fibrillation, M. Rec. **185:** 647 (Dec. 1) 1921. Lewis, Thomas: The Value of Quinidine Sulphate in Cases of Auricular Fibrillation, Am. J. M. Sc. **163:** 781 (June) 1922; The Action of Atropine and Quinidine in Fibrillation of the Auricles, ibid. **164:** 1 (July) 1922. "Arrhythmia perpetua" had been noted years before, and Nothnagel described a case in 1878, which we now recognize as auricular fibrillation, as noted by Hamburger (The Recognition and Treatment of Different Forms of Auricular Fibrillation, M. Clin. N. Am. **5:** 1705 [May] 1922). The condition was recognized as an entity by Mackenzie as early as 1890, but he thought it due to irregular simultaneous contractions of auricles and ventricles from a stimulus arising in the auriculoventricular node, and so termed it "nodal rhythm." He noted the disappearance of the auricular wave in jugular tracings. Cushny, in 1906, noted the similarity between tracings from dogs with auricular fibrillation and human tracings of paroxysmal irregularities, and suggested that this might be a factor of clinical importance; on a visit to Mackenzie, he suggested that auricular fibrillation might be identical with "nodal rhythm." Mackenzie published polygraph tracings with this explanation in 1907, but stated that he "failed to appreciate what auricular fibrillation really was." Lewis had been investigating cardiac irregularities clinically, and experimentally producing fibrillation of the auricles in the dog, and noted in 1909 that with the onset of fibrillation the venous curves changed from the auricular to the ventricular form, and the electrocardiograms, especially in Lead III, showed certain oscillations during ventricular diastole, produced by the fibrillating auricles. Examining some of the electrocardiograms of typical cases of "nodal rhythm" sent him by Mackenzie, he found these oscillations present and demonstrated their correspondence with the small fibrillation waves. Rothberger and Winterberg also showed the electrocardiographic relation between fibrillation in man and animals in the same year.

[2] An illustration of the insidious development of auricular fibrillation, with no subjective or objective symptoms or signs, is seen in Case 1. Fibrillation developing during an acute cardiac breakdown incidental to chronic endocarditis is seen in Case 27, while fibrillation found a year after an acute breakdown is seen in Case 26. Case 17 is probably of fifteen years' duration, and yet the patient, now 69 years old, is comfortable and ambulatory. Cases 15 and 35 illustrate paroxysmal auricular fibrillation, with restoration of normal rhythm between attacks; in the first, a comparatively young man, there are but few signs of disturbed cardiac function, while in the second, a man of 69, pulmonary edema of alarming severity has attended the attacks. Mackenzie (Diseases of the Heart, pp. 217 and 229) refers to a patient, a physician, aged 50, seen in a transient attack. He was under observation for ten years, remaining well and with a regular heart. Bishop (J. A. M. A. **79:** 196 [July] 1922) refers to patients under observation fifteen years in comparative comfort with permanent fibrillation.

[3] According to various authors, the arrhythmias are found in the following frequency: auricular fibrillation, 48 per cent.; premature contractions, 44 per cent.; sinus irregularities, 14.4 per cent.; disorders of conduction, 4.15 per cent.; flutter of auricles, 1.1 per cent. According to Lewis, the last three types of arrhythmia form about 25 per cent. of all.

[4] Flint, H. L.: The Heart: Old and New Views, New York, Paul B. Hoeber, 1921, p. 148. Mackenzie, James: Diseases of the Heart, p. 217.

[5] Neuhof, S.: Clinical Cardiology, New York, the Macmillan Company, 1917, p. 104.

Digitalis may produce it,[8] while, on the other hand, Eyster and Fahr[9] refer to rare cases in which auricular fibrillation is not accompanied by demonstrable valvular or myocardial change, and in which no serious break in compensation has occurred.

Contrary to the view of muscle damage as the cause of fibrillation, it is thought by some to be due to abnormal stimulus production in the sinus node, or multiple foci in the auricular wall, or that the disorganization of auricular activity is a defect in conduction, the sinus node maintaining its activity or some other auricular focus taking it over.[10]

PROGNOSTIC FACTORS

In spite of its frequency, its etiologic relation to antecedent rheumatic involvement with endocarditis or to cardiosclerosis, and the ease of recognition of auricular fibrillation,[11] it is too frequently overlooked, or when it is suspected or recognized, a serious prognosis is too often given. While there are numerous contributions to the subject in the literature, they have dealt largely with diagnosis, discussion of its mechanism, or response to quinidin, and not with prognosis. Pardee,[12] however, pointed out that an irregular heart does not of necessity cripple the individual, and that breaking down of cardiac reserve takes a variable amount of time, the variation depending on the quality of heart muscle, on the demands the patient makes on his heart, or on the associated pathologic conditions.

Whether auricular fibrillation depends on diseased myocardium or to changes in stimulus production or conduction, prognosis depends primarily on the degree and duration of impaired cardiac efficiency and the heart's ability to function under the new rate and rhythm. If decompensation is severe, moderate or mild, the future of the patient will depend also on his age, etiologic and predisposing factors, associated pathologic conditions and response to treatment. The outlook in a patient of 30, with antecedent attacks of acute arthritis and endocardial damage, is obviously quite different from that in a patient of 60, with thickened peripheral arteries, an enlarged heart and a story of gradually failing circulation, incidental to long continued arterial tension; in the former, the young myocardium has remarkable powers of recuperation, while in the latter, evidences of myocardial weakness may be obvious. On the other hand, irrespective of age or predisposing factors, auricular fibrillation may be attended by profound circulatory failure, the heart responding promptly to treatment, even a return to normal rhythm; or, in spite of treatment, there is a fatal termination.

Consideration of factors leading to serious decompensation and death is of prognostic value. A downward course, in spite of treatment, is evidence of failing heart muscle whose reserve is exhausted. It will be noted in the cases here cited that duration of fibrillation is not necessarily a factor. Recurrent decompensation was found in more than half the cases. Rheumatic history and chronic valvular lesions, or atheroma are definite factors. The duration of decompensation before death illustrates the progress of cardiac failure (Tables 3 and 4).

Electrocardiographic records in auricular fibrillation have been emphasized by White,[13] who found that aberrant ventricular complexes or ectopic ventricular contractions have a prognosis twice as grave as uncomplicated auricular fibrillation because these indicate serious myocardial damage or irritability of the ventricle, which does not stand up under the strain as relatively healthy muscle does. Willius, in 500 cases, found 133 patients with premature beats, aberrant Q-R-S in all derivations, or aberrant Q-R-S with premature ventricular beats (Table 5). In the latter, the mortality was 87.5 per cent. He concludes that mortality attending fibrillation doubles and in some groups trebles that occurring in similar types of heart disease not complicated by this arrhythmia, but that it is not the arrhythmia per se which is the determining factor, but the integrity of the myocardium and proper treatment.

Clinical Groups.—As pointed out by others, auricular fibrillation cases fall into certain clinical groups, the most definite being those with and without rheumatic endocarditis. In the latter, syphilis is a relatively unimportant factor.[14] There are two distinct clinical groups as to etiology. The relation of these groups to present condition and to sex is shown in Table 6.

The onset of the irregular rhythm was insidious or gradual in twenty-nine cases, dated by the patient to effort in eight, to influenza in six, and seemed to be a result of atheroma associated with hypertension in twenty-three. It was associated with chronic valvular lesions in twenty-three, and both endocarditis and atheroma were found in fourteen.

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[6] S. A. Levine (Am. J. M. Sc. **154**: 146, 1917) found, in eighteen cases of transient auricular fibrillation, one during lysis of pneumonia similar to one described by Krumbhaar (Transient Auricular Fibrillation, an Electrocardiographic Study, Arch. Int. Med. **18**: 263 [Aug.] 1916); one in hyperthyroidism; one after operation; two during acute rheumatic fever; four following auricular fibrillation; four as a result of active digitalis therapy, and six spontaneous or idiopathic. He also refers to Cohn as finding transient auricular fibrillation in twelve of 123 cases of pneumonia, and two cases in healthy, athletic young men.

[7] This is well seen in Cases 10, 3, 4, 29 and 34 of this series.

[8] White and Burwell (The Clinical Significance of Changes in the Form of the Electrocardiogram, M. Clin. N. Am. **4**: 1843 [May] 1921) cite a case of auricular fibrillation (paroxysmal) assumed to be due to digitalis. The patient was admitted with normal rhythm but with cardiosclerosis and moderate decompensation, and precordial pain on exertion from cardiac symptoms, and he then had auricular fibrillation. Digitalis was stopped, and a week later he had normal rhythm. He was under observation for six years. Three years after the time he was first seen, fibrillation was present and permanent. The steady, slow, downward course in an old man with marked arteriosclerosis and final permanent fibrillation was not accompanied by any period of acute heart failure, the patient being able to work constantly on his farm. Progressive changes in the electrocardiogram were characteristic of advancing myocardial involvement.

[9] Eyster, J. A. E., and Fahr, C. E.: Observations on the Use of Quinidin in Auricular Fibrillation, Arch. Int. Med. **29**: 59 (Jan. 16) 1922. "While acutely developing auricular fibrillation undoubtedly causes considerable mechanical deficiency of the heart and is probably not infrequently the cause of cardiac decompensation, the heart may compensate for this as it does for valve injury, particularly when it is assisted by the protective influence of ventricular stimulation by digitalization."

[10] Cohn thus summarizes a discussion of the subject: "On account of the view generally held of the function of heart muscle and because of the transient nature of the irregularity in many instances, there seems to be little reason for laying undue stress on structural alteration of the muscle to account for this abnormal rhythm" (Nelson's Loose Leaf Medicine **4**: 335).

[11] Auricular fibrillation is detected without instruments by: 1. The fact that it is the usual type of arrhythmia, especially in the conditions cited. 2. The complete arrhythmia, no two successive beats being the same in rhythm or force. This is contrary to the next frequent arrhythmia, due to premature contractions, in that in the latter there are runs of normal rhythm followed by what appears to be a dropped beat at the radial pulse, but which in reality is a beat appearing earlier than normal and followed by a compensatory pause. The premature beat is usually too weak to come through to the wrist, but can be heard over the heart with the stethoscope. 3. The deficit between the radial count and that over the heart as heard with the stethoscope. This is due to many weak ventricular contractions which do not come through to the radial artery. This may also be present in frequent ectopic beats when some are too weak to appear at the radial artery. 4. The history of impaired cardiac efficiency, as shown by the presence of antecedent endocarditis and valvular lesions, especially of the mitral valve. 5. History of long continued heart strain from arterial hypertension and accompanying cardiosclerosis.

[12] Pardee, H. E. B.: The Prognosis of Auricular Fibrillation, J. A. M. A. **64**: 2057 (June 19) 1915.

[13] P. D. White (Prognosis in Heart Disease in Relation to Auricular Fibrillation and Alternation of the Pulse, Am. J. M. Sc. **157**: 5 [Jan.] 1919) showed that in pulsus alternans the prognosis is much more grave than in auricular fibrillation, but that fibrillation as such adds little, if anything, to the gravity of prognosis in a case of heart disease. Forty-eight per cent. of 100 patients with fibrillation and 47 per cent. of 100 patients with similar hearts, but without fibrillation, died.

[14] Levine, S. A.: Auricular Fibrillation: Some Clinical Considerations, Am. J. M. Sc. **154**: 43 (July) 1917. In 128 cases, Levine found only eleven that showed syphilis, while 12 per cent. of all cases admitted to the medical wards showed syphilis.

The duration of auricular fibrillation is often difficult to determine accurately, but in many cases the patient is aware of the irregularity (Table 8). The degree and recurrence of decompensation from the history and from observation give some idea of the severity of myocardial weakness (Table 9).

Response to treatment, with consideration of the frequency, severity and duration of attacks of decompensation, gives a measure of prognosis. Many patients with a heart rate over 120 make quick recovery on digitalis and may be able to undertake rather heavy physical work so long as the rate is kept down by digitalis.

Brachmann[15] emphasizes cardiac and mental rest. Hamburger[16] states that it is not so much the heart rate observed at first as the heart rate observed after treatment that is important. Cohn[17] emphasizes the prognostic value of the pulse deficit, the disparity between the heart rate and the pulse rate decreasing as the patient improves and as the heart slows. Christian,[18] comparing digitalis effect in chronic cardiac cases

Table 3.—Summary of Cases

						Onset				Decompensation							Valve Lesions				Symptoms and Signs During Decompensation										Present Condition				
	Case	Sex *	Age	Duration	Period of Observation	Gradual	Insidious	Effort	Postinfluenzal	Severe	Mild	Recurrent	At Present	Improved with Treatment	Downward Course	Rheumatic History	Mitral Insufficiency	Mitral Stenosis	Aortic	Atherosclerosis	Dyspnea	Gastro-Intestinal	Palpitation	Pain	Cough	Dizziness	Edema	Heart Borders	Enlarged Liver	Pulmonary Edema	Good	Fair	Poor	Dead	
	1	♂	50	?	3 yr.	+	+	—	—	—	±	—	0	+	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	+	—	—	—	
Nonrheumatic Group	2	♀	62	1 yr.	1 yr.	..	..	+	..	±	—	—	0	++	—	—	—	—	—	±	+	—	+	—	—	±	—	+	—	—	+	—	—	—	
	3	♂	34	2½ yr.	2½ yr.	—	—	++	? —	3 m. +	—	—	0	++	—	—	—	—	—	—	+	+	+	—	+	—	+	..	..	—	—	+	—	—	
	4	♂	40	1 yr.	1 yr.	—	—	+	—	±	—	—	++	+	—	—	—	—	—	—	—	—	—	—	—	—	—	½″	—	—	..	+	..	..	
	5	♀	70	1½ yr.	1 da.	+	+	—	—	++	—	+	D	±	+	—	—	—	—	+	+	+	+	—	—	..	+	Mid. ax.	4 fb.	—	—	—	—	+	
	6	♂	74	4 mo.	3 wk.	+	—	—	—	++	—	—	D	±	+	—	—	—	—	+	+	+	+	—	—	—	+	Mid. ax.	4 fb.	—	—	—	—	+	
	7	♂	63	1 yr.	Short	+	—	—	+	—	+	—	+	+	—	—	—	—	—	+	+	—	—	—	—	—	—	⅙″	—	—	+	—	—	—	
	8	♂	56	3 mo.	Short	+	—	—	++	—	+	—	—	+	+	—	—	—	—	?	+	—	—	—	—	—	—	½″	?	—	—	+	—	—	
	9	♀	70	3 mo.	Short	+	—	—	+	+	—	+	..	+	+	—	—	—	—	—	+	Gas	++	—	—	—	++	1″	2 fb.	—	—	+	—	—	
	10	♂	56	6 yr.	6 yr.	—	—	+	+	—	—	—	—	+	—	—	—	—	—	+	+	—	—	—	+	—	..	+	..	—	+	—	—	—	
	11	♂	60	2 mo.	3 yr.	+	—	—	—	—	+	—	—	+	—	—	—	—	—	+	—	—	—	—	—	..	..	1″	+	—	+	—	—	—	
	12	♂	66	4 yr.	Short	+	—	—	+	+	—	—	±	±	+	—	—	—	+	++	++	+	—	—	+	—	—	Mid. ax.	—	—	—	+	—	—	
	13	♂	72	1 yr.	Short	+	—	—	—	—	+	—	+	+	+	—	—	—	—	+	+	—	+	—	+	—	—	Ant. ax.	—	—	—	+	—	—	Prostatic operation
	14	♂	47	+ 3 mo.	Short	+	—	—	—	—	+	—	0	+	—	—	—	—	—	+	++	..	..	..	+	..	..	2″	—	+	+	—	—	—	
Rheumatic Group	15	♂	44	Short	2 yr.	+	—	—	—	—	+	..	—	+	—	—	?	?	—	±	Attack	+	+	—	—	—	—	1″	—	—	+	—	—	—	Paroxysm'l auricular fibrillation
	16	♂	72	Yrs.	3 yr.	+	—	—	—	+	—	+	0	+	—	25 v. ++	+	+	+	++	+	+	+	—	—	—	—	Ant. ax.	4 fb	—	+	—	—	—	
	17	♀	69	15 yr.	8 yr.	+	—	—	—	+	—	+	±	+	—	+	+	—	—	±	+	+	+	—	—	—	—	2″	1 fb.	—	+	—	—	—	
	18	♀	65	8 yr.	Short	+	—	—	—	+	—	+	D	—	—	+	+	+	+	+	+	+	+	—	—	—	+	Ant. ax.	3 fb.	—	—	—	—	+	
	19	♀	62	Yrs.	8 yr.	+	—	+	—	+	—	+	—	+	+	+	+	—	—	+	+	+	+	—	+	+	+	Ant. ax.	3 fb.	—	—	—	—	?	
	20	♀	46	3 yr.	—	+	—	—	++	+	—	+	D	+	+	7 y.	+	—	+	+	+	+	+	—	—	—	+	Ant. ax.	+ 3 fb.	—	—	—	—	+	
	21	♀	38	3 yr.	10 da.	+	—	—	—	+	—	—	D	+	+	+	+	—	—	—	++	+	+	..	..	..	..	Ant. ax.	+	—	—	—	—	+	
	22	♀	36	3 mo.	Short	+	—	—	—	++	—	+	D	—	+	+	++	—	—	—	++	+	+	+	—	+	—	Mid. ax.	4 fb.	—	—	—	—	+	
	23	♂	73	6 mo.	1 yr.	+	—	—	—	+	—	+	D	+	+	+	+	—	+	++	++	+	+	—	—	+	+	Ant. ax.	3 fb.	—	—	—	—	+	
	24	♀	49	4 yr.	3 mo.	+	+	—	—	+	—	+	D	+	+	+	+	..	+	—	+	+	—	—	—	—	—	Ant. ax.	3 fb.	—	—	—	—	+	Cancer uterus
	25	♂	21	3 mo.	1 mo.	+	—	—	—	++	—	+	—	+	—	+	+	+	—	—	+	—	—	—	—	—	..	1″	—	—	—	+	—	—	
	26	♀	60	Less than 1 yr.	1 yr.	+	—	—	—	++	—	+	—	++	..	++	+	—	—	+	+	+	—	+	—	—	—	Ant. ax.	2 fb.	—	+	—	—	—	
	27	♀	57	+ 3 yr.	3 yr.	+	—	—	—	+	—	+	—	++	—	+	+	+	—	—	+	+	+	—	—	—	—	½″	1 fb.	—	+	—	—	—	
	28	♀	66	+ 2 yr.	5 mo.	+	—	—	—	+	—	—	D	±	+	+	+	+	..	+	+	+	..	+	+	..	+	Ant. ax.	3 fb.	—	—	—	—	+	
	29	♂	49	7 yr.	6 yr.	—	—	+	—	+	—	+	—	++	..	+	+	+	—	+	+	+	—	—	—	—	—	Ant. ax.	3 fb.	—	±	—	—	—	
	30	♀	40	Yrs.	1 yr.	+	—	—	—	—	+	—	±	+	—	+	+	+	—	—	±	+	—	—	—	—	+	1″	1 fb.	—	+	—	—	—	
	31	♂	45	2 yr.?	8 mo.	+	—	—	—	—	+	—	+	+	—	+	+	+	—	+	+	—	+	++	—	—	—	2″	—	—	—	+	—	—	
	32	♂	50	Yrs.?	9 mo.	+	—	+	—	—	+	+	±	++	—	+	—	+	—	+	++	—	+	+	—	—	—	1″	1 fb.	—	+	—	—	—	
	33	♂	50	?	3 mo.	+	—	—	—	—	+	—	+	±	+	Tons	+	—	+	±	+	+	+	+	—	—	..	3″	—	—	+	—	—	—	
	34	♀	36	Short	—	—	—	—	—	±	—	+	—	+	—	+	+	—	—	—	+	+	+	..	+	..	+	Mid. ax.	4 fb.	—	+	—	—	—	Pregnancy, hypertension, albuminuria
	35	♂	69	Short	8 mo.	—	—	+	—	+	—	+	±	++	—	+	+	—	+	+	+	+	++	+	—	+	++	2″	2 fb.	++	+	—	—	—	Paroxysmal auricular fibrillation
	36	♀	45	Yrs.	Short	—	—	—	—	+	—	+	±	++	—	+	—	+	—	—	+	—	+	+	..	..	+	1½″	1	+	+	—	—	—	
	37	♂	35	3 yr.	Short	+	—	—	—	+	+	+	±	+	—	—	+	—	—	—	+	+	+	—	—	—	±	±	—	—	+	—	—	—	

* In this column, ♂ indicates male, and ♀ female.

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15. Brachmann, D. S.: Auricular Fibrillation, from Observations and Deductions from a Series of Four Hundred Cases, Lancet **1**: 374 (Feb. 19) 1921. The effect of digitalis is explained by exhaustion "brought about by the ventricular rate being stimulated to too great activity, and the slowing enables the ventricle to get more rest and so regain a measure of strength. From this result the condition of the muscle is determined, and one can estimate, within certain limits, the amount of healthy muscle by the degree of recovery."
16. Hamburger, W. W.: Treatment of Auricular Fibrillation, M. Clin. N. Am. **5**: 1716 (May) 1922.
17. Cohn, A. H., in Nelson's Loose Leaf Medicine **4**: 333.
18. Christian, H. A.: Digitalis Effect in Chronic Cardiac Cases with Regular Rhythm in Contrast to Auricular Fibrillation, M. Clin. N. Am. **5**: 1173 (March) 1922.

with and without fibrillation, found that when he got good results from digitalis the heart slowed, irrespective of rhythm.[19]

Valvular lesions were demonstrated clinically in all of Group 2, usually evidenced by a mitral systolic murmur. The cases have been so grouped with a full realization that such a murmur may appear in cardiosclerosis or in a dilated and weakened heart. The history of acute rheumatism, sometimes recurrent, the recollection on the part of the patient that there were accompanying valvular lesions, and evidence of such a lesion at the time of observation have all been taken into account. The mitral stenotic murmur was found in ten cases. This has given rise to much discussion, since its presence has been taken as evidence of auricular contraction.[20]

Table 4.—*Fatal Cases*

Case	Duration of Auricular Fibrillation	Recurrent Decompensation	Chronic Endocarditis	Atheroma	Duration of Decompensation Before Death	Age, Years
5	1½ yrs.	+	—	+	6 mos.	70
6	4 mos.	—	—	+	4 mos.	74
18	8 yrs.	+	+	+	2 mos.	65
20	3 yrs.	+	+	+	6 mos.	46
21	3 yrs.	—	+	—	3½ yrs.	38
22	3 mos.	+	+	—	6 mos.	36
23	6 mos.	+	+	+	6 mos.	73
24	4 yrs.	—	+	—	5 wks.	49
28	2 yrs.	—	+	+	1½ yrs.	66

Table 5.—*Findings of Willius*

	Cases	Aur. Fib. Mortality, per Cent.	Control Mortality, per Cent.
Complete series	500	41.3	13.6
Uncomplicated	367	36.9	16.2
With premature ventricular beats	89	42.0	15.9
Aberrant Q R S in all derivations	33	63.4	54.2
Aberrant Q R S and premature ventricular beats	11	87.5	87.5
In mitral regurgitation	72	51.9	27.8
In mitral stenosis	27	47.1	22.2
In mitral regurgitation and stenosis	40	53.4	34.6
In aortic regurgitation	13	33.7	71.4
In chronic myocarditis	81	43.3	43.3
In myocarditis secondary to hypertension	98	54.7	53.8
In myocarditis secondary to exophthalmic goiter	97	34.2	17.1
In myocarditis secondary to adenoma thyroidism and hyperthyroidism	71	30.0	8.9

The measure of cardiac efficiency has the same significance in auricular fibrillation as in other cardiac conditions. No one sign determines prognosis, but the composite of many symptoms and signs which indicate weakened heart muscle. In 100 patients without fibrillation, the early symptoms and signs were: dyspnea, 92; palpitation and consciousness of arrhythmia, 66; pain, 50; dizziness, 40; cough, 31; gastro-intestinal, 19; pulmonary edema, 10; heart enlargement, 74; albuminuria, 38; edema, 17; liver enlargement, 9, and disturbance in rhythm, 36.

It will be noted in Table 3 how frequently the heart and liver borders were increased in mild decompensation. This seems to indicate that the heart adjusts itself to the combined factors which increase the demands on it by hypertrophy, and that the liver, at an earlier stage often much enlarged from passive congestion, remains so, though function is not much embarrassed.

GROUP 1.—CASES WITHOUT RHEUMATIC HISTORY OR ENDOCARDITIS; ONSET GRADUAL, INSIDIOUS, FOLLOWING INFLUENZA OR EFFORT

Case 1.—Mr. R. H. B., aged 50, seen, May 21, 1920, because that morning during examination for life insurance, the heart was found irregular, had no symptoms and did not know how long the heart had been irregular; he had never been aware of it.

Polygrams at this time showed auricular fibrillation.

In this patient, irregularity of the heart came on without his being aware of any cardiac distress or signs of cardiac strain. It has continued now for three years and the heart is functionally normal. Digitalis did not restore normal rhythm.

Table 6.—*Relation of Clinical Groups to Present Condition and to Sex*

	Condition Good	Condition Fair	Died	Males	Females
No endocarditis or rheumatic history	6	6	2	11	3
Endocarditis and rheumatic history	13	2	7	10	13

Table 7.—*Relation of Onset to Etiologic Factors*

Effort	Gradual or Insidious	Postinfluenzal	With Atheroma and Hypertension	With Endocarditis	Endocarditis and Atheroma
8	29	6	9	23	13

Table 8.—*Duration*

	Number
15 years	1
8 years	1
7 years	1
6 years	1
4 years	2
3 years	2
2 years	2
"Years"	7
Less than 1 year	13
Paroxysmal	2

Table 9.—*Degree and Recurrence of Decompensation*

Former Attacks	Number of Cases	Present Condition		
		Good	Fair	Dead
Severe	24	9	5	10
Moderate	11	8	3	..
Recurrent	19	8	2	7

Case 2.—Mrs. R. G. R., aged 62, seen in 1919, had no cardiac symptoms, and heart examination was completely normal at that time, with a blood pressure of 130 systolic and 80 diastolic. She was not seen again until July 7, 1922, when she complained of considerable dyspnea and, the night before, considerable orthopnea. She dated her trouble to May, two months before,

when she was very busy with house cleaning and noted that her heart was irregular. Electrocardiograms showed auricular fibrillation. There was some notching of the R. She improved rapidly on digitalis, and is now quite well.

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[19] Quinidin was not used in this series because the patients were not under hospital and electrocardiographic control.

[20] According to Flint (The Heart: Old and New Views, p. 148), two factors are involved in the variability of murmurs in this condition: The auricle does not contract as a chamber but remains in the position of diastole; the murmurs which occur during the diastolic period in mitral stenosis are dependent on the rate of flow of blood from auricle and ventricle. With auricular contraction, the intra-auricular pressure is greatest during the active contraction of this chamber and again at the opening of the mitral avalve. The two varieties of diastolic murmurs in mitral stenosis are due to these two causes. The position of the murmurs caused by the contraction of the auricle depends on the time relation of this contraction to the diastole of the ventricle. This murmur, which is crescendo in character and called auriculosystolic, disappears in fibrillation, whereas the other diastolic murmur remains unaffected by fibrillation and bears a fixed relation to the second sound of the heart. The amount of diastolic period which the latter murmur occupies will depend on the rate of the heart and the degrees of stenosis. Cohn (p. 335) discusses it as follows: "This disappears necessarily at onset of fibrillation. It is made when the mechanism of the heart is normal by the contraction of the left auricle; when the auricles fibrillate, the possibility of creating the murmur by their contraction no longer exists. The auricular-ventricular murmur accordingly ceases, but in the normally beating heart blood flows from the left auricle to the left ventricle during the whole of the ventricular diastolic period, not merely at the terminal portion of it during the contraction of the auricle. The flow of blood into the ventricle which takes place in the first portion of ventricular diastole likewise produces a murmur, often of rumbling character, in passing the stenotic valve. This murmur is present irrespective of the nature of auricular activity, whether coordinate or fibrillating."

Case 3.—Mr. F. A. H., aged 34, seen, Sept. 29, 1921, had been troubled with his heart since January, 1921, coming on after extreme exertion, the symptoms then being dyspnea and weakness. He was in the hospital for three months. He had more or less broken compensation, but, on the whole, he was quite comfortable. The heart was completely irregular, and electrocardiograms showed typical auricular fibrillation. This patient has gone on since in comfort, occasionally requiring digitalis to tide him over periods of broken compensation.

Case 4.—Mr. W. A. W., aged 40, seen, Aug. 15, 1922, a stationary engineer, had not been able to work since February. The valve sounds were clear. Electrocardiograms showed typical auricular fibrillation. The heart has improved but is still irregular.

Case 5.—Mrs. T. H. M., aged 70, seen, June 20, 1919, for cystitis, had an irregular heart, which irregularity came on insidiously. Polygrams showed auricular fibrillation. She was not seen again until Sept. 26, 1920; she had not been well since March. The heart was dilated to the midaxillary line. The sounds were clear. The pulse was 130; the heart, 160. The systolic blood pressure was 190; diastolic, 105. Polygrams showed auricular fibrillation. The patient died suddenly the day following.

Case 6.—Mr. C. W. D., aged 74, seen, Oct. 20, 1920, complained of heart trouble for four months, weakness, dyspnea, nausea and edema. He was cyanotic, the liver was tender, palpated four finger breadths below the costal margin, and the heart was dilated to the midaxillary line, and very irregular. The heart rate was 150; radial pulse, 100. The systolic blood pressure was 195; diastolic, 100. The heart sounds were clear. Polygrams showed auricular fibrillation. The patient died ten days later.

Case 7.—Mr. O. A. D., aged 60, seen, Dec. 20, 1919, had been troubled with the heart since having influenza in November, 1918. There had been no symptoms for four or five months after the influenza, but gradually increasing weakness and dyspnea on exertion. The condition had been getting worse for the past two months. He had had no former illness. The condition was recognized as auricular fibrillation from the polygrams; digitalis was given, with steady improvement. December 24, the heart rate was 56; the pulse, 44. In February, on returning from California, the patient was comfortable. The heart was still irregular.

Case 8.—Mr. W. A. A., aged 56, seen, May 10, 1922, complained of dyspnea on exertion, and soreness of the calves of the legs; he was subject to frequent colds; his heart, which he knew was irregular, was worse with cough. He dated his trouble from influenza in February, 1922. When seen two months later, he was better, but still had dyspnea on unusual effort and his heart still showed fibrillation.

Case 9.—Mrs. E. M. T., aged 70, seen, May 31, 1922, complained of "asthma" for two years, but since an attack of influenza three months before, when she was in bed for three weeks, she had swelling of the ankles and feet, gas in the abdomen, palpitation, throbbing of the vessels in the neck, and orthopnea. An electrocardiogram showed typical fibrillation with ectopic beats. The patient has not been seen since, but reports that she has not improved much. One cannot say how long the fibrillation has been present.

Case 10.—Mr. H. L. S., aged 56, seen, Aug. 31, 1921, knew that his heart had been irregular for the past four years. The onset occurred with sudden fright and exertion; his house caught fire, he had considerable trouble in awakening his wife, and then he ran to a fire alarm box. His physician gave him digitalis because he was quite dyspneic and there were apparently evidences of heart failure. Nine months ago he had influenza with bronchitis and possible pneumonia; the heart was then enlarged and it was irregular. It improved with digitalis.

In this man of 56, the onset seems to date definitely to the time of fright and severe exertion, when he had an acute heart breakdown of moderate severity which responded to digitalis. The heart was probably irregular at that time and has been so since. At present, nearly five years after the onset, the man is efficient and able to attend to his business with no marked evidences of heart strain.

Case 11.—Mr. J. H. H., aged 60, seen, Aug. 30, 1921, two months before began to tire easily, and lost 20 pounds (9 kg.) in two months. Electrocardiograms showed definite auricular fibrillation with ectopic beats. September 6, he was better and the heart was regular, but, on the 7th, auricular fibrillation was again present. Digitalis was continued for the next two months, the patient feeling very much better, although his heart remained irregular. Electrocardiograms still showed auricular fibrillation. He has been at work since.

Case 12.—Mr. C. J. A., aged 66, seen, Aug. 29, 1922, complained of marked dyspnea, digestive disturbances, cough and moderate sputum in the morning, and rather frequent hiccup. He dated his trouble from moderately severe influenza in 1918 and again in 1921. Since then there had been increasing difficulty with breathing, and other evidences of gradual circulatory breakdown.

In this man of 66, a farmer who had done heavy physical work, the onset of the circulatory failure seems to date to mild attacks of influenza, the first one being four years ago. In spite of the marked dilatation of his heart and the complete arrhythmia, he did not have orthopnea, and his cardiac failure was only moderate. The arteries were extremely tortuous and thickened. In spite of these factors, this man has probably gone on for two or three years with a completely irregular heart. His physician at home told him that his heart was irregular during the influenza. The patient was under observation for four weeks. There was marked improvement in the heart; he was symptomatically relieved, but, since returning home, to a higher altitude, he has not been so well, and the outlook is not favorable.

Case 13.—Mr. W., aged 72, seen, Sept. 18, 1922, had moderate circulatory failure. He improved under digitalis, although the heart never became regular and the bladder and prostatic trouble still persisted. On account of the man's age and infection the prognosis is, of course, unfavorable, irrespective of the cardiac condition.

Case 14.—Mr. F. G., aged 47, a laborer, seen, Oct. 18, 1922, had been in the hospital in July on account of an accident. He had what he called asthma in April. Since July he had had cough, a little sputum, and shortness of breath on the slightest effort. He did not know that he had any irregularity of the pulse. He was very well nourished, with no cyanosis and only slight respiratory effort. Electrocardiograms showed typical auricular fibrillation. The systolic blood pressure was 180; diastolic, 100. He was given digitalis, to which he responded readily, so that now he is quite comfortable.

GROUP 2.—WITH RHEUMATIC HISTORY AND CHRONIC ENDOCARDITIS

Case 15.—Mr. J. A. E., aged 44, seen, Dec. 15, 1920, complained of palpitation and irregularity of the heart for about three months. He was not seen again until Oct. 20, 1922, when he said he had had six attacks with his heart since he had been seen before, characterized by extreme palpitation, usually of sudden onset, lasting from a few hours to two or three days, without apparent cause. The left heart border was 1 inch outside the normal limits; the pulse rate was 190. Electrocardiograms showed paroxysmal auricular fibrillation.

In this man of 44 with cardiac history, dating back to the age of 12, cardiac symptoms have not been prominent until the last two or three years, characterized by paroxysmal tachycardia due to auricular fibrillation, which disappears between attacks, when cardiac efficiency is good. He is able to work in a lumber mill.

Case 16.—Mr. F. E. H., aged 72, seen, Jan. 5, 1921, had broken compensation, moderate dyspnea and some orthopnea; digestive distress and "palpitation" were troublesome symptoms. He has learned to use digitalis in from 5 to 10 drop doses for dyspnea or beginning symptoms of cardiac decompensation.

Case 17.—Mrs. H. M. E., aged 61, seen, Sept. 7, 1915, in broken compensation, had had rheumatism. At the time of examination her heart was very irregular, with a pulse deficit. When questioned, she volunteered the information that her heart had been irregular, she knew, for years, probably for fifteen years. Polygrams made at that time showed auricular fibrillation.

This woman of 68 was known to have auricular fibrillation seven years before, when she had been in bed most of the time for five months. For almost a year following there were recurring breaks in compensation, usually of moderate severity, which were always aided by digitalis or strophanthus. She was lost sight of for five years, during which time she has been very comfortable, up and about doing her housework, her chief complaint being gas and palpitation. In spite of fibrillation, she went through a moderately severe attack of bronchopneumonia in 1916.

CASE 18.—Mrs. S. J. F., aged 65, seen, Aug. 8, 1922, complained of dyspnea and constipation. She had been troubled with her heart for six or eight years, and frequent tonsillitis and more or less "rheumatism" for years, but had never been laid up in bed. Electrocardiograms showed auricular fibrillation, with occasional ventricular ectopic beats. She did not respond to digitalis; she could not arrange for bed rest, and it is reported that she died six months later.

CASE 19.—Mrs. M. McC., aged 62, seen in February, 1915, had dyspnea, palpitation and broken compensation with dilatation, dating to overexertion. The heart was irregular; rate, 140; wrist, 100. The systolic blood pressure was 190; diastolic, 105. The liver was three finger breadths below the costal margin. Polygrams showed auricular fibrillation. The urine showed excessive albumin and casts. There was marked and steady improvement on digitalis and rest. The patient has been seen irregularly since, and is fairly comfortable, though she has occasional breaks in compensation.

CASE 20.—Mrs. W. H. McG., aged 46, seen, March 19, 1922, in broken compensation, had not so much dyspnea as extreme weakness and palpitation. The heart was completely irregular, and electrocardiograms showed typical auricular fibrillation. Convalescence was extremely slow in spite of digitalis and bed rest, and at times the prognosis looked very serious, particularly since mental disturbances appeared, such as hallucinations and delusions; at times the patient became almost violent. These gradually cleared up with improvement in the heart, and, five months after the onset, the patient was gradually getting up and about. After undue effort there was another break in compensation, attended by extreme mental confusion, sleeplessness, orthopnea and Cheyne-Stokes breathing, followed by death, Aug. 17, 1922.

CASE 21.—Mrs. S. J., aged 38, seen, July 15, 1919, for three and a half years had palpitation and "severe pains in her heart," and could not sleep because of orthopnea. There was gradual improvement on stropthanthus and digitalis, but after two weeks there was another breakdown from which the patient died in ten days. Mental confusion was a prominent symptom. Polygrams showed definite auricular fibrillation.

CASE 22.—Mrs. D., aged 36, seen, July 22, 1919, had had extreme decompensation for three or four months with remissions and recurrences, and rheumatism at 14, 19 and 25 years of age, when she was in bed from two to five months. The heart was dilated to the midaxillary line; there were mitral insufficiency and auricular fibrillation. The patient died in three months.

CASE 23.—Mr. H. C. W., aged 73, seen in April, 1921, had extreme dyspnea, dilatation of the heart and a completely irregular pulse. Electrocardiograms showed typical auricular fibrillation. After recurrent cardiac breakdowns, he died in October.

CASE 24.—Mrs. C. A. N., aged 49, seen, Jan. 5, 1922, had had chronic arthritis and tonsil infection.

In this patient there was a history of rheumatism and tonsillitis with probable involvement of the heart extending back several years, with more or less broken compensation over the last four years. During our observations she did not have any particular distress from the heart, and died as a result of pelvic carcinoma. Just how long the auricular fibrillation had been present it is difficult to say. Digitalis was of definite help while she was in the hospital.

CASE 25.—Mr. M. M. C., aged 21, seen, Oct. 6, 1921, said that his present trouble dated to May; he had very little cardiac distress, but knew that his heart was irregular. He said he had the same trouble before the tonsils were out in 1916. Electrocardiograms showed typical auricular fibrillation. He has been comfortable since, but the fibrillation persists.

CASE 26.—Mrs. D. W. C., aged 60, was seen in May, 1921, in an acute cardiac breakdown. The heart was quite regular, and there was acute pain in the region of the spleen, which was thought to be due to infarction. When seen a year ago, the heart was not irregular but showed mitral insufficiency. July 11, 1922, when she was able to come to the office, the heart was completely irregular, and the electrocardiograms showed auricular fibrillation.

The onset of her present trouble was with an acute broken compensation, which was controlled by a long rest in bed and very careful attention. Compensation is established so that the patient is quite comfortable.

CASE 27.—Mrs. J. E. W., aged 64, seen, Oct. 27, 1919, had broken compensation of one week's duration. In January, 1922, she went through a cholecystectomy with no heart symptoms, though auricular fibrillation still persists, with no cardiac symptoms.

CASE 28.—Mrs. C. J. S., aged 66, seen, Aug. 23, 1921, complained of "bronchitis" for about a year, fluttering of the heart, choking sensations at times producing shortness of breath, swelling of the face and of the ankles, and occasional nausea. Electrocardiograms showed typical auricular fibrillation. Her course was progressively downward, and she died within five months. Digitalis, however, was of definite value, frequently tiding over periods of broken compensation.

CASE 29.—Mr. P. H., aged 49, seen, Dec. 9, 1917, was in moderate broken compensation, dating to October, 1916, when, duck shooting, he overexerted after a hearty meal. His pulse was then 160, and "he could not breathe." Polygrams showed auricular fibrillation. There was slow improvement on rest and digitalis. He was not seen then until Aug. 16, 1922, when, after driving his automobile 40 miles on a hot day and lifting a 100 pound sack from it, he suddenly became unconscious; when seen three hours later he appeared moribund, with slow, shallow respiration and very irregular, weak pulse. He had been thrashing about in bed, requiring a restraining jacket. A digitalis preparation brought improvement, and in the morning, ten hours later, he was entirely conscious and quiet. He was kept in bed a week, improving steadily on digitalis. Electrocardiograms, August 22, showed fibrillation.

CASE 30.—Mrs. M. M. K., aged 40, seen, Aug. 30, 1922, knew that she had had heart trouble since she was 16, though the cardiac symptoms were not marked. In spite of this, she said that, last summer, at a height of 7,000 feet, she was very well and able to undergo effort without difficulty.

In this woman of 40, with a cardiac history since she was 16 years old, auricular fibrillation was found, and there was very little evidence of heart failure. There was no history of acute rheumatism, but her tonsils were infected and she had had repeated attacks of tonsillitis with fever. She did not know how long the heart had been irregular, although she says that her liver has been enlarged for three or four months and that she had it formerly, off and on. In spite of chronic endocarditis and auricular fibrillation she has very little evidence of heart weakness, and was even able to dance last summer at an elevation of 7,000 feet, without difficulty. She knows that her heart was irregular at that time.

CASE 31.—Mr. J. K., a railroad mechanic, aged 45, seen, Sept. 25, 1922, complained of moderate shortness of breath, considerable palpitation, and pain in the precordium.

While this machinist of 45 is well developed and looks quite well, he in unable to follow his trade because of palpitation and moderate dyspnea on effort. The fibrillation has been present for two or three years. He had been taking digitalis for some months. Because of negative T-waves in the electrocardiograms in all leads, it was thought that this might be a digitalis effect. Digitalis was withdrawn for two weeks when the T waves were positive.

CASE 32.—Mr. G. W., aged 50, seen, Oct. 31, 1922, complained of smothering sensations, particularly at night, so that he could not lie flat in bed, and shortness of breath with any exertion during the day. He had to give up his work, picking apples, two weeks before, on account of dyspnea.

This laboring man of 50 has a history of severe inflammatory rheumatism in boyhood, and severe typhoid fever at 32. The heart is now completely irregular and has been for an indefinite time. His symptoms are those of mild cardiac weakness, and he is unable to stand slight effort without dyspnea. Digitalis produced a remarkably good effect.

Case 33.—Mr. E. E. McC., aged 50, seen, Nov. 3, 1922, complained of dyspnea on exertion, with tightness through the chest. He was well developed and well nourished, and did not look ill. There was complete arrhythmia. The left border of the heart was 3 inches outside the normal limits; there was a definite systolic murmur at the apex and a rougher systolic murmur at the aortic area. The arteries were not particularly thickened. The liver was not enlarged. The urine showed a trace of albumin, and some granular and hyaline casts. He did not follow instructions, and his course has been progressively downward.

Case 34.—Mrs. J. F. S., aged 36, seen in consultation, Aug. 23, 1922, complained of dyspnea, orthopnea, pain over the heart, cough, and swelling of the legs and abdomen during pregnancy. The heart was completely irregular and dilated to the midaxillary line, and a faint systolic murmur was heard with the stronger beats. The heart rate was 130; pulse, 100. The liver was felt four finger breadths below the costal margin; there were marked edema and ascites. She responded favorably to digitalis.

Case 35.—Mr. J. F. C., aged 69, seen, Nov. 8, 1923, said that the night before, after sitting for two hours in the cold at a stock show, he attempted to drive his car home, when he was seized with a sense of suffocation, with an increasing amount of frothy, blood-tinged sputum. This was so severe that he had to be taken home, the attack lasting for two or three hours. He had had a similar attack two months ago from no apparent cause. When seen the next day, the left heart border was 2 inches beyond the normal limits. For the next week he improved steadily under digitalis and rest, and was able to come to the office on the 17th, when an electrocardiogram showed definite typical auricular fibrillation with auricular extopic beats. His improvement from this time on was steady. January 9, he went on a motor trip to California, standing the trip very well and returning much improved. Since then he has been able to attend to his business. May 2, he had another attack of pulmonary edema; he awoke at 2 a. m., and it lasted about two hours. Electrocardiograms made three days later showed normal rhythm.

In this man of 69, who looks well and now shows but little evidence of lessened cardiac reserve, there is a history of endocardial involvement, and he shows atheromatous changes. He has had at least four acute cardiac breakdowns, the chief symptom being pulmonary edema. In the first attack, auricular fibrillation seemed to be paroxysmal and lasted three or four days, while in the second attack it was apparently of short duration. Judicious use of digitalis has now brought about cardiac compensation.

Case 36.—Mrs. C. V. D., aged 45, was seen, March 23, 1923, for examination. Compensation was good, although she knew that the heart had been involved for twenty-five years, because at that time she had acute rheumatism, being in bed for four months. The heart had probably been irregular for years, and she thought the physician said that she had mitral stenosis at the time of the confinements. The liver was one finger breadth below the costal margin, and was slightly tender.

This healthy appearing woman of 45 shows but little evidence of cardiac embarrassment in spite of a long-standing mitral stenosis and auricular fibrillation of some years' duration.

Case 37.—Mr. F. W., aged 45, was seen, Jan. 27, 1923, with a heart attack. Electrocardiograms showed typical auricular fibrillation, with right ventricular ectopic beats. He dated his trouble back three years, when he had arthritis, some palpitation, and cough. He has improved so much that he is able to attend to his business.

SUMMARY

In a group of patients with auricular fibrillation, about three fourths are ambulatory, while one fourth have died. Half of the entire number are comfortable and able to carry on their daily activities without cardiac symptoms. Some of these have decreased reserve on unusual effort. About one fifth of the entire number have more marked limitation of cardiac reserve, and while ambulatory, are more or less incapacitated. Most of these have needed digitalis at one time or another, or have learned how to use it to safeguard the heart. The heart is able to adjust itself to auricular fibrillation, and to compensate as it does in valvular lesions. When both fibrillation and valvular lesions (or cardiosclerosis) are present it may still compensate well for months or years, the prognosis depending on the sum total of symptoms and signs which indicate cardiac function.

Evidences of myocardial weakness are largely clinical, but changes in the Q-R-S-T complexes, in repeated electrocardiograms, aid in measuring the progress of degenerative changes.

512 Journal Building.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. WENCKEBACH, REED AND COFFEN *

Dr. Emanuel Libman, New York: Apart from the influence of exertion and emotional disturbances in bringing about fibrillation, this condition may, as Dr. Coffen stated, occur in the presence of a heart which is the seat of an organic change or in the absence of organic disease. It is well known that large goiters can cause fibrillation whether or not marked toxic manifestations are present, but sufficient attention is not paid to cases of fibrillation occurring in connection with even small goiters which have a tendency to extend down behind the sternoclavicular joints. Various infections can cause fibrillation. Dr. Rothschild observed the remarkable case of a boy who was incapacitated because of fibrillation persisting for eight months. The condition disappeared within a few days after tonsillectomy, and has now remained absent for six years. It is well known that infections of the gallbladder can cause fibrillation. Sometime ago I observed the development of this condition in an elderly man at the time he developed a renal infection due to calculi. The fibrillation disappeared within twenty-four hours after the kidney was drained. Intestinal disorders can bring about fibrillation. Auricular fibrillation lasting even several weeks may, at times, be relieved by care of the intestinal tract. The chronic digitalis treatment of fibrillation has been of particular value to patients because it leads to their being kept under observation. Fibrillating hearts often withstand operative procedures surprisingly well. The outlook in cases of fibrillation is worse in those patients in whom there is present an affection of the coronary arteries, and, as Dr. Coffen has stated, the prognosis is worse if there are found abnormal ventricular complexes or changes in the electrocardiogram which are characteristic of arborization block. We have found that subacute streptococcus endocarditis hardly ever occurs in patients who are suffering from fibrillation of the auricles and that, on the other hand, it is unusual for fibrillation or flutter to develop in a patient who has already suffered from subacute streptococcus endocarditis. The application of quinidin in the cases of fibrillation in our hospital was carried on by Drs. Oppenheimer and Mann. Their results are about the same as those observed elsewhere. They did not see an embolism in fifty cases. It is evident that, in cases of auricular fibrillation occurring in connection with organic disease of the heart, the factors may operate which cause fibrillation in hearts not the seat of organic change. It is important, therefore, that all these causes be looked for when the organic disease by itself might appear to be the sole cause of fibrillation.

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* See paper by Dr. K. F. Wenckebach, this issue.

Dr. A. W. Hewlett, San Francisco: In the treatment of the minor cardiac irregularities, it has been my custom to give the elixir of iron, quinin and strychnin as a tonic. Recently one of my patients, suffering from paroxysmal tachycardia, came back most enthusiastic about this new medicine, which she felt had lessened the number of her attacks. Subsequent experience with quinidin proved that, in this particular patient, the paroxysms were still further lessened by this drug. Quinidin will restore the sinus rhythm in a considerable proportion of patients suffering from auricular fibrillation. The administration of quinidin is attended with some, though not a great amount, of danger. The question arises how much good is accomplished by restoring a sinus rhythm. It is true that some patients with auricular fibrillation appear to get along very well, some of them being able for years to attend to their regular duties. But such good compensation is exceptional. The great majority of patients with auricular fibrillation are more or less incapacitated. Is this incapacity due to the auricular fibrillation itself, or is it due to an associated disease of the heart, such as a valvular or a myocardial lesion? A recent study of the vital capacity of patients with heart disease seems to throw light on this question. In a general way, it may be said that the vital capacities of patients suffering from heart disease indicate, roughly, the degree of decompensation, particularly as regards pulmonary congestion and the symptom of dyspnea. We found, in analyzing the vital capacity records of 500 men who were sent to the electrocardiac room because some cardiac disease was suspected, that there were fifty-three with auricular fibrillation. The average vital capacity of these fifty-three men was 64 per cent. of the standard that is normal among college students. The average vital capacity of the patients with no demonstrable organic disease was 94 per cent. Thus, the auricular fibrillation patients made a much worse showing. But what struck me particularly was that only one of these fifty-three patients had a vital capacity that was above the average normal, whereas, one third of these other patients suspected of having heart trouble had a vital capacity above the average. In other words, taking auricular fibrillation patients as they come, it is quite exceptional for such patients to show a normal vital capacity. And I infer that it is also exceptional for such patients to have a normal cardiac response when put to any severe test. We also studied the effect of changes of rhythm on the vital capacities of these patients. Sometimes a patient with a regular rhythm would develop fibrillation under observation, and sometimes his fibrillation disappeared, either spontaneously or under the administration of quinidin. In brief, we observed that, when the record of vital capacity was taken shortly after a change of rhythm, there was no striking effect on the vital capacity. In some cases, when the patient was given quinidin and his heart became regular, the vital capacity, when it became regular, was, if anything, a little lower than before. On the whole, however, it remained about the same, and there was no striking immediate effect. On the other hand, we were able to follow six patients for some time after the change in rhythm had occurred. In five of these cases we found a very striking effect. Although the vital capacity did not change much immediately after the rhythm became regular, it gradually improved as time went on; conversely, when the rhythm became irregular, the vital capacity gradually fell until it ultimately reached a much lower level. I believe, then, that fibrillation in itself affects the vital capacity unfavorably, but that it acts in a gradual manner, probably by gradually disturbing the circulation in the lungs, thus lowering the vital capacity. It seems to me, therefore, that in the vast majority of cases, the fibrillation itself is disadvantageous, and that, if we can get the patient free of the fibrillation and keep him free, he stands a better chance to maintain compensation than if we allow it to go on. I know, of course, that this is the opinion generally held, but I am trying to present other evidence in support of it, because, from time to time, the assertion is made that fibrillation is a thing which, in itself, is not serious.

Dr. William J. Kerr, San Francisco: The various toxic effects described by Dr. Reid have been observed by various workers. I think it should be emphasized that many of these irregularities may occur when digitalis has not been given, when other drugs have been used, or when no drugs at all have been used. The most interesting observation he has made is noting accelerated sinus rhythm in association with partial block. I have not observed this. The reports of ventricular ectopic tachycardia are also extremely interesting. I think it should be emphasized, also, that that may occur when digitalis has not been given. Since we have been more interested in disturbed mechanism of the heart, more of these tachycardias have been observed. I made such an observation in a patient with a complete heart block, who was being treated with quinidin. During the course of treatment there were attacks of syncope which were accompanied by unusual runs of ventricular tachycardia. Dr. Reid showed a very interesting record of this type of tachycardia, which was about 200 to the minute. In the particular patient that I saw, the heart was beating violently, the pulse was of high tension, and the patient was in syncope. The electrocardiographic records were very similar to those shown by Dr. Reid, and seemed to represent a type of circus movement in the ventricle. This patient later had several attacks of ventricular fibrillation, three of which we observed, and he is still alive, almost two years following these attacks. He is the only patient I know of who has survived for more than about thirty hours following attacks of ventricular fibrillation. I think that when we have an opportunity to study more patients with serious cardiac conditions and observe electrocardiographic records of various stages of their illness, we shall find that ventricular fibrillation itself, which has been considered incompatible with life, is much commoner than we now suspect. In regard to the Eggleston method of treatment, it does not seem to me that in cases manifesting no marked signs of decompensation, and no fibrillation, there is any justification for giving digitalis in tremendous doses at the onset of the treatment. There is no indication for getting toxic effects sooner than two or three days, in most instances. The method has taught us the value of rapid digitalization. My own particular method is to use about 4 c.c. of a standard tincture, or about 0.4 gm. of a known preparation of the leaf, about six hours apart, until the desired effects have been achieved. I should like to commend Dr. Coffen. I think that we have been swayed by instrumental methods in the study of heart disease. We have observed more and more patients suffering from this irregularity, and I think we should appreciate the fact that paroxysmal auricular fibrillation, paroxysmal flutter and paroxysmal tachycardia are extremely common, and paroxysmal auricular fibrillation is particularly common, and in many instances is not associated with any pathologic condition of the heart that we are able to demonstrate. We observe, however, in many of these cases, and, particularly, in those in which there is associated mitral disease, that the paroxysms come on more and more frequently, with longer and longer duration, and, finally, become permanently established. In the sclerotic heart, on the other hand, in patients past 40 or 50, auricular fibrillation may come on without paroxysms, and may seem to be a permanent condition.

Dr. Cary Eggleston, New York: The figure which Dr. Reid used for the average body weight dose is that for the purified tincture, and is 50 per cent. too small for galenic tinctures, especially when administration was extended over several days. Hastily correcting his figures to fit galenic preparations, it appears that in every case recorded as showing serious toxic symptoms the total dose given was much above the average originally established on the basis of body weight. Dr. Reid's observations are strongly confirmatory of the safety of the body weight method of estimation of the dose of digitalis, when employed with due attention to details. The doses recorded by Dr. Reid are excessive, because he was seeking to study patients who had been poisoned, not because he deliberately employed such doses. I have seen a number of similar instances of excessive administration, but almost never when the body weight method was being followed, perhaps because it is somewhat feared, and those who try it are more cautious than those who do not. I have seen one death from digitalis which closely corresponds to one recorded by Dr. Reid. The patient had been given digitalis by the body weight method with satisfactory temporary response, and it had been discontinued. Through an error, large doses were again prescribed without due control, and after a few days the patient developed ectopic ventricular tachycardia and died in ventricular fibrillation. This is the only digitalis death I have come across in many hundreds of patients, and it was attributable to uncontrolled digitalis administration, not to the use of the body weight method. In this connection let me mention a series of automatic stop orders for all forms of digitalis administration which we have posted in every ward, and which the nurses are required to observe. They have proved most satisfactory in preventing accidents. They read: "Digitalis is to be discontinued and the house physician notified if nausea or vomiting develops; if the heart rate falls to or below 60; if a previously regular pulse becomes irregular." I would add, "if a previously slow pulse becomes markedly accelerated." Dr. Kerr said that he did not think the body weight method was applicable to patients showing only mild degrees of cardiac failure, and I quite agree with him if he refers to the administration of large initial doses. Except in the original researches on the method, it has never been applied to such patients in that way, although the average total dose is always employed to guide the administration of digitalis in every case, and to give an estimate of the progress of digitalization which we find very valuable.

Dr. Paul D. White, Boston: I agree heartily with Dr. Coffen that auricular fibrillation per se is not serious. How much more, for example, do we prefer to see patients with rheumatic heart disease and auricular fibrillation rather than with syphilitic heart disease and normal rhythm. There is here a very distinct difference in prognosis. As a matter of fact, auricular fibrillation is relatively uncommon in syphilitic heart disease. I agree with Dr. Kerr that paroxysmal auricular fibrillation is very common, and yet it is often overlooked, in fact, it is usually overlooked. The condition is likely to be called acute dilatation of the heart, and as the physician listens to the heart which is beating very rapidly and irregularly in delirium cordis he becomes alarmed and often gives an unfavorable prognosis. Then the paroxysm stops suddenly, and the so-called acute dilatation is gone. Also paroxysmal auricular fibrillation is sometimes mistaken for angina pectoris, that is, when only a vague history is obtained. I have seen this happen repeatedly. Of course, a bad prognosis is often given if angina pectoris is suspected; but if a clear history of auricular fibrillation can be obtained, one can then give a fairly good prognosis, if that is the only disturbance present. Last year, at St. Louis, I reported the work done at the Massachusetts General Hospital in the administration of quinidin to about seventy patients with auricular fibrillation. These cases were unselected. We concluded, as a result of that series, that the cases most favorably treated by quinidin were those of recent onset, and without marked mitral stenosis or cardiac failure. Our conclusions are the same this year, after continuing the series. Quinidin in auricular fibrillation is particularly useful in cases of recent origin, and as a prophylactic against paroxysmal auricular fibrillation. It is in this paroxysmal type that I have had the most striking success. There are patients who have been taking quinidin sulphate every day for months or a year or more who get along without the frequent paroxysms which used to disturb them. Although, in itself, paroxysmal auricular fibrillation is not a serious condition, it is very disturbing, and the patients are grateful, especially those who are nervous and sensitive, if these paroxysms can be abolished. We have lately also found that premature beats are not infrequently prevented and abolished by the use of quinidin. But I feel that in paroxysmal auricular fibrillation quinidin is most useful.

Dr. William Duncan Reid, Boston: As to the question of the large doses used with these patients, I am thoroughly in agreement with the statement that they were given too much. I did not treat those patients, but I had the opportunity to study them under various medical services. It was my endeavor to show that the troubles appeared to be due to overdoses. In using digitalis, it does not work out that if some digitalis helps to a certain extent, giving more of the drug will help more. That does not follow. It seems to me worthy of emphasis that this method which Dr. Eggleston has introduced, of giving digitalis in relation to the body weight of the patient, should not suffer harm from men who forget the safeguards.

Dr. T. Homer Coffen, Portland, Ore.: I am particularly grateful to Dr. Libman for emphasizing again some of the etiologic factors in the production of auricular fibrillation, especially in regard to the thyroid, to tonsil infection and to intestinal disturbances. Hidden or latent thyroid cases are often overlooked, when care in regard to physical examination, such as he has spoken of, plus basal metabolism estimation, may throw light on an otherwise obscure condition. There is no one better able to discuss the relation of endocarditis and auricular fibrillation than Dr. Libman, whose work stands alone in this respect. In regard to quinidin, I think that Dr. Hewlett and I have no disagreement. I have access to the electrocardiograph only for ambulatory patients. I have been led to be very cautious about the use of quinidin in ambulatory cases, though it may be used safely in large enough doses to change the arrhythmia to a normal rhythm in bed patients. Perhaps it can be used in smaller amounts with safety, especially in cases of paroxysmal auricular fibrillation which tend to become permanent. If this condition can be checked, and the tendency to a permanent fibrillation avoided by the use of quinidin in safe amounts which can be controlled, of course, it is well worth while. I want to emphasize again that the physician in general practice may recognize this very common arrhythmia by simple means and without the electrocardiograph and other instruments, and that, in many cases, the heart adapts itself to the irregular rhythm and carries on for months or years.

THE VALUE OF FORCING FLUID IN THE TREATMENT OF MERCURIC CHLORID POISONING *

CHARLES C. HASKELL
J. R. CARDER
AND
R. S. COFFINDAFFER
RICHMOND, VA.

In 1915, Lambert and Patterson[1] said:

> The therapeutics of mercuric chlorid poisoning up to the present have been quite unsatisfactory. The patients have regularly developed anuria on or about the fourth day after taking the poison, and progressed to subsequent death from lesions of the liver and colon, with or without the reestablishment of urinary secretion.

This statement represents fairly well the pessimism prevailing at that time with regard to the prognosis in clinical poisoning by mercuric chlorid. Nevertheless, these authors were able to report recovery in all of ten cases which were treated by a method in which measures designed to hasten elimination of the metal were especially stressed. Since the appearance of the paper by Lambert and Patterson, other observers have seen similar good results occur in mercuric chlorid poisoning when this eliminative treatment has been employed. The rigid application of the Lambert-Patterson treatment subjects the patient to a considerable amount of discomfort—discomfort which should be considered of minor importance if it contributes to recovery, but which the patient should be spared unless it is actually necessary.

In the fall of 1916, experiments were undertaken in this laboratory with the object of determining the value

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* From the Laboratory of Pharmacology, Medical College of Virginia.

[1] Lambert, S. W., and Patterson, H. S.: Poisoning by Mercuric Chlorid and Its Treatment, Arch. Int. Med. **16**: 865 (Nov.) 1915.

of forced fluid administration to dogs suffering from experimental mercury poisoning. These initial experiments require only brief mention. Discouraged by the first attempts, we felt that a satisfactory determination of the toxicity of mercuric chlorid in a quantitative sense, after its oral administration to dogs, was almost impossible; so recourse was had to the subcutaneous administration of solutions of this salt. It has been our experience that recovery occurs practically always in untreated dogs after the subcutaneous injection of 10 mg. of mercuric chlorid per kilogram of body weight; while death is usually produced by a dose of 15 mg. per kilogram, unless some form of treatment is employed. If, however, as much as 20 mg. per kilogram is given and the dog subsequently receives large amounts of physiologic sodium chlorid solution intravenously or subcutaneously, recovery often occurs; indeed, in the majority of instances.

Our experiments had progressed to this stage when Sansum's[2] paper on mercuric chlorid poisoning appeared. According to this author, the minimal surely fatal dose of intravenously injected mercuric chlorid for dogs is 4 mg. per kilogram; recovery will occur in some cases if a slightly smaller dose is employed. If, however, 4 mg. per kilogram is injected, death will occur regardless of the method of treatment. His results indicate that efforts directed toward hastening elimination of the poison are fruitless, and that the only line of successful endeavor in treating mercuric chlorid poisoning is prevention of absorption. Superficially, it would seem useless, therefore, to force fluid; the prime object of which in the Lambert-Patterson treatment is, apparently, to hasten elimination.

Intravenous injection of the poison does not reproduce the conditions usually encountered clinically; here, in the great majority of cases, the mercuric chlorid has been taken orally. It seemed very desirable, therefore, again to attempt to determine the fatal dose of mercuric chlorid by oral administration to dogs. As Sansum has pointed out, the two factors that militate most strongly against accurate determination of the fatal dose of orally administered mercuric chlorid are emesis and a varying glycogen content of the liver. By following the technic to be described, the importance of these factors seems to be so reduced as to permit of the determination of the minimal fatal dose of mercuric chlorid, after its oral administration, with at least a fair approximation of accuracy.

Table 1.—*Toxicity of Mercuric Chlorid Administered Orally to Dogs*

Wt. Kg.	Mercuric Chlorid Mg. per Kg.	Result
3.70	15	Recovered
4.59	15	Recovered
7.20	20	Died in 7 days*
15.00	20	Died in 2 days
3.40	20	Died in 2 days
5.22	20	Died in 6 days
5.13	20	Died in 4 days
8.00	20	Died in 1 day
4.63	20	Died in 2 days
4.40	20	Died in 2 days
4.13	20	Died in 4 days
5.22	20	Died in 2 days
4.14	20	Died in 2 days
4.68	20	Died in 2 days
5.23	20	Died in 2 days
4.68	20	Died in 2 days
6.24	20	Died in 5 days
15.90	25	Died in 2 days
9.30	25	Died in 1 day
15.45	25	Died in 2 days
14.54	25	Died in 2 days
13.62	25	Died in 3 days
13.18	25	Died in 1 day
10.90	25	Died in 2 days

* The time mentioned is approximate; if death occurred in the first twenty-four hours, it was "1 day"; in the second twenty-four hours, "2 days."

All of the dogs used were given 10 c.c. of tap water per kilogram of body weight, twenty-four hours before the administration of the mercuric chlorid. After receiving the water, they were placed in cages and given no food or water until the following day. At the expiration of twenty-four hours, the animals received a subcutaneous injection of morphin sulphate, 20 mg. per kilogram; and in thirty minutes, the mercuric chlorid was given through a stomach tube, a solution of 5 per cent. strength being used. The results obtained are given in Table 1.

Table 2.—*Results of Forcing Fluid in Dogs That Received a Fatal Dose (20 Mg. per Kg.) of Mercuric Chlorid Orally*

Wt. Kg.	Number of Minutes Before Treatment Was Started	Result
6.81	255	Died in 11 days
4.54	30	Died in 8 days
6.27	30	Died in 11 days
3.77	30	Died in 3 days
8.60	30	Died in 18 days
7.78	255	Survived
7.15	30	Survived
5.72	30	Survived
5.60	30	Survived
4.05	30	Survived
5.90	30	Survived
7.30	30	Survived
9.00	30	Survived
5.50	30	Survived
6.50	30	Survived
9.00	30	Survived
3.60	30	Survived
16.30	30	Survived
11.60	30	Survived
7.50	30	Survived
7.70	30	Survived
9.70	30	Survived
5.40	30	Survived
8.60	30	Survived
8.10	30	Survived

In spite of the morphin administration, emesis occurs in a certain number of cases; but, if this does not take place within thirty minutes after the mercuric chlorid is given, a fatal outcome is not prevented in the untreated dogs after 20 mg. of the poison per kilogram. The only two dogs given the dose of 15 mg. per kilogram recovered. It is possible that this dose will prove fatal in some cases; but, after all, to estimate the value of a therapeutic procedure, it is necessary only to show that it will prove successful after the fatal dose of the poison; and from our experiments, it seems safe to conclude that 20 mg. of mercuric chlorid per kilogram body weight, administered to dogs in the manner described, will prove fatal in the great majority of cases unless some form of treatment is employed.

Having determined the fatal dose of mercuric chlorid, we attempted to ascertain whether dogs could be saved after this dose. The mercury was given to the treated dogs in the same manner as to the controls. After allowing from thirty minutes to a little more than two hours to elapse, we gave the dogs an injection, into the jugular vein, of 25 c.c. of an 0.8 per cent. saline solution per kilogram of body weight; this was followed by injection of a similar amount either subcutaneously or intraperitoneally. The animals were kept in metabolism cages, and intraperitoneal injection of 50 c.c. of salt solution per kilogram of body weight was repeated daily for varying lengths of time, until death or apparent recovery. We arbitrarily selected one month as a time limit; if the dog was in good condition at this time, it was considered as having "survived." The results obtained in the treated animals are given in Table 2.

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[2] Sansum, W. D.: The Principles of Treatment in Mercuric Chlorid Poisoning, J. A. M. A. **70**: 824 (March 23) 1918.

It is evident from these figures that a definitely favorable influence is exerted by the use of large amounts of physiologic sodium chlorid solution in dogs poisoned by mercuric chlorid. Thus, of the twenty-five dogs receiving the fatal dose of 20 mg. of mercuric chlorid per kilogram of body weight, and subsequently treated by intravenous subcutaneous and intraperitoneal injections of large amounts of saline solution, twenty survived.

The means by which this favorable influence is exerted is not clear. Our first explanation, in the case of the dogs poisoned by subcutaneous injection of the mercury, was that the salt solution simply hastened elimination of the poison. But that this is not correct seems proved by the experience of Sansum, whose more efficient methods of producing diuresis invariably failed to cause the recovery of a dog, once the minimal fatal dose of mercuric chlorid had been given intravenously. In view of Sansum's work, it would seem more probable that saline injections are beneficial through delaying or preventing absorption from the subcutaneous tissues or the lumen of the alimentary tract. Theoretically, at least, it would seem that the oral administration of some cathartic salt in large doses would prove even more effective than the intravenous injection of sodium chlorid solutions. Practically, we have not yet been able to prove that this is the case. In a few experiments, entirely too few to place much dependence on, it seemed that the oral administration of large volumes of water was decidedly less effective than the intravenous injection of the salt solution.

So far as our experiments justify conclusions, it seems permissible to state that the intravenous injection of salt solutions comparatively soon after oral ingestion of mercuric chlorid, possesses a definitely beneficial action and effects the recovery of animals that have received what is probably the surely fatal dose for untreated dogs.

MALARIA IN SAN FRANCISCO *

LeROY H. BRIGGS, M.D.
SAN FRANCISCO

Thanks to the better organization of health boards and the awakening of the public to the fact that the presence of a preventable disease represents a criminal waste of money, malaria is yearly becoming less frequent. For several years it has been noticed that the occurrence of a case in the wards or in the clinic arouses great interest among the students, and the day seems not far distant when we shall have considerable difficulty in teaching by bedside and microscope the natural history of malaria in all but a very few medical schools. This is unfortunate, for there still are rural districts in California and in other states where malaria constitutes a fair proportion of every-day medical practice, and lack of familiarity with the parasite is a very real handicap to the conscientious physician.

For the last ten years I have been interested in the disease as it has been seen about San Francisco Bay, and this article is the result of observation of 143 cases. Long a vigorous upholder of the dictum that diagnosis should depend solely on the demonstration of the plasmodium, I have directed especial attention to the type of organisms present, and have myself studied the parasite in every instance. The material is that afforded by general adult medical practice in civil life, the cases occurring in the University of California Hospital, the university service of the San Francisco Hospital, a few in the Student's Infirmary in Berkeley, and the rest in private work. In the government service hospitals about the bay, doubtless a much greater number of cases of tropical origin could have been seen, but this material was not desired since the chief point of interest was the study of malaria as a strictly "domestic" and not "imported" disease. As San Francisco represents the geographic as well as the commercial center of California, it was thought that the malaria incidence here might be taken as a sample of the incidence throughout the state, and comparison of the present statistics with the statistics of the state board of health show a very considerable agreement, as regards not only the type of infection but also the localities. Since all but fourteen patients acquired their infection within the state, we have, then, a study of malaria as it exists in California, taken with San Francisco as a sampling point.

Naturally, the point of first interest was the type of infection. It is felt generally among local physicians that the estivo-autumnal variety is rare; but this is an error, as shown later. The differentiation is of considerable importance, as tertian malaria does not demand so strenuous treatment and the human host is not a carrier for so long a period. The distinction is made partly from the fever course, but better still from the blood examination. Quartan malaria is extremely rare in California, and although reported on one occasion by Geiger and Kelly, it was not seen in the present series. The fever paroxysm in the tertian type has as its characteristic a very rapid rise and return to normal, the whole affair usually being over in ten or twelve hours, while in the estivo-autumnal type the paroxysm may be prolonged further or even take on the type of a continuous fever.

Careful study of the blood, however, is more certain. The asexual estivo-autumnal parasite, being only slightly ameboid, becomes lodged in the capillaries after it has attained about one fourth of its growth, consequently disappearing from the circulating blood in about twelve hours. This is simply because the red cells carrying the older organisms are unable to accommodate themselves to the smaller calibered capillaries and become blocked by virtue of this mechanical obstacle. This explains the nonappearance of pigmented forms, the difficulty of finding parasites in many instances, and the fact that at times parasites may be numerous on one examination and yet missing a few hours later.

On the other hand, the more ameboid tertian form can squeeze its way through the capillaries with the red cell, and so parasites in all stages of growth may be found in the circulating blood. If, therefore, pigmented forms are discovered in the smear, one may be certain that a tertian infection is present, while if nothing but hyaline forms are seen on two successive examinations a few hours apart, one may be equally sure he is dealing with an estivo-autumnal form. In this way a diagnosis can be made much earlier than if the usual method is followed of waiting for the crescents and ovoids to appear. Ordinarily, the criterion of estivo-autumnal malaria is the occurrence of these sexual forms; but as they do not develop until the infec-

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* From the Department of Medicine, University of California Medical School.

tion has existed about ten days, it can readily be understood why a number of cases are mislabeled tertian if seen earlier. Doubtless this accounts for the prevalent erroneous impression regarding the rarity of estivo-autumnal malaria. If the disease has persisted more than a few days and nothing but hyaline rings are found on the first examination, no subsequent examination is necessary, as, in a tertian infection of this duration, some of the generations of parasites certainly would have overlapped and forms showing pigment would occur. Crescents are necessary to establish a diagnosis of the estivo-autumnal type only in the case of a mixed infection in which the two varieties exist together.

In examining the blood, a good Romanowsky stain, thin, even smears, a knowledge of the parasite and patience are the prime requisites in the order named. Many times parasites have been overlooked because the stain was too acid or faint or the smear too thick, and equally often blood platelets and débris have been called plasmodia because the examiner was not sufficiently familiar with the organism.

Of the present series, 100, or 69.9 per cent., were tertian, thirty-nine, or 27.3 per cent., estivo-autumnal, and four, or 2.8 per cent., a mixture of both varieties. This brings the frequency of tertian to estivo-autumnal as 2.5 : 1, a ratio considerably lower than is usually thought. In the 129 strictly California cases, the proportion of tertian to estivo-autumnal was a trifle higher, the figures being ninety-three tertian, thirty-three estivo-autumnal and three mixed; while in the other fourteen, coming mainly from the tropics, the figures were seven tertian, six estivo-autumnal and one mixed. Of the 104 tertian infections, sixty-three were of the single type and forty-one were double.

Next in interest is the region in which the disease was contracted. In nearly all cases the locality was ascertained in detail and the nearest town given, although in a few, less definite locations, such as "Sacramento Valley" and "Sacramento River," were all that could be obtained. In Figure 1 *A* the places of origin of the estivo-autumnal cases are indicated by dots on the outline map, while in Figure 1 *B* the same is done for the tertian. It will be noticed that the great majority of both types come from what is known as the "Upper Sacramento Valley." A large portion of California consists of a great central plateau, the Sacramento and San Joaquin valleys, named from the rivers draining them and rimmed in by the two great mountain chains, the Sierra Nevada and the Coast Range. This region is approximately 450 miles long and 80 miles wide, and is devoted almost entirely to agriculture. Level, warm and with abundant water, it constitutes an ideal home for *Anopheles,* which is universally present. The fact that the upper or northern portion of this region has more water probably explains the greater prevalence of malaria there.

The three cases of apparently unquestionable infection in San Francisco will bear mention. Two of the patients were dock laborers, and the other lived near the water front. Considerable agricultural produce is brought to the city by river boats, which carry, as unwelcome supercargoes, hoards of mosquitoes, so that it is very possible that infection conveyed in this way may be acquired in San Francisco along the water front.

It is well known that a person may harbor parasites for long periods without symptoms, only to have a paroxysm on going to a colder climate or after some unusual physical event. Especial attention therefore was paid to the locality in which the symptoms developed. In 104 patients in whom this was noted, fifty-eight had their first symptoms at the place of infection and came to San Francisco afterward. In forty-six, however, symptoms did not develop until they came to the city for some other reason. Eighteen arrived within a few days of being bitten by mosquitoes in an infected district; so this may be considered as the ordinary period of incubation and multiplication of the parasites to a sufficient number to give a paroxysm. Twenty-seven, however, gave histories of attacks in the past but none very recently, and it was frequently in this group that the development of symptoms was noted after some physical insult. A number of cases followed operations or labor; two followed the passage of esophageal bougies. A student, without known previous attacks but recently coming from an infected town, developed a tertian paroxysm five days after she was used as a donor for a transfusion. The recipient did not acquire the infection.

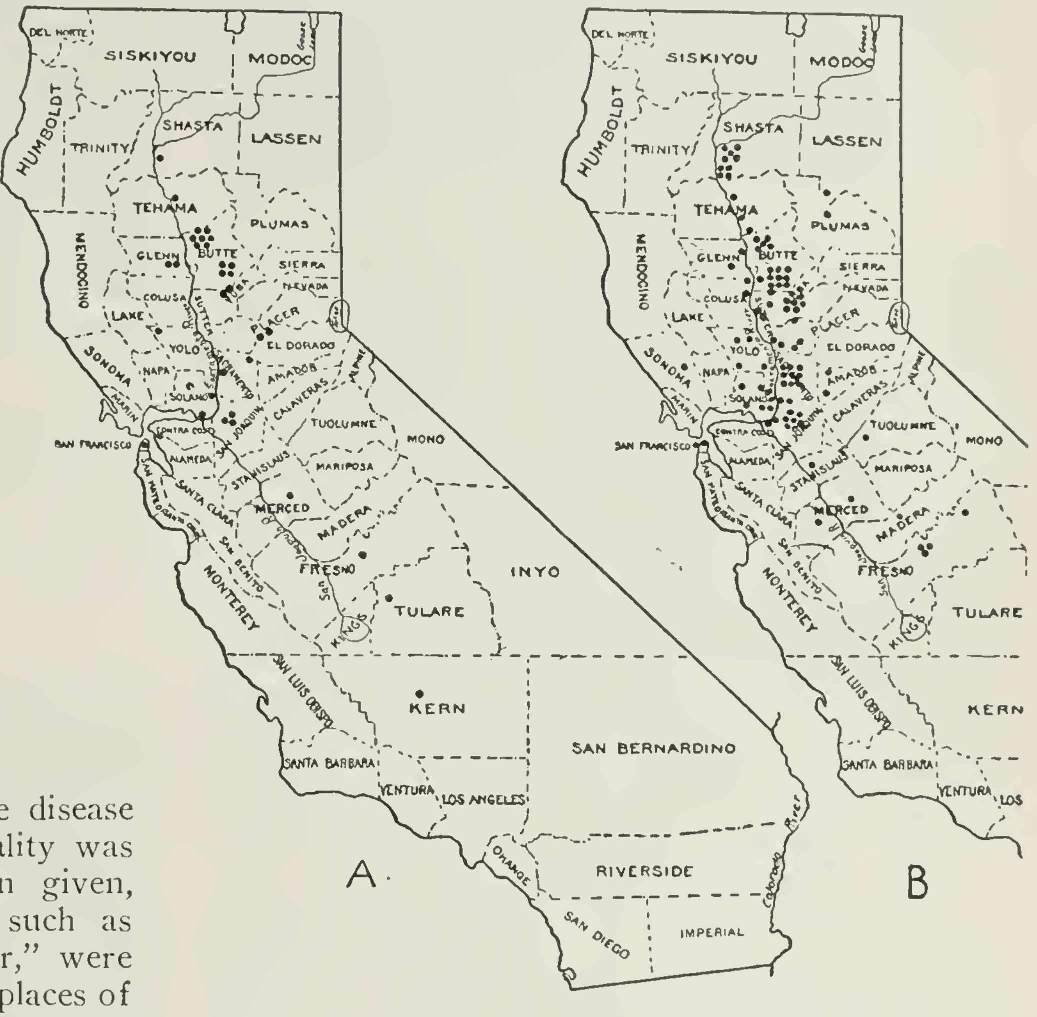

Fig. 1.—Location of: *A,* estivo-autumnal cases; *B,* tertian cases.

The month in which the cases came under observation was noted in all. This does not necessarily mean the month of infection, but denotes the time the patients were seen here. The incidence by months it shown by the curve in Figure 2. As would be expected, there is a very definite peak in the late summer months, with the maximum in September, exactly as observed for many Southern states in *Public Health Reports.* This is due to several factors: the natural tendency of the disease to increase during the mosquito season; the return from vacations spent in malarial districts, and the migration to the city of floating workers after the summer harvest.

As regards sex, males outnumbered females just four to one, a fact not surprising since the material consisted largely of the laborer and artisan class. The predominant occupation was that of an outdoor worker.

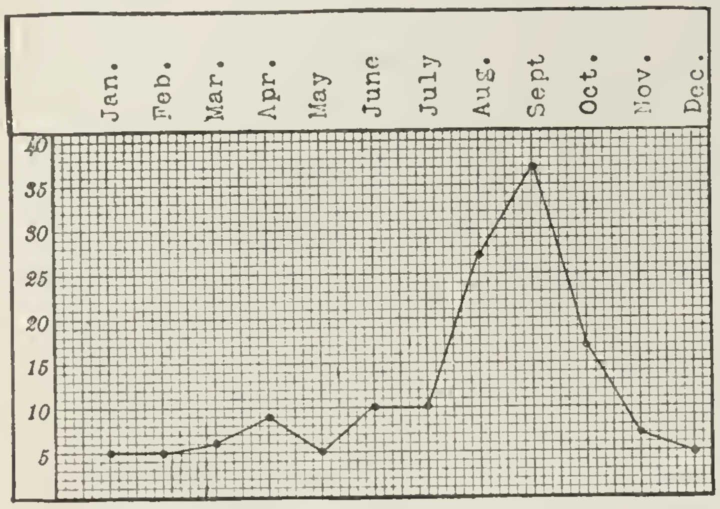

Fig. 2.—Incidence of malaria by months.

The condition of the spleen was noted in 137 instances, only those spleens definitely palpable being considered as enlarged (Table 1). The results show splenomegaly to be a very constant sign in malarial infections, with but very little difference between the incidence in the tertian and estivo-autumnal types.

The presence or absence of herpes also was noted in 137 cases. It was usually labial, but in several instances was aural, and in two appeared on the eyelids. Herpes is a much less constant sign of malaria than is enlargement of the spleen, but here again there is no material difference between the incidence in tertian and estivo-autumnal malaria. The figures are shown in Table 2.

Only one death occurred in the series, and, unfortunately, nothing could be learned regarding the place or circumstances in which the infection was acquired.

Table 1.—*Condition of the Spleen*

Type of Malaria	Per Cent. Enlarged	Per Cent. Not Enlarged
All cases	78.8	21.2
Tertian	76.8	23.2
Estivo-autumnal	81.5	18.5
Mixed	100.0	0

Table 2.—*Incidence of Herpes*

Type of Malaria	Per Cent. Herpes Present	Per Cent. Herpes Absent
All cases	39.4	60.6
Tertian	40.6	59.4
Estivo-autumnal	36.8	63.2
Mixed	33.3	66.7

The man was admitted in coma from the city prison, where he had been lodged on account of supposed drunkenness. Blood smears showed immense numbers of estivo-autumnal hyaline forms, and he died in thirty-six hours in spite of all treatment. Postmortem examination revealed no other cause for death.

SUMMARY

One hundred and forty-three cases of proved malaria seen in San Francisco were analyzed with especial reference to the type of parasite and the locality in which infection occurred. San Francisco may be considered a fair sampling point for malaria in California, as the sites of origin of these cases correspond closely with the malarial regions of the state, as shown by state board of health surveys.

Estivo-autumnal malaria is found more commonly than is supposed, the proportion to tertian being 1:2.5. Diagnosis of this type by blood smears should be made oftener, and the sexual forms should not be considered the sole criterion. The absence of pigmented forms in the circulating blood offers a sharp diagnostic point.

Many patients did not develop their illness at the site of infection, but symptoms started after they reached San Francisco. In some this is accounted for by the natural incubation time; but, in the majority, recrudescences were brought about by the change to a colder climate or by some physical trauma, such as labor or operation.

As in other states, the incidence was greatest in the late summer months, with the maximum in September.

Palpable enlargement of the spleen was found in approximately 80 per cent. of the series, and no essential difference was noted between its occurrence in the tertian and estivo-autumnal infections. Herpes was present in approximately 40 per cent., likewise with no difference in the two infections.

240 Stockton Street.

UNCOMPENSATED ALKALOSIS IN ENCEPHALITIS *

GEORGE A. HARROP, M.D.
AND
ROBERT F. LOEB, M.D.
NEW YORK

The possible conditions of the acid-base balance of the blood, considering as variables the amount of bicarbonate present, and the hydrogen-ion concentration, have recently been defined by Van Slyke.[1] Three of these variations, (*a*) the normal condition of health (in which both bicarbonate and p_H are within normal limits), and the conditions of (*b*) compensated acidosis (normal p_H, low bicarbonate), and of (*c*) uncompensated acidosis (low p_H, low bicarbonate), are the ones most commonly observed. Several of the other theoretical possibilities have been reported as occurring either experimentally or clinically. The present communication is for the purpose of reporting a case of epidemic (lethargic) encephalitis with a disturbance of the respiratory mechanism producing a prolonged, extremely rapid, shallow type of breathing. So far as we have been able to discover, the condition of the acid-base equilibrium which was found has not previously been described as occurring in this condition.

An unmarried housemaid, aged 22, and healthy until the onset of her present illness, seven days before admission to the hospital had suffered from severe headache and drowsiness, followed by a twenty-four hour period of marked restlessness and sleeplessness. She then suffered from increasing drowsiness up to the time of admission. There was no history of recent respiratory infection, diplopia or other palsies. On admission, except for coma and occasional muscular twitchings involving the face and legs, there was nothing abnormal on physical examination. The temperature was 103; the pulse, 100, and respiration, 30. Routine laboratory findings were essentially negative.

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* From the Department of Medicine of The College of Physicians and Surgeons, Columbia University, and the Presbyterian Hospital.

[1] Van Slyke, D. D.: Studies of Acidosis: Normal and Abnormal Variations in the Acid-Base Balance of the Blood, J. Biol. Chem. **48**: 153 (Sept.) 1921.

The patient remained comatose until death, eight days after admission, the striking clinical feature of the case being the rapid, shallow breathing, particularly during the last three days of life, when the respiratory rate ranged constantly between 40 and 50 a minute. The temperature fluctuated between 100 and 104, and terminally rose to 106. There was some increase in the muscular twitchings, and about half an hour before death there were continuous clonic twitchings of the head and shoulders. The Trousseau and Chvostek signs were not present. Except for marked grayish cyanosis of the face and hands, and the presence of a few coarse râles at the base of the left lung shortly before death, physical examination revealed no changes.

Analyses of the Arterial Blood

Arterial oxygen content	21.29 per cent. by volume
Arterial oxygen capacity	26.8 per cent. by volume
Arterial oxygen saturation	79.6 per cent. by volume
Arterial carbon dioxid content	24.8 per cent. by volume
Arterial carbon dioxid capacity (whole blood)	39.6 per cent. by volume (Equilibrated at 40 mm. CO_2 tension)
Arterial carbon dioxid capacity (serum)	40.9 per cent. by volume (Equilibrated at 40 mm. CO_2 tension)
Arterial blood p_H	7.59

Serum-calcium, 9.8 mg. per hundred cubic centimeters.
Serum-sodium, 304 mg. per hundred cubic centimeters.
Serum-potassium, 16.9 mg. per hundred cubic centimeters.
Serum-chlorid, 3.66 gm. per liter (estimated as Cl_2).

No therapeutic measures were employed other than the intraspinal injection of convalescent serum on the first five days after admission, and a hypodermoclysis of 5 per cent. glucose twelve hours before death.

Blood was drawn from both radial arteries for the foregoing determinations with the usual precautions, avoiding contact with air, approximately an hour before death.

NECROPSY FINDINGS

The specimens obtained at necropsy were kindly examined for us by Dr. Alwin M. Pappenheimer. The cerebral lesions were quite typical of epidemic encephalitis. The extent of the pulmonary lesions was a little difficult to determine from the fixed specimen, but throughout both lungs were patchy, gray areas in which consolidation seemed fairly complete, and which corresponded on section to a loosely purulent exudation in the alveoli. Throughout the less frankly consolidated lung tissue there was extensive edema, congestion and hemorrhage. A very small portion of the lung seemed to be normally aerated. The capillaries were engorged with blood, and there were large areas of hemorrhagic necrosis and edema. The lesions in some respects resembled the lesions of early influenzal pneumonia. It would seem plausible that the function may have been impaired throughout a large area of the lung tissue.

The analyses of the arterial blood thus reveal the presence of an abnormally high p_H associated with a low arterial carbon dioxid content proportionately much lower than the plasma bicarbonate capacity (Van Slyke), which itself is lower than normal. It is evident that the condition is one of "uncompensated carbon dioxid deficit," due to the rapid, shallow breathing, which has produced an abnormally great pulmonary carbon dioxid excretion, with an increase in the ratio $BHCO_3 : H_2CO_3$, and therefore in the p_H.

The condition as regards the increased carbon dioxid excretion, with resulting low carbon dioxid blood content, has been produced experimentally in man by a number of investigators, either by voluntary forced breathing, by breathing air deficient in oxygen, or as a result of the hyperpnea due to immersion in warm water.[1] The clinical symptoms of this type of "alkalosis" have been reported by some of the experimenters as similar to those caused by uncompensated alkali excess (high carbon dioxid, high p_H), namely, tetany. Evidences of tetany were not observed in the present case, in which, however, the blood calcium was normal in amount.

The abnormally low oxygen content of the arterial blood, as a result of rapid, shallow breathing, was first predicted by Haldane, Meakins and Priestley,[2] and has been proposed as the cause of the anoxemia occurring in acute lobar pneumonia.[3] It has also been reported in two cases of epidemic encephalitis by Barach and Woodwell,[4] in which the abnormality of the respiration was apparently similar to that seen in our case. These authors found, however, a very high carbon dioxid content of the arterial blood, and, in one of their cases, a carbon dioxid dissociation curve indicating a p_H of 7.22, which they interpreted as indicating an "uncompensated carbon dioxid acidosis," in other words, exactly the contrary condition. No necropsies were obtained, and the possibility and extent of lung abnormalities, therefore, were not conclusively determined.

The apparent paradox of a low arterial oxygen saturation in a patient whose blood at the same time has a very low carbon dioxid content may be partially explained on the basis of Haldane's theory of the effects of shallow breathing, and possibly furnishes some experimental support for its validity. Haldane has pointed out the fact that for the tensions of oxygen and carbon dioxid which govern the gaseous exchange between blood and air in the lungs, the oxygen and carbon dioxid dissociation curves are quite different, and that diminished respiratory removal of carbon dioxid from the blood in one part of the lungs due to the insufficient expansion of shallow breathing is compensated for by increased removal of carbon dioxid from another part of the blood in another, better ventilated region. In spite of the extreme shallowness of the individual respirations, their large number may make the total respiratory volume normal, or even high, so that an exchange of carbon dioxid in those parts which do expand is highly efficient. The exchange of carbon dioxid in comparison with oxygen is further facilitated by reason of its much more rapid diffusion through the tissues and through the alveolar wall. The researches of the Kroghs [5] on the exchange of gases between blood and alveolar air in the lungs of the rabbit showed that, whereas the oxygen tension of arterial blood is commonly a trifle lower than that of the air with which it has been in contact, equilibrium exists in the case of carbon dioxid. The pulmonary diffusion constant for carbon dioxid (dCO_2) has been calculated by Marie Krogh [6] as 24.6 dCO, and for oxygen it is 1.23 dCO.

We think it is very significant that even when considerable lung abnormality exists, so great is the rate of diffusion of carbon dioxid through the pulmonary tissues that no heaping up in the blood occurs, but that, in fact, the contrary has here taken place. The theory of a "carbon dioxid acidosis" in pneumonia,[7] based on calculations from Hasselbalch's formula, especially when uncorrected for the effect due to the reduced oxygen saturation, requires further investigation by other methods.

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[2] Haldane, J. S.; Meakins, J. C., and Priestley, J. G.: The Effects of Shallow Breathing, J. Physiol. **52**: 433 (May) 1919.

[3] Meakins, Jonathan: Harmful Effects of Shallow Breathing with Special Reference to Pneumonia, Arch. Int. Med. **25**: 1 (Jan.) 1920.

[4] Barach, A. L., and Woodwell, M. N.: Studies in Oxygen Therapy, III, in an Extreme Type of Shallow Breathing Occurring in Lethargic Encephalitis, Arch. Int. Med. **28**: 421 (Oct.) 1921.

[5] Krogh, A., and Krogh, Marie: On the Tensions of Gases in the Arterial Blood, Skand. Arch. f. Physiol. **23**: 179, 1910.

[6] Krogh, Marie: The Diffusion of Gases Through the Lungs of Man, J. Physiol. **49**: 271, 1914-1915.

In the cases reported by Barach and Woodwell, the administration of a gas mixture containing 80 per cent. of oxygen caused a marked reduction of the arterial oxygen deficiency, and indicates that expansion and proper ventilation must have been going on in a considerable portion of the lungs. It is quite certain that carbon dioxid which diffuses with twenty times the velocity of oxygen $\frac{dCO_2 = 24.6\ dCO}{dO_2 = 1.23\ dCO} = 20.0$ must be removed from the blood in those portions of lung tissue with great rapidity and in large amounts.

In its end-result, the condition in our case is comparable to the "alkalosis" which exists during the process of acclimatization to high altitudes. The low arterial carbon dioxid in both cases is due to the "auspumpung," but the production of a low arterial oxygen content is different—in the one case being due to insufficient lung expansion, and in the other, to low atmospheric oxygen tension. The production of an uncompensated carbon dioxid deficit occurs in both, and this, at high altitudes, in turn becomes compensated by the mechanisms which have been studied by Hasselbalch and Lindhard,[8] by Haldane, Kellas and Kennaway,[9] and by others[10] (reduction of urinary ammonia and of titrable acidity, and increased excretion of base). That a similar compensation by a lowering of the blood bases may occur in rapid, shallow breathing is certainly suggested in our case by the distinctly low plasma sodium and potassium. It has not yet been ascertained, but it seems not unlikely, that similar findings will eventually be demonstrated in the blood of persons acclimatized to high altitudes.

Owing to the probable cause of the respiratory abnormality—a pathologic lesion in the respiratory center— our study affords no suggestions of value for therapy. The administration of oxygen in the cases reported by Barach and Woodwell had no influence on the ultimate outcome. Alkali therapy, however, which might be suggested by reason of the low plasma bicarbonate, would be contraindicated, although the breathing of air mixtures containing carbon dioxid might conceivably be useful.

Seventieth Street and Madison Avenue.

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[7] Means, J. H.; Bock, A. V., and Woodwell, M. N.: Studies of the Acid-Base Equilibrium in Disease from the Point of View of Blood Gases, J. Exper. Med. **33**: 201 (Feb.) 1921. Barach, A. L.; Means, J. H., and Woodwell, M. N.: The Hydrogen Ion Concentration and Bicarbonate Level of the Blood in Pneumonia, J. Biol. Chem. **50**: 413 (Feb.) 1922.

[8] Hasselbalch, K. A., and Lindhard, J.: Zur experimentellen physiologie des Höhenklimas II, Biochem. Ztschr. **68**: 265, 1915.

[9] Haldane, J. S.; Kellas, A. M., and Kennaway, E. L.: Experiments on Acclimatization to Reduced Atmospheric Pressure, J. Physiol. **53**: 181 (Dec.) 1919.

[10] Barcroft, J., et al.: Report of the Royal Society's Expedition to Peru, London, 1922.

Agglutinin Reaction.—The establishment of the agglutinin reaction as a constant and specific serum-phenomenon by the work of Gruber and Durham led immediately to assiduous investigation of the many problems suggested by it, and among them, the question of the nature of the agglutinogen. It was found that agglutinins could be produced, not only by the injection of whole bacteria, but equally well by treatment with dissolved bacterial extracts or with filtrates from old broth cultures. This naturally led to the thought that there might be a definite reaction if such extracts were added to agglutinating serums in vitro. Rudolf Kraus was the first to perform this very logical experiment.—Zinnser: Infection and Resistance, the Macmillan Company, 1923.

VALUE OF CARBON TETRACHLORID AS AN ANTHELMINTIC*

J. F. DOCHERTY, B.A., M.B. (Tor.)
Director of Ancylostomiasis Campaigns in Ceylon
CEYLON

From a published report on the use of carbon tetrachlorid as an anthelmintic in the treatment of ancylostomiasis one is led to conclude that as such it is more efficacious than any of the other three drugs in general use in hookworm campaigns. In this report an attempt has been made to make a comparative estimate of the value of the four vermifuges thymol, betanaphthol, chenopodium and carbon tetrachlorid, definite fixed doses of each being used.

An absolute control of persons under treatment was necessary. Three hundred prisoners in two of the island jails were selected with their own consent and with the permission and assistance of the superintendent of prisons; of these, 215 completed the prescribed course of treatment, the remainder falling out on account of discharge, illness and personal objections. The men selected were those who had been exposed to hookworm infection previous to imprisonment and who had been in custody for from three months to three years, though in a few cases this did not apply. The reason for this was to exclude, so far as it is possible, chances of recent infection, with consequent appearance of hookworms in the intestine during the course of treatment. All hookworms expelled by these prisoners were of the species *Necator americanus*.

The general system of treatment was as follows:

1. No food of any kind on the morning of treatment.
2. A. (*a*) Thymol, 20 grains, at 7 a. m.
    (*b*) Thymol, 20 grains, at 9 a. m.
    (*c*) Saturated Epsom salt, 2 ounces, at 11 a. m.
    (*d*) Treatment interval, seven days.
  B. (*a*) Chenopodium, 12 minims, at 7 a. m., in water.
    (*b*) Chenopodium, 12 minims, at 9 a. m., in water.
    (*c*) Saturated Epsom salt, 2 ounces, at 11 a. m.
    (*d*) Treatment interval, seven days.
  C. (*a*) Betanaphthol, 40 grains, at 8 a. m.
    (*b*) Saturated Epsom salt, 2 ounces, at 11 a. m.
    (*c*) Treatment interval, seven days.
  D. (*a*) Carbon tetrachlorid, 3 c.c., in water, at 8 a. m.
    (*b*) Saturated Epsom salt, 2 ounces, at 11 a. m.
    (*c*) Treatment interval, fourteen days.

The prisoners were divided into four equal groups: A, B, C and D.

Group A received three complete treatments with thymol, and one week later twenty-five received a fourth treatment with chenopodium, twenty-five with carbon tetrachlorid and twenty-five with betanaphthol.

Group B received three complete treatments with chenopodium, and one week later twenty-five received a fourth treatment with thymol, twenty-five with betanaphthol and twenty-five with carbon tetrachlorid.

Group C received three complete treatments with betanaphthol and one week later twenty-five received a fourth treatment with thymol, twenty-five with chenopodium and twenty-five with carbon tetrachlorid.

Group D received two complete treatments with carbon tetrachlorid, and one week later twenty-five received a third treatment with thymol, twenty-five with chenopodium and twenty-five with betanaphthol.

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* The studies and observations on which this paper is based were conducted with the support and under the auspices of the International Health Board of the Rockefeller Foundation.

The results of the worm counts are given in Table 1; of these, more than 75 per cent. were made either by me or in my presence, the remainder being entrusted to a senior medical officer whose work and reports have always been most reliable. When I did not give the treatments they were given by my assistant.

Table 1.—*Results of Worm Counts*

Group A—Thymol

Number Treated	First Count	Second Count	Third Count	Drugs Used in Fourth Treatment	Fourth Count
16	302	67	24	Carbon tetrachlorid........	23
15	483	69	6	Chenopodium...............	6
13	605	40	12	Betanaphthol..............	13
44	1,390	176	42		42

I. Cures:
  1. Nine by one treatment
  2. Eleven by two treatments
  3. Eleven by three treatments
II: Worms removed:
  1. 84.2 per cent. by one treatment
  2. 94.9 per cent. by two treatments
  3. 97.4 per cent. by three treatments
  4. Total worms removed, three treatments, 1,608
  5. Average worms removed per person, 36

Group B—Chenopodium

Number Treated	First Count	Second Count	Third Count	Drugs Used in Fourth Treatment	Fourth Count
18	684	190	40	Thymol.....................	27
15	509	110	13	Betanaphthol..............	21
18	1,014	35	13	Carbon tetrachlorid........	29
51	2,207	335	66		77

I. Cures:
  1. Fourteen being cured by one treatment
  2. Nine being cured by two treatments
  3. Eleven being cured by three treatments
II. Worms removed:
  1. 81.4 per cent. by one treatment
  2. 94.6 per cent. by two treatments
  3. 97.1 per cent. by three treatments
  4. Total worms removed, three treatments, 2,608
  5. Average worms removed per person, 51

Group C—Betanaphthol

Number Treated	First Count	Second Count	Third Count	Drugs Used in Fourth Treatment	Fourth Count
16	798	18	5	Chenopodium...............	0
18	1,151	35	23	Thymol.....................	3
19	1,171	118	53	Carbon tetrachlorid........	4
53	3,120	171	81		10

I. Cures:
  1. Twenty-one by one treatment
  2. Fifteen by two treatments
  3. Eleven by three treatments
II. Worms removed:
  1. 92.2 per cent. by one treatment
  2. 97.3 per cent. by two treatments
  3. 99.7 per cent. by three treatments
  4. Total worms removed, three treatments, 3,372
  5. Average worms removed per person, 63

Group D—Carbon Tetrachlorid

Number Treated	First Count	Second Count	Drugs Used in Third Treatment	Third Count
31	3,090	40	Chenopodium...............	2
17	867	22	Thymol.....................	5
19	1,643	12	Betanaphthol..............	13
67	5,600	74		20

I. Cures:
  1. Thirty-nine by one treatment
  2. Seventeen by two treatments
II. Worms removed:
  1. 98.3 per cent. by one treatment
  2. 99.6 per cent. by two treatments
  3. Total worms removed, two treatments, 5,674
  4. Average worms removed per person, 85

Having demonstrated that carbon tetrachlorid is the most efficient anthelmintic in the doses named, we must compare the drug with itself, using the total number of worms removed by two doses as the basis of comparison (Table 3).

From Table 3 it is quite evident that the anthelmintic value of carbon tetrachlorid is practically unaltered by differences in the number of worms harbored, whereas with chenopodium the relative efficiency rises as the worm count increases.

Another point well demonstrated is the apparent futility of prolonged treatment, since in those cases in which the total number of hookworms removed by a complete treatment was 50 or over, 98.9 per cent. were removed by one dose of carbon tetrachlorid, and 96.8, 99.4 and 97.7 per cent. by two of chenopodium, thymol and betanaphthol, respectively. However, it is not intended to depreciate the value of second or third treatments, since they are advisable when successful control measures are being enforced. But when reinfection does occur with any degree of rapidity, they appear to be of doubtful value.

In order to decide whether or not a 3 c.c. dose of carbon tetrachlorid produces any lesion of the kidney, careful observations were made on Prisoners 140 to 179, inclusive. The blood pressure of each prisoner was taken previous to, immediately after, and four hours after treatment, and in no case was any change recorded, while urinalyses of specimens collected before, one hour, twenty-four hours and seventy-two hours subsequent to treatment in the sixty-seven cases treated showed no evidence of kidney injury, thus indicating that 3 c.c. of this vermifuge is not harmful to that organ.

Table 2.—*Comparison of the Results*

Summary I.—Percentage Comparison of Worms Removed

Drugs Used	First Treatment	Second Treatment	Third Treatment
Chenopodium........................	81.3	94.5	97.2
Thymol................................	84.2	94.9	97.4
Betanaphthol........................	93.0	97.9	99.8
Carbon tetrachlorid.................	97.9	99.6	

Summary II.—Percentage Comparison of Apparent Cures

Drugs Used	First Treatment	Second Treatment	Third Treatment
Thymol................................	25.0	55.5	86.1
Chenopodium........................	35.9	58.9	87.2
Betanaphthol........................	39.6	67.9	88.7
Carbon tetrachlorid.................	58.2	83.6	

Table 3.—*Results with Carbon Tetrachlorid and with Chenopodium*

Worms Removed by Complete Treatment	Carbon Tetrachlorid: Percentage Removed by First Treatment	Chenopodium	
		Percentage Removed by First Treatment	Percentage by First Two Treatments
10 and under........................	98.2	83.7	94.6
10 to 25............................	98.2	91.8	95.8
25 to 50............................	97.2	71.1	93.6
50 to 100...........................	98.5	82.8	98.9
100 to 200..........................	99.3	—	—
200 or over.........................	99.0	87.3	98.1

CONCLUSIONS

1. In the dosage employed and by the method of comparison used, carbon tetrachlorid proves to be the most efficient of the four vermifuges, both in percentage of cures and in percentage of worms removed per treatment.

2. After a dose of 3,c.c. of carbon tetrachlorid, followed by a saline cathartic, there were no clinical evidences of renal injury, and the drug appears to be a safe and efficient anthelmintic in the dose used.

3. Carbon tetrachlorid appears to remove as high a percentage of the total worms harbored when the number is small as when it is large.

SOME CHEMICAL BLOOD CHANGES IN CHRONIC ALCOHOLISM *

FRANKLIN R. NUZUM, M.D.
SANTA BARBARA, CALIF.
AND
GEORGE D. MANER, M.D.
LOS ANGELES

The effects of alcohol on the organism have for a long time been a matter of pathologic and anatomic study. Comparatively little work has been done on the chemical changes that occur. The early chemical changes are the stepping stones to the gross changes in the brain and other tissues that are recognized as the result of chronic alcoholism. Many problems concerning alcoholism must therefore be solved by chemical studies.

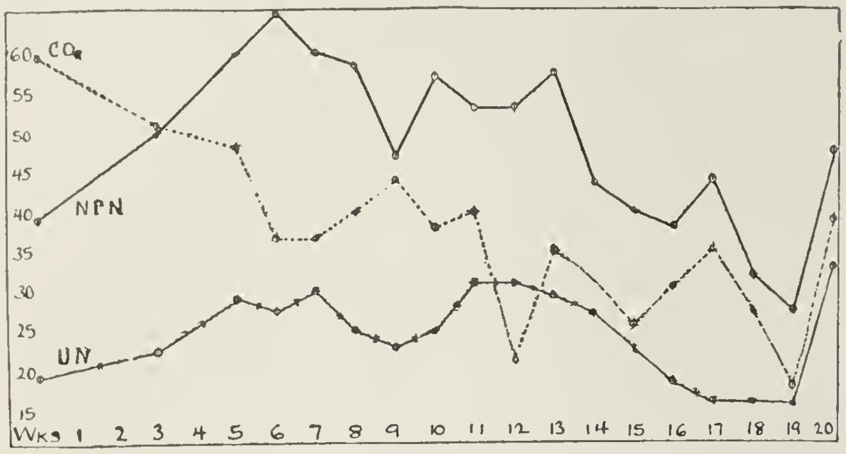

Chart 1.—Findings in Experiment 8. In the charts, the solid line indicates nonprotein nitrogen, and the crossed line the urea nitrogen, in milligrams per hundred cubic centimeters of blood; the broken line indicates percentage by volume of carbon dioxid.

Of the marked pathologic changes in chronic alcoholism, especially in the instances in which delirium tremens supervenes, a gross edema in the brain is often noted. In addition to the edema of the meninges, the brain tissue of persons dying of delirium tremens has been found to have a markedly increased hydration capacity.[1] The explanation of this phenomenon was thought to be an acidosis. As a further substantiation of this, the brain substance of persons dying of uremia, a condition in which acidosis was known to exist, was found to have an increased hydration capacity. Likewise, the brains of persons dying from morphin poisoning or from cerebral thrombosis took up increased amounts of water. In these conditions it was assumed that the narcosis resulting from the morphin poisoning or from the cell asphyxia incident to the disturbed circulation in cerebral thrombosis resulted in an acidosis. These explanations of cerebral edema were corroborated in some measure by animal experimentation.[2]

Since most of the work on chronic alcoholism was done before the advent of accurate blood chemical methods, little is known of the histochemical changes that occur. These chemical changes are not unlikely the key to unsolved problems in this field.

We have continued the study of chronic alcoholism, being especially concerned with the question of acidosis and with the changes of the nonprotein nitrogen and urea nitrogen of the blood.

Regardless of what may be said concerning the efficacy of prohibition, the occurrence of delirium tremens has been very materially reduced, so that our present study has of necessity been confined to experimental animals. Rabbits (weighing 4 pounds) were used for the reason that they withstand the continued administration of alcohol well and develop an easily recognized chronic alcoholism, as described by Friedenwald.[3]

A phenolsulphonephthalein determination was made on each animal at the beginning of the experiment, and again at the end of the experiment. The urines were carefully studied so as to exclude spontaneous nephritis. The nonprotein nitrogen and urea nitrogen of the blood were determined by the methods of Folin and Wu.[4] The carbon dioxid of the blood was determined by the Van Slyke and Cullen[5] technic and was frequently checked by the R p_H method of Marriott.[6]

Ten c.c. of 95 per cent. alcohol in 50 c.c. of water was given each morning by stomach tube. Deep narcosis resulted regularly within a half hour, and continued for from two to four hours. Every seventh day before the morning feeding, which consisted of a mixed diet of cabbage leaves, barley and alfalfa hay, the animal was bled from the ear vein, and the nonprotein nitrogen, the urea nitrogen and the carbon dioxid of the blood determined.

A rest of from one to three days was occasionally given an animal that would otherwise have died shortly from chronic alcoholism. Such a rest allowed the animal to regain his equilibrium and to continue the taking of alcohol for a much longer time.

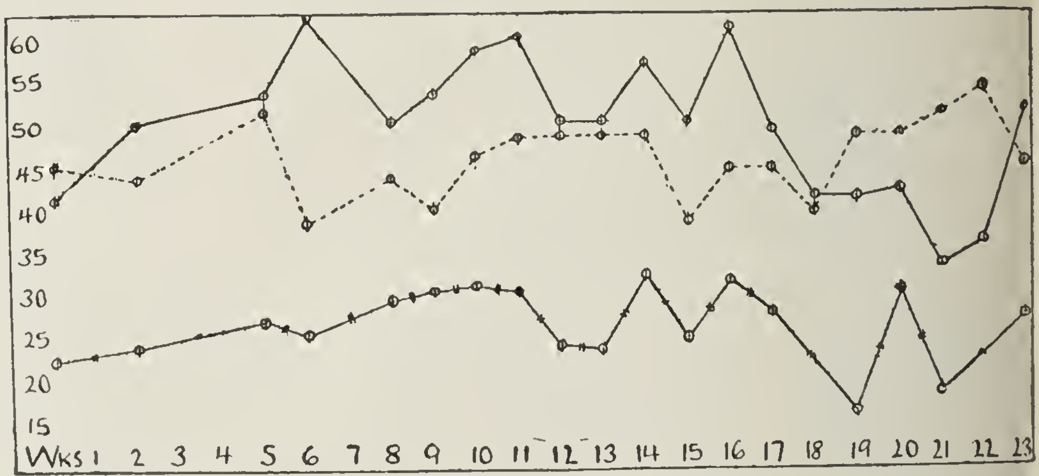

Chart 2.—Findings in Experiment 3.

RESULTS

Following a single large dose of alcohol (20 c.c. of 95 per cent. alcohol diluted with 50 c.c. of water), a profound narcosis developed within thirty minutes, and continued for many hours. The blood taken twelve hours from the time of administering the alcohol showed little or no change in the nonprotein nitrogen

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* From the laboratories of the Santa Barbara Cottage Hospital.

* Read before the Section on Pathology and Physiology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

[1] Nuzum, F. R., and Le Count, E. R.: The Ability of Brain Tissue to Take up Water in Delirium Tremens and Other Conditions: A Study of Cerebral Edema, J. A. M. A. **67**: 1822 (Dec. 16) 1916.

[2] Rabbits were given daily intoxicating doses of alcohol for periods varying from two to four months. Chronic alcoholism resulted. While at necropsy gross edema was not observed in any of these rabbits, the brain substance had a hydration capacity much in excess of the normal control brains, and an even greater hydration capacity than that of human brains from persons dying of delirium tremens.

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[5] Van Slyke, D. D., and Cullen, G. E.: The Bicarbonate Concentration of the Blood Plasma: Its Significance and Its Determination as a Measure of Acidosis, J. Biol. Chem. **30**: 289 (June) 1917.

[6] Marriott, W. M.: A Method for the Determination of the Alkali Reserve of the Blood Plasma, Arch. Int. Med. **17**: 840 (June) 1916.

or the urea nitrogen content. However, a sharp drop in the readings of the carbon dioxid in the blood serum by the Van Slyke method and in the R p_H (Marriott method) occurred. The carbon dioxid varied in these instances from 29.2 to 37 degrees, and the R p_H varied from 8.1 to 8.3. These rabbits recovered promptly.

The animals that received daily intoxicating doses of alcohol (10 c.c. diluted with 50 c.c. of water) showed a marked variation in their ability to withstand continued drunkenness. Many died from intercurrent infections during the early weeks of the experiment. Of twenty-four animals that were used, four developed symptoms of chronic alcoholism and lived from two and one-half to five and one-half months. The changes in the nonprotein nitrogen and urea nitrogen in the blood and the variations in the carbon dioxid have been charted. A study of these charts demonstrates graphically the variations from normal.

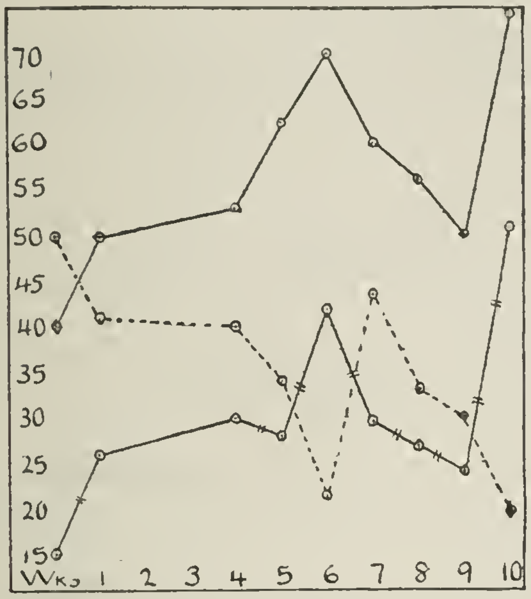

Chart 3.—Findings in experiment with Animal 19.

Chart 1 illustrates the findings in Experiment 8, this rabbit having received daily intoxicating doses of alcohol for twenty weeks. The carbon dioxid at the beginning of the experiment was 60 degrees. Throughout the entire experiment it was continually lower than this, ranging roughly between 40 and 19 degrees. The nonprotein nitrogen, which at the beginning of the experiment was 40 mg. per hundred cubic centimeters of blood, ranged almost continually higher thereafter. The maximum reading was 65 mg. per hundred cubic centimeters of blood on the sixth week. On the eighteenth and nineteenth weeks it reached lower figures, 34 to 27.5, respectively. It rose on the twentieth, or final week, of the experiment to 47.5 mg. The urea nitrogen at the outset was 19 mg. per hundred cubic centimeters of blood. These readings likewise became higher, making this curve fairly comparable with that of the nonprotein nitrogen. During the sixteenth to nineteenth weeks of the experiment, the readings were lower than at the outset, varying from 18.5 to 16 mg. During the final week of the experiment, the urea nitrogen became abruptly higher, reading 33 mg. At this time (the twentieth week), the animal exhibited the symptoms characteristic of an advanced chronic alcoholism. A final specimen of urine was collected, which was negative, both chemically and microscopically. A two hour phenolsulphonephthalein determination at the beginning of the experiment gave a reading of 74 degrees. A similar test at the conclusion of the experiment gave a reading of 82.5 degrees.

At necropsy, the various organs of the body were grossly negative. Serial microscopic sections of the kidneys demonstrated small scattered areas in the cortex in which the cells lining the convoluted tubules appeared swollen. No changes were noted in the glomerula. There was no increase of fibrous connective tissue throughout the cortex. These kidneys approximated the normal very closely.

Chart 2 illustrates the findings in Experiment 3, which ran for twenty-three weeks. This was the longest in duration of any of our experiments. The carbon dioxid of the blood serum, before the feeding of alcohol began, was 45 degrees. An extreme acidosis was not found at any time, the lowest reading recorded being 36 degrees on the fifteenth week. During the nineteenth to twenty-second weeks, the readings were above normal, varying from 46 to 58 degrees. The nonprotein nitrogen and the urea nitrogen of the blood were almost continually higher than normal throughout the experiment, the only exception being a period during the nineteenth to twenty-second weeks. At this time acidosis was not present, the carbon dioxid being at normal or above. The two hour phenolsulphonephthalein output at the outset was 80 per cent. Just before death it was 76 per cent.

At necropsy, all of the organs were grossly negative. Histologically, the kidneys presented large areas of round cell infiltration scattered through the cortex and medulla. There was an apparent vacuolization and a lessened height of the cells lining the convoluted tubules. There was an increase in the fibrous tissue about some of the tubules and vessels in the medullary rays. This increase was most marked about the corticomedullary junction. These kidneys present a moderate chronic change.

Chart 3 (Animal 19) is an excellent illustration of a marked degree of acidosis throughout the experiment, and at the same time a marked increase in both the nonprotein nitrogen and the urea nitrogen of the blood. The carbon dioxid at the outset was 50 degrees. During the ten weeks of the experiment it ranged between 40 and 19 degrees. At the tenth week the nonprotein nitrogen was 74 mg., and the urea nitrogen 51 mg. per hundred cubic centimeters of blood, respectively. This animal did not recover from his final dose of alcohol. No final phenolsulphonephthalein reading was obtained.

At necropsy, no gross change in the viscera of the thorax or abdomen was noted. Microscopic sections of the kidneys revealed that the vessels in the medullary rays were noticeably engorged. The endothelial cells lining the capillaries were distinct, but presented no changes. There were no areas of round cell infiltration. There was no increase of fibrous connective tissue.

The cytoplasm of the cells lining the convoluted tubules was finely granular. In some of these cells were rounded hyaline bodies, which were apparently formed within the cell and were then gradually extruded into the lumen of the tubules. The smaller granules were probably Altman's. The larger were the hyaline bodies described by Volhardt and Fahr.

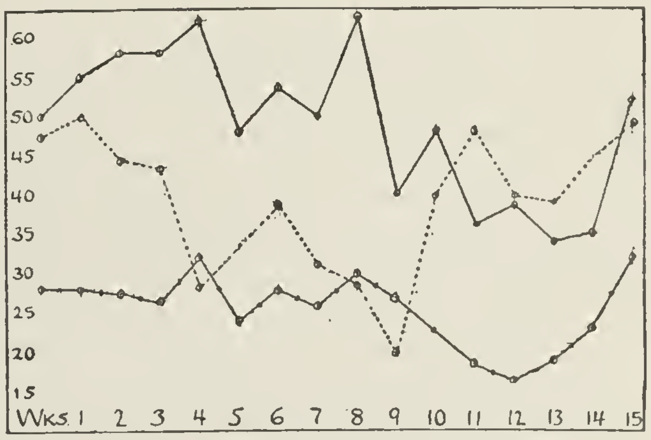

Chart 4.—Findings in Experiment 11.

Chart 4 (Experiment 11) illustrates the pronounced acidosis that was present throughout the experiment, which lasted fifteen weeks. The lowest reading of the carbon dioxid was 21 degrees on the ninth week. From the eleventh week to the fifteenth, or final, week inclusive, the carbon dioxid became higher, ranging from 40 to 49 degrees. The curves of the nonprotein nitrogen and the urea nitrogen were fairly comparable. The maximum figure of 63 mg. of nonprotein nitrogen was reached on the eighth week. The maximum figure for the urea nitrogen was 32.2 mg. on the fifteenth, or final, week. The phenolsulphonephthalein elimination at the beginning of this experiment was 80 degrees for the two hours. At the conclusion of the experiment it was 74 degrees.

This experiment was characteristic of a certain group of animals that react sharply during the early weeks of the intoxication. They then establish a tolerance to the alcohol, as indicated by a lessening of the degree of acidosis, and an approach toward the normal of the nonprotein nitrogen and urea nitrogen of the blood.

At necropsy, no gross changes were noted in the organs of the trunk. On section, the kidneys presented small areas of round cell infiltration scattered through the cortex. There were no changes in the cells lining the glomerular capillaries, or in the cells lining the vessels in the medullary rays. The cells lining the convoluted tubules presented no alteration of their nuclei or cytoplasm.

COMMENT

A definite acidosis was constantly present in those animals in which chronic alcoholism developed. At the same time there was an increase in the nonprotein nitrogen and urea nitrogen of the blood. This increase averaged approximately twice the normal amount of these substances. Animals that developed a marked acidosis at the outset of the experiment, and which continued, developed chronic alcoholism more quickly and often died much more quickly than animals in which the acidosis was not so marked. The latter group, as represented by Chart 3, evidently had a greater tolerance for the alcohol intoxication, and the experiment could be carried on for a considerably longer time. The acidosis may have interfered to some extent with the ability of the kidney to excrete the nonprotein nitrogen and the urea nitrogen, or, as a result of a continued feeding of alcohol, the metabolism of the animal may have been so altered as to cause an increased amount of these substances in the blood. From our studies we are not able to state the exact mechanism.

The histologic study of the kidneys demonstrated little deviation from the normal. The one instance in which moderate chronic changes were noted might have been an example of spontaneous chronic nephritis, a condition frequently observed in rabbits. The phenolsulphonephthalein output was practically unaltered in every instance.

Duccheschi,[7] of the University of Pavia, Italy, found a constant increase in the cholesterin, lecithin and fatty acids of the blood in dogs that had been given daily intoxicating doses of alcohol for from ten to thirty-two days. In these animals, he found that there was an augmentation of the acid fats of the liver reaching triple the normal amount. There was also an increase in the fat in the kidneys. In sixty-two men who were habitual drinkers, he found the cholesterin content of the blood serum considerably higher than that of the blood serum of fifty-five men who were total abstainers. He concluded that these cellular lipoids represented the first phase of the chemical processes in the long course of which gross pathologic changes resulted.

Our studies reveal a change in the nonprotein nitrogen and the urea nitrogen of the blood and in the acid-base balance, and it is not unlikely that other constituents not yet considered are also altered. It would seem, however, that the factor of acidosis is especially important in cases both of acute and of chronic alcoholism, and it must have an important etiologic rôle in the gross tisue changes and in the edema of delirium tremens.

ABSTRACT OF DISCUSSION

Dr. Montrose T. Burrows, St. Louis: I should like to ask Dr. Nuzum whether he has found any evidences of any toxic substances in the blood of alcoholics. I was interested after developing a rather sensitive method for determining toxic substances in the blood to notice that the blood of persons suffering from acute alcoholism, like the blood of those in the acute stages of pneumonia, contains substances that destroy cells. This destruction of cells seems to indicate the presence of true toxic substances in the blood of these patients. The changes are more than occur from the acidosis described by Dr. Nuzum.

Dr. C. W. Greene, Columbia, Mo.: May I ask Dr. Nuzum whether he made any oxygen determinations along with his carbon dioxid determination.

Dr. F. R. Nuzum, Santa Barbara, Calif.: In answer to Dr. Greene's question: We have not. And answering Dr. Burrows' question, We have not determined any poison.

OBSERVATIONS IN ONE THOUSAND NEUROLOGIC CASES

GEORGE H. HYSLOP, A.M., M.D.
Adjunct Assistant Neurologist, Bellevue Hospital; Assistant Neurologist, Memorial Hospital
NEW YORK

My purpose in this paper is to offer a brief statistical analysis and to touch on some of the features of general interest.

The Bellevue neurologic service, which is under the control of the Cornell Medical School, is distinct from the psychiatric service, and has, at present, two wards, each of twelve beds, for men and women patients. There are two interns, a resident in charge, and an assistant. In addition to the charge of their own wards, the interns are on call for consultation work throughout the hospital.

The members of the visiting staff see all patients in the neurologic wards, and most of those examined in consultation in other services. An adequate physiotherapy department is available. The social service department gives its usual aid and, in addition, supplies occupational therapy instructors.

From other wards in the hospital are selected the majority of patients cared for in the neurologic service. During 1921, 300 patients were treated in the ward, and the duration of treatment for each patient averaged twenty-five days. Eight hundred and sixty-two patients were examined in other wards, and many of these were seen several times by the interns. In addition to the hospital patients, several hundred persons were referred from outside the hospital for neurologic examination. These are not included in this report.

There were approximately 43,000 admissions to Bellevue Hospital in 1921, and the neurologic service was not called into consultation in the majority of certain conditions in which neurologic diagnosis could be made without the help of the neurologic service. Only the minority of paralysis agitans, tabes dorsalis, cerebrospinal syphilis, apoplexy, old hemiplegia (the result of normal apoplexy), epidemic poliomyelitis and hysteria cases were seen by the neurologic service. Two hundred and forty-three fractured skull cases were admitted to the hospital during the year, and the neurologic service was called into consultation in only seventy of these cases.

A small number of psychiatric patients and a similar number of psychoneurotic patients were admitted to the neurologic service.

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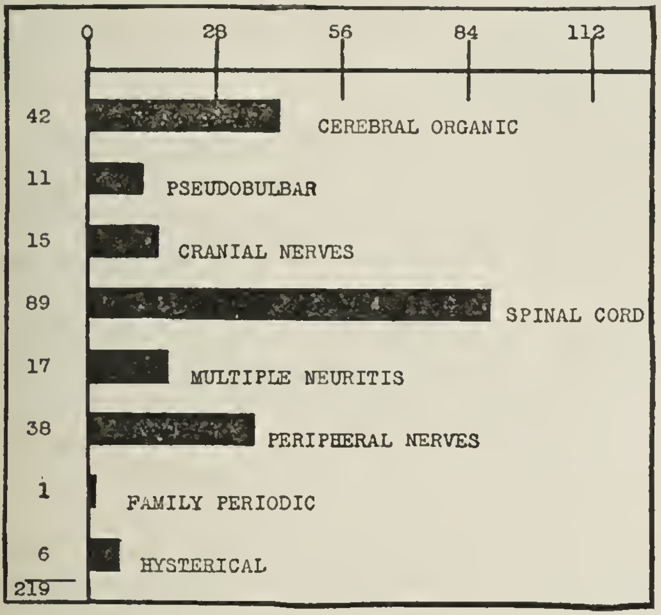
[7] Duccheschi, B.: Researches Relative to the Action of Ethyl Alcohol on the Organism, Arch. Ital. Biol. **70**: 93, 1920.

In the 1,003 patients examined or treated by the neurologic service, 120 different disease conditions were seen. In some patients, the diagnosis included more than one condition—for example, one patient had pseudobulbar palsy on a syphilitic basis; he was admitted to the hospital with a fractured femur, and, as a result of his injury, had an hysterical paralysis of the affected leg. Intercurrent non-neurologic conditions occasionally appeared while a patient was under care in the neurologic ward. For example, one choreic patient developed acute appendicitis. These non-neurologic conditions were not included in the 120 different disease conditions seen.

In Table 1 there are thirteen conditions, each of which was represented by over twenty cases. The total number of cases in this group is 649, or approximately 65 per cent. of all patients seen during the year.

Eliminating skull injuries, constitutional psychoses and psychoneuroses, constitutional inferiority and mental defects (a total of 216 cases), we have 787 cases of organic nervous disease. Seventeen different conditions were represented by a total of 513 cases, about 66 per cent. of all instances of organic involvement of the nervous system.



Types of paralysis seen in the neurologic service: "cerebral organic" includes tumor, head injury and vascular accident; "spinal cord" includes Friedreich's ataxia and multiple sclerosis.

The accompanying chart classifies the anatomic distribution of the various forms of paralysis observed. In family periodic paralysis, the neural mechanism of the paralysis is not known, but the complete blocking of the motor neuron functions suggests a process akin to that seen in curare poisoning, and the analogy may warrant one in suspecting that the motor end plates are involved.

Hysterical paralysis is included in the chart to show its relative rarity, and because a correct diagnosis of hysterical paralysis is of the utmost importance. Several of the six cases seen had previously been regarded as of organic nature. One exception to this was interesting. A man, aged about 30, was stabbed in the back of the neck. The force of the blow knocked him down. He was unable to get up. The ambulance surgeon found a hemiplegia, and diagnosed it as hysterical. The patient was taken to the hospital, and the admitting staff spent two hours trying to make the patient get up and walk. A careful examination showed a hemisection of the cord at the fifth cervical segment.

Table 3 might itself be the subject for an extensive bit of research, but it is included in this paper without comment because it shows the frequency of definite clinical conditions which, in their association with convulsions, might reasonably be regarded as causally connected. In a large proportion of the patients having generalized seizures, detailed histories showed that early in the course of the disease many attacks were atypical and of the sort described by Gowers.[1]

Table 1.—*Common Conditions in Order of Frequency*

	Seen by the Neurologic Service	Number of Cases Admitted to Bellevue Hospital
Syphilis	117	673*
Fracture of the skull	70	243
Miscellaneous paralyses	69	156
Epilepsy	60	375
Psychoneuroses	59	218†
Psychoses	47	
Epidemic encephalitis	44	
Neuritis of single nerves	38	
Vascular accidents	34	197
Transverse myelitis	33	
Tumors of the brain	31	
Tuberculosis of the central nervous system	24	
Multiple sclerosis	23	
Acute epidemic poliomyelitis	17	
Multiple neuritis	17	
Concussion of the brain	15	
Tumors of the cord	15	
Cerebrospinal meningitis	14	
Constitutional inferiority	14	
Combined sclerosis	13	
Paralysis agitans	12	
General arteriosclerosis	11	
Mental defectives	11	
Brain abscess	10	
Total	798	

* Includes primary, secondary and tertiary, but not tabes or paresis.
† Only hysteria; others not grouped under this heading.

The sixty cases enumerated in Sections A and B of Table 3 were referred to the neurologic service as "idiopathic epilepsy." After a study of these patients, there were but one third in whom it was impossible to establish either anatomic or physiologic facts which gave us some sort of understanding of the cases. These residual twenty patients, therefore, still had to be regarded as having "idiopathic epilepsy."

In Section C, the seizures were known to be symptomatic at the time of the first examination.

Table 2.—*Most Frequent Organic Conditions Affecting the Nervous System*

Syphilis	117
Epilepsy	60
Epidemic encephalitis	44
Single neuritis	38
Vascular accident (cerebral)	34
Transverse myelitis	33
Tumors of the brain	31
Tuberculosis of central nervous system	24
Multiple sclerosis	23
Acute epidemic poliomyelitis	17
Multiple neuritis	17
Tumors of the cord	15
Cerebrospinal meningitis, except that of tuberculous origin	14
Combined sclerosis	13
Paralysis agitans	12
General arteriosclerosis	11
Brain abscess	10
Total	513

In Table 4, the classifications are in accordance with the Bellevue nomenclature, and do not permit of more detailed analysis of diagnosis or knowledge of etiology or location of the pathologic changes in the central nervous system. Clear psychiatric cases are not included in this table.

During 1921, there were admitted to Bellevue Hospital 38,438 patients with medical conditions. Section 1 of this table enumerates the neurologic conditions.

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[1] Gowers: The Borderland of Epilepsy.

The classification is a rather rough one, and it is quite possible that there were included under different headings a great many patients in whom there were neurologic complications. For instance, there were three lobar pneumonia patients who died as the result of metastatic cerebral abscesses. It would be an enormous task to go through all the records to determine the relative proportion of admissions in which there was either an organic or a functional nervous disease, as either a complication of or a concomitant of a medical condition. The enumeration in Section 1 gives a total of 2,851 cases of conditions in which a neurologic examination would be indicated. Of the 673 syphilitic patients, those in the primary stage would not really need a neurologic examination. There were, roughly, about 150 such cases, but it is difficult to decide where the primary stage ends and the secondary stage begins, and perhaps it is not unjustifiable to maintain that a neurologic examination is desirable for every syphilitic patient. These 2,851 cases represent about 7.4 per cent. of all medical admissions to Bellevue Hospital.

Table 3.—*Epileptic Convulsions*

A. Jacksonian:	
1. With brain tumor	3
2. With tuberculosis of brain	1
3. Posttyphoid	1
4. Arteriosclerotic	1
5. Syphilis	1
B. General:	
1. "Idiopathic"	20
2. With constitutional inferiority or epileptic personality	9
3. Posttraumatic	4
4. Syphilis	3
5. Status epilepticus	3*
6. Hystero-epilepsy	3
7. Due to ear disease	2
8. Sensory epilepsy	2†
9. Pachymeningitis	2
10. Vasovagal attacks	2
11. Static (cerebellar)	1
12. Alcohol	1
13. Gastro-intestinal	1
C. Seizures occurring in thirty-one brain tumors:	
1. Jacksonian	9
2. Generalized	4

* All three cases were "idiopathic" epilepsies.
† Trauma to occiput and osteoma of skull.

The surgical services admitted about 4,500 traumatic cases in 1921. Fractures of the skull and spine totaled 262, or about 5.8 per cent. of traumatic cases. In order to ascertain the number of cases of concussion of the brain or spinal cord, it would be necessary to search the case records. It is possible, then, that in 10 per cent. of traumatic cases there should be a neurologic examination.

Of the total admissions to Bellevue Hospital, which were about 43,000 cases, in approximately 3,113 cases, or about 7 per cent, there should have been a neurologic examination.

One's first impression might be that in private practice less than 7 per cent. of patients are neurologic cases. But the Cornell Clinic in its past year admitted over 22,000 patients, and the neurologic department examined a little over 7 per cent. of all these. So it seems reasonable to say that this proportion holds true in general practice, which would include both ambulatory and confined patients.

Consultation with the neurologic service was requested for about 875 patients. Of the total of 1,003 patients cared for or examined by the neurologic service, about 13 per cent. were admitted to the ward from outside sources. Thus, as at present organized, the neurologic service took care of about 28 per cent. of the neurologic cases in the hospital. It is not implied that the other services in the hospital were dependent on the neurologic service for either diagnosis or treatment of many of the neurologic cases. But from an ideal standpoint, the neurologic service should be able to take care of every case falling within its scope. Furthermore, other services in the hospital should realize, both for the sake of science and for the sake of the patient, that a neurologic survey should be given whenever indicated.

To perform this ideal function, the Bellevue Hospital neurologic service should have wards with three times the present capacity.

In Table 5, several points are of interest. In the first place, it is rare to find a patient with so-called hereditary disease in which there seems to be any hereditary factor.

In the only instances in which so-called hereditary disease occurred in other members of the family, the disease was present in siblings. It is not intended to assert that there is no such thing as hereditary disease, but it seems likely that "hereditary" nervous diseases are no more hereditary than "hereditary" cancer or tuberculosis. It would be more accurate to classify certain "hereditary" diseases as of embryonic origin and due to some specific defect in the germ plasm, of unknown cause.

The next thing of importance is the fact that in 1,003 neurologic cases, there were only eighty-seven cases in which congenital mental or physical defect could be regarded as an important factor in the conditions presented.

In dispensary practice, there would be found a larger proportion of congenital mental or physical defects. It is my impression that the commonest sort of congenital physical defect lies in an instability of the vegetative nervous system and the endocrines.

Table 4.—*Neurologic Cases in Bellevue in 1921*

1. Medical service:		
1. Syphilis	673*	
2. Tabes dorsalis	95	
3. Epilepsy	375	
4. Hysteria	218	
5. Acute apoplexies	197	
6. Paralyses of ill defined origin	156†	
7. Neuralgia and neuritis	122	
8. Chorea	112	
9. Acute encephalitis	104	
10. Exophthalmic goiter	59	
11. Tuberculous meningitis	29	
12. Simple meningitis	27	
13. Other diseases of the spinal cord	167	
14. Other diseases of the nervous system	517‡	
Total	2,851	
2. Surgical service:		
1. Fracture of skull	243	(160 cured or improved; 83 died)
2. Fracture of spine	19	(14 cured or improved; 5 died)
Total	262	

* Includes primary, secondary and tertiary syphilis but not paresis or tabes.
† Includes residual hemiplegias.
‡ Infections, traumas, vascular, tumors, psychoneuroses, etc.

Conditions in which the causes are unknown totaled 144 cases, or about 14 per cent. of all the patients. This group of conditions should be subject to investigation.

Eliminating the cases in which congenital defects were the chief causes, and cases in which the etiology is unknown—a total of 23 per cent. of all patients—we come to the cases in which causal conditions are to some extent under medical control. The proportionate frequency of the various causes in this group suggests what things should be emphasized in teaching medical students. Clinical rarities and obscure problems in neurophysiology and neuro-anatomy seize the attention of the average instructor. But when one finds that 7 per cent. of all medical cases are neurologic, and that three fourths of the neurologic cases are linked with common medical problems, it seems wise to insist that in teaching neurology to undergraduates the instructors curb their enthusiasm for problems that should be of interest to neurologists only.

As might be expected, the brain is most subject to insult. These insults range from psychic, through infections, toxins, vascular accidents and tumors, down to physical trauma. The vegetative nervous system and endocrines have received a great deal of attention in the last decade. Their derangements are relatively of minor importance in patients seen by the Bellevue neurologic service, in that only seventy-three cases, or 7 per cent., presented diseases of these systems. However, the reverse is true in dispensary practice. I have no accurate figures available, but it is my impression that at least one third of dispensary neurologic patients offer problems in relation to the functions of the endocrines and the vegetative nervous system. With reference to the teaching of neural anatomy, since the statistics show (1) that over one half of all organic cases seen were represented by only seventeen different conditions, and (2) that three fourths of the neurologic cases have relation to major problems in internal medicine, it seems safe to assert that it is a mistake to confuse the undergraduate with a mass of fine details. He does not need to know anything about the bundle of Vicq d'Azyr, how many nuclei there are in the thalamus or the details of the *minor* association tracts linking the cortex, corpora striata, pons, cerebellum and cord.

Table 5.—*Chief Causes of Conditions Found in Patients*

	Directly or Immediately Affecting the Central Nervous System	Resulting in Nervous System Complications
1. Hereditary:		
Wilson's disease	1	
Friedreich's ataxia	1	
2. Tumor	54	7
3. Vascular accident	62	4
4. Environmental and psychic causes	73	
5. Congenital mental or physical defects	87	
6. Toxic (diet, metabolism, poisons)	107	
7. Unknown, including multiple sclerosis, amyotrophic lateral sclerosis, muscular dystrophy and atrophy, epilepsy	144	
8. Mechanical and physical trauma	138	26
9. Infection	76	305
	743	342
	342	
Total	1,085*	

* The total of 1,085 is somewhat more than the number of patients seen. This difference is due to the fact that in some patients two or more causal factors were of equal importance.

There is one matter of importance that is not obvious in the statistics tabulated in this paper. If the neurologic service dealt with a larger proportion of psychoneurotic or psychiatric cases, it would be manifest that proper estimation of the patient's personality is of fundamental importance in properly evaluating his symptoms. Ability to do this depends on more than being told to remember the point. Every neuropsychiatrist has abundant experience with patients whose complaints have been wrongly judged by practitioners in other branches of medicine. Time and again, organic cases have been regarded for months or even years as "hysterical." The reverse is equally true. Too little attention is paid to this important part of diagnosis. It should be drummed into the head of every undergraduate. Not only do patients suffer needlessly because their physicians err in estimating the psychologic equation, but the flood of quacks is to a great extent maintained by persons whose physicians have not properly handled them as human beings.

Table 6.—*Site of Lesion Producing the Condition*

1. Peripheral nervous system	106
2. Cord	186
3. Brain	273
4. Vegetative nervous system (includes vasomotor)	15
5. Endocrines and vegetative nervous system	18
6. Mixed:	
a. Cord and brain	88
b. Cord and nerves	32
c. Cord and vegetative nervous system	2
d. Brain and vegetative nervous system	18
7. Not of central nervous system	55
8. Epilepsy	60
9. Psychic	88
10. Psychic and vegetative nervous system	20
11. Psychic and organic	30
12. Ill defined or unknown	12
Total	1,003

The organization of a neurologic service depends on the clinical material to be handled. Table 7 gives a rough classification of the patients cared for in the ward of the Bellevue Hospital neurologic service. The table itself needs no further comment except as regards Groups B and D. Group B patients are difficult to take care of. Home surroundings are usually impossible, and even if the municipality provided visiting nurses and physicians to see such patients, their lives would be shortened. The cost of upkeep of institutions for such cases would be decreased if such institutions were adjacent to a hospital equipped to care for acute medical conditions. In this manner, when custodial patients develop acute illnesses, they could be immediately transferred to a hospital for acute cases.

In Group D, a successful solution of the economic problem depends on providing occupation, with the aid of social service organizations. At present, Bellevue Hospital provides occupational therapy for its patients. A good many of the neurologic patients stay in the ward for one to two months. Occupational therapy is of value in maintaining the morale of the patients while they are in the hospital. But there are many patients taught a useful trade who could contribute something to their support by making and selling various products after they have left the hospital. At present, such patients are dependent on charity, either from relatives

Table 7.—*Classification of Ward Patients*

Class	No.	Comment
A. Cases for diagnosis and hospital treatment	174	Full hospital facilities; keep up from two to three months
B. Cases for diagnosis and needing only custodial care	48	After diagnosis, refer home or to an institution; keep from one to two weeks
C. Cases for diagnosis and ambulatory treatment	61	After diagnosis, refer home; keep from one to two weeks
D. Cases incurable, confined to the home, and in which economic rehabilitation could be effected by training in handicrafts and then sale of products	28	After diagnosis, refer home or for training in a separate ward or institution
E. Acute cases*	61 (20%)	Full hospital facilities; keep up from two to three months

* Included in this group are a few brain tumor cases and most of the spinal cord cases. These are acute because they reach the hospital at a time when delay in reaching a decision as to treatment would be dangerous.

or that given by aid societies. When the sick person is the sole wage earner in his family, the whole burden is thrown on organized charity. It is impossible to estimate how many such cases there are in greater New York, but 5,000 is probably a conservative figure. A comparatively simple organization would furnish facilities for training such patients and then arrange for collecting and selling the products made by them in their homes. The administration cost of such an organization would certainly be less than the present system of giving all and allowing the patient to exist in idleness. This idleness certainly is not conducive to maintaining the self-respect and morale of the invalid. The chief obstacle to the success of such a scheme might lie in the resistance of labor unions. The unions have handicapped many of the war veterans who have been rehabilitated in various vocations and find it impossible to work in unionized trades because the unions will not admit them to membership. But this obstacle ought not to be very great, because a little publicity of the right kind would certainly silence any unions who tried to complain of the bread being taken out of the mouths of their members. In fact, a good many of the invalids who would be doing such work have already been union men in various trades, and no credit would accrue to unions that asserted opposition to unfortunates in such circumstances.

Table 8.—*Results of Treatment of Ward Patients* *

	Cured or Improved Per Cent.	Unimproved Per Cent.	Died Per Cent.
All cases	48.4	43.8	7.8
Organic	46.5	44.7	8.8
Psychoneuroses	75	25	
Psychoses	20	80†	

* Two hundred and eighty-three different patients admitted during 1921, with seventeen readmissions.

† These patients were transferred to the psychopathic service after a brief period of observation.

Table 8 suggests the necessity for a persistent optimism in every neurologist.

In the patient with chronic organic disease, improvement may be both subjective and objective. In cases in which treatment will produce a beneficial physical change, the patient feels the difference, and the improvement in morale is readily understood. Often one sees individuals in whom treatment can make no difference in the objective manifestations of the disease, yet such patients will tell a physician that they feel better, that their pains do not trouble them, or that they can get around more easily. The fact that these people have been sympathetically handled and thoroughly examined has been sufficient to alleviate the results of prolonged introspection and its attendant fears and despair. The patients feel better because they do not think about their troubles. Practically, such patients have to be regarded as improved, although from the material standpoint there is no change. There is a third group of patients in whom impairment of morale has caused them to stop using their bodies to the full extent possible. Multiple sclerosis, tabes and residual encephalitis cases illustrate this group best. After they have been in the ward for a week or two, they will be encouraged to make efforts and, as a result, learn that they are not so badly off as they feared. They will leave the hospital actually walking in a much improved way. There has been no change in the pathologic anatomy, but the function left is used to its fullest extent. In effecting improvement in chronic cases, the atmosphere of the ward is fully as important as any physical mode of treatment. A physician who treats his patients only as diagnostic problems will never be successful in the removal of what might be called "emotional overflow" symptoms. The average person demands *something* in the way of treatment. In my mind, physiotherapy produces benefit in organic neurologic cases, chiefly because it is a concrete demonstration, and is something new to the average patient.

HOSPITAL ORGANIZATION

Since approximately 7 per cent. of the patients admitted to Bellevue Hospital need a neurologic survey, it seems to me that every general hospital with a capacity of 500 beds should have a neurologic service. The staff of this service should include a sufficient number of attending physicians making regular rounds to examine the patients on whom consultation is requested. There should also be one intern whose full time would be devoted to the neurologic patients. He should examine every neurologic patient and be able not only to select those needing the attention of a visiting physician, but also to direct their treatment under the supervision of the visiting physicians. There should be a separate neurologic ward in every hospital of more than 1,000 beds. The intern staff should by all means be limited to those who have completed a general medical internship. It may be well to emphasize at this point that a neurologist has a function often quite distinct from that of a psychiatrist, and to my mind it is ridiculous for a man to call himself a neuropsychiatrist when his clinical training and experience are limited to psychiatry alone.

One must be careful about throwing stones, and it is just as true that a neurologist may make costly mistakes in dealing with psychopathic patients, because his experience has not been sufficient to develop judgment nice enough to tell him just when the patient reaches the point at which he must be confined to an institution.

As for the organization of the neurologic service, the classification of patients given in Table 7 suggests that there must be a sufficient number of beds to enable patients to be kept long enough to benefit by treatment. There is nothing to be gained by having a separate neurologic ward if the patients admitted to it are kept only for diagnosis. Moreover, the period of observation necessary for a reasonably accurate diagnosis varies greatly. We have found at Bellevue that two or three weeks of careful observation may frequently be necessary before a correct diagnosis can be established. Again, we confess that, at times, our diagnostic acumen has been completely baffled in certain cases. A former resident in our service used to account for some of the puzzling cases on the ground that the patients had failed to read the textbooks.

GENERAL CONSIDERATIONS

While it is true that a great many organic nervous diseases cannot be cured and that the course of the disease is long, these patients are just the ones to furnish material for medical research. They are important, too, because many of them, at one time or another, have been treated by cult practitioners. It is impossible to keep all chronic patients out of the hands of quacks, who secure confidence solely by making extravagant promises of relief or cure. We found that a large proportion of our chronic cases had never been properly studied and diagnosed by any one; and once these patients had been carefully examined and observed, adjusted themselves well to the fact that their diseases were incurable.

141 West Seventy-Fifth Street.

NONUNION IN FRACTURES: THE MASSIVE BONE GRAFT *

MELVIN S. HENDERSON, M.D.
ROCHESTER, MINN.

Ununited fractures may be divided into those delayed in uniting and those in a fixed state of nonunion. In the former there is still evidence of attempts at union, but in the latter all such evidence is lacking. At operation a false joint is found, many times with a sac smoothly lined and filled with amber colored, slightly viscid fluid. Delayed union may exist as long as two or three years after the original injury, and nonunion as early as a few months.

In delayed union the bones may be induced to unite by such means as weight bearing, use of the Thomas dam, pounding between tourniquets, and so forth; such methods are useless in cases of nonunion.

REVIEW OF CASES

This paper is based on a review of 221 cases of nonunion culled from approximately 1,000 cases of old fractures, consisting of malunions and delayed unions, and so forth, that have been observed in the Mayo Clinic during the last ten years. In making this classification, a sharper line has been drawn than formerly in separating the cases of nonunions from the cases of delayed unions.[1]

One hundred and eighty-four of the 221 patients were traced; 138 (75 per cent.) have obtained union, and forty-six (25 per cent.) failed to obtain union. Twenty-seven patients were not traced, and ten are still under observation.

Fractures of the Femur.—There were forty cases of nonunion in the neck of the femur and thirty in the shaft, making seventy in all. The condition in the femur is difficult to deal with. For purposes of study, the fractures have been divided into those of the hip and those of the shaft.

Findings in Two Hundred and Twenty-One Cases, May 21, 1923

Bones	Cases	Result Determined	Cures	Per Cent.	Failures	Not Traced	Under Observation
Femur—							
Hip	40	33	19	57.5	14	4	3
Shaft	30	24	15	62.5	9	2	4
Tibia	54	44	36	81.8	8	8	2
Humerus	41	37	26	70.2	11	3	1
Radius	20	15	14	93.3	1	5	0
Radius and ulna	18	14	12	85.7	2	4	0
Patella	9	9	9	100.0	0	0	0
Ulna	8	7	6	85.7	1	1	0
Clavicle	1	1	1	100.0	0	0	0
Total	221	184	138	75.0	46	27	10

Fractures of the Hip: Twenty-eight of the forty patients in the series were males and twelve were females. The youngest was 21 years of age and the oldest 64, the average age being 46.1 years. The average duration of nonunion was one and seven-tenths years. The greater number of these patients had not been treated at the time of their injury, because the condition had not been diagnosed, and none of them, as nearly as could be ascertained, had been treated adequately, such as by the modern method of treatment advanced by Whitman. Only one had been operated on. Two infections followed operation in the Mayo Clinic in this group of patients.

Metal nails were used in five cases, with three good results. Beef-bone screws were used in two, with good result in one. The autogenous graft, using the tibia, and more recently, the fibula (Fig. 1), was employed in thirty cases; in twenty-six of the latter, sufficient time has elapsed since the operation so that results may be determined; in fifteen of the patients, function has been restored and they may be called cured. Thirty-three of the forty patients were traced. Nineteen (57.5 per cent.) were found to have bony union; fourteen were unimproved. Four of the patients were not traced, and three are still under observation.

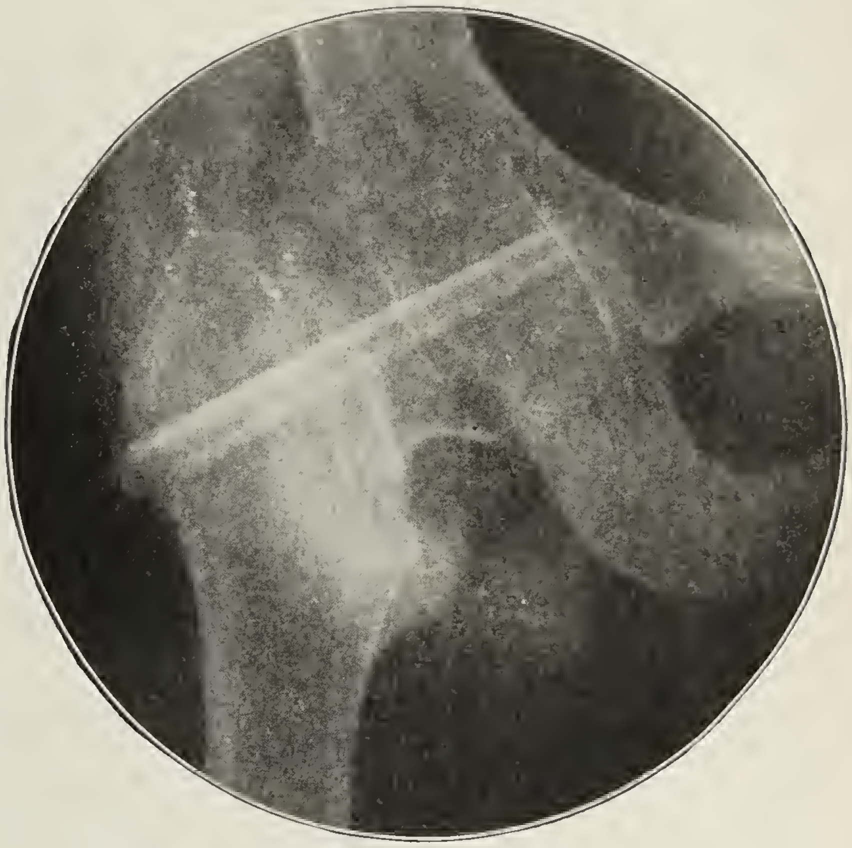

Fig. 1.—Nonunion of the hip of two years' duration: Fibula used as a graft; osteoperiosteal graft also wrapped about the fractured bone.

Fractures of the Shaft of the Femur: Of the series of thirty patients with fractures in the shaft of the femur (six compound), eighteen were males and twelve were females; the average age was 29.4 years. The average duration of nonunion was three and three-tenths years, ranging from one and one-half to seventeen years. The fractures were in the upper third of the bone in eight, in the middle third in fourteen, and in the lower third in eight. Seventeen patients had been operated on, and seven of these had been infected. Two developed infections following operation in the Mayo Clinic. Three of the patients were suffering from severe generalized osteitis fibrosa cystica. Nonunion in the upper third of the bone is particularly difficult to treat successfully. Twenty-four of these patients were traced; fifteen (62.5 per cent.) have union and nine failed to obtain union.

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* From the Section on Orthopedic Surgery, Mayo Clinic.

* Read before the Section on Orthopedic Surgery at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

[1] Henderson, M. S.: Old Fractures, Journal-Lancet **40**: 687-695 (Dec. 15) 1920. Meyerding, H. W.: Delayed Union and Nonunion of the Radius and Ulna, Minnesota Med. **4**: 223-228 (April) 1921.

Two patients were not traced and four are still under observation.

Fractures of the Tibia.—Of the fifty-four patients with nonunion of the tibia, the fracture had been compound in twenty-seven. There were forty-six males and eight females. The youngest was 2 years of age and the oldest 60; the average age was 26.3 years. The average duration of nonunion was four years; the longest was seventeen years and the shortest nine months. Five of the fractures were in the upper third of the bone, three in the middle third, and twenty-six in the lower third. Infection either at the time of the injury or at subsequent operations occurred in twenty-eight cases. Thirty-nine of the patients had been operated on, many of them a number of times. Thirty-nine of the operations in the Mayo Clinic consisted of bone grafting, with four failures. There was infection in six; one of these patients had been operated on elsewhere without infection. The infection followed breaking down of the scar. The other four patients had been infected previously. Six of the failures in this series were in children who had sustained the fracture at birth or in infancy, and we operated before the age of puberty. Three were not operated on until after puberty, although the fractures were sustained in early childhood; union was obtained in all of these. Based on this experience with these intractable nonunions in children previously operated on, it is our custom to advise postponing operative measures until after puberty.

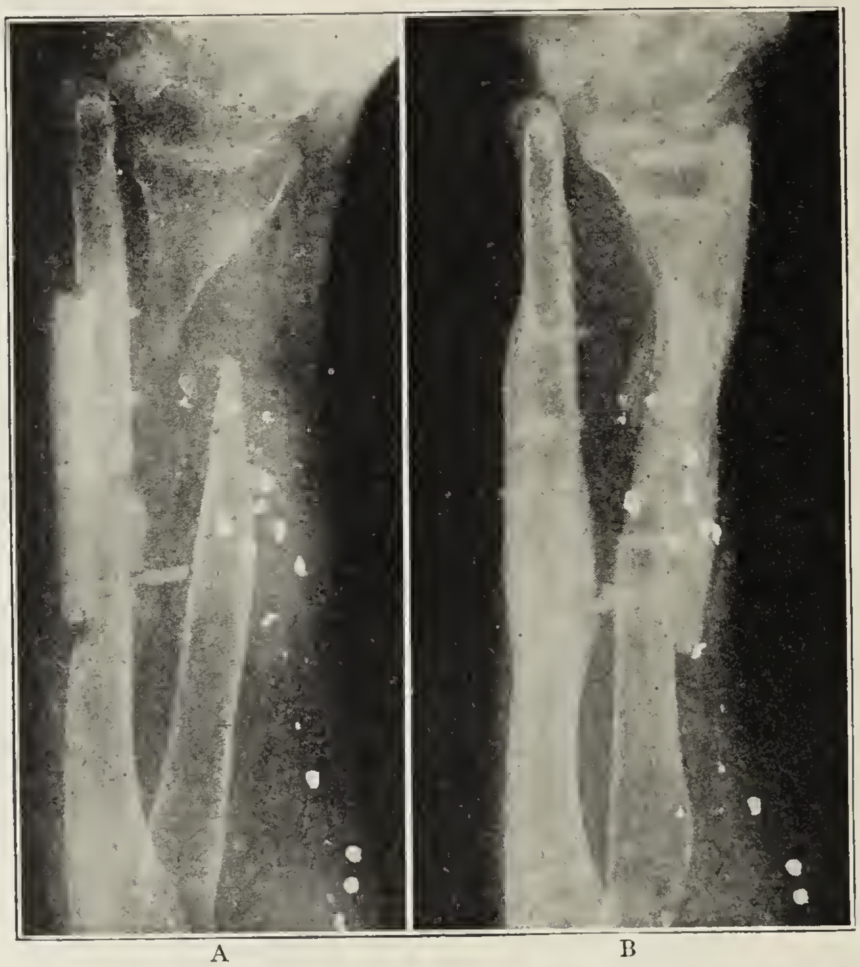
A B

Fig. 2.—Nonunion of the radius and ulna with loss of substance in the radius caused by shotgun injury: *A*, first operation, April 28, 1922; massive graft to ulna; *B*, second operation, May 1, 1923; massive graft and osteoperiosteal graft to the radius.

Half of the fractures in this group were originally compound, many of them characterized by great trauma and destruction of bone. The fibula usually unites early and acts as a pivot round which the tibia swings; and in some cases, I feel sure, is responsible for the failure of union. Forty-four patients were traced; thirty-six (81.8 per cent.) were cured. Eight were not traced and two are still under observation.

Fractures of the Humerus.—There were forty-one cases of nonunion of the humerus, sixteen originally compound. Thirty-five of the patients were males and six were females; the oldest was 70 years and the youngest 25; the average age was 36.3 years. The average duration of nonunion was two and thirty-seven hundredths years, the shortest being one-half year and the longest thirteen years. The fractures were in the upper third of the bone in seven of the patients, in the middle third in eighteen, and in the lower third in sixteen. Twenty-four of the patients had been operated on and eighteen had been infected. Seven were infected following operation in the Mayo Clinic, two of whom had not been infected previously. Seven of the patients had musculospiral paralysis at some time during the disease. Two patients were paralyzed temporarily following operation. Thirty-seven patients were traced; twenty-six (70.2 per cent.) had solid union and eleven had failed to obtain union. Three were not traced and one is still under observation.

Fractures of the Forearm.—Forty-six patients had nonunion of one or both bones of the forearm. Thirty-six were traced and thirty-two (88.8 per cent.) found to have union. For the purpose of study we have grouped these patients into those with nonunion in the radius alone, in the ulna alone, and those with nonunion in both bones.

Fractures of the Radius Alone: There were twenty patients in this group, seven of whom had compound fractures. Nineteen were males and one was a female. The oldest was 47 years and the youngest 11; the average age was 27.4 years. The average duration of nonunion was two years, the longest was six, and the shortest, one. There were no fractures in the upper third; there were five in the middle third and fifteen in the lower third. Twenty-six operations had been performed previously on fifteen of the patients. Bone grafting operations were performed in the Mayo Clinic on nineteen of the patients, and no infections followed. Fifteen were traced; fourteen (93.3 per cent.) were cured and one had failed to obtain a cure. Five were not traced.

Fractures of the Radius and Ulna: There were eighteen patients in this group, twelve of whom had compound fractures. Seventeen were men and one was a woman. The youngest was 22 years of age and the oldest 60; the average age was 36.3 years. The average duration of nonunion was three and seven-tenths years; the longest was twenty years and the shortest, six months. The locations of the fracture may differ. The upper third of the radius was fractured in two cases, and of the ulna in three; the middle third of the radius was fractured in eight, and of the ulna in nine; the lower third of the radius was fractured in eight, and of the ulna in six. Fourteen patients had been infected and thirteen had been operated on previously. Five patients, all previously infected, developed suppuration. Undoubtedly the difficult and prolonged operation on the two bones at one time increased the chance of infection. The twisting injuries, such as being caught in belts and wheels, were prominent in this group. The bone graft was used on ten patients (Fig. 2); union was not obtained in two. Fourteen of the patients were traced; twelve (85.7 per cent.) were cured and two failed to obtain cures. Four patients were not traced.

Fractures of the Ulna Alone: There were eight patients in this group; only one had a compound fracture. Seven were men and one was a woman. The oldest was 40 years and the youngest 21; the average age was 29. The average duration of nonunion was one and one-fourth years; the longest was two years and the shortest eight months. The fractures were in the upper third in two, in the middle third in five, and the lower third in one. None of the fractures had been infected and no infection followed operation in the Mayo Clinic. Seven of the patients were traced; six (85.7 per cent.) were cured and one failed to obtain cure. One patient was not traced.

Fractures of the Patella.—There were nine of these patients, seven men and two women. The youngest was 26 years and the oldest 53; the average age was 36. The average duration of nonunion was one year; the longest period was five years and the shortest three months. The fractures had not been previously infected and no infections followed operations in the Mayo Clinic. In old nonunions in this bone, owing to the contraction of the quadriceps, it is very difficult to bring the upper fragment down to the lower. This may readily be accomplished by dissecting the upper fragment entirely free and bringing it down to the lower fragment. Beef-bone screws are used to hold them firmly in apposition, and the soft parts are sutured around the united patella. The results have been excellent. All of the nine patients were traced and all are cured.

Fractures of the Clavicle.—There was one patient with nonunion of the clavicle, treated successfully by plastic operation.

ETIOLOGY

It is often impossible to determine why union does not take place in any given case. A detailed statistical study of the reasons for nonunion is of little or no value. Certainly no one factor is responsible for all nonunions. One outstanding feature is that practically all the patients had been free from any constitutional disability that might have some bearing on the condition, with the exception of the cases of osteitis fibrosis cystica. Syphilis is a negligible factor in the series; this statement is based on the fact that careful tests were carried out on all patients. With the exception of fracture of the hip joint, interposition of muscle, combined with severe twisting and crushing traumas, is, after all, probably the most common cause. It is quite likely that many fractures, delayed in uniting, have reached a state of nonunion as a result of repeated manipulation and examinations by overanxious attendants. A callus, once broken down, is very loath to form again. Lexer [2] believes that local, rather than constitutional, causes are to be considered, with emphasis on a poor blood supply to the ends of the fragments. In certain instances following operative interference, metal plates and screws were undoubtedly a factor in the induction of nonunion.

During the last few months, ninety-six tests were made of the blood of twenty-one patients, with delayed union or nonunion, in order to learn the percentage of calcium, magnesium and phosphorus. The tests consisted of determining the number of milligrams of calcium and of magnesium in 100 c.c. of serum, and the number of milligrams of inorganic phosphorus and of lipoid phosphorus in 100 c.c. of blood. No departure from the normal could be found, except that in a few cases the magnesium content was lowered. I am satisfied that further investigation, so far as the calcium and phosphorus content of the blood in cases of nonunion is concerned, will be of no value. This coincides with the work of Tisdall and Harris.[3] The magnesium content, however, will be investigated further.

Nonunion can seldom be attributed to the treatment except in cases of fracture of the hip joint, and here the fault is one of omission, because in most of the cases the diagnosis is not made until long after the injury has occurred.

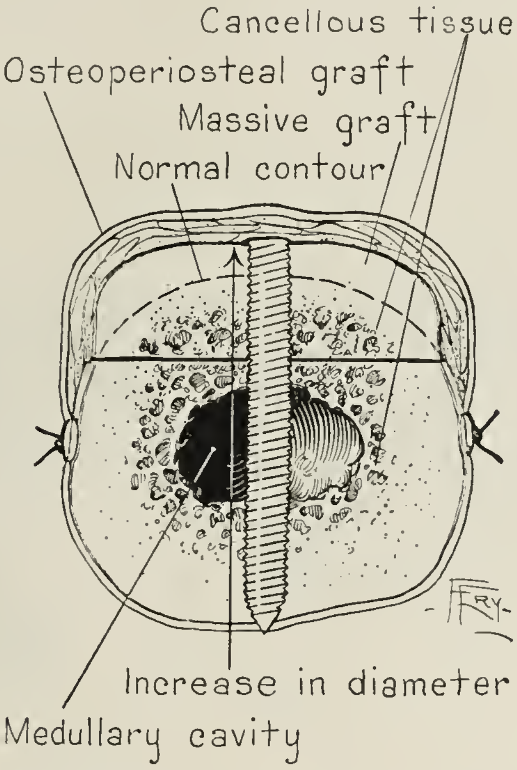

Fig 3.—Use of the massive graft held in place by beef-bone screws and the osteoperiosteal graft wrapped over it.

TREATMENT

I shall not discuss in detail the relative merits of the various methods of treatment, but shall describe briefly measures which now seem best adapted to induce union in these refractory cases.

If the nonunion has existed for many years and the patient has been using the limb freely in spite of the pseudarthrosis, it is usually easier to obtain union than if the duration had been shorter, because the bone, except for the eburnated ends, is normal. The eburnated ends of the bone must be thoroughly freshened, and ample contact of healthy bone in the fragments either to each other, or to the autogenous graft, assured. Osteoporosis of the fragments, due to long fixation, should first be overcome by the patient's using the extremity, thus increasing density of bone before operation is resorted to.

It is difficult in private practice to set a definite time limit for interference after the healing of a sinus. From experience, I have learned to beware of the recently healed sinus, of the scar that is red, of the local heat that remains, and of the semibrawny "feel" of the part. Baking and massage will cause the part that carries a latent infection to display these signs, and are advantageous as a test.

In a recent report of 100 cases of ununited fractures, mostly of the forearm, by Mitchell,[4] it is shown that excellent results may be obtained by modern methods. Military control, such as he had, is of great aid, as it enables one to select the most favorable time for operation. This cannot be done so consistently in private practice.

The fact that nonunions are occasionally successfully treated by the use of metal plates or screws does not, in my opinion, warrant their use as a routine. Beef-bone screws and plates are ideal for recent fractures; they are also useful in fractures delayed in uniting, but, generally, should not be used in cases of nonunion.

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[2] Lexer, E.: Pseudarthrosis, Arch. f. klin. Chir. **119**: 520-607 (April) 1922.

[3] Tisdall, F. F., and Harris, R. I.: Calcium and Phosphorus Metabolism in Patients with Fractures, J. A. M. A. **79**: 884-886 (Sept. 9) 1922.

[4] Mitchell, A. P.: Ununited Fractures, Brit. J. Surg. **10**: 259-289 (Oct.) 1922.

Stepping operations, whereby enough of the bone is removed to permit of broad contact with the bony surfaces, is objectionable chiefly on account of the necessary shortening. This is, perhaps, of secondary importance in the upper extremity, but is decidedly objectionable in the lower.

The inlay graft of Albee is a sound surgical procedure. Its only objection, I believe, is that, at times, as in fractures of the forearm, it is too small. The larger the graft, the better; it must extend well beyond the fracture line to the sound bone of each fragment. I use the massive graft more often. The fragments of the fractured bone, after the ends have been freshened, are chiseled or sawed off on one side, so that the deep layer of the cortical bone, rich in active bone-forming elements, is exposed, and this is brought in contact with the same type of tissue in the graft (Fig. 3). A large graft is taken from the flat internal surface of the tibia and applied firmly to the fragments by the aid of beef-bone screws, thus obtaining firm splinting action. The autogenous bone pegs may be used to advantage in fixing the graft, as I have seen done by Albee and Campbell. My reason for preferring the beef-bone screws is that they are ready for use, and time is thus saved. The chief arguments in favor of the autogenous massive graft may be stated briefly: (1) When firmly fastened, it gives a higher degree of internal fixation, which I consider very essential; (2) it gives a broader contact of the bone-forming elements found deep in the cortical layer of bone than the other methods, and (3) its size more readily affords splintlike support, the time of absorption and replacement is longer than in a smaller graft, and callus is more mature and strong when the "weak period" of the graft is reached, usually from six to eight weeks after the operation, and a fracture of the graft is thus of less serious moment. As a further step, Thomas [5] has advocated the use also of the osteoperiosteal graft (Fig. 4). Needless to say, adequate external fixation by splints, braces or casts is essential. For fractures of the hip, it has been our practice to use 10 cm. of the entire thickness of the fibula instead of a graft from the tibia.

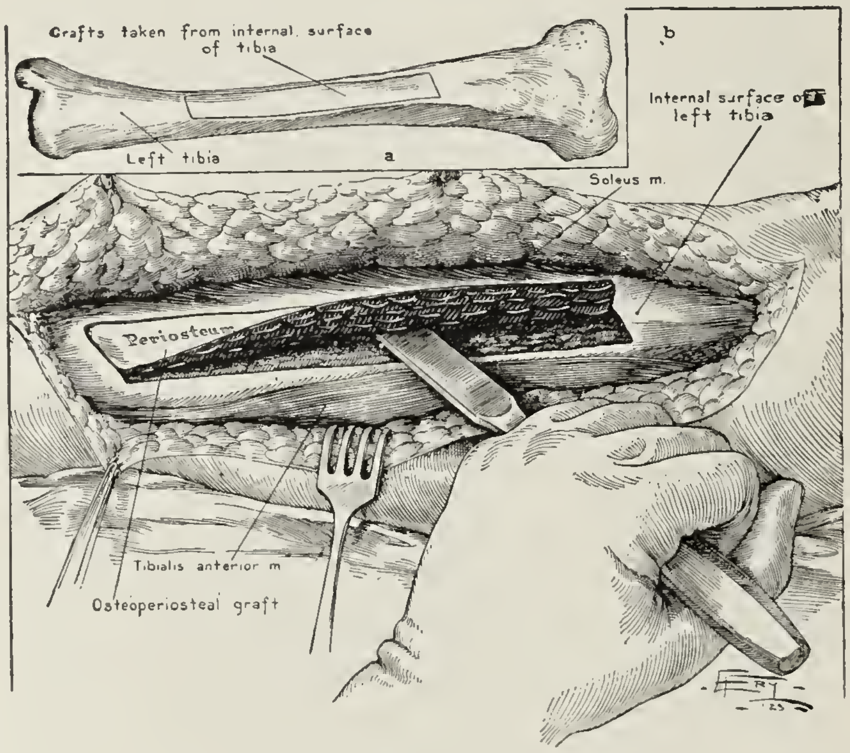
Grafts taken from internal surface of tibia
Left tibia
a
b
Internal surface of left tibia
Soleus m.
Periosteum
Tibialis anterior m
Osteoperiosteal graft

Fig. 4.—Method of obtaining osteoperiosteal graft.

COMMENT

In reviewing these fractures as a whole, it will be found that there are a greater number of nonunions in the femur than in any of the other bones, the neck of the femur furnishing forty and the shaft thirty. The tibia comes next with fifty-four to its credit; the humerus next with forty-one; the radius alone with twenty; the radius and ulna combined with eighteen; the patella with nine, the ulna alone with eight, and the clavicle with one. The causes of nonunion are usually indeterminate, but interposition of muscle fibers, inadequate fixation, not only in quality, but also in quantity (time), too early weight-bearing, and needless inspections and examinations when the union is delayed, may be mentioned as chief among the local causes. In my experience the general or constitutional causes have rarely been of consequence. It seems paradoxical that any number of fractures will heal in a frail, pale, worn out, washed-out appearing child with osteogenesis imperfecta, whereas not one will unite in a big, robust man. Severe crushing and twisting traumas may so devitalize the tissue and lead to the formation of scar tissue as to be a factor in the production of nonunion. Besides all of these, however, there remains the inexplicable type of nonunion. The ends of the bone are in apposition, the position is all that could be desired, and the treatment in all respects satisfactory, and yet union does not occur.

The average percentage of successful cases in the series was 75, ranging from 57.5 in fractures of the hip, to 93.3 in those of the radius. The bones, named in the order of best results, are the patella, radius, ulna, tibia, humerus, shaft of the femur, and neck of the femur. The failures, I believe, were due chiefly to the use of a small graft, improper and inadequate internal fixation of the graft, inadequate external fixation, and sepsis. There were twenty-two infections following operations, approximately 10 per cent. The fact that there were 133 fractures in the lower extremities with ten infected, and eighty-eight fractures in the upper extremities with twelve infected, leads one to suspect that the lower extremity is more resistant to infections than the upper. The rarity of infections following extensive operations on the feet sustantiate this view.

The massive graft with proper internal fixation, the selection in the previously infected cases of the most opportune time for operation, the avoidance of prolonged operations, if necessary doing them in two stages, the maintenance of adequate postoperative fixation, and, in the lower extremity, the avoidance of too early weight-bearing, will materially increase the percentage of successes.

CONCLUSIONS

1. Nonunion is a fixed state in which the bone has ceased to attempt to repair, and is to be differentiated from delayed union.

2. In the series of 221 cases, the nonunion was in the lower extremity in 133, and in the upper, in eighty-eight. The femur was involved in seventy cases, forty in the neck and thirty in the shaft; the tibia in fifty-four; the forearm in forty-six; the radius alone in twenty, the radius and ulna together in eighteen, and

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[5] Thomas, H. B.: Treatment of Old Ununited Fractures of Long Bones, J. A. M. A. **80**: 309-315 (Feb. 3) 1923.

the ulna alone in eight; the humerus in forty-one, the patella in nine, and the clavicle in one. The most common site for nonunion in the shaft of the femur was in the middle third; in the tibia, the lower one third; in the humerus it was about evenly divided between the middle and lower third; in the radius and ulna combined, the site was most common in the middle third. In the radius alone it was most common in the lower third, and in the ulna alone, in the middle third.

3. The bones named in the order in which the best results were obtained are the patella, the radius, the ulna, the tibia, the humerus, the shaft of the femur, and the neck of the femur.

4. The massive autogenous graft is preferred. and firm internal fixation of the graft to the fragments is also essential.

5. The fact that occasionally success follows the use of metal plates, bone screws, beef-bone plates, and so forth, does not establish the fact that they are to be preferred to the bone graft. In a large series of cases there is ample proof of their inadequacy.

6. Adequate external fixation must also be provided.

ABSTRACT OF DISCUSSION

Dr. Dean Lewis, Chicago: The cause of nonunion varies in different forms of fractures. While insufficient immobilization may be the cause of nonunion of one fracture, it may favor union of another. The same applies to infection. In my experience, the interposition of soft parts, syphilis and alteration in the secretion of ductless glands are rarely the cause of nonunion. The separation of fragments, a large blood clot, infection, insufficient immobilization and sclerosis of the ends of the bones may cause nonunion. In the treatment the cases must be individualized. I have had an unfortunate experience with fractures in the young—in the cases of so-called congenital pseudarthrosis. This condition is apparently associated with a localized periosteal dysplasia, resulting in nonunion. A tenotomy of the achilles tendon should first be done to permit of correction of the deformity; firm fixation should then be secured, and an osteoperiosteal graft employed. The only case of this type in which union occurred had been treated in this way. In treating nonunion, the fracture surfaces must be approximated carefully, the periosteum sutured to the graft, if one is employed, and for that reason, I believe that periosteum should be taken with the graft, and the surfaces of the graft contacted accurately with the bone into which it is grafted. In many cases repeated operations will be required, but I believe that in most cases success can be obtained eventually. Those cases in which a large callus forms but which slowly disappears often present the most serious problems. After the use of the graft, firm immobilization is an important factor in treatment.

Dr. Walter B. Coffey, San Francisco: The treatment of fractures cannot be standardized, nor can splints be standardized. Every case is a law unto itself. Certain principles are imperative. The outstanding desideratum is to obtain function. Hunter and Hilton spoke of forced rest; Taylor and Sayer of extension. Thomas, in his practical way, recognized these principles, but demonstrated that the excess of either was damaging to function. Dr. Henderson, dealing entirely with nonunion (not delayed union), brings forth the impressive fact that in no field of prospective surgical intervention is prognosis so uncertain as in fracture cases. Infections, devitalization of tissue, scar tissue, interposition of tissue, uncertain methods of internal and external fixations, one or the other, play a part in the nonunion of fractures. Constitutional conditions, especially syphilis, play practically a negative part. Dr. Henderson, in discussing the relative merits of the various methods of treatment, offers this sound principle. Osteoporosis of the fragments, due to long fixation, should first be overcome by instructing the patient to use the part affected, thus increasing the density of the bone before resorting to operation. I would add that osteoporosis, or decalcification, is not the proper tissue for a bone graft. Nor is it for foreign material or any other type of internal splint that the case may demand. I have never seen osteoporosis or decalcification of the clavicle following fixation by external splints, incident to the treatment of fracture of this bone. It is impossible to immobilize it. Prolonged rest of a part, infections, constrictions by tight splints, or trauma, will bring on osteoporosis. The general surgeon observes osteoporosis in the amputation of the breast, where there later develops edema of the arm. The circulation is good, but there is an interference with the lymph flow. The roentgen ray will show a rapid decalcification or osteoporosis. What part does lymph play in the formation of union? The physiologists maintain that the lymph contains the lime salts, and that lymph flows only by muscular activity. The obstruction to, or the impairment of, lymph circulation to the bone is responsible for this osteoporosis. Thomas advocated that, in delayed union, the patient should get up and about, his theory being that the friction of the ends of the bone would bring on union. It is my opinion that muscular activity, with the flow of lymph, brings on union. Experience has taught us that a bone graft will not bring results when placed in such tissue; nor is that case suitable for operative procedure by any other method. Frequently one sees union of comminuted bones, when perfect adjustment is impossible and an external splint is objectionable. Rarely does one find osteoporosis in such cases. One can readily observe the factors that produce nonunion in compound, comminuted or infected fractures and destruction of soft parts, and impairment of nerve or blood supply. As Dr. Henderson says, only time and use of the limb will bring about a suitable bed for a bone graft, and a good blood supply. The ebonated ends of fibrous tissue should be removed, for new bone will not develop in the presence of such tissue. Barring all types mentioned by Dr. Henderson, there is that rare individual who is not only subject to fractures but subject to nonunions.

Dr. James Eaves, San Francisco: In cases of nonunion are there not many other factors to be considered that might possibly interfere with union? It is regrettable that in nonunion of fractures after repeated operations no result is obtained in spite of being exact in accepted technic. Often in industrial cases the statute of limitations of medical and compensable liability expires, making it imperative for closure, and as a last resort amputation becomes essential. I have seen numerous cases of nonunion, many being referred to me from all parts of the state. Nonunion of the lower third of the tibia I find the most difficult to treat. From observation of these cases, a deep impression has been created in my mind, and I often notice that these patient's are what I call the effeminate type. Do they lack some essential for repair, such as glandular extracts? In one case in which the fibula was transplanted from the sound leg, not the least sign of active regeneration of it was ever evident. In order to avoid unnecessary operations, should we be justified in these cases to remove a small portion of a metatarsal and, if active regeneration was not evident, use this as an indication and forego useless operations?

Dr. S. L. Haas, San Francisco: In the points brought out by Dr. Henderson, he mentioned, as I understood him, that constitutional elements played no rôle. However, he said that in cases of fracture before puberty one always has difficulty in securing union after nonunion had once occurred. The bones of children generally heal very rapidly. There is plenty of callus thrown out in an ordinary fracture. In cases of nonunion there is evidently something wrong with that particular individual. It is not a case of mechanical interference. In the adult who has nonunion it is often necessary to do repeated operations. One performs them in the exact way as one does successful operations in other individuals, but still there is a failure of union. It suggests itself to me that in those cases of nonunion there is some particular factor—one may call it an osteoclastic factor—which elements are destroying quicker than the osteoblasts are building up. Whether the exact factor that is responsible is due to the deficiency of internal secretion or chemical elements has thus far not been proved; but I believe that there is something in the particular individual that is deficient and is of prime importance.

Dr. Carl Beck, Chicago: Every one has mentioned the endocrines. Bossi was the first to make experimental studies on this subject, and he has shown, by exclusion of the suprarenal of young animals, that osteoporosis occurs and is one of the factors causing nonunion. Some years ago I published an essay on osteoporosis. I had done some experimental work and also treated patients, feeding them with suprarenal substance and injecting epinephrin hypodermically, and it produced better bone and quicker union. I would advise in all cases of delayed union the use of suprarenal substances. It has to be proved by the roentgen ray sometimes that there is rapid union in those cases, especially in young persons. All these observations point to the fact that union is delayed only in those cases in which suprarenal and other endocrine substances are missing.

Dr. Archibald Chace, Texarkana, Ark.: I have heard a good deal about the treatment of nonunion, except the prophylactic treatment. My work is entirely among adults, and in the last series of 800 cases of fracture I have had only one case of nonunion in which there was not a sufficient destruction of the entire bone at the time of the original accident to prevent any possibility of union. I think that is due to three or four factors. All our patients are hospitalized. Every case is treated as a law unto itself. Every patient is examined most thoroughly from the general physical standpoint, and very active antisyphilitic treatment is given if necessary. The fourth point that is emphasized is early active motion, not passive motion. With those four factors I think the results are fairly consistent and fairly good, and we shall not have these cases of nonunion, except in the one class—if these four factors are tenaciously carried out.

Dr. E. W. Cleary, San Francisco: I did not hear all of Dr. Henderson's paper but several points occurred to me. One is the preparation of the patient. It seems to me that it is of primary importance, when one is going to graft bone, that the condition of the affected limb be made as good as possible before the operation is undertaken. It has been my practice, since army experience called attention to this feature of the problem, to use physiotherapy consistently and extensively in preparing the limb for bone grafting. By every method known to legitimate physiotherapy I undertake to stimulate the circulation, to stretch the scar tissue, and to bring the bone into the best possible condition before the operation is undertaken. And, incidentally, as Dr. Albee suggested the other day, we use the patient roughly in physiotherapy for two or three weeks before a graft is to be placed in order that if there is any latent infection that infection may be revealed and save us the humiliation of lighting it up by an operation. In the small but considerable series of bone graftings that I had an opportunity to do in military service, so far as I was able to follow the cases, the percentage of success was much higher than it has been in civil cases. The reason for this, so far as I can determine, was the youth of the patients and the fact that the wounds were relatively recent in the army cases. I should like to ask Dr. Henderson a question in regard to his osteoperiosteal graft. In the illustration, as I interpreted it, he spread the osteoperiosteal graft across the top of the massive bone graft. I should like to know whether that is true, because it has always seemed to me very important that a massive graft has as great a surface contact as posible with the blood supply, already established, so that it will take up the blood supply as soon as possible.

Dr. Walter Baldwin, San Francisco: Dr. Henderson spoke of the difficulty of immobilizing fractures of the humerus bone grafting, and I think that except in expert hands it is a difficult matter. In those cases, except when there has been great loss of substance, I have made no attempt to bone graft, but have done a direct bone suture, sometimes splitting the fragment lengthwise to allow the circulation to get through. I do not think the objection to shortening the humerus can be a real factor, because a shortening of one-half or three-quarters inch can have no practical significance. Union occurs very much quicker, and is much more certain than when bone is grafted.

Dr. M. S. Henderson, Rochester, Minn.: The discussion has brought out some points that I touched on in the paper, but could not very well emphasize in reading the paper. Dr. Lewis mentions fixation. In looking over these histories I feel that inadequate fixation, both in quantity and in quality, so to speak, is a factor in the production of nonunion. Childhood fractures are resistant. I recently operated on a boy, 18 years of age, for whom I had ten years ago tried to obtain union of a fracture. We had, following that operation, union for one year. One day, while walking, the leg broke again and he has had nonunion ever since. This time I used the massive graft. The medicolegal side of the question is of interest. I could not help but notice, in going over these cases, that really the physician is rarely, if ever, to blame. The single exception was the hip joint, and that was an act of omission rather than commission. The diagnosis was not made in a single case at the time of the original injury. Drs. Beck, Haas and Eaves spoke of the glandular extracts. I can only say that I do not think glandular extracts will help in any way, unless in exceptional cases. I have tried them, and from practical experience I do not think that they are of any use. I think that the only thing that is of some use is cod liver oil, used in the form of an egg emulsion with phosphorus. I have learned to avoid the wound with a draining sinus and to beware of the recently infected, or the red or brawny scar. We give physiotherapy, baking and massaging, to see whether an infection will light up. Our results have been improved by putting the osteoperiosteal graft over the massive graft. Dr. Baldwin brought up the point about the humerus being difficult to hold. That is so, but if one will use a massive graft and fasten it securely by screws, or by bone pegs, a firm fixation will be obtained; also one takes off enough of the fragments to go back to good bone. The massive graft used in this way will give excellent results.

PREGNANCY AFTER INTERPOSITION OF THE UTERUS *

IRVING F. STEIN, M.D.
Associate Attending Obstetrician and Gynecologist,
Michael Reese Hospital
CHICAGO

For the correction of uterine prolapse and cystocele, the operation of interposition is practically the universal procedure of choice. By this method, the bladder is elevated in the pelvis and is prevented from again descending by the uterine fundus. The principles of the operation as described by both Wertheim and Watkins are essentially these: 1. The bladder is supported by and rests on the posterior wall of the uterus. 2. The uterus is anteverted in the pelvis, being tipped forward about 180 degrees. By virtue of this torsion, the broad ligaments are twisted and perceptibly shortened. 3. The long axis of the uterus makes an acute angle with the vagina, thus preventing any descent of the cervix into or through that passage. The end-result of a properly performed interposition is illustrated in Figure 1.

Although a successful procedure for prolapse, interposition of the uterus presents a decided hazard to future pregnancy. Prolapse is encountered most frequently after the menopause; however, we are often called on to correct various degrees of prolapse during the child-bearing period. Although both Wertheim[1] and Watkins[2] described modifications suited to patients operated on in this period, we find an occasional disre-

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

[1] Wertheim: Centralbl. f. Gynäk. **23**: 369, 1899.

[2] Watkins: Surg., Gynec. & Obst. **2**: 659, 1906; Am. J. Gynec. & Obst., November, 1899; Am. J. Obst. **65**: 1, 1912.

gard of this portion of the technic, resulting in grave dystocia whenever pregnancy occurs. Sometimes sterilization is attempted but is unsuccessful. Because of the fixation of the anterior wall and fundus of the uterus, only the posterior wall is available for development during pregnancy (Fig. 2), and at term one finds the cervical canal perpendicular to the axis of the inlet. Thus, the pelvic inlet is obstructed by the undeveloped anterior wall of the uterus, and labor results in a tendency to flatten the cervical canal from side to side instead of obliterating it from above downward.

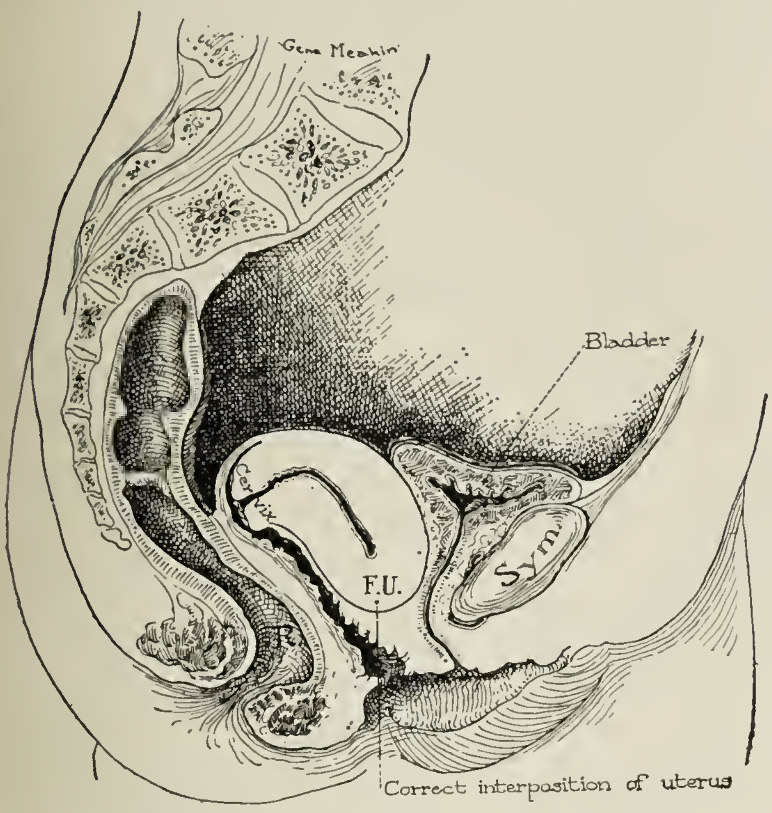

Fig. 1.—Correct interposition of uterus.

The occurrence of pregnancy in a uterus so placed must be regarded by the obstetrician with the same degree of concern as a marked pelvic contraction or a tumor blocking the birth canal. He must decide early whether to interfere in the first months or to permit pregnancy to progress to full term. The early termination by the vaginal route is unsatisfactory, as it necessitates splitting the anterior wall of the uterus, and without dissecting out the anterior vaginal wall and loosening the fundus from its favorable attachment, the necessary sterilization cannot be carried out. By means of abdominal section, hysterotomy and tubal resection can be done, and the child sacrificed. This may be advisable in the presence of an additional indication for therapeutic abortion.

At term (Fig. 3) we are confronted with a unique situation. By abdominal palpation we may discover no unusual condition except, perhaps, a crossbirth. In our cases as well as those previously reported by others, transverse presentation of the fetus predominated. By vaginal examination, we discover that the cervix is high up near the promontory of the sacrum; sometimes it is so high that the whole hand must be inserted into the vagina in order to reach it. The anterior uterine wall is felt firm and thick. The cervix cannot be reached by the usual rectal digital examination. The cervix points upward and backward, its canal often lying parallel to the plane of the inlet. Weibel,[3] reporting from Wertheim's clinic, also noted this inaccessibility of the cervix, and Holland[4] mentioned it in all three cases occurring in the British series. With the cervix in this position, rendering spontaneous labor impossible, and the anterior uterine wall fixed to the anterior vagina, there is only one rational procedure for the treatment of advanced pregnancy, namely, abdominal hysterotomy.

The literature is somewhat scant on this complication of pregnancy, obviously because the majority of gynecologists who utilize the interposition principle reserve this operation for the postclimacteric group of patients. We find, however, that Weibel reported two cases in 1916, and found, in addition, the small total of five in the literature. In Williams'[5] analysis of 20,000 labors reported in 1921, of which 183 were terminated by cesarean section, no cases of pregnancy after interposition of the uterus were included. In the discussion of a case report, Davis[6] mentioned having performed a cesarean section in one case after the interposition operation. Three cases were mentioned by Holland in the British investigation of cesarean section referred to above. Of the five cases reported by Weibel, two (those of Halban and Thaler) were terminated by abortion; the remaining three patients (Esch,[7] Hutelson[8] and Freund[9]) were operated on at term. Weibel's cases were both instances of women with prolapse who were operated on during the childbearing period and in whom sterilization was omitted in the course of the interposition. The first was terminated by abortion, followed by sterilization by atmocausis; the second went to term. He then found hydramnios and a transverse presentation of the fetus. The cervix was located with difficulty high above the promontory of the sacrum, and the anterior wall of the uterus was found thick and firm. Abdominal hysterotomy through the posterior wall and fundus was performed, and the patient was sterilized by tubal resection.

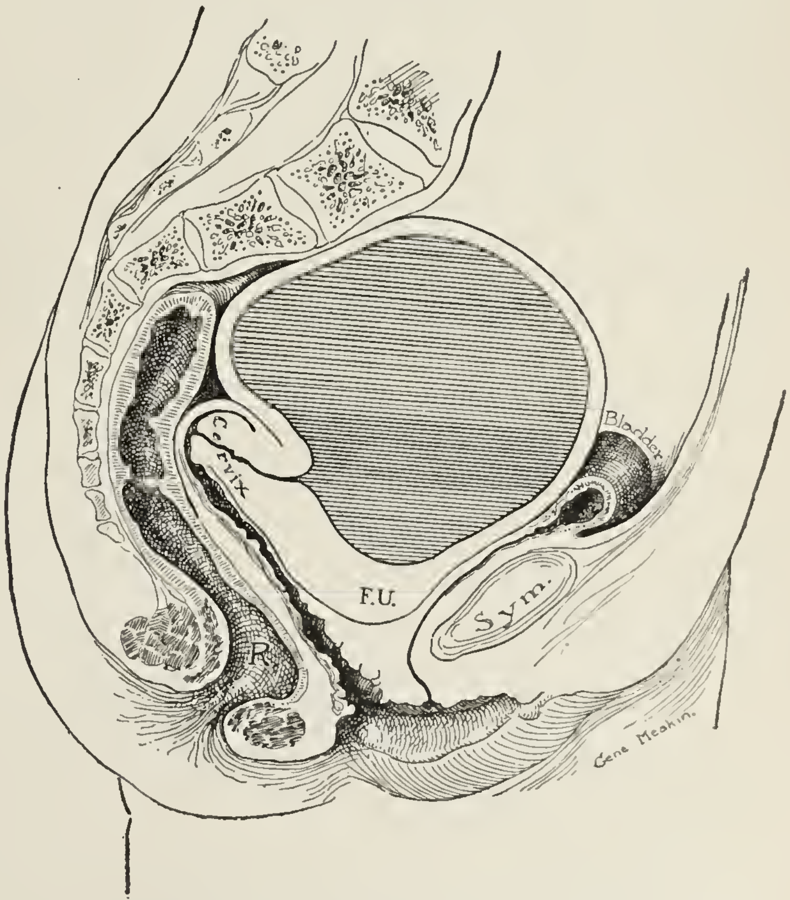

Fig. 2.—Posterior wall development in pregnancy.

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[3] Weibel: Arch. f. Gynäk. **105**: 65, 1916.
[4] Holland: J. Obst. & Gynec. Brit. Emp. **28**: 358, 1921.

[5] Williams, J. W.: Bull. Johns Hopkins Hosp. **32**: 173 (June) 1921.
[6] Davis, A. B.: Am. J. Obst. & Gynec. **5**: 201, 1923.
[7] Esch: Gynäk. Rundschau, 335, 1911; quoted by Weibel.
[8] Hutelson: Frommel's Jahresb., 1912, p. 89; quoted by Weibel.
[9] Freund, R.: Ztschr. f. Geburtsh. u. Gynäk. **67**: 551; quoted by Weibel.

In Esch's case, no sterilization was done at the time of the interposition of the uterus. At term, he found a transverse presentation of the fetus, and the cervix out of reach.

Pregnancy occurred soon after the interposition, in the case reported by Hutelson, although tubal ligation had been done. In this instance, labor was allowed to proceed seven days, when sepeis occurred, and then a craniotomy was performed. Sterilization was done some months later.

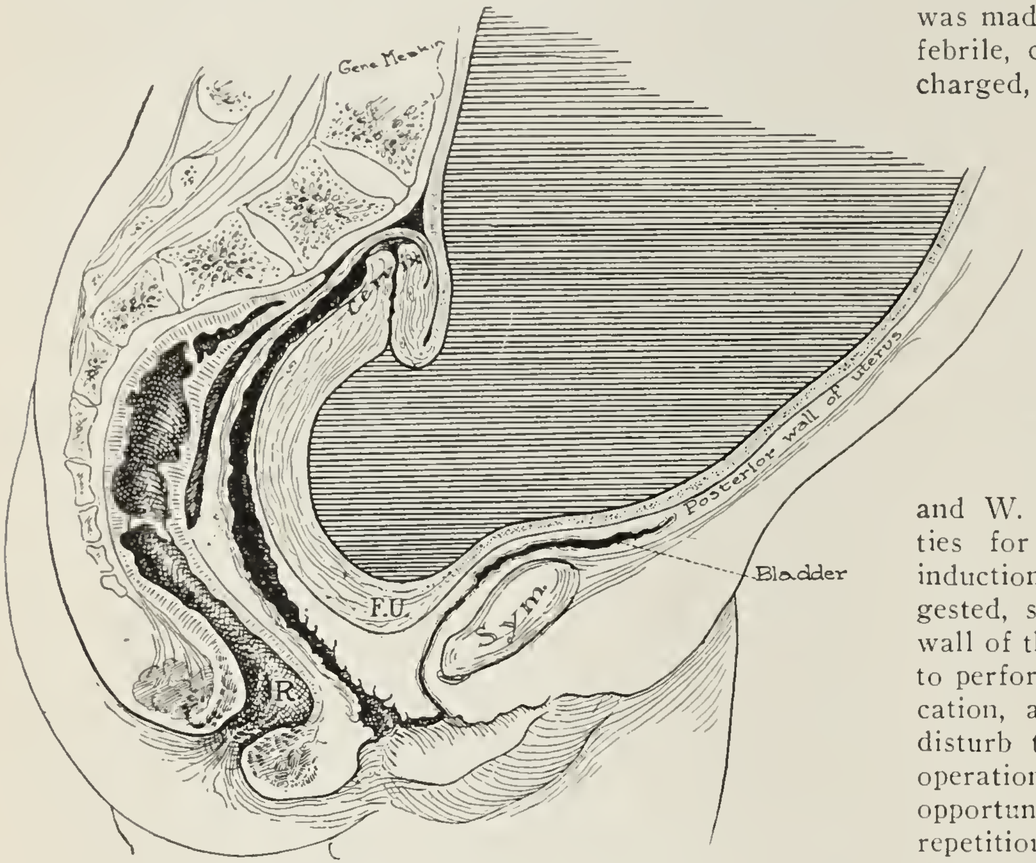

Fig. 3.—Full term pregnancy after interposition.

Splitting of the anterior wall of the uterus by the vaginal route was attempted by Esch, but had to be abandoned because of severe hemorrhage, and the patient was delivered by abdominal section.

A study of the following cases observed in the maternity of the Michael Reese Hospital, Chicago, illustrating the foregoing complication prompted this report:

REPORT OF CASES

Case 1.—F. S., aged 35, a decipara, was admitted to the regular gynecologic service of Dr. Emil Ries, with the diagnosis of mitral stenosis, cystocele and rectocele. A Wertheim interposition of the uterus was performed under scopolamin-morphin and local anesthesia, July 28, 1916. No mention of sterilization was made in the description of the operation.

Four and a half years later the patient appeared in our prenatal clinic, having been referred from the medical division of the dispensary for pregnancy complicated by mitral stenosis. Her last menstruation was in February, 1920. She was admitted to the obstetric service of Dr. Frankenthal, Dec. 9, 1920, seven and one-half months pregnant, because of cyanosis and dyspnea and edema of the legs. She remained under observation until Jan. 28, 1921, when labor began. Examination revealed a transverse presentation of the fetus. The cervix was so high up posteriorly that it was almost inaccessible, and the anterior wall of the uterus was found to be thick and firm. No presenting part was palpable in the pelvis. Cesarean section was decided on as the only safe procedure, and I immediately operated. The uterine incision was carried longitudinally through the posterior wall to the fundus. Cornual excision of the fallopian tubes was done for sterilization. Convalescence was afebrile; the mother and baby were discharged in good condition on the twenty-third day.

Case 2.—M. M., aged 35, a secundipara, entered the hospital with the diagnosis of a cystocele the size of an egg, a small rectocele and a retroverted uterus with an elongated cervix which prolapsed beyond the vulva. A Wertheim interposition of the uterus with enucleation of a small fibroid from the anterior wall of the fundus was performed, April 30, 1920, by a general surgeon. No mention of sterilization was made in the description of the operation. Recovery was febrile, caused by a catheter cystitis. The patient was discharged, May 30, 1920.

I first saw this patient in consultation with Dr. Ludwig Simon, Sept. 15, 1922, when in labor at full term. She entered the hospital with ruptured membranes and with a thick meconium discharge. A transverse presentation (verified by a roentgenogram) was found. The cervix, which was 4 cm. in length, was located high up near the promontory, and pointed upward and backward. The anterior wall was thick and undeveloped. The heart tones, which were recorded as being found, on admission, to be at the rate of 140 a minute, could no longer be heard. Further consultation with Drs. J. B. Baer and W. H. Rubovits was held, and the various possibilities for the termination of labor were discussed. Bag induction, followed by version, and craniotomy were suggested, since the fetus was dead. Splitting of the anterior wall of the uterus was also considered. It was finally decided to perform abdominal hysterotomy as a purely maternal indication, as any form of vaginal delivery would necessarily disturb the favorable relationships created by the original operation; furthermore, the abdominal route afforded an opportunity to sterilize the patient and thus prevent the repetition of pregnancy under these hazardous conditions. Cesarean section was performed, and a stillborn child, with the cord once about the neck, was delivered. The uterine wound was sutured with catgut in four layers. It was then obvious that the incision was in the fundus and posterior wall of the uterus. The left tube was excised from the cornu of the uterus by a wedge-shaped incision, and the right was likewise excised and removed entirely because of a hydrosalpinx. The puerperium was afebrile, and the patient was discharged well on the twentieth day.

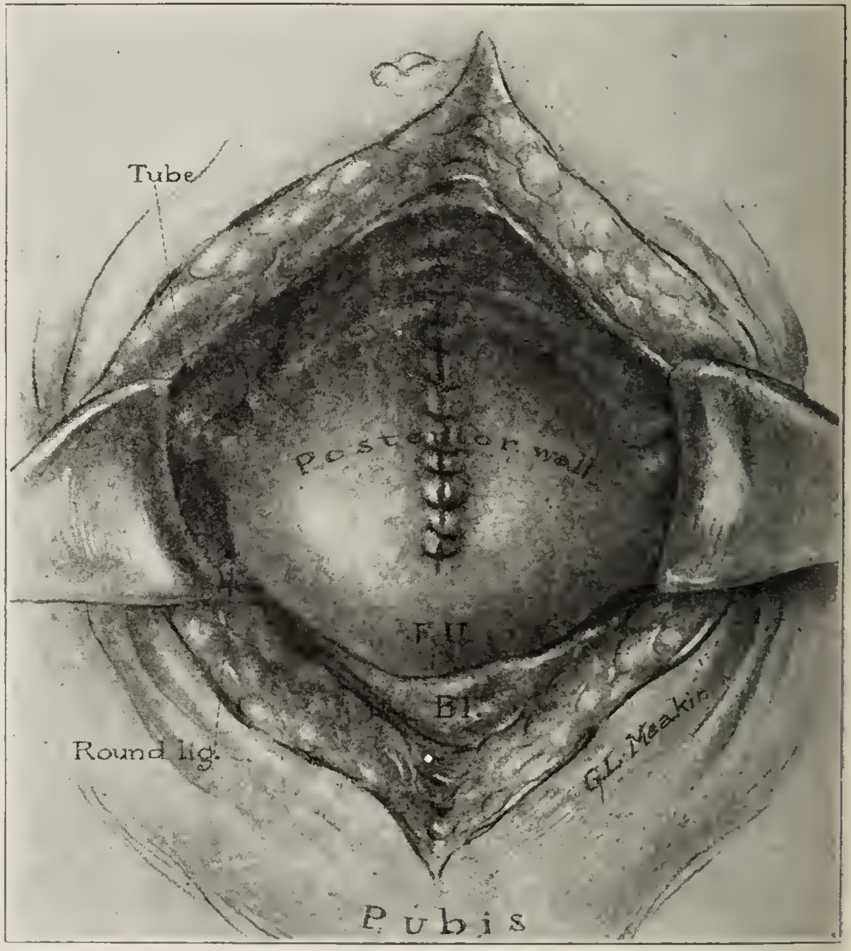

Fig. 4.—Cesarean incision in posterior wall and fundus.

Case 3.—D. S., a septipara, aged 41, was admitted to the gynecologic service of Dr. L. E. Frankenthal, Jan. 5, 1920, with a large cystocele, a dextroversion and prolapse of the uterus, and a laceration of the cervix. The interposition operation was performed, Jan. 7, 1920. No mention of sterilization appears in the description of the operation. Recovery was uneventful, and the patient was discharged on the seventeenth day. March 18, 1922, she was admitted to the hospital because of severe bladder disturbances. Her last menstruation occurred, Nov. 20, 1921, and the diagnosis of incarcerated pregnant uterus was made. An examination by Dr. Frankenthal revealed that the cervix was high up posteriorly; the anterior wall was bulging and was harder in the median line, where it was fixed to the vagina, and was consequently unchanged by the pregnancy. He predicted dystocia. The patient entered the hospital in August, 1922, in the care of Dr. W. F. Rubovits. The findings on admission were breech presentation; the cervix inaccessible vaginally, and no presenting part palpable. After a test of labor of fourteen hours, the child was delivered by abdominal cesarean section, the uterine incision passing through the fundus and posterior wall. The location of the internal os was sought after the delivery of the placenta, but could not be determined from within. Recovery was uneventful, and the mother and baby were discharged on the seventeenth day.

Case 4.—I. K., a secundipara, aged 28, on whom an interposition for prolapse of the uterus and bladder had been performed in the service of Dr. L. E. Frankenthal, Sept. 11, 1912, with no mention of sterilization in the record of the operation, and whose recovery was uneventful, the patient being discharged on the fifteenth day, entered the maternity division, Nov. 10, 1920, in labor. A transverse presentation was found, and the cervix, which was high up, pointed upward and backward. The uterus had developed posteriorly because of the fixation of the anterior wall and the fundus. Posterior wall cesarean section was performed by Dr. Joseph L. Baer. Convalescence was afebrile, and the patient was discharged on the sixteenth day.

COMMENT

In considering the treatment of this complication of pregnancy, our reasoning was similar to that of Weibel of the Wertheim clinic, namely, that normal labor at term is out of the question. Version would entail too great a risk to both mother and child. Splitting the anterior wall of the uterus to effect delivery would endanger the favorable uterine relation created by the original operation, and carries with it the liability of severe uterine hemorrhage. Furthermore, not one of the procedures mentioned above insures against the occurrence of future pregnancy with the same serious dystocia.

Therefore, abdominal hysterotomy must be considered the only rational treatment of pregnancy after interposition of the uterus. It is highly important that an effectual sterilization be made a part of the operative procedure.

The indication for cesarean section is purely a maternal one, and therefore holds whether the child is alive and normal, or otherwise. This is the conclusion we reached in Case 2, in which the baby was dead before the operation. The midabdominal or low abdominal incision may be utilized, and the uterus incised longitudinally through the fundus and posterior wall, the latter presenting in the abdominal wound as does the anterior wall normally. This altered relationship becomes obvious after the viscus is sutured (Fig. 4), the adnexa being located low in the pelvis, just as in the nongravid condition. Sterilization should then be assured by cornual excision of the fallopian tubes and accurate approximation of the uterine serosa, or by ligation and the peritoneal screen method.

CONCLUSIONS

1. The Wertheim-Watkins operation of interposition is indicated chiefly in those cases of prolapse of the uterus or bladder in women definitely past the menopause. If it is performed during the child-bearing period, an effectual sterilization must be assured by cornual excision of the fallopian tubes or by the peritoneal screen method. Curettage as a part of the operation would insure against the development of an existing pregnancy, as occurred in one case referred to by Weibel.

2. When pregnancy occurs after interposition, abdominal cesarean section at term is the only rational and safe treatment. The operation should be supplemented by an effectual sterilization to safeguard the patient against a repetition of this serious complication.

3. The indication for section being purely a maternal one, it holds even in the event that the fetus is dead.

30 North Michigan Avenue.

ABSTRACT OF DISCUSSION

Dr. Albert Goldspohn, Chicago: I have never regarded this interposition operation as really necessary to accomplish results. It has always appeared to me as creating a greater abnormality than is needed. In view of the fact that there is still a possibility of pregnancy, although I did not surmise that it would occur as frequently as Dr. Stein reported, I have preferred the more moderate method of inversion in which the bladder is detached from the uterus and is placed on top of the fundus and not on the posterior side of the uterus; in which the long axis of the uterus is not placed approximately parallel with the long axis of the body, but at right angles approximately with the long axis of the body. The bladder is detached and the uterus is placed in position for ventral fixation, the bladder riding on top of the fundus, and a very firm ventral fixation can then be made by seizing the strong fascial structures beneath the symphysis pubis as far up as possible without interfering with the urethra. The raw surfaces made by detaching the bladder are then made available for a new fibrofibrous union which does not give way. Dr. Cullen of Baltimore last year described an operation which is almost the same as mine. The only difference is that I suture the raw edge of the peritoneum in the vesico-uterine sulcus down on the posterior border of the fundus of the uterus so that it will not slide, perhaps indefinitely far, into the peritoneal cavity. This sewing down is not done by the usual interposition operation, and Dr. Cullen does not state that he does that. It may be that that is not necessary. Of course, a very important thing, just as important as this interposition of the uterus, is the restoration of a thoroughly competent, firm pelvic floor, an operation that deals actually with the levator ani muscle, better called the levator recti muscle, which, I am sorry to say, is not accomplished by many men who think they do make use of that in restoration of the pelvic floor. The actual restoration, going in far enough to get hold of the levator ani fascia and muscle and giving firm union, is an important part of the procedure. The cervix remains accessible even in case of infection.

Dr. Frederick Loomis, Oakland, Calif.: I have to add as a matter of record one more case to Dr. Stein's list of pregnancies after interposition of the uterus. A woman not only became pregnant but had a placenta praevia after interposition of the uterus. Three years after this operation, she was pregnant, and showed evidence of loss of blood. The striking thing in her case was the inaccessibility of the fundus of the uterus, so that only one possible mode of delivery was left, a cesarean section, followed by a panhysterectomy on account of the density of the adhesions. When the uterus was finally removed and placed on the table right side up, there was no incision in sight, the entire incision having become inverted on the posterior wall. The patient died on the sixteenth day from sepsis. No other course was open to us, but it is interesting to know that she presented the thing

Dr. Stein emphasizes, the inaccessibility of the uterus, fundal adhesions, and the entire inversion of the incision on the posterior wall, with an unfortunate end for the patient.

Dr. Edward L. Cornell, Chicago: Dr. Stein said that some method of effectual sterilization should be employed when performing the interposition operation on patients who are in the pregnant period. I hardly think that there is an effectual sterilization procedure. Every procedure that has been employed has had failures. I have had occasion to deliver two women following sterility operations, when the tube was cut off and inserted under the peritoneum, and still the patients became pregnant; so it is my opinion that we should not operate or do the interposition operation on a woman who is not through the menopause. Pregnancy following this operation is a dangerous procedure, as Dr. Stein has said, several women having died as a result of infection following cesarean section. This, in itself, is a good and sufficient reason why we should not do the interposition operation at this period. If a patient, however, does become pregnant after an interposition operation, it does not seem advisable to perform an abortion, for the reason that the cervix in the vast majority of cases is adherent and rigid, and the danger of sepsis and rupture of the uterus is too great.

Dr. Irving F. Stein, Chicago: I disagree with Dr. Cornell when he says that an effectual sterilization operation cannot be performed. If cornual excision of the fallopian tubes is made, in the majority of women no pregnancy will occur. In a sterilization operation in which the tubes are ligated and the stumps covered by peritoneum, as described by Dr. Emil Ries, no pregnancy can occur. One other feature brought out in the third case was the bladder disturbance in early pregnancy. In one case the bladder was apparently saddled over the pregnant uterus, and severe symptoms occurred, giving rise to the diagnosis of an engorged bladder. On looking up the previous history it was found that it was simply a bladder anchored up by an interposed uterus. After rest in bed, the bladder was pushed up and the patient proceeded to term.

CINCHONA DERIVATIVES IN THE TREATMENT OF HEART DISORDERS *

K. F. WENCKEBACH
VIENNA, AUSTRIA

Quinin has been used in heart treatment for a long time, certainly for more than sixty years. I must confess that I have not had time in these last years to look up the history of quinin as a heart drug, but I have heard that Ludwig Traube, the most outstanding man in experimental work in connection with clinical findings, added quinin to digitalis to prevent or relieve the disagreeable action of this drug on the stomach. I do not know whether this is true or not, but it is so related. Among the older generation of clinicians there was a good number, and I knew some of them, who nearly always gave digitalis in combination with quinin. On being asked why they did it, they could not give me an exact reason for it; but they found that digitalis was better supported with quinin and that they could give larger doses without getting disagreeable symptoms. One of them said that not only he but also his patients were very much satisfied with this form of treatment, so why should he not give this combination?

My objection to quinin in heart disease was that it had been shown by Santesson and by Stokvis to be a heart-paralyzing drug. Digitalis in toxic doses brings the heart to a standstill in systole; large doses of quinin, however, bring the heart to a standstill in diastole, and in smaller doses lead to a definite depression of the strength of the heart beat. This was the reason I did not wish to give quinin in cases of heart failure or any other bad condition of the heart. There I was wrong. We can never tell from the pharmacologic action of the drug how it will work at the bedside; for instance, we should never forget that the action of digitalis also on the heart is mainly and primarily a depressing action on the functions of heart muscles, at least as far as its vagus action is concerned, and still digitalis is the most powerful and most brilliant of all heart drugs. That we should not avoid giving drugs that have been found to be useful at the bedside on account of theoretical arguments only is shown in the following case:

In 1912, a patient presented himself in my office wishing to get rid of his attacks of auricular fibrillation. He knew that this was the so-called perpetual or complete arrhythmia and that his attacks ceased for the most part spontaneously after from two to fourteen days. He was a stout man, aged about 50, able to do a good deal of bodily exercise and even during the attack to walk for four or five hours. From this fact it was clear that the efficiency of his heart and circulation was only slightly diminished by the attack. He did not feel great discomfort during the attack but, as he said, being a Dutch merchant, used to good order in his affairs, he would like to have good order in his heart business also and asked why there were heart specialists if they could not abolish this very disagreeable phenomenon. On my telling him that I could promise him nothing, he told me that he knew himself how to get rid of his attacks, and as I did not believe him he promised to come back the next morning with a regular pulse, and he did. It happens that quinin in many countries, especially in countries where there is a good deal of malaria, is a sort of drug for everything, just as one takes acetylsalicylic acid today if one does not feel well or is afraid of having taken cold. Occasionally, taking the drug during an attack of fibrillation, the patient found that the attack was stopped within from twenty to twenty-five minutes, and later he found that a gram of quinin regularly abolished his irregularity.

I was greatly struck by this fact, and afterward tried this sort of treatment in many cases of auricular fibrillation. My success was disappointing, in that quinin abolished auricular fibrillation in only a few cases and in those cases only when the onset of this form was quite recent, never when it was of several years' duration. At the same time, I found that even in those cases in which auricular fibrillation was not abolished, the drug had a marked soothing action on the often terrific rate of the ventricle. I received the impression that here the depressing, paralyzing action of the drug had a very favorable effect on the hyperactivity (hyperkinesis) of the heart. This made me try this form of treatment in other forms of arrhythmia due to some form of hyperkinesis also.

The first arrhythmia in which I had complete success with small doses of quinin (from 0.3 to 0.4 gm.) was extrasystole. It is well known that until that time we had no generally satisfying drug or method of treatment of this very common and innocuous, but at the same time very disagreeable, form of arrhythmia. For over fifty years I had been trying all of the drugs from

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which one might expect to have a quieting influence on the heart. Apart from digitalis in very small doses, which may work wonderfully in some exceptional cases, there was only one drug which, I found unexpectedly, had a good influence on some of my patients, viz., strychnin. The first case which gave me proof of this favorable action of strychnin on extrasystole was that of a man with a very serious insufficiency of the aortic valves. His heart was in a very bad condition, and the man knew that he had only a short time to live. He bore his condition very well, but there was one thing which made life unendurable to him, namely, periods of extrasystole. The extraordinarily strong pulse wave, following the compensatory pause of the extrasystole, made him feel so utterly miserable that he asked energetically for relief. I gave him strychnin, which has been given in other countries for many years in cases of heart failure. In doses of from 2 to 3 mg. daily, this drug helped him as soon as extrasystole came on, and the favorable effect was not lost until the end. I have found strychnin in these small doses helpful in cases of extrasystole in otherwise normal as well as in diseased hearts, but very often it did not act strongly enough, or it lost its action very soon. In these last cases I tried the combination of quinin and strychnin and found that this form of treatment had complete success in the great majority of my cases. I have given from 0.3 to 0.4 gm. of quinin daily, plus 2 or 3 mg. of strychnin through periods of ten days. My experience with this treatment since the year 1915 has been so favorable that I am convinced that whoever will try it will come to the same conclusion.

After seeing this favorable effect, I thought it wise to try quinin in other forms of hyperactivity of the heart. Quinin being a depressing drug, we have to be very careful in cases of damaged heart muscle or real heart failure; we should never imagine that quinin could be a heart stimulant. Keeping this in mind, I have found that quinin treatment has its greatest use in conditions in which an abnormal rhythm starts in the auricle or the atrioventricular node, or the ventricle interferes with the normal pacemaker of the heart. I have found it useful in all different forms of extrasystole; and, to some extent, in the different forms of paroxysmal tachycardia, but also in cases of marked so-called sinus arrhythmia starting in the normal pacemaker itself, quinin may act beneficially. In those forms of tachycardia, especially, found so frequently in adolescence, in nervous, rapidly grown-up young people, quinin, especially in combination with strychnin with its marked vasomotor influence, may be of great help. This is of the greater importance, because these tachycardias, certainly of central nervous origin, are very difficult to treat successfully. Long administration of small doses of digitalis sometimes has a favorable effect, but not at all in a really satisfactory way. The combination of quinin and strychnin stabilizes the heart action so quickly, and the young patients are themselves so much relieved, that after a short time it was possible to start the most important and causative treatment, viz., mental and muscular training.

Favorable effects may be seen in other typical hyperactivity of the heart: In exophthalmic goiter and other forms of hyperthyroidism, not only does the heart beat too quickly, but also the energy of every systole is much increased, as if under the influence of constant stimulation of the accelerator nerves. Quinin in doses of from 0.4 to 0.5 gm. has a decidedly quieting influence on the heart quite apart from whether there is auricular fibrillation or not. The patient himself is the first to notice this favorable effect.

In view of all these beneficial effects, it was to be wondered that quinin was active in so few cases of auricular fibrillation. Here Walter Frey's experiments were illuminating. Trying out the different derivatives of cinchona, he found that quinidin is much more powerful in abolishing auricular fibrillation than quinin. The difference between the two seems to be merely quantitative. We found that by giving much larger doses of quinin we could get the same effect as by giving smaller doses of quinidin; but, on the other hand, in some cases of long-standing periods of extrasystole, quinidin had the full effect where quinin had been given for a long time without giving more than slight relief. Certainly, the introduction of quinidin as a form of quinin treatment has proved to be of the greatest advantage. The "dramatic" transition of long-standing complete arrhythmia into a perfectly normal mechanism of the heart has made a great impression on physicians over all of the world and made, at least, this form of quinin treatment quite popular.

Summarizing my own experience and the work done by others, I may say that quinidin has its greatest success in those cases in which there is not much wrong with the heart, in which fibrillation has been present for not too long a time or is showing itself in attacks as a special form of paroxysmal tachycardia. When auricular fibrillation is the only abnormal phenomenon of the heart, the disappearance of this disagreeable form of disturbance of the heart mechanism may be a complete cure, freeing the patient not only from his subjective symptoms but at the same time of the suspicion of having a myocarditis, or, at least, of some bad condition of the heart muscles. On the other hand, in cases in which fibrillation is only a part of the morbid condition, when valvular disease or pathologic changes in the heart muscle are the chief features of the disease, the abolishing of fibrillation will give only partial relief. In such cases we should never forget that all cinchona derivatives are depressing drugs and should not be given in too large quantities. Generally speaking, real heart failure asks for digitalis, and it may be necessary to avoid quinidin until the condition of the heart is much better. I, myself, am giving the combination of digitalis and quinin from the very beginning, especially when there is a very rapid and irregular action of the heart, doing, as a matter of fact, what old clinicians did a great many years ago. To avoid an unfavorable effect of quinidin, one should try to find out whether auricular fibrillation plays an important rôle in the development of the disturbance of the circulation; with a slow ventricular rate there will not be much use for quinidin, and when there is a dangerous condition of heart muscle failure it may even do harm. Limiting quinidin treatment to cases in which fibrillation is a real factor of importance or the only symptom, one may see many beautiful cures and avoid the accidents mentioned in the literature. Certainly the last word in this important therapeutic matter has not been spoken, and careful observation of every patient under treatment will be necessary before we shall know all we wish to know about quinidin treatment in auricular fibrillation.

The great impression that quinidin treatment made on the medical profession is certainly due to the fact that its favorable effect shows itself suddenly by the transition of long-standing irregularity into normal rhythm after the administration of the drug. It is this sudden effect that gives absolute proof of its activity. Would it not be possible to get the same form of convincing proof for the action of quinin in those other forms of irregularity of which I have been speaking rather enthusiastically? This proof has been provided by Winterberg. He found in my clinic that intravenous injection of quinin (not quinidin) may stop an attack of paroxysmal tachycardia in many cases, and sometimes so quickly that he had to keep his electrocardiograph running in order not to miss the interesting moment of transition from the pathologic to the normal rhythm. In a few specimens of tracings which I am able to show, the sudden stopping of the attack was obtained by the injection of not more than 0.5 or 0.75 gm. of quinin, a dose perfectly supported by all our patients and much smaller than the doses injected intravenously in cases of long-standing or severe tropical malaria. The patient himself has the curious sensation of a heat wave passing through his body, and no other disagreeable effect; only rarely did we have to deal with depressing actions of quinin on the tonus of the vessel wall, showing itself in a fall of blood pressure and sometimes in syncope, easily relieved by some stimulants. The same favorable effects of the intravenous injection are shown in one of these tracings from a case of extrasystoles coming on in long series, that resisted quinin treatment by mouth, so that proof of the favorable action of quinin on extrasystole, so evident but not showing itself so immediately in treatment by mouth, is given in a way absolutely equal to any form of experiment.

It would take too much time if I should try to deal broadly and deeply with the question of the analysis of the action of quinin on the heart muscle. This question requires a great deal more experimental work: certainly, it is not sufficient to say simply that quinin lengthens the refractory period of the heart. We must investigate the effect of quinidin on every single function of the heart muscle and distinguish between its primary and its secondary effect in the way Engelmann taught us. What this means may be exemplified by the well-known fact that digitalis, which lengthens the conduction time, may have a favorable effect even in cases in which there is a lack of conductivity. This favorable effect is due to the fact that digitalis at the same time both slows the heart and provides it with a longer time for restoring its various functions.

Before leaving this subject I want to say a few words about another influence of quinin bodies which may prove useful in the treatment of cardiovascular conditions: the syncope just mentioned is generally and probably rightly ascribed to vasodilatation, not so much to depressing action on the heart. Some clinical observations have shown that in so-called vascular crises (sudden spasm, i. e., hyperkinesis of the walls of the smaller arteries) quinin may stop the spasm and so relieve the patient of his symptoms. Winterberg found that, in some cases of anginal pain accompanied by sudden and very important rise of blood pressure, intravenous injections of 0.5 gm. of quinin may stop the attack at once and completely so that not only the pain but also the enormous rise in blood pressure is abolished. Winterberg has described the details of this interesting case. I simply want to point out that the problem of quinin in the treatment of heart disease and cardiovascular conditions covers a much larger area than the question of quinidin and auricular fibrillation only, and that the action of this drug on the arterial system and its rôle played on the circulation in general should be studied carefully.

That quinin must be of the greatest importance in the treatment of such conditions has been perfectly known to the old clinicians. The Viennese clinician Oppolzer, in his lectures on the treatment of internal diseases (1872), begins his chapter on the treatment of heart diseases with the words: "The best and most powerful factors in dealing with heart patients are three: rest, digitalis and quinin." Curiously enough, all of us had forgotten about quinin. Certainly, we did not know exactly in which cases it should be given, and we had insufficient experimental evidence about its action only, viz., that it is a heart-paralyzing drug. I, myself, avoided quinin only on this theoretical reasoning. The facts now known teach us that certainly the last word in therapeutics has to be said at the bedside—but, at the same time, that experimental evidence and careful analysis of the action of the drug will give us a clearer insight into the important question, in which cases it should be avoided. I think all will see that the reintroduction of quinin into therapeutics not only is an important acquisition in the treatment of heart disease but at the same time gives us a useful and beautiful instance of the cooperation of clinical and experimental investigation.

THE TREATMENT OF ACUTE POLIOMYELITIS

PRELIMINARY NOTE ON USE OF HYPERTONIC SALT SOLUTION AND CONVALESCENT HUMAN SERUM *

WILLIAM LLOYD AYCOCK, M.D.
AND
HAROLD L. AMOSS, M.D.
BURLINGTON, VT.

The results in general of the serum treatment of acute poliomyelitis have not been sufficiently consistent to warrant a definite statement as to its value. In the absence of hyperimmune serum, recourse must be had to human convalescent serum, which is at best weak in its antibody content. In a small series,[1] the administration of large doses of convalescent serum a few hours after onset yielded distinctly encouraging results, but it is agreed that the problem has not been solved. Such treatment is beset with obstacles apparently insurmountable, one of the greatest of which is the inaccessibility of the site of injury in poliomyelitic infection.

Since the flow of fluid within the nervous tissue itself is probably from the capillaries along the pericapillary, perineuronal and perivascular spaces toward the subarachnoid space, serum injected merely into the subarachnoid sac cannot be expected to reach the inflammatory focus lying deep in the gray matter of the cord. It is likewise true that the walls of the capillaries of the nervous tissue constitute an effective barrier against the passage of serum from the circulation

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* From the Research Laboratory (maintained by a special fund privately donated), Burlington, Vt., and the Biological Division of the Medical Clinic, Johns Hopkins Hospital and University.

[1] Amoss, H. L., and Chesney, A. M.: J. Exper. Med. **25**: 581 (April) 1917.

to the perivascular system.[2] Weed and his co-workers[3] have shown that the intravenous injection of hypertonic solutions in normal animals causes a reduction in the volume of the brain and spinal cord with a marked lowering of the cerebrospinal fluid pressure and an aspiration of fluid from the subarachnoid space into the perivascular "lymph" spaces of the brain and cord.

In our experiments,[4] similar results have been obtained in the edematous cords of monkeys in the acute stage of poliomyelitis, and have led to the employment of the method in the treatment of the experimental disease. Poliomyelitic monkeys given convalescent human serum intraspinally and intravenously, and hypertonic salt solution intravenously, exhibited marked improvement as compared to controls. By the shrinking of the central nervous tissues after intravenous injection of hypertonic salt solution, more space is available in the subarachnoid space for the reception of large amounts of serum; this is especially advantageous, since the convalescent serum is at best weak in antibody content, and correspondingly larger amounts must be injected. The beneficent effect of the change in tonicity of the blood, with the marked decrease in the volume of the brain and spinal cord, is to reduce the inflammatory edema of the cord. However, it seems that edema cannot be explained entirely on the basis of osmosis. Our experiments have not progressed sufficiently to warrant any statement on this point.

The third and probably the main possibility of a beneficent effect of such a method lies in the fact that the intravenous injection of hypertonic solution brings about an aspiration of serum from the subarachnoid space into the perivascular system, thus insuring a more intimate contact between the main lesions of poliomyelitis and the serum, which can be regarded as a distinct advantage in local specific therapy. There is one other possibility in connection with the employment of this method. It is possible to administer enough hypertonic solution, approximately 1 gm. of sodium chlorid per kilogram of body weight, to cause cerebrospinal fluid pressure to fall from 80-120 mm. of water to —90 mm. of water without damage. This loss of fluid within the central nervous system is replaced afterward by an increased passage of fluid from the blood stream to the cerebrospinal fluid, normal pressure being reestablished within a few hours. On the hypothesis that this increased flow of fluid would facilitate the passage of serum from the circulation to the fluid spaces of the central nervous tissue, the intravenous injection of mmune serum one or two hours after the injection of hypertonic solution is recommended.

REPORT OF CASE

Opportunity for the application of this method to cases in human beings has not yet been afforded except n one instance. It is realized that, without data from nany cases, no conclusions can be drawn; yet, owing o the demand for details of the method a brief report of one case is given.

History.—G. E. I., a boy, aged 4 years, with normal develpment, and past history unimportant, entered Harriet Lane Home[5] of the Johns Hopkins Hospital, Jan. 16, 1923, for treatment for acute abdominal pain and sudden loss of power to move the arms and legs, closely following a gastro-intestinal upset. The onset occurred January 8, with repeated chills and fever, which endured for two days. On the fourth day, the symptoms disappeared, and the patient remained asymptomatic until the morning of January 15, when he told his mother that he could not "wiggle his toes." The weakness of the legs noticed at that time gradually increased until motion was lost. Tingling in the fingers appeared, and there was a rapid loss of motor function of the arms and trunk. On admission, the temperature was 100.4 F., the respirations, 40, and the pulse, 120. The patient was mentally clear and cooperative. The extremities were flaccid, with perhaps slight power in the right arm and leg. The patient was unable to move in bed. Speech was normal.

Examination.—The head, eyes, ears, sinuses, nose, throat and mouth were normal. There was no glandular enlargement; the chest, heart, lungs, abdomen, genitalia and joints were normal. The extremities were flaccid, as already described.

The tendon reflexes of the upper and lower extremities could not be obtained; the abdominal reflexes were hyperactive. There was no clonus, and no Babinski's sign on either side; Kernig's sign was negative. There was no abnormality of the cranial nerves, and no disturbances of sensation. Flexion of the neck and back produced pain.

Urine examination was negative. Blood examination revealed: red blood cells, 5,288,000 (cells normal); white blood cells, 19,500. Spinal fluid withdrawn at 7:30 p. m., January 16, was clear and under normal tension; there were 40 cells, mostly mononuclear, and the globulin test was negative; the Wassermann reaction was negative. An intracutaneous injection of 0.1 mg. of tuberculin gave a positive reaction. A roentgenogram of the chest showed no abnormality.

Course and Treatment.—At noon, January 17, it was noticed that the facial muscles on the right side, and intercostal muscles on both sides were weak. Both anterior and posterior deltoid muscles on the left side were completely paralyzed, and all the muscles of the right arm were weaker than normal. The right leg was now completely paralyzed.

It seemed entirely reasonable to suppose that this was a case of acute poliomyelitis of Landry's type, and the subsequent course substantiates this view.

On the basis of results obtained in the treatment of experimental poliomyelitis in monkeys, treatment with intravenous hypertonic solution and convalescent human serum was begun.

January 17, at 8 p. m., lumbar puncture was performed; 35 c.c. of clear spinal fluid was removed, and human convalescent poliomyelitic serum allowed to flow in until equilibrium was established with a head of 4 inches. It was estimated that 20 c.c. of serum flowed into the subarachnoid space. While the needle and connections remained in place, there was injected, intravenously under ether anesthesia, 25 c.c. of concentrated Ringer's solution, of which the sodium chlorid content was 18 per cent. Within two minutes, the serum began to flow again into the spinal canal at a fairly rapid rate. After 20 c.c. of serum had been allowed to flow in, there was no apparent decrease in the rate of flow, and the needle was withdrawn. Since there was already obvious involvement of the respiratory center, the injections were made with dispatch, and no manometric readings were made.

During the night, the patient was very thirsty; a small amount of crushed ice was allowed, but water was withheld. By 1 o'clock that night, the rectal temperature reached 104.4. There were two short convulsions and convulsive movements of the back muscles. Fluids were given by mouth, and the temperature was reduced to 102. The patient was very restless.

January 18, at 10 a. m., lumbar puncture was again performed. The fluid obtained was turbid, with 18,000 cells per cubic millimeter, most of them polymorphonuclear. The temperature became normal at 7 p. m. The white blood cell count was 25,000. At 10 p. m., the diaphragm was weaker, and the abdominal muscles were being used more than usual.

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[2] Mott, F. W.: Lancet **2**: 79, 1910. Flexner, Simon: The Local pecific Therapy of Infections, J. A. M. A. **61**: 447 (Aug. 16) 1913. lexner, Simon, and Amoss, H. L.: J. Exper. Med. **25**: 499 (April) 917.

[3] Weed, L. H.: J. M. Res. N. S. **26**: 93, 1914. Weed, L. H., and lughson, Walter: Am. J. Physiol. **58**: 53, 101 (Nov.) 1921. Weed, . H., and McKibben, P. S.: Ibid. **48**: 531, 1919. Weed, L. H.: m. J. Anat. **31**: 191 (Jan.) 1923.

[4] These will be reported in the Bulletin of the Johns Hopkins lospital, December, 1923.

[5] The patient was under the care of Dr. W. J. Scott, from whose notes this abstract was taken.

January 19, at 9 a. m., the patient seemed better. Five per cent. glucose solution by rectum was not retained. Fluids were given by mouth in small amounts. The patient could swallow, but seemed unable to cough. The chest was clear, and the respiratory rate was from 26 to 30 a minute.

January 20, respirations were improved, and the patient seemed brighter. He complained at times of pains in the legs.

January 21, the patient seemed very bright, and the facial weakness had almost disappeared.

January 22, he was breathing with less difficulty. There were four loose, involuntary stools.

January 23, there were no more involuntary stools, and the patient voided normally. He was hungry for the first time. Breathing was improved, but there was still a noticeable weakness of the diaphragm.

January 25, there was a return of the inability to move the fingers and toes.

January 27, there was improvement in the muscles of the shoulder.

January 28, the muscles of the arm were stronger.

January 30, the patient moved the fingers of both hands for the first time, the right better than the left. Neither thumb functioned. The triceps muscle on the right functioned. The left arm was flaccid, but could be moved slightly with effort. There was slight power in the right biceps, and none in the left.

February 1, there was slight voluntary contraction of both adductors.

February 3, the diaphragm and intercostal muscles were definitely stronger.

February 4, there was a slight return of power in the left triceps muscle; the right was stronger.

February 10, there was definite improvement of the muscles previously mentioned.

February 23, there were movements in the right leg.

The patient continued to improve, and was discharged, March 29. Monthly observations have revealed a steady improvement and excellent restoration of function of the muscles of the upper extremities. The patient was seen last, June 14. At that time there was still some weakness of grip in the left hand, and slight weakness of the posterior deltoid on the right, but he was able to raise both arms above his head, to flex his thighs on his abdomen, turn over in bed and sit up. There was slight motion in the toes of the right foot —none in the left.

COMMENT AND SUMMARY

The story, taken as a whole, conforms well to the type of Landry's paralysis seen in epidemics, but unusual in sporadic cases of poliomyelitis. In such a case presenting first paralysis of the extremities rapidly extending and finally developing respiratory paralysis, the prognosis was very grave, and it was because of the apparent hopeless outlook that a method of treatment not yet fully developed and hitherto employed only in experimental poliomyelitis was applied.

Whether the intravenous injection of hypertonic salt solution stayed or slightly cleared the edema of the cord, or brought the convalescent human serum nearer the site of the inflammation, or only made it possible to inject more serum intraspinally without danger of pressure, is not yet clear.

This case is described in order to present details of the method of the treatment, and no claim whatever is made that the patient was benefited by the injections. Apparently no harm was done by the procedure.

On account of the limited amount of serum on hand, the intravenous injection of 100 c.c. of convalescent human serum after the administration of hypertonic salt solution was omitted. This plan is recommended on the basis of experiments to be described in a forthcoming paper. In these experiments, it was found that, while no especial difficulty was encountered in initial injections of hypertonic solutions, daily repetition of the injection in poliomyelitic monkeys caused respiratory failure sometimes after comparatively small amounts of hypertonic solution had been injected. Hence, repeated injections cannot be recommended.

Clinical Notes, Suggestions, and New Instruments

STAB WOUND INTO THE LEFT VENTRICLE OF THE HEART

John F. X. Jones, M.D., Philadelphia

About seven years ago I sutured successfully a stab wound which opened into the left ventricle of the heart.[1] The patient is alive and well today.

REPORT OF RECENT FATAL CASE

History.—At 2:30 p. m., May 20, 1923, a well developed negro, aged 33, was admitted to St. Joseph's Hospital. He had been stabbed in the left side of the chest by "a long, slender knife." The wound had been inflicted about thirty minutes before his arrival at the hospital.

On the left side of the anterior wall of the thorax, in the sixth intercostal space, close to the sternum, there was a small, circular wound. Bright red blood trickled from this opening. There was an old scar on the right side of the anterior chest wall. The heart sounds were weak and irregular, and a bruit was heard in the mitral area. The patient's pulse was rapid, irregular and of low tension. He was conscious.

The field of operation having been shaved, and painted with iodin, an osteoplastic flap was turned down at 3:10 p. m., or one hour and ten minutes after the infliction of the wound. The fifth, sixth and seventh ribs contributed to the formation of the flap. The hinge of the flap was central, or at the costosternal junction. The left pleura had been punctured; the left lung was collapsed. The heart beat feebly. An opening in the pericardium was enlarged by means of scissors, and large quantities of both clotted and liquid blood escaped. The heart action then became violent. A wound, about one-third inch in diameter, near the apex of the heart and extending into the left ventricle, was closed by means of two interrupted, chromicized, catgut sutures (No. 1). While the pericardium was being sutured, the patient ceased to breathe.

Necropsy (by Dr. W. S. Wadsworth).—The knife entered the chest, in the sixth left interspace, parallel and lateral to the sternum. An osteoplastic flap was made from the fifth, sixth and seventh ribs with the costosternal cartilage. The left pleura was punctured; the left lung was collapsed. The right pleura was bound down by adhesions. With the collapse of the left lung, the right lung attempted to compensate, but was unable to do so on account of adhesions. The pericardium was closed with a continuous catgut suture; it contained a small amount of blood. The wound in the left ventricle was believed to be about one-third inch in diameter, and had contracted down to one-fourth inch. This wound was closed with two interrupted catgut sutures.

COMMENT

As recently as 1919, DaCosta[2] has reviewed the writings of those most prominently associated with the surgery of the heart, and has cited the names of those who have compiled cases of heart injury. Having considered the results of many operations by various surgeons, DaCosta believes that the mortality of heart wounds which are not operated on will be at least as high as 90 per cent., and that cases in which operation is performed will show a mortality between 60 and 70 per cent. He writes: "There have been thirteen cases of heart suture in Philadelphia and six recoveries." The case reported here makes the total fourteen. Of course, there may be unreported cases.

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[1] Jones, J. F. X.: Ann. Surg. **65**: 120 (Jan.) 1917.

[2] Da Costa, J. C.: Modern Surgery, Ed. 8, Philadelphia, W. B Saunders Company, 1919, p. 459.

Ballance[3] has compiled 152 cases of operation for injury of the pericardium and heart published since Pool's[4] collection.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

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Actions and Uses.—See Pollen and Epidermal Preparations and Biologically Reactive Food Proteins, New and Nonofficial Remedies, 1923, p. 234.

Dosage.—See Pollen and Epidermal Preparations and Biologically Reactive Food Proteins, New and Nonofficial Remedies, 1923, p. 234.

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D. & Co.§; Egg (all proteins) Protein Extract Diagnostic-P. D. & Co.*; Egg White Protein Extract Diagnostic-P. D. & Co.*; Egg Yolk Protein Extract Diagnostic-P. D. & Co.*; Eggplant Protein Extract Diagnostic-P. D. & Co.*; English Walnut Protein Extract Diagnostic-P. D. & Co.*; Fig Protein Extract Diagnostic-P. D. & Co.*; Garlic Protein Extract Diagnostic-P. D. & Co.*; Ginger Protein Extract Diagnostic-P. D. & Co.*; Goose Protein Extract Diagnostic-P. D. & Co.*; Goose Feathers Protein Diagnostic-P. D. & Co.§; Grapefruit Protein Extract Diagnostic-P. D. & Co.*; Guinea-hen Protein Extract Diagnostic-P. D. & Co.*; Guinea Pig Hair Protein Extract Diagnostic-P. D. & Co.§; Haddock Protein Extract Diagnostic-P. D. & Co.*; Halibut Protein Extract Diagnostic-P. D. & Co.*; Herring Protein Extract Diagnostic-P. D. & Co.*; Hickory Nut Protein Extract Diagnostic-P. D. & Co.*; Horse Hair Protein Extract Diagnostic-P. D. & Co.§; Horse Serum Protein Extract Diagnostic-P. 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Products marked * are prepared by the following method: The material is finely ground and mixed with four times its weight of sterile water containing 0.1 per cent. of a phenolic preparation having a phenol coefficient of from 12 to 24 and shaken in a mechanical shaker for 24 hours. The mixture is then strained and filtered, and to the filtrate glycerin is added in the proportion of 2 Gm. for every 5 Gm. of original material and the water evaporated in a vacuum at 37 C. The glycerin extract is then mixed with powdered boric acid in the proportion of 2 parts of glycerin extract to 3 parts of boric acid. The finished amount of paste is equal to the weight of material taken.

Products marked † are prepared by the following method: Serum is mixed with glycerin in the proportion of 5 parts of serum to 2 parts of glycerin. The water in the mixture is evaporated in a vacuum at 37 C. The glycerin extract is then mixed with powdered boric acid in the proportion of 2 parts of glycerin extract to 3 parts of boric acid. The final amount of paste is the same as the weight of serum originally taken.

Products marked ‡ are prepared by the following method: Dry pollen is extracted with physiologic solution of sodium chloride containing 0.05 per cent. of a phenolic preparation having a phenol coefficient of 12 to 24 in the proportion of 1 Gm. pollen to 5 Cc. of menstruum, the mixture being ground in a ball mill for several days with sterile sand. After removal from the mill, the mixture is diluted with three times its volume of the solvent and shaken in a mechanical shaker for twenty-four hours. The mixture is filtered and glycerin added in the proportion of 2 Gm. for every 5 Gm. of pollen. Water is evaporated in a vacuum at 37 C. The extract is mixed with powdered boric acid in the proportion of 2 parts glycerin extract to 3 parts of boric acid. The final weight of the mixture is equal to the weight of the pollen taken.

Products marked § are prepared by the following method: The material (hair or feathers) is finely ground and mixed in the proportion of 125 Gm. and 2,000 Cc. 14 per cent. alcohol and agitated in a mechanical shaker for twenty-four hours. The mixture is then strained and filtered and glycerin added to the filtrate in the proportion of 2 Gm. for every 5 Gm. of original material and then the water evaporated in a vacuum at 37 C. The glycerin extract is then mixed with powdered boric acid in the proportion of two parts of glycerin extract with three parts of boric acid. The finished amount of preparation is equal to the weight of original material taken.

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Dosage.—See Protein Mixtures for Diagnosis (J. A. M. A., Aug. 4, 1923, p. 393).

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[3] Ballance, C. A.: The Bradshaw Lecture on the Surgery of the Heart, New York, J. B. Macmillan Company, 1920.

[4] Pool: Ann. Surg. **55**: 485, 1912.

THE JOURNAL OF THE
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SATURDAY, AUGUST 11, 1923

THE OCCURRENCE OF ARSENIC IN THE BODY

Somewhat less than a quarter of a century ago, the French chemist Gautier aroused considerable discussion in scientific circles by his communication to the Académie des Sciences of Paris on the occurrence of arsenic in the body. He[1] asserted that this element is a normal and consistent constituent of the thyroid, mammary glands, brain, thymus, hair, skin, milk and bones of man and various animals. The quantities involved were very small, being at most less than 0.75 mg. for each hundred grams of tissue. The content in the blood was almost infinitesimally small, not exceeding one part in fifty millions. Gautier's statements were confirmed in a general way by a number of French chemists, but the quantities recorded by them were decidedly smaller.

Previous to this time the chief interest in the possible presence of arsenic in human tissues lay in its medicolegal bearings. This substance was at one time an exceedingly "popular" poison, so that it figured prominently in many trials for murder. The fatal dose is comparatively small; but since the methods of detection are very delicate, it has usually not been difficult to establish the presence of even minute amounts of arsenic postmortem in the organs when the use of the substance has resulted in death. The finding of quantities approximating a lethal dose was the most important evidence that a prosecutor was wont to gather. Great stress was therefore laid on the use of arsenic-free materials for embalming; and the chemist needed to be doubly cautious with respect to the purity of all chemicals used in his toxicologic analyses.

It is easy to appreciate, therefore, how disconcerting was the report, by a scientist of international repute, regarding the existence of "normal arsenic" in the body, even though the quantity was small at best. There was, however, another aspect of possibly large significance attached to Gautier's comments. In 1895, only a short time before the French communications were made, Baumann announced the discovery of small quantities of iodin as a normal constituent of the body, localized in the thyroid gland. With the rapid demonstration of the great physiologic significance of a few milligrams of a formerly unsuspected tissue component, it was a natural consequence that attention should be directed to the possible biologic importance of traces of other elements. Copper and manganese were early taken into consideration, because of their widespread distribution in nature; and at this juncture came the announcement about arsenic.

The assumption that arsenic plays a part, as does iodin, in the functioning of certain tissues will be clearly negatived if it can be demonstrated that the former element is not a constant constituent of these tissues. This is the outstanding problem of the physiologist. It does not concern the toxicologic expert, to whom it is immaterial whether minute quantities of arsenic in the body are normal or of fortuitous origin, so long as they are of a magnitude too small to have medicolegal significance. Of late, a new interest has been developed by the growing use of arsenicals in human therapy. The problem of their action and distribution will be greatly confused if the drug administered is superimposed on quantities of arsenic, however small, which have an extraneous origin or a "normal" function. This has been clearly recognized by Fordyce[2] and his co-worker at Columbia University College of Physicians and Surgeons, as well as others, in their studies of arsenic as a remedial agent. An examination of the blood, urine, hair and milk from about 200 persons has led to the conservatively made statement that arsenic is found "normally" in a large number of persons, depending on the character of their food, drink, medication and environment. Under conditions of restricted diet, it may be entirely absent. Some persons do not give a positive test at all times. Recent chemical investigations show to some extent that all sorts of drugs and foods may be contributing factors in the detection of arsenic in human beings, the outcome depending on the methods of manufacture and the preparation of the foods. Arsenic is almost invariably present, in varying amounts, in persons applying remedies containing ingredients contaminated with it to inflamed or ulcerating skin surfaces, and to a greater extent in persons receiving the element either by mouth or intravenously, or connected with arsenicals in a preparative way. At any rate, the latest analytic data, including such simple, every-day items as rhubarb and soda, sulphur ointment and sulpho-ichthyolate preparations as well as foods, in the list of "carriers" of arsenic, show that a careful history of the patient is requisite before arriving at a final decision regarding the meaning of the arsenic content of the blood, urine or even the organs.

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[1] Gautier, Armand: Sur l'existence normale de l'arsenic chez les animaux et la localisation dans certains organes, Compt. rend. Acad. d. Sc. **129**: 929, 1899.

[2] Fordyce, J. A.; Rosen, Isadore, and Myers, C. N.: Quantitative Studies in Syphilis from a Clinical and Biologic Point of View, II, Normal Arsenic, Arch. Int. Med. **31**: 739 (May) 1923.

THE FACTS ABOUT REJUVENATION

A year ago, The Journal reviewed editorially[1] the facts and fancies underlying the two methods of so-called rejuvenation, which had been exploited in the lay press here and abroad. Since then the transplantation of gonads seems to have languished as a newspaper thriller, while the so-called Steinach method of rejuvenation is exploited again in certain papers. Here are specimen miracles: A grandfather, aged 64, was so senile that he could scarcely stand; after submitting to this life-giving operation he not only walked briskly, but carried with ease a weight of 100 pounds. Another, aged 54, was "as weak as a fly"; after the operation he became as strong as an ox, and felt as young as a boy. A third grandfather, bald as an egg for many years, grew football hair after the operation.

The far-reaching possibilities of this biologic revolution now thrust on us bewilder the imagination; but the newspaper writer, whose imagination is brisk, enumerates a few. Obviously there need be no more senility, no more death from old age. All middle-aged and elderly men are to be restored to their youthful vigor, peaceably if they will, forcibly, by law, if they must. The depleted man power of Europe will be rapidly recruited, not only through the zealous activities of young men, but also through the equally potent efforts of their rejuvenated grandfathers. A certain elderly pugilist will spend no more money on nuxated iron, but will be rejuvenated before his next combat with a youthful champion, who it is said, relies on the nux for his vigor. In short, everybody will be happy except young men; they will be handicapped in the struggle for this world's goods, because they will have no more physical, and less mental equipment than their rejuvenated fathers and grandfathers. And, horrible thought, the old men might be mean enough, through repeated rejuvenations, to maintain this lead indefinitely.

This revolutionary discovery and the rejuvenating operation based on it emanate from the Vienna professor Steinach. The discovery is based on the speculation, never verified, advanced by Ancel and Bouin nearly twenty years ago, that a man's virility is due solely to the secretion of certain cells in the testis. These interstitial cells, long known as Leydig's cells, have been rechristened by Steinach the "puberty gland." It is difficult to reconcile the theory that maleness emanates solely from Leydig's cells, with such facts as these: A bearded man was found, postmortem, to possess ovaries, fallopian tubes and a uterus, but no testes. A young woman, feminine in body and mind, was found to possess not ovaries, but testes containing abundant Leydig's cells. A man was found, postmortem, never to have possessed either testes or ovaries.

To the seeker after truth, such observations—and they are well known—suggest that Leydig's cells are not the only factor responsible for virility. Yet Steinach asks us to believe that these cells are the sole source of masculinity and of youth; that a man becomes senile merely because the activity of these cells subsides; that when, as and if they are stimulated, the man regains his youth. To complete the picture, he has announced a means for speeding up these all powerful interstitial cells—an operation which is essentially vasectomy. Stripped of all by-products, the Steinach announcement is simply this: Vasectomy restores youthful vigor.

It so happened that, during the closing years of the nineteenth century, vasectomy was performed on elderly men the world over as a means of mitigating the ills consequent on senile hypertrophy of the prostate. Hundreds of cases were reported in the medical journals of those years by noted surgeons in Europe and in America; in no instance was a restoration of youthful vigor mentioned. Recently Haber and others have practiced vasectomy extensively for the same purpose, stating expressly in reporting their cases that no rejuvenation has been detected. Yet in none of Steinach's many publications is there a reference to these vasectomies, old or new. Fortunately, there are already available records of failure which permit due warning against enthusiastic acceptance of the Steinach procedure. Professor Zeissl,[2] for example, aged 69, has published his personal experience in rejuvenation by the Steinach method. The sole change noted was that erections were less frequent after than before the operation.

There is, then, in support of this so-called rejuvenation method, only a mass of poorly supported, uncontrolled clinical evidence and some laboratory evidence not bearing directly on the point concerned. Certainly there is not as yet any actual proof that rejuvenation has been accomplished in a single individual, or any basis for the belief that it ever will be accomplished.

LEUKOCYTOSIS FOLLOWING INTERNAL HEMORRHAGE

The fact that sepsis is characteristically accompanied by a leukocytosis has become so familiar to physicians of the present day that much stress is placed—and very properly so—on estimations of the number of colorless corpuscles in the blood in cases in which bacterial invasion of the sort indicated is suspected. Pronounced leukocytosis is regarded as a most helpful diagnostic sign when, for example, doubt exists regarding the existence of septic conditions, such as peritonitis. These are so common in medical practice, and the record of leukocytosis is so frequently checked against them, that the occasional failures to find a concurrence of sepsis with the characteristic blood findings have received little, if any, attention. Therefore, few reports are available like that published a few years ago by Levinson,[1] in which preoperative diagnosis of acute appendicitis, made largely on the basis of a high leukocyte count, was shown to have been erroneous, the operation revealing a ruptured tubal pregnancy.

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[1] Rejuvenation by Testicular Transplantation and Occlusion of the Seminal Ducts, editorial, J. A. M. A. **79**: 137 (July 8) 1922.

[2] Zeissl, M.: Warum und wie ich ohne Erfolg gesteinacht wurde, Wien. klin. Wchnschr. **35**: 764 (Sept. 28) 1922.

It is a fortunate circumstance that the dangers of mistaken diagnosis of sepsis on the basis of an observed leukocytosis have at length been clearly pointed out by Wright and Livingston[2] at Bellevue Hospital, New York. They have demonstrated by experiment on animals that intraperitoneal injections of whole blood in varying amounts always cause an increase in leukocytes in the circulating blood, amounting to as high even as 320 per cent.; whereas similar injections which do not reach the peritoneal cavity fail to be attended with a comparable increment. Marked leukocytosis can also be brought about by any form of cranial trauma that results in subdural bleeding. The mere injection of blood through a needle prick in the dura suffices. When the serous coat of the dura is not involved, no leukocytosis follows the trauma. The "leukocytic curve" reaches a maximum between the sixth and tenth hours, and slowly subsides, whether following intradural or intraperitoneal clots.

These observations, which won for the authors the Merritt H. Cash prize of the Medical Society of the State of New York, are supported by what appears to happen after internal hemorrhage in man through conditions that simulate the intraserous injections of blood in experimental animals. For example, fractures of the base of the skull commonly show subdural blood at necropsy and give a clinical record of high leukocytosis. The latter is also found in many instances of pachymeningitis interna hemorrhagica with recent intradural blood clots. Cases of ruptured ectopic gestation with blood counts taken within twenty-four hours of a typical abdominal attack are said by Wright and Livingston to show a high leukocyte count. Many clinicians will be prompt to recognize the possibilities thus presented of mistaken diagnoses of meningitis, brain abscess, malignant endocarditis, and septic peritonitis on the basis of the blood picture due to nonseptic leukocytoses.

To realize clearly that a hemorrhage within a serous cavity results in a high leukocyte count represents a step in the direction of progress. The New York surgeons point out that in the interpretation of this sign the leukocytic "curve" must be kept in mind; that is, the characteristic maximum being reached in the first ten hours, with a return to normal by the fourth day after the internal hemorrhage. It is helpful to know that after a cranial injury an immediate high leukocytosis—an increase of from 150 to 300 per cent.—constitutes presumptive evidence of intradural bleeding, and that the absence of such an immediate reaction excludes fracture of the base of the skull. Wright and Livingston believe that the factor responsible for the leukocytic reaction is intimately associated with the initial process of clotting. At any rate, the presence or absence of the blood after the first few moments following its liberation into a cavity does not seem to alter the response. The study is one that illustrates clearly how fruitfully animal experimentation and clinical observation may supplement each other. Once again, as so often before, the preliminary tests on the living animal have taught us how to avoid dangerous mistakes in human practice. Truly, such beneficent results ought no longer to require justification for the methods by which they were achieved. In this instance the physician, the surgeon, the neurologist and the gynecologist are the primary beneficiaries; but the entire world reaps the indirect advantages.

Current Comment

DEATH OF THE PRESIDENT

The sudden death of President Harding, after a brief illness, when he seemed to be well on the road to recovery, came as a great shock to the American nation. A genial man of the highest ideals and with the simplicity of a great citizen, he had endeared himself to the people whose government he administered. Throughout the period in which he was permitted to guide the affairs of the United States, he had shown sympathy with the aims of modern medicine and taken a personal interest in the welfare of our medical institutions. His death from one of those cardiovascular accidents which often strike fatally, without possible prevention or warning, after certain illnesses, emphasizes again the lesson that the healing art of the physician can be effective only up to the limits of stress of the human machine to which they are applied.

URICACIDEMIA

Uric acid has the conspicuous property of crystallizing readily out of solutions that contain it, when certain conditions are established. Thus, uric acid, as such, or its salts, may separate from the urine to the extent of forming large concretions, or they may deposit in the form of tophi in the tissues. Such behavior is likely to attract attention more easily than does some more abundant but less obtruding component of the body. Accordingly, the expression uric acid has long since acquired the implication of harmfulness in connection with things physiologic. The quack and the proprietary medicine promoter have been quick to appreciate the psychologic possibilities associated with the words and to play them for their advantage. A few years ago a diagnosis of "too much uric acid" was all too often a comforting way of cloaking ignorance, and a profitable way of promoting the sale of nostrums. A scientific turn was derived from Garrod's demonstration, by the thread test, that a comparative excess of uric acid salts may circulate in the blood of the gouty. What intermediate degrees of uricacidemia might there be before this extreme manifestation was reached? This was a question of pressing importance at the time when the modern microchemical blood analysis was being evolved. One outcome was that there is by no means always a parallelism between the degree of uric acid retention and the severity of the symptoms in the gouty. Presently, attention was directed to the increased content of uric acid in the blood as a diagnostic sign of nephritis. Myers and his colleagues at the New York Post-Graduate Hospital, in particular, have looked on such an increase, even when it occurs without concurrent retention of urea and other types of nonprotein nitrogenous compounds, as significant of impending kidney impairment. The most recent records, however, secured by Feinblatt[1] of the Long Island College Hospital, indicate that uricacidemia may occur in a large number of unrelated conditions. The great majority of patients with high blood concentration of uric acid, but not of urea nitrogen or creatinin, exhibited no evidence of early chronic interstitial nephritis. In uremia, he adds, there is a lack of parallelism between the figures for uric acid, on the one hand, and those for urea nitrogen and creatinin, on the other. Feinblatt therefore argues against assigning a uniform interpretation to uricacidemia; and he regards the data for the latter of little value unless they are correlated with the content of urea nitrogen or the total nonprotein nitrogen of the blood. Even if it shall be concluded that uricacidemia is not specifically diagnostic of renal insufficiency, as many today prefer to regard it, the symptom remains to afford a further subject for earnest thought to the new generation of clinicians. Uric acid continues to represent an obscure "trouble maker."

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[1] Levinson, L. A.: Leukocytosis a Deceptive Sign in Abdominal Hemorrhages, J. A. M. A. **64**: 1294 (April 17) 1915.

[2] Wright, A. M., and Livingston, E. L.: The Leukocytosis of Internal Hemorrhage, New York State M. J. **23**: 286 (July) 1923.

LIGHT THERAPY IN BONE TUBERCULOSIS

Until recently, the healing influence of sunshine, though seemingly indisputable, belonged among the apparently inexplicable potencies of "nature," for there were no indications that it could be directly implicated in any functional changes in the body. To remark, as has often been done in the past, that fresh air or sunshine or some other environmental condition "stimulates metabolism" or "promotes physiologic reactions" falls short of either explanation or adequate description of the phenomena observed. It has been a real step in advance, therefore, to discover that the modern light therapy can often be correlated with certain definite biochemical changes in the organism. Thus, it is known that exposure of rachitic infants to ultraviolet rays from a mercury vapor quartz lamp, or even to direct sunshine, tends to bring about marked increase in both the calcium and the inorganic phosphate content of the blood serum—factors on which healing is dependent. Good results have been attained in a similar way in the treatment of active infantile tetany during the last three years. In this disease, in which the calcium content of the blood serum also is low, suitable heliotherapy likewise brings about an increase in this element approximately to normal, as was mentioned in a recent issue of The Journal.[1] Heliotherapy is today recognized as of demonstrable value in the treatment of tuberculosis affecting the bones; hence it was anticipated, in view of experience with rickets and tetany, that the superior efficiency of sunshine in the tuberculous malady might be due to an action on the phosphate metabolism similar to that occurring in rickets, which favored the deposition of new bone in the focus of disease, and thus produced a cure. Blood analyses made for a considerable number of patients who actually showed great improvement through exposure have given negative results to Tisdall and Harris[2] of Toronto. In many cases the concentration of phosphorus was found to be actually below that present in normal serum. Evidently the modus operandi of sunlight in osteogenesis, or at any rate in certain phases of healing processes seen in bone tuberculosis, is not yet apparent despite the hopes of impending explanation voiced in these columns.

CURING PRINCE DON JAIME'S DEAFNESS AGAIN

Prince Don Jaime, second son of the king of Spain, has been deaf since his birth. More than three years ago the "International Feature Service," which furnishes lurid and sensational "features" for the string of Sunday newspapers that it serves, carried a full page article detailing in typical Sunday newspaper style the alleged cure of the young prince by a London "bone-setter." According to the article, the bone-setter explained that the young prince's affliction was "caused by displacements of the atlas and axis bones of the neck" which, he went on to state, "produced a pressure on the great auditory nerve to the ear and caused deafness." The bone-setter, the story ran, "corrected this displacement" and "the boy immediately began to hear." At the time, The Journal investigated the matter and found that the claims were sheer buncombe. Soon after this article appeared, osteopathic colleges and individual osteopaths reproduced it in full and claimed that the wonder-working Londoner was a member of their cult. Chiropractors did the same thing. This was in 1920. Now, in August, 1923, the papers of the country are carrying news items to the effect that one "Dr." Curtis H. Muncie, a Brooklyn osteopath, has just returned from Europe where, according to earlier newspaper reports, he had been called to treat Prince Don Jaime. According to the report in the New York *Times*, Muncie, after a manipulation, cured the prince of his ailment. From the same source we learn that Muncie declared that the lad's deafness was due to "a state of complete deformity" of the eustachian tubes, and Muncie's treatment was simply that of "reconstructing the eustachian tubes"—a mere bagatelle for an osteopath. Presumably, we may look for another advertising campaign on the part of osteopaths and chiropractors detailing the marvelous results that these gentry are able to obtain. Meanwhile Prince Don Jaime is still deaf!

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[1] Feinblatt, H. M.: Uricacidemia; Based on a Study of One Thousand Five Hundred Blood Chemical Analyses, Arch. Int. Med. **31**: 758 (May) 1923.

[1] Light Therapy in Tetany, Current Comment, J. A. M. A. **81**: 217 (July 21) 1923.

[2] Tisdall, F. F., and Harris, R. I.: A Note on the Phosphate Content of Cases of Bone Tuberculosis Treated by Heliotherapy, Canadian M. A. J. **13**: 177 (March) 1923.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

Appropriation for Health Work Withdrawn.—Dr. Samuel W. Welch, Montgomery, state health officer, has been notified by Dr. John A. Ferrell of the International Health Board to the effect that the board's appropriation for pursuing health work in Alabama has been withdrawn. A bill will be presented to the legislature asking for an annual appropriation to take care of the deficiency.

Hospital News.—Dr. William R. Snow, Manchester, is erecting a private hospital in Winston County which will cost about $20,000 and contain twenty rooms.——Bald Ridge, near Rosedale, Birmingham, embracing 110 acres, has been purchased as a site for the Jefferson Tuberculosis Sanitarium. A campaign to raise $200,000 for the project was recently successfully concluded.——The Russell Hospital, Alexander City, erected at a cost of $100,000 and providing sixty-five beds for patients, was formally opened, July 17.

ARIZONA

Tucson Physicians Indorse Baby Health Center.—The Pima County Medical Society, at a meeting held July 20, approved plans presented by Miss Cathryn Kessler, government nurse, for a center for feeding and caring for babies of the city and county. It was proposed that a physician supervise the center, and that a trained nurse be in charge. Milk would be prepared and sold at cost; advice given mothers who need it, and babies would be registered and weighed. The center would be supported by charity or special funds.

ARKANSAS

Hygienic Laboratory Established.—Under authority of an act of the 1923 legislature, the state hygienic laboratory will be established in the capitol building, Little Rock. Dr. Charles W. Garrison, state health officer, will be in charge.

CALIFORNIA

Physician Contests Revocation.—Dr. Frederick H. Hadley, San Francisco, whose license was revoked, May 29, after a hearing before the state board, has petitioned for a writ of review and appeal, it is reported. Dr. Hadley was charged with assisting a chiropractor in the treatment of a patient.

Physicians Acquitted.—After the jury had been out fifteen minutes in the trial of Drs. John R. Morris and James G. Anderson, both of Petaluma, they brought in a verdict of not guilty. The physicians were charged with causing the death of Mrs. Louise Prestwood, Nov. 11, 1922, following an operation.

CONNECTICUT

Personal.—Dr. Raymond D. Fear, Bridgeport, of the state health department, has been appointed director of the bureau of epidemiology of the state department of health of Alabama, with headquarters at Montgomery.

FLORIDA

University News.—The new school of pharmacy, for which money was pledged by the state pharmaceutical association, will be opened at the University of Florida, September 10, by the state board of control. Towner R. Leigh has been appointed director of the school.

Medical Journal in New Form.—With the first number of Volume 10, the *Journal of the Florida Medical Association* appears in a larger size and with more than twice the usual amount of material. The editorial staff has been reorganized. Dr. Graham E. Hensen, St. Augustine, is editor; Drs. Shaler A. Richardson and Robert B. McIver, Jacksonville, are associates.

Pioneers in Lye Legislation.—The Florida Medical Association passed a resolution at its annual meeting in May requesting the legislature to make it compulsory for all manufactures to label conspicuously caustic alkalis to show their poisonous nature and to name antidotes. The legislature promptly passed a bill modeled, it is said, after the Pennsylvania Lye Bill, which was passed in April. Thus Florida and Pennsylvania have been pioneers in a movement that should embrace the country.

State Board Plans Scholarship.—The State Board of Medical Examiners has in mind the creation of a scholarship for premedical education each year for a worthy young Floridian at the State University at Gainesville. The small sum left by the old board has been held intact, it is reported, and some funds added. The members of the board are paid only during the period of the examinations, and the balance has been largely used in revocation proceedings. Fifty-eight applicants applied for examination at the last regular meeting of the board in June.

GEORGIA

Personal. — Dr. Donald T. Rankin, psychiatrist, Georgia State Sanitarium, has resigned to accept a position at the State Hospital for the Insane, Allentown, Pa.——Dr. John P. Kennedy has been reelected city health officer of Atlanta.

ILLINOIS

Personal.—Dr. Pierre A. Steele has been appointed medical director of the Macon County Tuberculosis Sanatorium, Decatur.——Dr. Henrietta A. Calhoun, Rockford, has been appointed lecturer in bacteriology and histology at Rockford College, and director of the laboratory at the Rockford Hospital.——Dr. Frank L. Alloway has resigned as chief of the eye, ear, nose and throat service at the U. S. Public Health Service Hospital No. 76, Maywood.

Chicago

Poland Decorates Three Chicago Physicians.—Drs. Frank Lenart, Alexander Pietrzykowski and Stanislaus F. Wietrzynski, Chicago, have been awarded the cross for bravery by the minister of military affairs of Poland, for service in the Polish army in France and Poland. The presentation was made by the consul-general of Poland on Decoration Day.

Chiropractors Arrested.—According to reports, H. J. Norman, a chiropractor of Chicago, was arrested, July 21, for having failed to appear in court as ordered, and for jumping his bond when charged with obtaining $100 on false pretenses.——Mrs. Marie Tuna and Louise Volasak were arrested, July 17, on order of A. M. Shelton, director of the state department of education and registration, for practicing medicine without a license.

INDIANA

State Board of Health News.—Dr. Hugh A. Cowing, Muncie, has been elected president of the state board of health to succeed Dr. John Hewitt, Terre Haute. Dr. Adah McMahan, Lafayette, was elected vice president.

Diphtheria Stops Business.—Thirty-four cases of diphtheria were reported present in Hamlet, July 27, when it was said business activities were suspended on account of the epidemic. Hamlet was a village of 480 people in 1920.

County Fair Food Handlers.—It has been announced that persons at the Hancock County Fair who sell or handle food for sale must have a health certificate. A member of the state board of health will be present at all sessions to see that this requirement is enforced. The state law further requires that containers for making acid drinks be of glass or pottery, and that sanitary cups be used in dispensing them.

A Central Health Committee.—The secretary of the state board of health called a conference which met at Indianapolis, July 20, to promote greater interest in health issues. A central committee which will act temporarily as an executive committee was appointed comprising: Dr. William F. King, secretary of the state board of health, chairman; Dr. Frank C. Hamilton, president of the Indiana Dental Association; Dr. Frank W. Foxworthy, representing the Indiana Medical Association; M. A. Auerbach, representing the Indiana Tuberculosis Association; Adolph Fritz, the Indiana

Federation of Labor; Mrs. Ella B. Kehrer, the Indiana Federation of Women's Clubs; Mrs. Richard Lieber, the state Parent-Teacher Federation; Benjamin J. Burries, superintendent of public instruction, and Miss Annabel Peterson, the Indianapolis chapter of the Red Cross. The National Council's plan for physical examinations was considered, and arrangements made for meetings to be held in various parts of the state to stimulate greater interest in health matters.

IOWA

University News.—Twenty-two physicians have enrolled in the State University of Iowa Medical College for the course in the use of insulin, which was made possible by the Rockefeller gift for that purpose. Classes for training will be limited to three physicians and the work will be completed by September 24.

Red Cross Service Abandoned.—The Linn County chapter of the American Red Cross will discontinue the county nursing service which it has maintained for the last four years, it was announced at chapter headquarters, July 26, to take effect, September 1. A lack of money to carry on the service is given as the reason.

Personal.—Dr. Charles S. Grant, Iowa City, was reelected president of the state board of health at the annual meeting, Des Moines, July 17.——Dr. D. J. McCarthy, Davenport, received the Order of the Eagle and a gold medal from Serbia in appreciation of his services in Roumania and Serbia with the refugees.——Dr. John W. Shuman, Sioux City, professor of internal medicine at the American University at Beirut, Syria, has resigned and will return to the United States.

KENTUCKY

Trachoma Field Clinics. — Under the direction of Dr. Charles B. Kobert, director of the trachoma bureau of the state board of health, a field clinic, left Louisville, July 12, to tour south central Kentucky treating victims of trachoma. Clinics will be held in Butler, Ohio, Edmonson and Grayson counties, the party returning to Louisville late this fall. This is the third year that Dr. Kobert has taken "the mule-drawn wagon" for the purpose of conducting trachoma clinics.

MARYLAND

Report on First Preschool Clinic. — Undernourishment, enlarged tonsils, adenoids and defective teeth were revealed by the first preschool clinic held at Tilghman's Island by the state child hygiene bureau, recently. Dr. J. H. Mason, Jr., director of the bureau, plans to extend the preschool clinic work to other counties. The island has an all-white population of 1,200, and no poverty. About eighty children were examined at the clinic. Nutritional classes will be established in the schools; efforts will be made to arrange with the Emergency Hospital, Easton, for removal of tonsils and adenoids, with consent of the parents, and a dentist will be attached to the clinic.

State Law on Food Handlers Vague.—Dr. J. H. Shrader, Baltimore, chief of the Bureau of Chemistry and Food, has withdrawn the department inspectors who were checking up the cleanliness of restaurants, boarding houses and soda fountains, it is reported. The state law merely provides that utensils must be either "washed or sterilized," and prosecutions except for the most flagrant violations of cleanliness will not stand in the courts. The health department is awaiting an opinion from the attorney-general on the application of the state law. A new food ordinance for the city of Baltimore is being drafted which will remedy conditions, providing the existing law is found powerless to do so.

Hospital News.—The Union Memorial Hospital will be moved to the new building at Calvert and Thirty-Third streets, September 3; the hospital will be open for the reception of patients, September 15. Only cases which can be disposed of in a week or ten days will be received at the old hospital after the second week in August. The new building will accommodate 176 patients. No equipment will be transferred, as the new building will be completely equipped.——Approval of the location of the Baltimore Eye, Ear, Nose and Throat Hospital, without a free dispensary, at the southwest corner of Eutaw Place and Lanvale Street, has been given by the Zoning Board of Appeals, following a public hearing. Opposition to the location has been intense. The hospital will continue to maintain a number of free beds. ——The immediate purchase of five tracts of land adjacent to the Municipal Hospital at Montebello has been recommended by Dr. C. Hampson Jones, health commissioner of Baltimore. The land is needed for a $5,000,000 hospital group, in accordance with plans made at the time the infectious disease units now under construction were laid out. The plans call for a tuberculosis hospital, a maternity hospital, a hospital for children, a hospital for the treatment of social diseases and a general hospital, in addition to the hospital for infectious diseases. The city health department does not intend to interfere with the general hospital at Bay View.

MASSACHUSETTS

University News.—The Hancock Life Insurance Company, Boston, has given $20,000 to the Harvard Cancer Commission, of which sum a fourth is to purchase diagnostic apparatus; the remainder is for the permanent fund. The insurance company previously gave $30,000 toward the building of the Huntington Hospital, which is devoted to cancer cases.

MICHIGAN

Bequest for Medical Research.—Under the will of Mrs. Ellen M. Chipman, a bequest of $5,000 was left to Dr. Don M. Campbell, Detroit, for the study and treatment of eye, ear, nose and throat diseases.

Personal. — Dr. Mabel E. Elliott, Benton Harbor, has resigned as field director in Greece of the American Women's Hospitals, it is reported.——Dr. John Vanderlaan, Muskegon, a member of the board of education for thirty years, was recently elected president of that board for the eleventh time.

Proposal to Close Unfit Dwellings.—Dr. William DeKleine, city health officer of Saginaw, proposes to close up certain dwelling houses which are considered unfit for human habitation. Quarantining houses for a lack of sanitation is a temporary proceeding which does not bring results in such cases. The procedure, according to Dr. DeKleine, is to notify the owner of the property in question formally that the dwelling is not fit for human beings. If after a reasonable time, he fails to comply with the notice, circuit court proceedings follow. The judge issues an order closing the house to all tenants, in cases decided favorably.

MINNESOTA

Freshman Class All State Residents. — The 100 students who will be admitted to the freshman class of the University of Minnesota School of Medicine have been selected. It happens that all of them are residents of the state. There were about 200 applicants. It is reported that students whose applications were not accepted may be sure that one of four causes was operative, according to Dr. Chauncey J. V. Pettibone, Ph.D., faculty adviser for freshman students: nonresidence in Minnesota, insufficient preparation or lack of studies invariably required for admission, an average lower than "C" in premedical studies, or the arrival of records too late to permit consideration.

MISSISSIPPI

Personal. — Dr. James W. Cox, Caledonia, has been appointed by the governor as health officer of Lowndes County.

NEW JERSEY

Additional Physician on Governor's Advisory Board.—Dr. Arthur W. Belting, Trenton, has been appointed by the governor a member of the new medical advisory board (THE JOURNAL, July 21, p. 221).

Illegal Practitioners Arrested. — According to reports, Charles Baudendistel, West New York, N. J., a licensed osteopath, was arrested on a charge of practicing medicine without a license. He pleaded guilty and was fined $200, July 5.

NEW MEXICO

Personal.—Dr. Oscar C. West, Albuquerque, has resigned as city and county health officer, to accept a position in Central America.

NEW YORK

Free Insulin Clinic. — A free insulin clinic was opened, August 1, at the Beth Moses Hospital, Brooklyn, in charge of Drs. Leon Loewe, Morris M. Banowitch and Benjamin Davidson.

New Tuberculosis Sanitarium.—The Suffolk County Tuberculosis Sanitarium is about completed and will be opened for the reception of patients in September. The supervisors of Suffolk County have voted $6,000 to furnish and equip the building.

New York City

Triplets Twice in One Hundred Years.—Triplets were born at the New York Nursery and Child's Hospital, July 25. The institution had operated ninety-nine years before such an event occurred. The first triplets born in the institution arrived last February.

Jewish Charities Opens New Clinic.—In connection with the work of the Jewish Hospital, Brooklyn, the Brooklyn Federation of Jewish Charities has opened a babies' feeding clinic, in which 1,200 babies are registered. This clinic, which accepts only children under the age of 3 years, has been so well attended that a clinic for children over 3 years old has been opened. Drs. Sampson J. Wilson and William K. Jacobs are in charge.

Child Health Home Celebrates Semicentennial.—The fiftieth anniversary of the founding of the first fresh air home in America by the Children's Aid Society was celebrated, July 23, at the Children's Health Home, at the foot of Eighteenth Avenue, Bath Beach. William Church Osborn, president of the society, and other officers delivered addresses. In its first summer, 1873, the home gave outings to 1,260 children, while last summer more than 35,000 children were benefited in the eight homes established by the society.

City Clinic at Seaside.—A clinic to be known as the Seaside Clinic at Coney Island was formally opened, August 1, by Health Commissioner Monaghan to care for emergency cases, such as heat prostrations, bathers suffering from submersion and victims of accidents. Serious cases will be removed to the Coney Island Hospital. The clinic, which is under the jurisdiction of the health department, will be open daily. This is the first of its kind, it is said, and if successful other clinics will be opened.

Pushcart Beverages Under Fire.—The commissioner of health issued an order, July 10, for an active campaign against the sale of beverages in unclean drinking glasses. Numerous wagons and carts with inadequate facilities for cleansing glasses sell beverages and candy on the streets in the summer months. Regulations of the board of health require that paper cups or other single service container must be used. The sale of candy except when properly wrapped or otherwise protected from flies and dust is covered by existing regulations, the enforcement of which is also a feature of the commissioner's recent order.

Personal.—Dr. Erving G. Holley resigned as assistant physician to the Brooklyn State Hospital, a position he has held since 1911.——Dr. Charles Wadsworth Johnson, Mount Vernon, has been appointed honorary deputy fire commissioner by the commissioner of public safety.——Dr. John B. Walker and Dr. James Ewing have received the honorary degree of Doctor of Science from Amherst College.——Yale University has conferred the degree of Doctor of Science on Dr. Jacques Loeb of the Rockefeller Institute.——George A. Soper, Ph.D., has been made managing director of the American Society for the Control of Cancer.——Dr. William Darrach, dean of the medical faculty, will represent Columbia University at the meeting commemorating the centenary of Joseph Leidy, at the Academy of Natural Sciences, Philadelphia, December 6.

NORTH CAROLINA

Personal.—Dr. George Collins, Charlotte, assistant county health officer, has resigned to accept a position with the state board of health.——Dr. Eugene B. Glenn, Asheville, has been appointed a member of the newly created board of health of that city.——Dr. James B. Wright, Black Mountain, has been appointed health officer of that city by the board of aldermen.

County to Enforce Vaccination.—The Buncombe County health board adopted regulations, July 17, which require that all children in the public schools of the county who have not been successfully vaccinated against smallpox since 1920, must be vaccinated before Jan. 1, 1924. Asheville, the county seat, has had this regulation for several years, but the county heretofore has not. There are, it is said, about 10,000 pupils in the rural schools, and about one half that number have been vaccinated.

OHIO

Hospital News.—The Cleveland Clinic Hospital has let the contract for a $500,000 building to be erected at Ninetieth Street, near Euclid Avenue.——A three-story addition to the Lake County Hospital, Painsville, will soon be built at a cost of $200,000.

Twenty-Two Chiropractors Jailed.—Twenty-two chiropractors of Toledo, found guilty of illegally advertising and practicing medicine without a license, were committed to jail, July 24, to serve approximately a year each, after refusing to pay fines of $200 each, it is reported.

Hospital Appropriation Reverts to General Fund.—The $200,000 appropriated by the eighty-fourth general assembly to purchase a site for a new institution for the feebleminded lapsed and reverted to the general revenue fund of the state, June 30, according to the *Ohio State Medical Journal.* The state welfare director recognized the need of a new institution, but declared it the "height of folly" to buy land at a high price now and allow it to be idle two years because of lack of funds to erect the buildings.

Supreme Court Upholds State Board.—In an action initiated in the common pleas court of Hamilton County by George D. Meeker and others who sought to enjoin the state medical board from enforcing the law, which action finally reached the supreme court, a decision written by Judge Wanamaker and concurred in by the other six members of the court settled the following points: 1. The state administrative code is not unconstitutional so far as the powers and duties of the state medical board are concerned. 2. An individual who has not exhausted all his rights under the appeal provided by law from the action of the state medical board cannot invoke the aid of a court of equity. 3. Applicants must stand on individual rights and cannot join to institute a class suit to hold a law invalid. 4. Actions against public officials must be instituted in the courts located within the county where the principal offices are maintained.

OKLAHOMA

State Medical Examining Board.—Governor Walton has announced the following four-year appointments to the state board of medical examiners: president, Dr. Charles D. F. O'Hern, Tulsa; vice president, Dr. Okey N. Windle, Sayre; secretary-treasurer, Dr. James M. Byrum, Shawnee, and members, Drs. Lewis E. Emanuel, Chickasha; Daniel W. Miller, Blackwell; G. E. Pyatt, Oklahoma City; Harper Wright, Grandfield; Henry C. Weber, Bartlesville, and W. E. Sanderson, Altus. Miss Susan B. Rogers, Muskogee, was appointed a member of the trained nurses' examining board.

PENNSYLVANIA

Child Welfare Convention.—The state commissioner of welfare called a convention which met at Darlington, July 25, for the purpose of raising the standard of child welfare work in the state. Eighty-five delegates from the leading children's institutions attended. The director of the bureau of children of the state welfare department presided.

Vaccination Law to Be Enforced.—Dr. Charles H. Miner, secretary of the state board of health, has taken measures to assure that no children are admitted to the public schools this fall who are not immunized against smallpox, in accordance with the state law, it was announced, July 24. Medical inspectors appointed for the new term have been advised by Dr. J. Bruce McCreary, director of the bureau of child health, to examine carefully the scars of pupils whose record does not show that the previous vaccination was successful. Official vaccinations will be performed free of charge.

Layman Appointed County Health Officer.—Miss Jennie Simmons, for nearly fifteen years a public health worker in Lycoming County, has been commissioned county health officer. The appointment, it is reported, is a part of the public health nursing division's plan of "doubling up" on health activities made necessary by reduced appropriations. Miss Simmons' appointment, it is said, means the elimination of eight part-time health officers scattered throughout the county, whose duties included the enforcement of quarantine for contagious diseases, the examination of water supplies, and the investigation of public nuisances. A similar problem of retrenchment facing other communities of the state has been met in much the same manner.

Philadelphia

Smallpox.—July 29, a general call for voluntary vaccination was issued in a bulletin by the department of public health. July 18, a young negro woman was reported ill with chickenpox, but the case proved to be smallpox. Another case was discovered in the same house. The woman had recently arrived from the south and members of her family were living in a house on East William Street. When this house was investigated, four persons were found ill with smallpox. These were men and women employed in industrial establishments and homes throughout the city, thus making indirect contact between these cases and hundreds of families in the city.

Municipal Court Medical Department. — According to a report by Dr. Thomas A. Shallow, medical director of the municipal court, a total of 9,318 persons was received in its medical department. In addition, there were 9,940 physical and 6,113 mental examinations, and a total of 10,417 treatments given. The number of children received in the nursery was 5,533 The medical department comprises the building at Twentieth and Summer Streets, with which is associated the Juvenile House of Detention, the medical division at Twelfth and Wood Streets, used exclusively for women's cases, and the Gynecean Hospital. Hospitals throughout the city have been cooperating with the work of the medical department in providing special care for certain cases. A dental department forms a part of the general medical department, and clinics for children are held every day. During 1922, the cost to the city for caring for dependent children was estimated at more than $600,000.

RHODE ISLAND

Personal.—Dr. Elizabeth M. Gardiner, director of the state child health bureau, has resigned, effective August 31, to accept a position as associate director of the Department of Maternity, Infancy and Child Hygiene, New York.

TENNESSEE

Personal. — Dr. Eugene L. Bishop, Nashville, has been appointed superintendent of the division of rural sanitation of the state board of health.

TEXAS

Dengue Fever Appears Early.—The first cases of dengue fever discovered in Dallas this year were reported, July 5, to the quarantine division of the city health department. Dengue was not reported last year until August, when it appeared in Galveston. It did not become prevalent in Dallas until September.

University News. — Promotions and appointments in the University of Texas Department of Medicine, Galveston, were made by the board of regents, July 10, as follows: Dr. H. O. Knight, formerly associate professor, was promoted to full professor of anatomy; Dr. S. M. Morris, formerly professor of ophthalmology, otology and laryngology, became professor of ophthalmology; Dr. D. P. Wall, professor of otology and laryngology; Dr. E. D. Crutchfield, associate professor of dermatology and syphilology; Dr. W. B. Reading, associate professor of diseases of children; Dr. W. R. Cooke, associate professor in obstetrics and gynecology; Dr. Joseph Kopecky, associate professor of clinical medicine and clinical pathology; Dr. C. T. Stone, associate professor of clinical medicine; Dr. E. L. Rice, adjunct professor of clinical medicine; Dr. Violet H. Keiller, associate professor of surgical pathology; Dr. George E. Bethel, adjunct professor of anatomy; Dr. Meyer Bodansky, adjunct professor of biologic chemistry. Drs. G. W. N. Eggers, C. R. Enloe and E. M. Jordan were appointed instructors in anatomy, and Dr. W. H. Hill was appointed instructor in pathology.

WISCONSIN

The Sixteenth County Health Center.—Waukesha County opened a health center at Waukesha, July 17. This is the sixteenth county to establish a health center which is the maximum number permitted by the available funds. These centers are conducted by the state board of health under the Sheppard-Towner Act plan, it is reported.

Civil Service Ruling Changed.—In a recent advertisement of the Wisconsin Civil Service Commission calling for physicians to enter the service of the state institutions, a condition imposed was that applicants must be residents of Wisconsin. Commenting on this restriction, the *Wisconsin Medical Journal* (May) said, in part:

> This provincial attitude, established two years ago, does no credit to professional service in Wisconsin public institutions. However gratifying such restrictions may be to laborers and tradesmen, they offer an affront to medical men of qualifications and mettle that we should have in our state hospitals and sanatoria.

June 12, the Dane County Medical Society considered this question and appointed a committee to urge a change in the commission's ruling. June 26, the change was announced that hereafter candidates who are legal residents of the United States will be admitted to the examinations.

PHILIPPINE ISLANDS

Protest New Law.—At the Central Luzon Health Officers' Assembly, May 22, resolutions were unanimously adopted against recently enacted legislation which provides that any physician may be appointed by the governor-general, on the recommendation of the secretary of public instruction, to any commissioned rank in the Philippine Health Service without examination.

University of the Philippines. — Changes in the medical faculty of the University of the Philippines College of Medicine and Surgery have recently been announced as follows: Dr. Libozia Gomez, formerly chief of the department of biology, bureau of science, has been appointed professor of pathology, and acting chief of the department, vice Dr. L. W. Smith, resigned; Drs. R. L. Navarro and J. Z. Sta. Cruz, have been appointed instructors in the same department; Drs. Trinidad Banuelos and Fidel Cuajunco have been appointed instructors in anatomy vice Drs. Cesareo Santa Ana, now chairman of the board of examiners for nurses, and C. Camomot, who has accepted a position with the Philippine Health Service.

GENERAL

International Health Education Conference.—This conference was held in San Francisco, as a section of the World Conference on Education, June 28-July 6. The physician, research worker and educator met in the same forum to discuss a broad, sane and practical program for the promotion of the health of school children. Among the speakers were: Dr. Haven Emerson, professor of public health administration, Columbia University; Elmer V. McCollum, Ph.D., Johns Hopkins University; Alonzo E. Taylor, director of Food Research Institute, Stanford University; Bird T. Baldwin, Ph.D., State University of Iowa College of Medicine; Dr. Thomas D. Wood, New York; Dr. Harold K. Faber, professor of pediatrics, Stanford University School of Medicine; Jessie M. Hoover, milk utilization specialist, U. S. Department of Agriculture; Dr. Guy Milberry, dean of the dental department, University of California, and Dr. John M. Dodson, Chicago.

Postponement of International Congress of Ophthalmology.—The Committee of British Ophthalmologists appointed to organize an international congress in 1925 finds with regret, it is said, that it is unable to do so in accordance with conditions under which the British invitation was accepted by the Washington Ophthalmologists Congress in 1922. It was decided at the last congress that the next session should be strictly international and that German should be one of the official languages. The committee has since been informed that the Société française d'ophthalmologie, the Société d'ophthalmologie de Paris, and the Société belge d'ophthalmologie have passed resolutions to the effect that they feel unable to participate in a congress if Germans are invited. The committee believes that to proceed under these circumstances with a congress would tend to perpetuate a schism in the ranks of ophthalmology and to militate permanently against it. The committee has therefore, it is said, reluctantly decided to postpone the congress.

LATIN AMERICA

Public Health Service in Costa Rica.—The new law of Feb. 24, 1923, mentioned in The Journal, May 19, 1923, which established the bureau of hygiene and public health, provided for a department of ankylostomiasis, this disease being as frequent in Costa Rica as in other countries of similar geographical position. It is officially stated that 60 per cent. of the population of Costa Rica are affected, against 96 per cent. in Ceylon and 30 per cent. in Peru. Since the establishment of the school department, in 1914, with medical inspection of schools, cases of infectious diseases among school children have declined from 4,715 in 1918 to 478 in 1921, and 126 in 1922.

Occupational Therapy for the Insane in Brazil. — The administration of Minas Geraes has constructive plans under way for remodeling the public health service, especially in regard to mental and nervous diseases. At Bello Horizonte, a neuropsychiatric institute has been established, in connection with a hospital accommodating 120 neuropathic patients, for training alienists for government clinics of this type. The central hospital for the violent insane and a colony for those susceptible of readaptation to social life are functioning at Barbacena. At the colony an open door policy is observed, with manual labor, mostly stock raising, as therapeutic measures. Patients are exchanged between the hospital and the colony, so that when a violent insane patient calms down to a point of harmlessness, he is sent to the colony, and, on the other hand, when an inmate of the colony becomes violent, he is sent to the hospital. This system has worked so well that three other colonies will be established at three other points in the state.

Personal.—Dr. Guillermo Parra, president of the National School of Medicine, Mexico, has resigned.——There have been four deans of the faculty of medicine at Havana in less than six months. Dr. Tamayo resigned in January, Dr. Alacán serving in his place until Dr. Plasencia was elected. He died before assuming office; Dr. E. Martínez was then elected, but has recently resigned, and Eusebio Hernández thus becomes dean.——Dr. Tiburcio Padilla has been appointed *profesor suplente* of semeiology at the Buenos Aires medical faculty. His thesis was on "Functional Exploration of the Vegetative System." A banquet was tendered to celebrate his appointment. The invitation was signed by nearly a hundred leading physicians. He is an editor of the *Semana Médica*, "founded thirty years ago by Tiburcio Padilla (h.)."——Dr. Luis Cuervo Márquez, Bogota, has been appointed minister plenipotentiary from Colombia to Great Britain.——The campaign to investigate the epidemic of fever at Bucuramanga, Colombia, has been placed in charge of Dr. F. A. Miller, who has been directing the campaign against hookworm in that country under the auspices of the Rockefeller Foundation.——One of the editors of the *Tribuna Médica* of Santo Domingo, Dr. Fernando A. Defilló, has been appointed director of the National Leper Asylum.——The *Revista Pasteur,* published by the medical students of Cartagena, Colombia, is to dedicate its next number to Dr. T. A. Tatis, professor of gynecology.——Dr. Mark Boyd and M. Magoon, of the Rockefeller commission, are in Rio de Janeiro to organize the antimalaria campaign.——Drs. E. J. B. Gaillard and P. Fernandes dos Santos, Brazilian navy medical officers, have been appointed in charge, respectively, of the Copacabana Infirmary and the Central Marine Hospital.——Dr. Roberto Cotrim has been appointed in charge of the new public health station to be organized at Rezende.

FOREIGN

Personal.—Dr. Robert H. Todd and Dr. William T. Hayward are the first to receive the gold medal instituted by the British Medical Association in Australia for "distinguished service." The medal will be presented at the congress of the association in Melbourne in November.——Dr. J. J. D. Harris has resigned the directorship of the laboratory of microbiology and pathology of the department of public health of Queensland, Australia.

Cholera and Plague in British India.—The Asiatic part of the British empire leads the world in prevalence of these diseases, according to the *Office International d'Hygiène Publique* for May, 1923, with 873 deaths from cholera from January to April, and 101,208 deaths from plague during the same period. Java, Egypt and Peru follow with, respectively, 1,367, 422 and 116 deaths from the plague during the period from January to May of this year.

Headquarters for Child Welfare Work in Spain.—A recent official decree provides for the foundation of the National Escuela de Puericultura, Madrid. It is designed to train pediatricians and others in the care of infants and young children, and serve as headquarters for all measures for infant welfare work, experimental and clinical, as well as for statistics. The school is in charge of and to be supported by the Consejo Superior de Protección a la Infancia.

Inconsistency of the Laws in Sweden.—The police of Linköping recently arrested a quack for unlawful practice of medicine. On questioning, it was found that he had been a mechanic at some of the factories, but lost his job, so he began his practice of benevolence to ailing humanity without bothering with any preceding study. He could not, however, be condemned on this ground because the law against quackery covers only certain types of diseases, such as tuberculosis, cancer and contagious diseases, and the courts usually hold that, since a quack cannot know with which disease he has to do, he is innocent and goes free. The law provided no penalty for his practicing medicine, but penalized him for selling drugs which can be dispensed lawfully only by a qualified pharmacist.

The Medical Center for Aerial Navigation in France.—The *Presse médicale* gives the details of the ceremonies attending the inauguration of the medical center for examinations and research at the *aero-port* of Bourget. The undersecretary of state for aeronautics presided, and Dr. Garsaux extolled the equipment for research on low atmospheric pressure. There is a chamber, 3 by 5 meters, with electric turbine to induce a vacuum, and electric light signals and telephones to insure safety during the experiments. Tests were made with three pilots to illustrate the workings of the pneumatic chamber, the pressure corresponding to that of an altitude of 3,500 meters (over 11,000 feet), and the temperature 29 below zero C. (20 below zero F.). The Paul Bert pavilion, as the medical center is called, has hospital accommodations, besides the numerous laboratories for physiologic research and examination of candidates. Our exchange adds that the installation surpasses anything of the kind in other countries to date. Bourget is the center of the commercial aeroplane navigation service.

Congress of the Scandinavian Surgical Association.—The fourteenth congress of the Scandinavian Surgical Association was held in Stockholm, June 14-16, with about 200 delegates present. No important new feature developed during the discussions on "Treatment of Fracture of the Neck of the Femur," led by Professors Faltin, Helsingfors, and Lindgren, Upsala. The introductory address to the discussion of the "Position in Obstetrics of Cesarean Section," was given by Brandt, Christiania, and Essen-Möller, Lund. The discussion on "Treatment of Pleural Empyema" was led by Einar Key and P. N. Hansen. Rovsing recommended anew his suction drainage by the retention catheter. The fifteenth congress will be held in Copenhagen under the presidency of Prof. Thorkild Rovsing, with Prof. P. Bull reelected as secretary. The closing address was delivered by N. Aars Nicolaysen, Bergen, which was followed by a discussion that emphasized the importance of examination for urea before prostatectomy, and recommended cystostomy in all cases in which there is nitrogen retention in the blood.

Medical Practice in the Scottish Highlands.—A recent report of the Scottish Board of Health states that medical practice in the highlands and islands is growing increasingly attractive to physicians, and that for positions recently advertised, there have been numerous applicants. It is also stated that in some isolated communities too small to occupy the full time of a practitioner, special financial arrangements have been made. Travel in the islands is always uncertain and frequently hazardous. An account is given in which the weather rendered it impossible for a medical officer in Portree to visit a patient in the island of Soay, to the south of Skye:

> I received a telegram from Elgol, Friday morning, asking me to go to a man (on the island of Soay) who had damaged his eye. I had several patients in at the time who had come from North Ramsay to consult me, and they kept me until about 12 o'clock noon. I then set out for Soay, but had to see an important case in Portree before going. On the road to Glenbrittle, the last 8 miles of which is very rough, I had considerable tire trouble involving a good deal of delay, so that I did not reach Glenbrittle until about 4:30 p. m., when it was beginning to get dark. On finding that the boat from Soay was not at Glenbrittle to meet me, I went to the guide at Glenbrittle and asked him to guide me across the hill—a distance of about three miles—to the place from which one can signal (by lighting a fire) to Soay for a boat. The guide refused to undertake the journey in darkness on account of the dangers. I may say there is no track, and that there are three streams to cross, over which there are no bridges. I waited all night at Glenbrittle. During the night and in the morning heavy rain fell and a strong wind was blowing. When we again set out we found that the streams were quite impassable, and I then decided to try to cross from Elgol. I came back to Sligachan, and from there wired to Elgol asking if I could get across to Soay from there. While waiting for the reply I had again to change my tires, borrowing one from a passing car. I received a reply from Elgol that it was impossible to cross to Soay that day.

Deaths in Other Countries

Sir **Herbert L. Maitland,** senior surgeon, Sydney Hospital, Sydney, Australia, May 23, aged 55.—Dr. **Ramiro da Rocha Magalhães,** Rio de Janeiro, one of the founders of the Associação Medico-Cirurgica, and on the editorial staff of the *Archivos Brasileiros de Medicina,* aged 44.——Dr. **F. Woithe,** assistant director of the German museum of hygiene at Dresden, author of several practical contributions to laboratory technic and epidemiology.——Dr. **Monard,** consulting physician at Aix-les-Bains.——Dr. **G. Marchetti,** aged 53, director of a children's hospital at Rome, aged 53.

CORRECTION

Cancer of the Esophagus.—In the paper by Dr. E. A. Graham, The Journal, June 23, p. 1830, it was said that in the case report by Lilienthal, the patient died after several weeks. Dr. Graham writes that he is informed that in reality this patient lived one year and four months after the operation.

Foreign Letters

LONDON

(From Our Regular Correspondent)

July 21, 1923.

The International Congress of Surgery

The sixth International Congress of Surgery, held in London, July 16-20, was well attended by the surgical leaders of all civilized countries (to the number of twenty-six) except Germany, which was excluded. Among American surgeons present were Drs. W. W. Keen, W. J. Mayo, G. W. Crile, Abbott, Andrews, Balch, Brinsmade, Clark, Frazier, Freeman, Lovett, Evans, Parker, Hitchens, Truesdale, Hupp, Stillman, Halstead, MacAusland, McArthur and McWilens. Canada was represented by Drs. A. H. Bruce, Eberto and Banting. At the inaugural session the president, Sir William Macewen, F.R.S., occupied the chair. The Prince of Wales, in a graceful speech, opened the congress. He welcomed "the distinguished surgeons of the world to the country of Lister, who revolutionized the art of surgery by the application of the discoveries of Pasteur." He extended a special welcome to Dr. Keen, "who carried his eighty-six years so lightly." Lord Curzon, secretary of state for foreign affairs, and Mr. Chamberlain, minister of health, also expressed satisfaction at the holding of the congress and welcomed the guests.

THE ANTLER OF THE DEER AND ITS RELATION TO THE GROWTH OF BONE

In his presidential address, Sir William Macewen expressed the opinion that physicians concentrated their studies too much on human phenomena, to the exclusion of life as a whole. The so-called divisions of Nature were purely arbitrary conveniences having no existence except in our minds, for, after all, we were but a bit of Nature, and everything pertaining thereto must have a bearing on humanity. Comparative anatomy and physiology tended to illuminate the obscure problems of structure and function in man. The phenomena of the growth and shedding of antlers threw light on the growth of bone in man. The frontal bone from which the antler grows, in some species to an immense size, in three months, is covered only by pericranium, to which even "the orthodox school" does not assign osteogenic powers of a high order. The method of growth was somewhat analogous to the growth of bone at a single epiphysis. In a few months more the antlers underwent sclerosis and death. Metchnikoff believed that old age was not brought about simply by arrest of the reproductive power of the cells but by impairment of the phagocytes and invasion by germs introduced from the large intestine. But in the death of the deciduous stag's horn none of these factors obtained; the whole process was aseptic. The death of the bone was due to osteoblastic formation encroaching on the lumens of the vessels and producing ischemia. There was no senescence in the cells of the antler; they all died young. A definite type of cell was recognizable in the mature osteoblast of the antler. This was contrary to the opinion held in regard to the mammalian osteoblast in general, which was said to be definable only by function. In man in the growing epiphysis and in the repair of bone the osteoblasts were also characteristic. Some histologists held that all forms of mesoblastic tissue were interconvertible—that primitive connective tissue might develop into fibrous tissue, cartilage or bone. From his observations, Sir William had found no evidence of the existence of such an indifferent or elusive tissue. Periosteum could not produce a single osteoblast. The bone cell was derived from tissue primarily osteoblastic, which produced only osteoblasts. Living osteoblasts could be carried by the blood stream. In a case of fracture of the humerus, a spiculum penetrated the brachial artery, allowing the blood, flowing over the bare fractured bone, to escape into the tissues. An aneurysm formed with a sac containing plaques of bone. They evidently formed from osteoblasts carried away by the blood stream. Sir William referred to his earliest case of bone graft, in a boy, aged 3, who had necrosis of the humeral shaft from pyogenic osteomyelitis. He came under observation forty years ago. The loose dead bone was removed and, as belief in the periosteum as a bone producer was then in vogue, it was hoped that bone might form from it. This did not take place, and the wound healed, leaving the arm without a shaft. A year later his mother demanded amputation, as the arm was worse than useless. Instead, six pieces of bone removed from six different legs, for correction of deformity of the tibiae, were divided into small pieces and inserted between the muscles, where the humerus ought to have been. These fragments became firmly united to one another and to the epiphyses, so as to form a solid shaft. The man had a shortened but useful arm, being able to work as a joiner. He took part and did his duty in the Great War.

THE SURGERY OF THE ENDOCRINE GLANDS

The rapid development of endocrinology rendered the discussions on this subject the most important of the congress. Victor Veau of Paris opened with a paper on the thymus. He referred to three types of operation for hypertrophy. Fixing the organ in the substernal space had not been satisfactory, perhaps because respiratory movements were too great. The next type of operation was resection of the manubrium with or without thymectomy. The latter was not justifiable, as the trouble was from hypertrophy and was not due solely to anteroposterior compression. Removal of the manubrium after thymectomy should be reserved for cases in which it had been impossible to resect totally the superior pole of the adherent gland. Subcapsular thymectomy—an easy procedure—was the routine operation and gave excellent results. Ablation of the thymus did not interfere with growth, as only the superior pole was removed. Roentgen rays had proved curative without operation. If a physician suspected hypertrophy of the thymus, he should send the patient to a radiologist; but if, after one or two applications, the symptoms persisted, thymectomy should be done. Some cases of rapid death after their application had been described. If those accidents became frequent, surgery would take back its rights.

THE SPLENIC SYNDROMES

Dr. W. J. Mayo said that the spleen was chiefly a mechanical filter, removing from the blood degenerated red cells and toxic agents above colloid size. It sent them on to the liver for further detoxication; it also developed lymphocytes. While the function of the normal spleen was not important, the diseased spleen was a serious menace to the constituents of the blood and liver. The spleen did not initiate the pathologic processes with which it was concerned, but acted as a secondary agent. Its removal in the splenomegalies and in certain blood states got rid of a pathologic agent and broke a vicious circle. A chronically enlarged spleen which did not yield to medical treatment should be removed early unless there were contraindications. In all, 295 splenectomies had been performed in the Mayo Clinic, and all the deaths were classified as due to the operation. Those splenomegalies due to microbes gave these results:

	Number	Deaths	Results
Chronic syphilis	8	1	Good in 7
Tuberculosis	4	1	Good in 3
Pyogenic organisms	14	4	Good in 6
Splenic anemia	82	9	Good in majority

For other conditions, the results were: Hemolytic icterus; forty-two splenectomies, with one death and forty perfect recoveries. Pernicious anemia; fifty-seven splenectomies, with three deaths in the hospital, but none among the last forty patients prepared by blood transfusion, and the improvement was more prolonged than that following transfusion alone. More than 10 per cent. lived more than five years, and 22 per cent. more than three years after the operation. There were no cures, but the abnormal blood picture improved. Splenectomy was justified only in a limited number of carefully selected cases. Elderly patients and aplastic types should be excluded. Polycythemia rubra vera; one splenectomy with great improvement. Hemorrhagic purpura (essential thrombohemia), one splenectomy in advanced stage; good recovery. Splenomyelogenous leukemia; in twenty-nine splenectomies, one death, and great temporary benefit in twenty-eight. Six alive and able to work, one more than six years after operation. Blood condition improved—less anemia and less evidence of toxemia.

SURGERY OF THE SUPRARENALS

Willems of Liége and Goormagtigh of Ghent said that the excision of one of the healthy suprarenals, with the idea of lessening the amount of suprarenal substance, had been performed, especially for epileptic fits, as some physiologists believed that the convulsions depended, not on the central nervous system but on the endocrine glands. The results obtained were interesting, but the problem was far from being solved. The suprarenal had also been removed for hypertension. Of the two methods of removal, the transperitoneal was not handiest. The retroperitoneal was better, being more accurate and giving the required view. Mr. F. C. Pybus of Newcastle-on-Tyne reported a successful case of suprarenal grafting for Addison's disease. The patient had been discharged from the hospital as incurable, and was at the point of death. The graft was obtained immediately after death from a healthy man, killed by accident, and was immediately inserted into the subcutaneous tissues of the patient. The blood pressure rose, pigmentation disappeared, muscular power was restored, and the blood picture, which had been that of pernicious anemia, returned to normal. The patient was able to return to light work for three years, when the symptoms recurred and fresh grafting was performed. No trace of the original graft could be found. In a second case the attempt to graft the suprarenal from a male on a female failed. Two attempts to graft the pancreas into diabetic patients were also unsuccessful, though in one case there was slight transient diminution of the glycosuria.

TESTICULAR GRAFTING

Dr. Serge Voronoff of Paris read a paper and exhibited a cinematograph film of his results, which attracted great attention not only from the members of the congress but also from the lay press. He said that in the Collège de France he had obtained durable thyroid and ovarian grafts, and more especially testicular grafts. Owing to the difficulty of obtaining human material, he had utilized the testes of monkeys on account of their close relation to man. He had performed many experiments on animals with a view to finding a method to insure long survival of grafts. At present he had in man two cases dating back two years and nine months; two, two years and seven months, and one, two years and eight months. In all, the effect of the hormone of the grafted testis was very apparent, not only in the subjective appreciation of the patients but also in physiologic phenomena which could be tested objectively. These included lowered blood pressure, loss of weight in the obese from improved metabolism, better vision in hypermetropic patients from increased tonicity of the lens and accommodative muscles, new growth of hair, and increased muscular power, as shown by the dynamometer. When transplanted, the testis rapidly died unless the circulation was quickly restored in the new organism. It must not be grafted in a single mass; otherwise the capillaries did not penetrate beyond the periphery of the gland, and the center became necrotic. Fragmented grafts must be used. On the other hand, the error must not be committed of making the fragments too minute, as these would be rapidly absorbed. The testis of chimpanzees and cynocephalic monkeys usually provided six fragments for grafting. The region of implantation should be capable of providing capillaries or a serous exudate rapidly. He invariably failed to produce permanent grafts under the skin or within muscles or the peritoneum. After many experiments he discovered that the best region for grafting the testis was the external or, preferably, the internal surface of the tunica vaginalis. The reasons were that the tunica was vascular, and serum was exuded from it immediately after grafting as a result of operative irritation. The six fragments should be distributed between the two vaginal tunics—three for each. They should not be in contact with one another. Each fragment was anchored at each end by a catgut suture and was everywhere in contact with the vascular surface of the tunic. The surface on which the graft is placed must be lightly scarified in order to produce congestion. Fragments cannot always be introduced within the serous cavity of the tunic, but may be readily introduced when it is distended with fluid, which is usually the case after the age of 50. If the tunic is closely adherent to the testis, the fragments may be grafted on its external surface. Grafts from young monkeys which had not reached puberty were not successful, as they did not provide the hormone. Voronoff considered nothing more natural than to provide thus for insufficiency of the testicular hormone, whether due to the physiologic phenomena of old age or to pathologic changes. He had operated on forty-four patients, of whom six were physicians. For three months there was no appreciable effects, and the physicians scoffed; then improvement began. Mr. Ivor Back of London said that he had seen Dr. Voronoff's work and talked with his patients, particularly the physicians. He corroborated his claims, and was convinced of the value of testicular grafting.

THYROID TRANSPLANTATION

Dr. Albert Kocher of Berne said that he had performed thyroid transplantation in 214 cases, with only 14 per cent. of failures. Following his father, the late Professor Theodor Kocher, he considered the operation suitable for slight cases of thyroid deficiency, and preferable to thyroid medication. The most refractory cases were those of congenital absence of the thyroid, but three out of ten such cases were improved, one patient sufficiently to take a university degree. The method was to implant fragments of human thyroid not larger than a cherry, taken preferably from the upper pole of an exophthalmic goiter, into the peritoneum, where they were fixed by suture, or into the medullary cavity of the tibia. Thyroid should be taken before and for a short time after the operation, or the graft would not survive, because of the demand made on it. About half the patients had to supplement with thyroid after the operation, although the quantity required was reduced.

THE USE OF INSULIN IN SURGERY

Dr. F. G. Banting of Toronto said that insulin could have no effect on diabetic gangrene, as this was due to arterial change. But it would render the subject sugar-free and permit operation for gangrene or for any surgical condition, such as appendicitis, in a diabetic patient.

AN ELECTROCHEMICAL INTERPRETATION OF SHOCK AND EXHAUSTION

Dr. George W. Crile of Cleveland said that there was much evidence that animals were electrochemical mechanisms constructed on the pattern of the constituent cells, each of which in itself was an electrochemical mechanism. Cells would thus have the power of oxidation only as long as there was a difference in potential between the nucleus and the cytoplasm, the latter being negative. A difference in potential was maintained as long as there was oxidation. The brain, as compared to the liver, was positive. As electricity flows from a higher to a lower potential, and oxidation in the brain is the highest, we may suppose that the oxidation electric wave passes down the nerves from the high potential of the brain to the lower potential in muscles and glands; and since the liver has the lowest rate of oxidation, and hence the lowest potential, the current would finally reach it, whence it would return through the electrolytic system to the brain, thus completing the circuit. This electrochemical theory would interpret a number of facts. Among these are the interference with digestion by the strong emotions, injury and pain, for the splanchnic processes are inhibited while the brain is stimulated; the failure in health under the stress of chronic fear, anger or strong emotions; the essential function of sleep as the period during which the difference in potential in the batteries that drive the organism, which has been decreased by the activities of the day, is restored, and the fact that in surgical operations, if a state of negativity and the internal respiration are maintained, there will be no surgical shock. The state of negativity is maintained by exclusion of fear by management, of traumatic stimuli by local or regional anesthesia and of stimulation. The entire process whereby the state of negativity is secured and the internal respiration —difference in potential—of the cells is maintained is included in the surgical technic of anociation. The internal respiration is maintained by fluids, warmth, blood transfusion, rest, sleep and the avoidance of deep inhalation anesthesia.

SEROTHERAPY AND VACCINOTHERAPY IN SURGERY

Dr. A. Parker Hitchens of Washington said that serums and vaccines were developed on the theory of strict specificity, but a factor in clinical improvement had been discovered which was not always clearly due to specific reactions. Of the bacteria important to the surgeon, the streptococcus held the first place. In the treatment of acute streptococcic infections, antistreptococcus serum was not dependable, and probably was devoid of specific value. Antigonococcus serum, so promising theoretically, gave results that were not dependable and were not clearly specific. The favorable results from the early use of antianthrax serum seemed to warrant its use in large doses. Excepting such infections as diphtheria, which were only incidentally of surgical importance, there was no surgical disease of bacterial origin for which there was a serum of sufficient value to warrant discussion. In he popularization of vaccines, it was not realized that injecion of the antigen may constitute a comparatively unimporant part in the production of immunity. Even if bacterioropic substances were produced, it did not follow that they vould be brought into effective contact with the bacteria. he infection itself was probably the result of some condiion which interfered with such contact. Possibly nonspecific rotein shock accomplished this. Inability to control the legree of shock was responsible for the little progress along his line. The only surgical infections which seemed reguarly amenable to vaccine therapy were those caused by the taphylococcus. In general, the superficial infections due to t responded well to the vaccine. The chief obstacle in ttempting to estimate the value of specific serums and vacines lay in the fact that in few reports was the infection considered not only surgically and clinically, but also histologically, bacteriologically and immunologically.

SOCIAL FUNCTIONS

The social functions of the congress were a great success. They included receptions at the mansion house by the lord mayor and the lady mayoress, at the Royal Society of Medicine by the president of the congress, at the Royal College of Surgeons by the president, and at the Royal College of Physicians by the president, and a banquet. For the ladies, who accompanied the members, in addition to the receptions mentioned, an ample program of excursions, to visit some of the principal places of interest in London, was arranged.

A Section of Comparative Medicine at the Royal Society of Medicine

A new section—that of comparative medicine—has been formed at the Royal Society of Medicine, the membership of which is open to veterinary surgeons as well as to physicians. For many years Sir Clifford Allbutt has pleaded for the wider outlook which would result from a study of comparative medicine, and for the cooperation in investigations of those engaged in the two professions. Therefore, most appropriately, he will be the first president of the section. The council is composed of leading men, half representing human medicine and half veterinary medicine.

PARIS

(From Our Regular Correspondent)

July 13, 1923.

International Congress on the Propagation of Social Hygiene Instruction

A congress, organized by the national committee for the dissemination of information on social hygiene and prevention, was opened at Paris by J. L. Breton, senator and former minister of public health. The program included several subjects that merit particular attention:

INSTRUCTION IN SCHOOL AND AFTER

The congress adopted a resolution demanding that instruction in hygiene be given systematically and authoritatively in a manner agreeable to the instructional corps of the school or college, and with due care and prudence in regard to sexual topics. All forms of appeal to the eye and the ear may be employed: meetings, motion pictures, pamphlets, tracts, posters, popular lectures on hygiene, newspapers and magazines. It is of the utmost importance that from the time they enter school and throughout the whole course of school life, children should receive practical training in hygiene. This instruction may be concluded during the last year of school by a theoretical and practical course given by the school physician.

SEXUAL INSTRUCTION

The congress held that instruction in sexual topics should not be made a special subject of the school curriculum. Knowledge of sexual matters should be imparted in connection with the subjects with which it is naturally associated, such as the courses in natural history, hygiene, prophylaxis and ethics. Given in this way, sexual education may begin with the first awakening of intelligence, and may be continued through the various stages of development. Sex education should be regarded as the joint duty of the family and the school. The first instruction should be given in the family. At the time of puberty, it is essential that rational and detailed biologic instruction be given; this alone can be relied on to train the sexual instinct and to assure its evolution in accordance with the demands of physical and moral health. In secondary schools for boys this instruction should include: (1) lessons in ethics or morals, combined with lessons on the consequences of alcoholism, the moral and social responsibility incurred in the transmission of venereal diseases, and the necessity of continence in order to safeguard not only individual health but also that of one's future wife and family, and, consequently, the future of the human race; (2) lessons in biology, including the study of the organs and functions of reproduction in man and animals, which will link themselves naturally with lessons on related functions, such as nutrition; this instruction will fill that mysterious and pernicious gap that is usually left in school courses and textbooks; (3) lessons in prophylaxis, given by the school physician, which might take as their basis the brochure of the late Professor Fournier, "For our sons when they reach the age of 18."

These lessons will include the following subjects: a description of venereal diseases, personal and social prophylaxis, the dangers of prostitution, and the superiority of continence over other prophylactic measures. It will be well to include these lessons in the course on hygiene, which would be transferred from the professor of natural history to the physician of the institution. In secondary schools and colleges for girls, sexual education should be introduced in the form of a course in the anatomy, physiology and hygiene of the female generative organs, including the essential ideas of prophylaxis, which would serve quite conveniently as a preface to a course in child culture, such as has been established for a number of years.

CENTERS OF PREVENTIVE MEDICINE

Dr. Schreiber read a paper on the need of centers of preventive medicine. These dispensaries have been established for the medical examination of subscribers, life insurance policyholders, employees and others with the purposes of discovering latent or unsuspected lesions, drawing attention to errors in hygiene and furnishing information as to how to prevent the contraction or the extension of disease. They do not treat the persons who apply, but merely supply a detailed certificate setting forth the condition of the various organs. The examinees are then turned over to their private physicians for treatment.

An International Confederation of Brain Workers

About three years ago, a confederation of intellectual workers was established in France for the purpose of representing, coordinating and defending the interests of men and women who derive their principal support from mental work instead of from manual labor or from revenue on property holdings (The Journal, May 8, 1920, p. 1339). Similar societies having been formed in other countries, the delegates from the French confederation and from five foreign countries (Belgium, Bulgaria, Finland, Great Britain and Switzerland) met recently in Paris and established the International Confederation of Intellectual Workers. The secretary has been empowered to draw up a constitution and by-laws, which will be sent for examination to the national confederations and will be submitted at the December session of the international body. The principal subjects for discussion at this session are: intellectual property (recognition of such property in all countries in which it is not yet recognized; its protection), and the creation of scientific property.

An Incident at a Recent Competitive Examination

At a recent competitive examination for the choice of agrégé professors of surgery, an incident occurred which has caused considerable stir. The professor who was chairman of the examining board opposed the appointment of a certain candidate on the ground that he had committed an error in diagnosis in one of the competitive tests. As the other members of the board did not support his view, the chairman resigned, and addressed a letter to the minister of public instruction. An operation performed a few days later on the patient in question confirmed the opinion of the candidate and refuted that of the chairman of the board of examiners. This incident has led to sharp criticism of the present system of competitive examinations, in which chance plays too big a part. If the subsequent operation had not demonstrated that the examiner and not the candidate was in error, the latter would certainly have been rejected. It has also been urged that a competitive examination in which all candidates are not given identical tests cannot be regarded as equitable.

Honor Loans to Students

Léon Bérard, minister of public instruction, has received a delegation of presidents and representatives of sixteen associations of men and women students of Paris. The delegation handed the minister a copy of a resolution passed at a conference of these associations, endorsed by more than 10,000 students of the University of Paris. This resolution requested that the administrative council of the National Bureau for the Allocation of Honor Loans, which was created by the act of 1923, be composed of seven students, to be chosen by the whole student body, in accordance with rules already established in regard to their representation on the councils of the university.

Regulation of Cemeteries

The rules and regulations pertaining to the management of cemeteries in France date back more than a century. They take no account of the nature of the soil, but merely establish within what distance from human habitations new cemeteries may be created; the minimal period of rotation—that is, the time that must be allowed to elapse before a given terrain may be again plotted for new graves, and the zone within which no buildings may be erected and no wells dug, without special authorization. M. Paul Strauss, minister of health, has recently sent a circular letter to all the prefects of France, in which he points out the need to take into consideration the geologic nature of the soil. He emphasizes that the completeness and rapidity of combustion of interred bodies depend on the composition of the soil. Combustion proceeds best in light soils, with a permeable subsoil, which air and water can penetrate and in which water is not retained for any length of time; on the other hand, decomposition is slow in soils that are constantly saturated with water. Therefore, in the future, when a commune desires to establish, enlarge or change a cemetery, the prefect should be advised of the fact and the commune should pay for the expert opinion of a geologist. After his opinion has been secured, the matter should be submitted to the departmental council on public health, and if that council approves the project, the plans could be turned over to the minister of the superior council on public health, which would render the final decision.

Death of Dr. J. Marcorelles

The death of Dr. Marcorelles, surgeon to the hospitals of Marseilles and formerly professor at the Ecole de médecine of that city, at the age of 83, has been announced.

A Memorial to Professor Chantemesse

At Puy (department of the Haute-Loire), a commemorative tablet was recently affixed to the house where, Oct. 13, 1851, Professor Chantemesse was born. The ceremonies took place under the chairmanship of M. Paul Strauss, who was aided by Dr. Louis Martin, assistant director of the Pasteur Institute at Paris. At the *lycée* of Puy, Chantemesse became an intimate friend of Dr. Raux, who later presented him to

Pasteur. He was one of Pasteur's favorite pupils and later became his physician, serving in that capacity during Pasteur's last sickness (1895).

Personal

At the latest meeting of the Academy of Médicine, Dr. Antoine Depage, professor of surgical pathology at the University of Brussels, was elected foreign associate member, while Dr. Harvey Cushing, professor of surgery at Harvard University School of Medicine, and Dr. Segura, professor at the Buenos Aires College of Medicine, were chosen foreign corresponding members.

BERLIN

(From Our Regular Correspondent)

July 7, 1923.

Disease Statistics of the Health Insurance Societies

At the latest session of the Berlin Gesellschaft für öffentliche Gesundheitspflege, Dr. Teleky, provincial health officer for the industries, of Düsseldorf, raised the question, "For what purpose and in what manner should the disease statistics of the health insurance societies be kept?" His remarks were based on the assumption that medical statistics have no inherent or direct practical value but serve only certain remote practical purposes. Thus, for instance, statistics on the causes of death have exerted an important influence on the campaign against infectious diseases, since they were responsible for the introduction of compulsory notification of diseases. For many decades, statistics have been collected on the diseases occurring in those insured in health insurance societies, but, on the whole, they have been of no value to the general public. Only in the case of a very few large societies have the statistics ever been analyzed. But the analysis of the statistics of a few health insurance societies cannot give a survey of the diseases of the whole population, since the societies constitute only a part of the population—in Berlin, 30 per cent. of the men and 40 per cent. of the women — and, furthermore, only those diseases that cause incapacity for work are covered by statistics. From a study of these statistics we can reach certain practical conclusions on industrial hygiene, provided the statistics are arranged according to industries and trades or callings and reflect deficient sanitary conditions in certain places. What is needed, however, is a uniform application by all health insurance societies of principles that are adapted to these purposes. Under the leadership of Teleky, a rationalized schema has been worked out by a committee composed of physicians, statisticians and representatives of the trade unions, and is being applied in the governmental district of Düsseldorf. Difficulties have arisen in differentiating the various trades, since the local health insurance societies declared that they could differentiate only between the indusries. But the various industries include many different rades and crafts. Nevertheless, an approximately correct dea is given, since experience shows that 80 per cent. of hose employed in an industry are members of definite trades. Twenty different trades have been distinguished, which is ufficient for all kinds of health insurance societies. Decidng on a list of diseases was found to be more difficult, but finally twenty-one pathologic groups were selected. In determining the classification, the anatomic and etiologic bases of he diseases and the manner in which physicians are in the habit of reporting the diagnosis in the sick certificates, which are often couched in veiled terms, were duly considered. An alphabetical list of trades and diseases lightens the clerical work of the health insurance societies.

In the critical interpretation of the results of statistics, social and economic conditions must be considered, since the diseases associated with incapacity for work are dependent on such factors as the size of the sick benefits, lack of employment, and strikes. With reference to the mortality statistics, it should be noted that some deaths are not recorded, since some policies, on account of the fact that the period of assistance to which the holders were entitled has expired, have been previously canceled. If the period of assistance is twenty-six weeks, about 20 per cent. of the patients are dismissed before recovery. What is really needed is statistics on the mortality in various trades, such as are published every ten years in England. But Germany's financial condition at present precludes any such innovation. The age distribution in the trades would be of some value, but if that is begun it should be noted whether a given trade is of recent origin; for instance, the rubber industry, which has developed to its present wide extent mainly in connection with automobiling and therefore employs more young persons than the older industries.

New Legislation on Juvenile Courts

A new law pertaining to juvenile courts was promulgated by the reichstag, a few months ago. Some changes are worthy of note. The age of criminal accountability has been raised to 14. A juvenile is not accountable for a crime if "at the time the deed was committed, his mental and moral development was such as to render him incapable of recognizing the unlawfulness of his act or of controlling his will in accordance with his insight." The maximum of certain forms of punishment has been reduced. In lieu of punishment, certain educational training may be substituted at the discretion of the court. In regard to the forms of punishment, certain general rules have been set up; for instance, the punishment of a juvenile must be carried out in such a manner that his educational training is thereby furthered. Juveniles must not be allowed to mingle with adults. If juveniles are sentenced for longer periods, they must be confined in separate institutions. Ample provision is made for suspension of sentence and the establishment of a period of parole under court supervision and the final remission of penalties in view of continued good conduct. Section 2 of the law provides for the creation of special juvenile courts, it being especially stipulated that, in all cases in which juveniles are involved, the *Schöffengericht* (justice's court) shall have sole jurisdiction. For serious crimes, the *Schöffengericht* is enlarged so as to include two judges and three laymen. The transactions are not public—a change that has been long eagerly desired. The mode of cooperation of the juvenile welfare bureau, to the problems of which, according to the federal act regulating the juvenile welfare service, the juvenile court service belongs, together with its participation in the work of the private juvenile welfare societies, are regulated by several sections of the law. The law went into effect, July 1, 1923.

Excess of Deaths Over Births

The number of births in the large cities of Germany is very small, this year. During the first quarter, January-March, it was only 16 per thousand inhabitants, on a yearly basis. If we divide the cities into seven groups, we find that Berlin, with 3,990,000 inhabitants, had the smallest number of living births (exclusive of transient residents); namely, only 10.7. The second lowest number was in the industrial region on the Rhine and the Main, including Frankfort, Mannheim, Mainz, Wiesbaden and Ludwigshafen, the registration being 14.2. The third lowest number was recorded in the Saxon industrial section, including Dresden, Leipzig, Chemnitz and Plauen (15.3). The five south German cities Munich, Nuremberg, Stuttgart, Augsburg and Karlsruhe follow (15.4). The seven large seaport towns rise above the average for the empire (16.4). The seven north German cities Breslau, Hanover, Magdeburg, Halle, Kassel, Brunswick and Erfurt made a very good showing (17.2), but the best record was reported from the Rhine-Westphalian industrial center (21.5). In Berlin the birth rate (10.7) had fallen so low that it is far exceeded by the mortality rate (14.7).

Seventieth Birthday of Professor von Gruber

Professor von Gruber, hygienist, of the University of Munich, celebrated his seventieth birthday, July 7. He was a pupil of Pettenkofer, but he studied also under Voit and Naegeli. He was a fellow student of Rubner and Hans Buchner. In 1882, at the age of 29, he became an instructor in hygiene in Vienna (he is a native of Austria). In 1884 he was called to Graz as an assistant professor of hygiene. He became director of the Hygienic Institute in Vienna in 1887. In 1902, at the death of Buchner, he removed to Munich. Gruber has published a large number of treatises on chemistry, physiologic chemistry, bacteriology and general hygiene. The work on agglutination, which he published in collaboration with Durham in 1896, afforded the basis for Widal's test for the diagnosis of typhoid. Among his works on general hygiene may be mentioned those on water supplies. He published a long article on medical statistics in the "Handbuch der Hygiene," which he edited in collaboration with Rubner and Ficker. In 1893, in a special work, he gave his ideas on needed reforms in the construction of dwellings. The draft of a law to regulate trade in foodstuffs in Austria was also from his pen. With the psychiatrist Kraepelin, he was active in the campaign for the suppression of alcoholism. Eugenics or race hygiene also found in him an earnest advocate.

Death of Professor Hess

The esteemed director of the Munich University Eye Clinic, Professor von Hess, has died of pernicious anemia, after a short illness, at the age of 60. He was an assistant of the physiologist Hering and of the ophthalmologist Sattler. He became an instructor in the university in 1891. In 1896 he was offered a chair in the University of Marburg; in 1900 he was called to Wurzburg, and in 1912 to Munich. Among his numerous works, those on physiologic optics deserve special mention. In recent years he has been engaged more particularly with the comparative physiology of vision. He has published also some highly interesting researches on color vision in insects. In addition, he has been carrying on significant studies on the mechanism of color vision in man.

Marriages

Hudspeth Ellet Scoles, Swansea, Ariz., to Miss Bernice Melrose Wilson of Takoma Park, D. C., August 5.

Alice Barker Ellsworth, Long Beach, Calif., to Mr. Hasworth Bonfield of San Diego, July 10.

Jacob Roscoe Harry, Chicago, to Miss Helen Louise Hurley of Mount Carroll, Ill., July 28.

Patrick R. Minahan, Green Bay, Wis., to Miss Gladys M. Stowe of Oakfield, June 21.

Charles Worth Norton to Mrs. Alice Josephine Allen, both of Los Angeles, July 20.

Gunnar Gunderson to Miss Mary C. Baldwin, both of La Crosse, Wis., June 23.

William C. Hanson to Mrs. Rose Behnken-Houg, both of Racine, Wis., June 25.

Victor William Purdy to Miss Rhina A. Steins, both of Milwaukee, July 18.

Benjamin Jaffee Birk to Miss Ruth Markwell, both of Milwaukee, July 7.

Owen C. Rigby to Miss Lena Townsend, both of Shreveport, La., June 20.

Deaths

George Nicholas Acker ⊕ Washington, D. C.; Medical Department of Columbian University, Washington, 1874; University of Berlin, Germany, 1877; member of the American Pediatric Society; formerly demonstrator of practical physiology, pathology and histology, and professor of physiology, Medical Department of Columbian University; professor of pediatrics, George Washington University Medical School; on the staff of the Children's Hospital; aged 70; died, July 22, of pneumonia.

Charles Law Lang, Cato, N. Y.; Michigan College of Medicine, Detroit, 1883; Medical Department of Columbia College, New York, 1884; member of the Medical Society of the State of New York; aged 64; died, July 15, at the Clifton Springs (N. Y.) Sanitarium, following an operation for gallstones.

William Lee Wood, Portland, Ore.; St. Louis (Mo.) Medical College, 1886; member of the Oregon State Medical Association, and the Pacific Coast Oto-Ophthalmological Society; formerly on the staff of the Good Samaritan Hospital; aged 59; died, July 15, at Monrovia, Calif., following a long illness.

George Hiram Wilson, Baltimore; Kansas City (Mo.) Homeopathic Medical College, 1900; Hahnemann Medical College and Hospital of Philadelphia, 1903; served in the M. C., U. S. Army, during the World War; aged 42; died, July 12, of carcinoma of the stomach.

Clay Emery Giffin ⊕ Boulder, Colo.; University of Colorado School of Medicine, Boulder, 1908; formerly instructor of surgery at his alma mater; member of the Radiological Society of North America; aged 41; was drowned, July 22.

Ralph Alexander Dalbey, Youngstown, Ohio; Western Pennsylvania Medical College, Pittsburgh, 1898; served in the M. C., U. S. Army, during the World War; aged 46; was found dead in his office, June 20, of heart disease.

James Arthur Miller, Pomeroy, Ohio; Starling Medical College, Columbus, 1891; member of the Ohio State Medical Association; county health officer; aged 54; died, July 20, of bullet wounds received when shot by an insane patient.

Richard Robert Shapard, Anson, Texas; Vanderbilt University Medical Department, Nashville, Tenn., 1887; member of the State Medical Association of Texas; aged 65; died, May 18, at Fort Worth, following an operation.

Oscar Eve Jones ⊕ Newport, Ark; Vanderbilt University Medical Department, Nashville, Tenn., 1902; served in the M. C., U. S. Army, during the World War; aged 44; died suddenly, July 14, of heart disease.

William Clark Marsh ⊕ Albion, Mich.; University of Michigan Medical School, Ann Arbor, 1883; formerly member of the city council and board of education; aged 67; died suddenly, July 23, of heart disease.

Charles Miller Alexander, Coleman, Texas; University of Louisville (Ky.) Medical Department, 1882; member of the State Medical Association of Texas; aged 66; died, May 13 at Temple, following an operation.

Arthur McDowell Duncan, Glendale, Calif.; Bellevue Hospital Medical College, New York, 1878; member of the Medical Society of the State of California; aged 73; died, July 17, of heart disease.

Wildridge Goldsmith Terry, Henderson, N. Y.; Bellevue Hospital Medical College, New York, 1876; aged 68; died July 17, at the Hospital of Good Shepherd, Syracuse, following a long illness.

David Edward Mundell, Kingston, Ont., Canada; Queen's University Faculty of Medicine, Kingston, 1886; professor of principle and practice of surgery at his alma mater; aged 59 died, June 11.

L. Lorenzo Artis, Smyrna, Del.; Hahnemann Medical College and Hospital of Philadelphia, 1904; member of the Delaware State Medical Society; aged 40; was drowned in Como Lake, July 16.

George Albert Carson, Mount Vernon, Iowa; Rush Medical College, Chicago, 1890; aged 59; died, July 23, of a self inflicted bullet wound in his brain, while suffering from ill health.

Martin Luther Moyer, Hillsboro, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1880; member of the Illinois State Medical Society; aged 73; died, July 24, of paralysis

Arlington Cecil Jones, Covington, Va.; University of Virginia Department of Medicine, Charlottesville, 1894; member of the Medical Society of Virginia; aged 51; died, July 15.

Theodore Byron Wood, Chicago; Rush Medical College, Chicago, 1895; member of the Illinois State Medical Society; aged 53; died, August 2, of cerebral hemorrhage.

James N. Minetree ⊕ Las Cruces, N. M.; Hospital College of Medicine, Medical Department Central University of Kentucky, Louisville, 1903; aged 47; died, July 15.

Robert Bostwick Honey, Ann Arbor, Mich.; Detroit College of Medicine and Surgery, 1892; member of the Michigan State Medical Society; aged 55; died, July 25.

Homer Barksdale Hill ⊕ Austin, Texas; Medical Department University of Louisiana, New Orleans, 1878; aged 72; died, July 18, at Orange, of angina pectoris.

William J. Murray, Cincinnati; Medical College of Ohio, Cincinnati, 1868; formerly on the staff of the Good Samaritan Hospital; aged 81; died, May 30, of senility.

Lord Byron Townley, Youngstown, Ohio; Homeopathic Hospital College, Cleveland, 1890; aged 70; died, June 8, at St. Elizabeth's Hospital, of paralysis.

Jacob Clifford Haines ⊕ Vincentown, N. J.; Baltimore (Md.) University School of Medicine, 1898; aged 54; died suddenly, June 21, of heart disease.

George Eugene Richards, Chicago; Hahnemann Medical College and Hospital, Chicago, 1879; aged 70; died, July 29, of carcinoma of the stomach.

Clarence Axtell Penman ⊕ Beaumont, Texas; Rush Medical College, Chicago, 1910; aged 38; was killed by an unknown assailant, July 25.

Daniel P. Reavis, Francisco, Ind. (licensed, Indiana, 1897); member of the Indiana State Medical Association; aged 78; died, July 16, of senility.

William James Shrewsbury, Brooklyn; New York Homeopathic Medical College, New York, 1881; aged 71; died, July 18, of angina pectoris.

Frank Hatfield Tilden Beck, Crestline, Ohio; University of Cincinnati (Ohio) College of Medicine, 1922; aged 26; died, July .24, of septicemia.

Isaac Covington Watt, St. Louis; Beaumont Hospital Medical College, St. Louis, 1890; aged 65; died, July 18, at Miami, Okla., of paralysis.

Alfred Joseph Deveau, Meteghan, N. S.; Dalhousie University Faculty of Medicine, Halifax, 1912; aged 35; died, June), of typhoid fever.

Charles Eli Jarvis, London, Ont., Canada; Queen's University Faculty of Medicine, Kingston, 1882; aged 64; died suddenly, June 11.

John H. Pryor ⊕ Buffalo; University of Buffalo Department of Medicine, 1882; aged 64; died suddenly, July 21, of heart disease.

Robert William Bell, Toronto, Ont., Canada; McGill University Faculty of Medicine, Montreal, Que., 1873; aged 72; died, June 9.

John C. Adkins, Marion, Ind. (licensed, Indiana, 1897); Civil War veteran; aged 80; died, July 15, of cerebral hemorrhage.

Walter A. Bell, Farmersville, Texas; University of Alabama School of Medicine, Tuscaloosa, 1874; aged 72; died, uly 18.

Robert L. Souder ⊕ Ada, Ohio; Detroit (Mich.) Medical College, 1875; aged 72; died, July 19, following a long lness.

James Flournoy Shannon, Kansas City, Mo.; Meharry Medical College, Nashville, Tenn., 1898; aged 50; died, July 20.

Neil McKendrick, Placentia, N. F.; Cincinnati (Ohio) College of Medicine and Surgery, 1878; aged 71; died recently.

Alonzo H. Tidball, Garrettsville, Ohio; Cleveland (Ohio) Medical College, 1871; aged 91; died, July 31, of senility.

Turner C. Edgington, Stout, Ohio (licensed, Ohio, 1896); ged 81; died, June 13, at Charleston, W. Va., of senility.

Joseph Spalding, Woodstock, Conn.; Medical School of Harvard University, Boston, 1867; aged 77; died, July 17.

Alvin Monroe Davis, Akeley, Minn.; Miami Medical College, Cincinnati, 1874; aged 72; died suddenly, July 15.

Frank B. Bressler, Oak Park, Ill.; Rush Medical College, hicago, 1889; aged 59; died, July 30, of heart disease.

John Quincy Adams, Dayton, Ohio (licensed, Ohio, 1896); ged 62; died, July 24, at St. Elizabeth's Hospital.

The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other General Material of an Informative Nature

C-O-M NOT ACCEPTED FOR N. N. R.

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report.

W. A. Puckner, Secretary.

"C-O-M" is the proprietary, noninforming name under which the H. E. Frees Company, Chicago—claiming to be "nationally known chemists and bacteriologists"—exploits a preparation which is claimed to be the solution of magnesium citrate of the U. S. Pharmacopeia but to have the advantage over the official preparation in that it keeps indefinitely.

The advertising for C-O-M contains the unwarranted claim that magnesium citrate is "the one laxative which may be served to children as well as grown-ups." The advertising contains the assertion that "for colds, a half-glass at various times during the day is proper." By the phrase "for pneumonia, influenza, and bronchitis, as prescribed by your physician," it suggests that the use of magnesium citrate is curative in pneumonia, influenza and bronchitis.

The advertising, which is addressed to the public, suggests the indiscriminate and harmful use of laxatives by the statement that children may be kept in "rugged health" by giving a half-glass of C-O-M "whenever they seem indisposed in the least." We read further:

> ". . . If your head aches, and you feel tired and miserable, your system is clogged and your blood sluggish, you want a quick and easy elimination to relieve that dull, heavy feeling. You want prompt relief from what is recognized as the underlying cause of so much illness. A glass of Com will act promptly and quickly, and will overcome your indisposition."

It is asserted that "everyone should take a glass full of C-O-M at the slightest sign of a body disorder."

The Council refused recognition to C-O-M because (1) the application of a proprietary name to a pharmacopeial article is irrational and a detriment to rational therapy; (2) as a solution of magnesium citrate is readily prepared fresh and of standard quality by pharmacists, the claim for stability is not a sufficient warrant for the use of a proprietary name for an official article; (3) the therapeutic claims for C-O-M are unwarranted, and (4) the advertising propaganda is likely to lead to the excessive and ill-advised use of the preparation by the public.

TWO MORE ELECTRONIC DIAGNOSES

Findings Made by an Osteopath and a Physician

In Saginaw, Mich., there is an osteopath, one Charles C. Cook, who is a disciple of Albert Abrams. Cook, apparently, does not confine his practice to Saginaw, but also takes in the surrounding territory and towns. Not far from Saginaw is Chesaning, Mich., in which there are five licensed physicians. One of the five is Dr. J. J. Blue, who sends us some interesting data. According to Dr. Blue, Osteopath Cook had seriously alarmed one of the doctor's patients by making a diagnosis of generalized carcinoma.

In order to test the diagnostic ability of this disciple of Abrams, Dr. Blue had his patient write to Cook, inclosing a check for $5 and a sample of blood with a request for a diagnosis. In due time came the following diagnosis, written on the stationery of "Physio-Clinical Laboratory of Dr. Charles C. Cook" and signed "Charles C. Cook, D.O." The diagnosis read:

> "The following is a report of the diagnosis made from the sample of blood submitted by you.
>
> "Congenital and cryptogenic syphilis.
>
> "Congenital gonorrhea.
>
> "Carcinoma of stomach, small and large intestine, colon, pancreas, kidneys and bladder.
>
> "Epithelioma (not localized).

"Sarcoma of spine.
"Chronic malaria.
"Diabetes.

"That may look like a formidable array of diseases to you but it is not so bad from an Electronic standpoint. I cannot give a prognosis without a personal examination but if all other things are equal your chances for recovery are very good."

One must agree with Osteopath Cook that a person getting a diagnosis of syphilis, gonorrhea, generalized carcinoma, sarcoma of the spine, chronic malaria and diabetes might consider that he had a "formidable array of diseases." It is consoling to learn, however, that the condition is "not so bad from an Electronic standpoint," and that the "chances for recovery are very good."

The interesting fact regarding this diagnosis, however, lies in the fact that the specimen of blood sent to Charles C. Cook was from a perfectly respectable Plymouth Rock rooster, which had been confined in a well-ventilated coop since its birth. The idea of a young rooster of unimpeachable antecedents, suffering from congenital syphilis and gonorrhea appeals to one's risibilities.

Still another "electronic diagnosis," in this case made by Mary W. McManus, M.D., Denver, Colo., was sent to The Journal by Dr. O. H. Horrall of Sheridan, Wyo. The diagnosis, Dr. Horrall tells us, is of a man who is working and by no means ready to die. Here is what Dr. McManus found the matter with him:

"Diminished resistance. [An Abramsesque euphemism for syphilis.—Ed.]
"Carcinoma of Gall Bladder.
"Streptococcus.
"Sarcoma of both kidneys, right worse.
"Tuberculosis both lungs, upper right and middle left.
"Sarcoma.
"Gall Stones.
"Malaria.
"Pneumonia."

Except for these trifling ailments the man, it seems, is all right.

Correspondence

SULPHOSALICYLIC ACID RING TEST FOR PROTEINURIA

To the Editor:—In employing a new test for proteins in urine, advocated and described by Exton (The Journal, Feb. 24, 1923, p. 529), my attention was attracted, while adding a specimen of urine to an equal volume of the sulphosalicylic acid solution in a test tube, to the dense precipitate of albumin formed at the line of contact between the two liquids. The specimen and reagent were not intentionally layered—for one was poured, not pipetted, on the other—but, owing to the much greater specific gravity of the latter, coagulation of the protein, which was instantaneous, occurred before agitation and mixing could be effected. The albuminous ring thus produced seems to be identical with that of Heller's nitric acid test.

In the original technic, thorough mixing of reagent and specimen is directed, and final reading of the reaction is based on the general appearance of the mixture, or its optical measurement as to clearness or cloudiness, in comparison with a control mixture of plain water and urine. Although as one of his references to the general subject he states that Roche, proposing the use of sulphosalicylic acid for the detection of albuminuria, layered with a 20 per cent. solution, mention is not made of the ring or contact method in Exton's directions for performing the test; but rather in his summary is the method discredited. Therefore, in view of the following advantages of "layering," I feel warranted in suggesting its general employment, and subsequent evaluation, as a check on, if not a substitute for, the original procedure.

The advantages over nitric acid contact are: (1) finer definition of the precipitate or coagulum; (2) elimination of gas evolution in turbid or decomposed urines, which greatly obscures the reading with nitric acid; (3) freedom from inaccuracies due to clouding of the reaction by mucin and urinary salts; (4) greater dispatch in the handling of chemicals, as nitric acid is very destructive to one's hands and clothing, as well as to other objects with which it might come in contact, and (5) marked positive reactions elicited where nitric acid indicates negatives.

The advantages over "mixing" with sulphosalicylic acid are: (1) greater definition of precipitate; (2) use of control unnecessary, although this could be employed; (3) heating not required, thus eliminating another step in the analysis; (4) freedom from inaccuracies attendant on the comparison of two liquids which vary little in cloudiness, especially when the control is prepared from turbid or decomposed urine; (5) rapidity of executing the qualitative test, and (6) greater accuracy of quantitative readings when only small traces of albumin are exhibited.

With either technic (mixing or layering), readings are greatly facilitated by interposing a dark background between specimens and the light.

Louis Hannah, M.D., Sylvania, Ga.

ELECTRONIC REACTIONS

To the Editor:—I have been much interested in the article appearing in a recent issue (July 28) of The Journal on the case of carcinoma of the stomach treated by the Abrams method. It is almost exactly a parallel of a case that occurred in Erie a few months ago. The patient refused to be operated on, but allowed an osteopath to let him die in agony by the Abrams route.

The Erie County Medical Society has expelled two members for their refusal to give up their activities in this farce. They, Drs. C. B. Lininger and Ellen Walker-Berry, with four osteopaths, are frantically waving the Abrams banner in Erie. The people are gradually learning, via undertakers and ruptured bank accounts, the "wonders" of the quackery.

R. S. Minerd, M.D., Erie, Pa.
Secretary, Erie County Medical Society.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

BACILLUS BULGARICUS AND BACILLUS ACIDOPHILUS

To the Editor:—1. Please tell me how to prepare *B. acidophilus* milk, in accordance with the method advocated by Cheplin and Rettger (mentioned in The Journal, June 30, 1923, p. 1897). 2. My bacteriology makes no distinction between *B. bulgaricus* and *B. acidophilus*, so that I have supposed them identical. My druggist and his wholesaler appear to be as ignorant as I on this point. 3. Years ago one of my friends, a physician, tried out *Bacillus bulgaricus* on himself, and I tried it on my patients. Both of us went back to real buttermilk and buttermilk tablets. I now have a patient on buttermilk and one on *B. bulgaricus* lactose milk. The bacilli are in liquid form, a "suspension," I think. 4. There are usually several children and adults, as well, in need of some pabulum of this character, at this season. If *B. acidophilus* is better, I should appreciate it and pay for a supply sufficient for one patient for at least a month.

H. E. Potter, M.D., Clifton, Kan.

Answer.—1. The following method for the preparation of *Bacillus acidophilus* milk is given by Rettger and Cheplin (*Arch. Int. Med.* **29**:357 [March] 1922): Fresh skimmed cow's milk is sterilized in one heating at from 115 to 120 C., the time required being determined by the volume of the milk and the nature of the container. Quart lots in ordinary glass flasks are heated in from twenty-two to twenty-four minutes. Properly heated milk should have a dark cream color, but should not be distinctly browned. After cooling to at least 37 C., the milk is inoculated with pure strains of *B. acidophilus* which have been grown, by repeated transfers, sufficiently long in milk to develop rapidly and bring about coagulation of the casein within twenty-four hours at a temperature of from 35 to 37 C. Viable milk cultures of the organism are employed as the inoculum, and at least 10 c.c. of the inoculum is transferred for each liter of milk treated. After thorough mixing, the newly inoculated milk is incubated for the period stated.

2. *Bacillus acidophilus* is microscopically almost indistinguishable from *Bacillus bulgaricus*. According to Rettger and Cheplin in the publication referred to, there are these points of distinction between the two organisms: *Bacillus acidophilus* produces relatively little acid in milk (less than 1 per cent.), whereas *Bacillus bulgaricus* may produce as much as 3 per cent. *Bacillus acidophilus* attacks maltose with acid formation, while *Bacillus bulgaricus* has no action on this sugar. The most important mark of difference is that relating to intestinal implantation. *Bacillus bulgaricus* is unable to live and multiply in the intestine of the white rat and of man, whereas *Bacillus acidophilus* undergoes rapid development when administered by mouth, or as the result of milk, lactose or dextrin feeding.

3. The therapeutic value of the various lactic acid ferment preparations is discussed in New and Nonofficial Remedies, 1923, p. 161, "Lactic Acid-Producing Organisms and Preparations." While recent publications contain evidence in favor of *Bacillus acidophilus* therapy, W. H. Morriss (The Journal, July 14, 1923, p. 93) expresses the belief that whatever improvements occurred in the cases reported by him was due to some other factor than the actual transformation of the common intestinal bacteria into the acidophilus type of organism.

4. The only *Bacillus acidophilus* preparation which, so far, has been accepted by the Council on Pharmacy and Chemistry is Bacillus Acidophilus Milk-Lederle (The Journal, Feb. 3, 1923, p. 323).

NO INCOME TAX DEDUCTION FOR VACATION

To the Editor:—A physician, tired out by the year's work, takes a two weeks' vacation in order the better to equip himself physically and mentally for the next year's work. During that time he makes, or rather nature makes for him, repairs and replacements just as repairs and replacements are made on his automobile during the year. How may the expense of this vacation be listed as a deduction in preparing one's income tax return? Also may the estimated loss of income due to absence on vacation be listed in any way as a loss in income tax return? If an employer who pays an employee his full salary or part of his salary while the employee is on his vacation is permitted to deduct such expense in figuring net income, it would seem only fair to allow a physician to make a deduction of some sort for his vacation. Can you advise how this may be done? Kindly use only initials.

L. B. N., M.D.

Answer.—However necessary rest and recreation may be to the human machine, and however much they may contribute to its efficiency, the law looks on them as personal and not as business matters. Expenses incident thereto are therefore looked on as personal expenses and consequently are not deductible. They are supposedly covered by the "exemption" allowed each individual tax payer.

The loss of income due to the physician's absence is taken care of in the physician's statement of the gross income received. In stating his gross income he does not include money that he might have earned had he not been absent from his practice, but only money earned, so that in the end his net income is diminished exactly in proportion to the diminution of his gross income by reason of his absence.

TREATMENT OF SYPHILIS IN CHILDREN

To the Editor:—Kindly outline a method for treatment of syphilis in a 5 year old child; also in the case of a 1 year old nursing baby.

M.D.

Answer.—Syphilis must, of course, be treated with due regard for the complications and unusual symptomatology in the individual case. Without reference to the necessary individualization, the following may be regarded as a possible guide to routine treatment:

A. *Treatment of Syphilis in a Five Year Old Child.*—1. From six to eight injections of arsphenamin (0.3 gm.) or neoarsphenamin (0.4 gm., starting with a half dose) are given at intervals of one week.

2. These are followed by mercury, as diluted mercurial ointment, 2 gram inunctions, six days a week for from six to eight weeks, or 0.02 gm. of mercuric salicylate in oil, injected intramuscularly once a week for eight or ten injections. The urine should be watched for albumin and the gums for stomatitis.

3. Potassium iodid, from 0.3 gm. daily, increased if tolerated to from 2 to 2.6 gm. may be given with the arsphenamin and mercury courses if tertiary lesions are present.

4. Three or four weeks after the mercury course, a Wassermann test should be made, and the foregoing course repeated whether the Wassermann reaction is positive or negative. Further treatment must be individualized.

B. *Treatment of Syphilis in a One Year Old Nursing Baby.*—1. From six to eight injections of neo-arsphenamin (up to 0.15 gm. a dose) intravenously or intramuscularly should be given at intervals of one week.

2. This is followed by mercury as inunction, 0.65 gm., or 0.013 gm. of mercuric salicylate intramuscularly, or yellow mercurous iodid, 0.006 gm., three times a day by mouth for six or eight weeks.

3. After a three week period without treatment, a Wassermann test should be made and the course repeated even though the Wassermann reaction is negative.

4. Treatment should be continued at least two years, actively if the Wassermann reaction remains positive, and at least one course after the Wassermann reaction is negative. Later the periods without treatment can be lengthened, and the treatment must be individualized.

PENALTIES OF NARCOTIC LAW

To the Editor:—Has any one in the narcotic department the power to compromise with one who is guilty of furnishing opiates for addicts and not keeping a record of what was furnished them, and this practice continuing for several years? I am sorry for any one who gets into trouble; but I am strong for enforcement of law, as the only way to get a bad law repealed is to enforce it strictly. Please publish the penalties for violating the narcotic law.

M.D., Ill.

Answer.—The Harrison Narcotic Act, Section 7, expressly provides that Section 3929 of the Revised Statutes shall be applicable with respect to the special taxes imposed by the act; and Section 3229 of the Revised Statutes provides:

> The Commissioner of Internal Revenue, with the advice and consent of the Secretary of the Treasury, may compromise any civil or criminal case arising under the internal revenue laws instead of commencing suit thereon; and, with the advice and consent of the said Secretary and the recommendation of the Attorney-General, he may compromise any such case after a suit thereon has been commenced.

The penalty clause of the Harrison Narcotic Act reads as follows:

> Section 9.—That any person who violates or fails to comply with any of the requirements of this Act shall, on conviction, be fined not more than $2,000 or be imprisoned not more than five years, or both, in the discretion of the court.

TAPEWORM

To the Editor:—What is the best method of removing a tapeworm? I have a case at present, and should like to know the latest opinion on the subject.

T. D. Smith, M.D., Neenah, Wis.

Answer.—Oleoresin of aspidium or pelletierin tannate are the remedies of choice, aspidium being more commonly used. To give the remedy the best chance for action, the intestinal contents should be reduced as much as possible by a diet restricted to liquids, chiefly beef tea, for a day or two, and by evacuation, e. g., by means of calomel, castor oil, and colonic flushing. On the morning of the treatment, the patient should stay in bed and be given from 6 to 8 gm. of the oleoresin of aspidium divided into as many capsules, in the course of ten or fifteen minutes. Two hours after the last dose of aspidium, a saline cathartic, such as solution of magnesium citrate, is administered and repeated every two hours until thorough evacuation has been secured.

DREYER TUBERCULOSIS VACCINE

To the Editor:—Please state whether the Dreyer tuberculosis vaccine is yet on the market, where it may be procured, and any other information you may have.

E. A. Stevens, M.D., Mayfield, Ky.

Answer.—The Dreyer tuberculosis vaccine is as yet in the experimental stage. It is being studied in laboratories in England under the authority of the British Medical Research Council. See editorial, The Journal, July 14, 1923, p. 138.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Alaska: Juneau, September 4. Sec., Dr. Harry C. De Vighne, Juneau.

Massachusetts: Boston, September 11-13. Sec., Dr. Charles E. Prior, Room 144, State House, Boston.

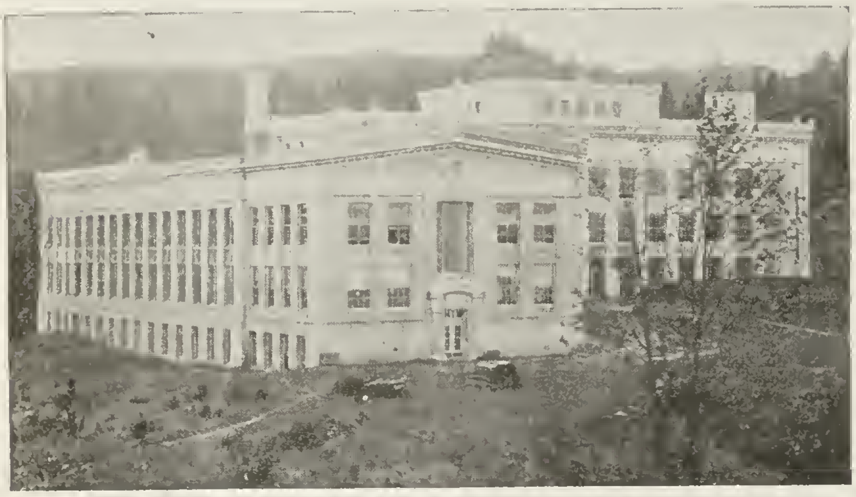
New Hampshire: Concord, September 13-14. Sec., Dr. Charles Duncan, Concord.

THE UNIVERSITY OF OREGON MEDICAL SCHOOL BUILDING

Architects' Description

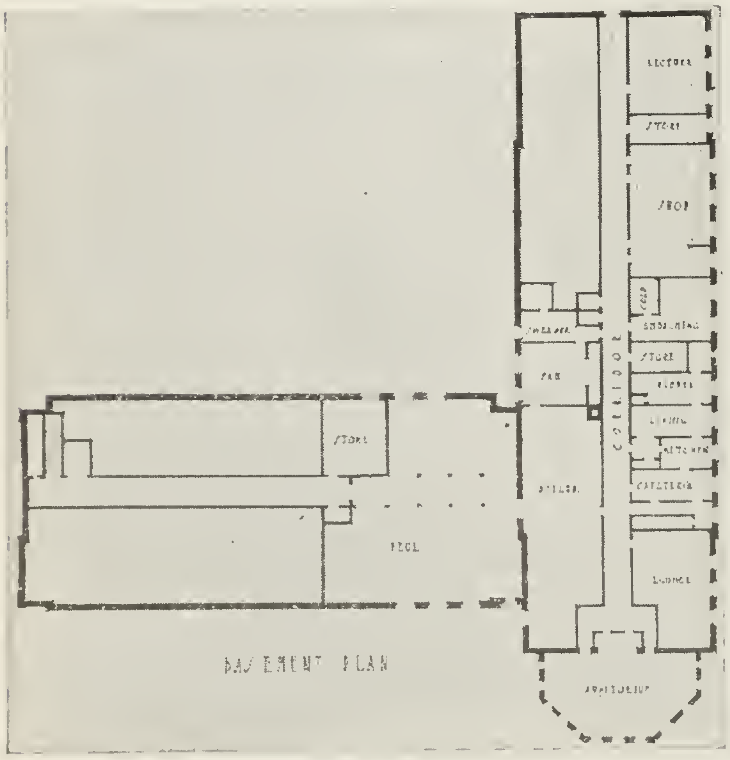
ELLIS F. LAWRENCE AND WILLIAM G. HOLFORD
Portland, Ore.

The building is a reinforced concrete frame, faced with gray brick trimmed with glazed terra cotta and with a composition roof, curtain walls and partitions of tile. The floors are finished with cement with a cement base. The walls and ceilings are plastered with a hard wall plaster putty coat finish. The ceilings and walls are painted with flat wall paint: the walls a light warm gray, the ceilings almost white, both colors studied to give a maximum of light value, without producing eyestrain from reflected light.

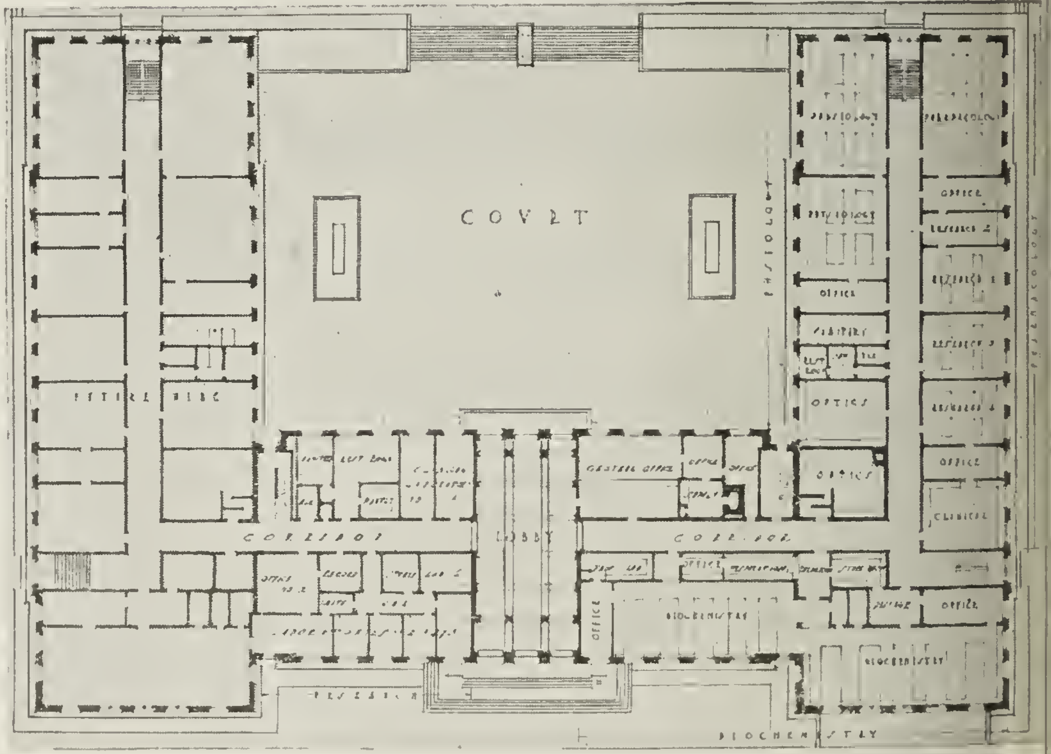


University of Oregon Medical School: at left, original wing, completed in 1918; at right, Mackenzie Hall.

Mackenzie Hall, just completed.



Basement plan.



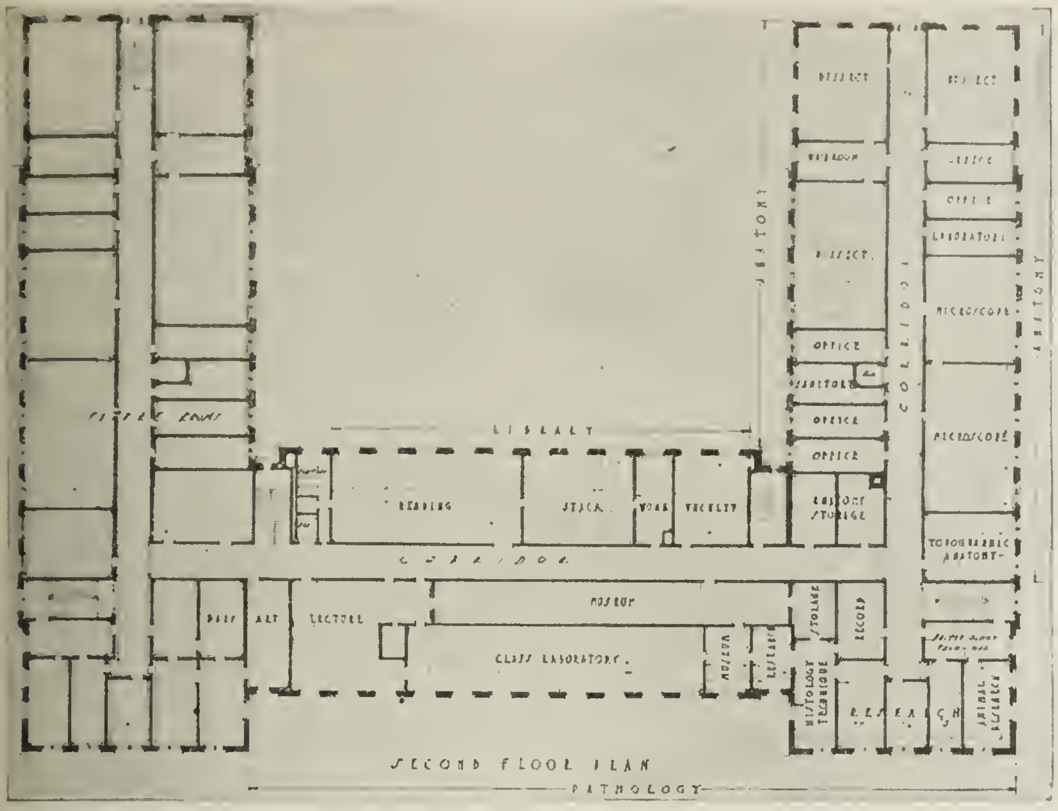
First floor plan.

The heating and ventilating installation is a low pressure oil burning steam plant in two units, with a small, high pressure boiler supplying steam to sterilizers, steam tables, etc. The offices, corridors, small research rooms and storage rooms are heated by direct steam. Thermostatically controlled electric heaters are also provided in certain research rooms to furnish heat when the steam plant is not fired. The class rooms are heated by a blast system with a supply fan in the basement and an exhaust fan on the roof. The fume hoods are exhausted by separate exhaust fans, one fan for each laboratory. These fans are controlled from the laboratories.

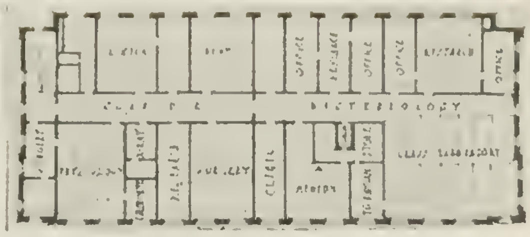
The lighting is from an overhead enclosed diffusing type of fixture, hung close to the ceiling except in the library, dissecting rooms and biochemistry laboratory. In the pathology and anatomy laboratories, lights are provided under glass covers flush with the table tops, for use in microscopic work.

An ammonia refrigerator plant, to be located in the basement, will serve the cold room in the bacteriologic laboratory and furnish ice for refrigerators in the women's lunch room, for biochemistry, and for all other purposes for which ice may be needed.

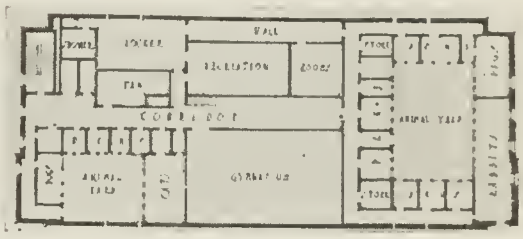
The medical school building throughout is fully equipped with laboratory tables, cases and other fixed equipment, including built-in incubators, all of which were planned after careful study of the most successful equipment in other schools, and with such improvements as use may have suggested.



Second floor plan.



Third floor plan.



Fourth floor plan.

Colorado April Examination

Dr. David A. Strickler, secretary, Colorado State Board of Medical Examiners, reports the written examination held at Denver, April 3, 1923. The examination covered 8 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 9 candidates who took the physicians' and surgeons' examination, 4, including 2 osteopaths passed, and 5, including 1 chiropractor, failed. Thirteen candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
American Medical College		(1911)	84.1
Kansas City University of Physicians and Surgeons		(1922)	78.2
Osteopaths			75, 77
	FAILED		
Pacific Medical College		(1917)*	33
University Medical College of Kansas City, Mo.		(1907)	62.4
St. Louis College of Physicians and Surgeons		(1922)	58.5
University of West Tennessee		(1918)	62.4
Chiropractor			4.0

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Loyola University		(1919)	Illinois
Northwestern University Medical School		(1922)	Illinois
George Washington University		(1917)	California
University of Maryland		(1907)	Maryland
University Med. Coll. of Kansas City, Mo.		(1904) (1913)	Kansas Missouri
Omaha Medical College		(1899)	Illinois
Creighton University		(1922)	Nebraska
University of Pennsylvania		(1917)	Minnesota
University of Nashville Medical Department		(1911)	New Mexico
University of Texas		(1920)	Texas
McGill University		(1901)	Canada
University of Zurich, Switzerland		(1917)	Dist. Colum.

* Graduation not verified.

Oklahoma April Meeting

Dr. J. M. Byrum, secretary, Oklahoma State Board of Medical Examiners, reports that 13 candidates were licensed by eciprocity and 3 candidates received duplicate licenses, at the meeting held at Oklahoma City, April 10-11, 1923. The ollowing colleges were represented:

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
ndiana University School of Medicine		(1917)	Indiana
Atlanta Medical College		(1916)	Georgia
Baltimore Medical College		(1908)	Maine
College of Physicians and Surgeons, Baltimore		(1905)	W. Virginia
Tufts College Medical School		(1921)	Kansas
Missouri Medical College		(1880)	Missouri
St. Louis College of Physicians and Surgeons		(1910) (1919)	Iowa Nebraska
Meharry Medical College		(1922)	Tennessee
University of Pittsburgh		(1891)	Nebraska
niversity of Tennessee		(1915)	Arkansas
Vanderbilt University		(1915)	Texas
Baylor University		(1921)	Texas

Book Notices

Cerebrospinal Fluid in Health and in Disease. By Abraham Levinson, B.S., M.D., Associate in Pediatrics, Northwestern University Medical School. With a foreword by Ludvig Hektoen, M.D. Second edition. Cloth. Price, $5. Pp. 267, with 69 illustrations. St. Louis: C. V. Mosby Company, 1923.

Examination of the cerebrospinal fluid has gradually come to take a more and more important position in the diagnosis of disease, and subarachnoid medication has now a definite field of its own. In this book, which has been brought fully up to date in this edition, the facts concerning the origin, function, composition and pathology of the fluid are presented in simple language and attractive form. After a description of the fluid in general terms, the changes to be found in different diseases are given under the titles of the diseases, the list of which is a good index of the importance of the subject. The operative technic for securing samples, and the details of the important methods of examination are both well given and admirably illustrated. The book fills a very definite need and can be heartily recommended both to the student and to the practitioner.

Reports of the Committee for the Investigation of the Causes of Dental Disease. I. The Structure of Teeth in Relation to Dental Disease. By J. Howard Mummery. Medical Research Council, Special Report Series, No. 70. Paper. Price, 2 shillings, net. Pp. 24, with 18 illustrations. London: His Majesty's Stationery Office, 1922.

This consists of three chapters summarizing largely previous investigations concerning: variations in the composition and structure of the enamel and the relationship of these variations to caries; the production of artificial caries (historical), and arrested caries of the teeth. The author concludes that it does not seem possible that enamel is entirely inorganic, but that the penetrability of the enamel (to stains and other substances in solution) appears to be of importance in the study of caries. The question of the further consolidation of the enamel by the deposit of calcific material after the eruption of the human tooth, in his opinion, requires further investigation. The second chapter reviews the efforts to produce artificial decay, from the experiments of Magitot to and including those of Miller, and contrasts the difference between artificial caries and that in the mouth of a living person. Arrested caries is due, the author states, to mechanical causes and vital reaction in combination. The translucent region in the dentin is an exhibition of this vital reaction not usually capable by itself of preventing the final destruction; but, when assisted by mechanical agents (cleansing, etc.) and possibly aided by the alterations accompanying pigmentation of the outer zone of the dentin, it is quite able to prevent further encroachment of the disease. Presumably this is only the first and preliminary report of a thorough and needed investigation into the problems of dental disease. Certainly the phase of arrested caries deserves much more study and from other points of view than that of structure of the teeth, which may modify such conclusions as have been arrived at as to the importance of the penetrability of the enamel, the part played by the translucent regions of the dentin, and the effect of the so-called mechanical agents.

Ophthalmoscopy, Retinoscopy and Refraction. By W. A. Fisher, M.D., F.A.C.S., Professor of Ophthalmology, Chicago Eye, Ear, Nose and Throat College. Cloth. Price, $2.50. Pp. 218, with 248 illustrations. Chicago: The Author, 1922.

In this small volume, the author has endeavored to lay bare the mysteries of the ophthalmic profession in terms of A B C so that any student or general practitioner may qualify as an ophthalmologist. Such minor details as a careful study of physiologic optics, gross and microscopic anatomy of the eyeball and adnexa, pathologic anatomy, physiology and bacteriology of the eye apparently do not matter; all that is necessary is a Loring ophthalmoscope and the schematic eye, this book and any one can diagnose and treat any opththalmic condition. This general attitude, and the infrakindergarten style in which the book is written, constitute a reversion to the days when the ophthalmologist was a specialist of title and not of technical training and intensively specialized knowledge. The diction of the book varies between the multipediculate sentences of the Helmholtz type and the ultra-abbreviated sentences affected by Victor Hugo. Pasted to the rear page is an extension on which there have been printed sixteen colored plates, representing different conditions of the fundus. These are well labeled and instructive.

Der Gesichtsausdruck und seine Bahnen beim Gesunden und Kranken besonders beim Geisteskranken. Von Prof. Dr. Theodor Kirchhoff. Boards. Price, $1.80. Pp. 227, with 68 illustrations. Berlin: Julius Springer, 1922.

Since the earliest times, physicians as well as laymen have been accustomed to rely largely on facial expression as an index to character and to health or disease. Whether consciously or not, we are still influenced in diagnosis and prognosis by the looks of the patient, and there is, without doubt, some fundamental ground of support for the custom. In this book, Dr. Kirchhoff, a psychiatrist of note, has endeavored to correlate the observations of many years of practice with anatomic and physiologic facts, with the purpose of rationalizing and systematizing this method of study. He distinguishes between the physiognomy, or static condition, and the play of the features, or the mimetic activity, of the face, and has reviewed in considerable detail literature and art, both ancient and modern, as well as the results of scientific work and theory. The anatomy and physiology of the facial muscles are well presented; consideration of movements of expression leads to extensive discussion of the physiology and anatomy of emotion and the problems of muscle tonus. The latter is considered especially in the light of recent work in physical chemistry and the functions of the connective tissues in relation to osmosis and ionic concentration. Excellent descriptions are given of the facial expression as modified by disease, particularly mental disease, and the illustrations are admirable. The subject is somewhat severely technical and philosophic, but it is of general interest and the book is well worth reading.

The Health of the Runabout Child. The Journey from His Mother's Lap to the School Gate. By William Palmer Lucas, A.B., M.D., LL.D., Professor of Children's Diseases, University of California Medical School. Cloth. Price, $1.75. Pp. 229, with 3 illustrations. New York: The Macmillan Company, 1923.

Dr. Lucas has expressed in a manner intelligible to the layman, and instructive both to the layman and to the medical reader, the management of the child between the period of infancy and the school age. "The journey from mother's lap to the school gate," as he calls it, is likely to be neglected from the standpoint of health and education. The burden is frequently shifted to the teacher later. To awaken interest in educating and supervising children during the preschool period, which is usually taken for granted, is Dr. Lucas' purpose. He discusses diets in detail, illustrating with a series of meals for every day in the week for various ages. Equally clearly and definitely he describes bodily growth and development, detailing the weight, height, brain, head, teeth, muscles, bones, heart, pulse rate, chest, lungs, respiration and abdomen. In a like manner the mental phase is discussed with emphasis on speech, mental ability, attention, imagination, curiosity, memory, imitation, muscular activity, senses and the social instincts. The status of heredity is defined. From an unusually rich experience Dr. Lucas also treats hygiene, teaching health, the common diseases of the preschool period, the usual defects, recreation, character training, wrong habits and the nervous child.

Coué for Children. By Gertrude Mayo. With a Preface by Emile Coué. Cloth. Price, $1.50. Pp. 126, with illustrations. New York: Dodd, Mead & Co., 1923.

From the preface by Emile Coué to the end, sentiment and lay testimonials are offered as data to prove that the method of Coué cures paralysis, deformities, ulcers, abscesses and asthma. There is only a semblance of a bone thrown to the science of medicine in the statement that medical care is not discarded, but that Coué's principles should be applied as after-treatment. In the case reports, however, only suggestion is mentioned for the cure of abscesses, paralysis and tuberculosis. There never appears to be a problem in diagnosis. Slow healing ulcers of the forehead are labeled tuberculous without further ado. Paralysis is cured which was said to be due to pressure of a fractured skull on the brain. The first two chapters of the book are devoted to a description of the so-called children's clinic conducted by Mlle. Kaufmant for Coué. The remaining three chapters are a more or less literary assemblage of experiences and ideas concerning autosuggestion for children.

The Encyclopedia of Food. The Stories of the Foods by Which We Live, How and Where They Grow and Are Marketed, Their Comparative Values and How Best to Use and Enjoy Them. Cloth. Price, $10. Pp. 596, with many illustrations. New York: Artemas Ward, 1923.

This is a one volume encyclopedia of food substances eaten by human beings. It is addressed primarily to the individual consumer. Each substance considered is defined, synonyms are given, the method of preparation and use as food is fully described, and in most instances there are excellent illustrations of various species and the manner of growth. A reference to certain common food substances, about which a great deal of wrong information has been given with a view to encouraging overuse, indicates that the author is not apparently interested in advancing the interests of any particular food substance. In other words, he has prepared a reference work, not a propaganda. The book is interesting, well written, and beautifully printed.

Exploration clinique et diagnostic chirurgical. Par Félix Lejars, Professeur de Clinique chirurgicale a la Faculté de médecine de Paris. Cloth. Price, 60 francs. Pp. 778, with 907 illustrations. Paris: Masson et Cie, 1923.

This is an exposition of surgical physical examination and an atlas of surgical diagnosis. It presents the subject of regional surgical diagnosis in a practical manner, and is designed particularly for medical students and general practitioners. It aims especially to instruct in special methods of palpation in various pathologic conditions in the various regions of the body. It is essentially a treatise on technic and a guide in arriving at a diagnosis when a patient is seen for the first time. The author contemplated producing such a work more than twenty years ago, and the book is the result of much thought and presents a magnificent atlas of surgical pathology collected from the author's personal experience. He is particularly interested in presenting various methods of palpation which he has developed during his long career. The book presents in detail the various maneuvers that he has found useful in examining special organs and special regions. He emphasizes the value of inspection, combined with intelligent manual examination. The various maneuvers are illustrated by a large and excellent collection of carefully taken photographs of patients presenting the conditions discussed. These photographs are of inestimable value, and present an entirely new method of surgical teaching in book form. The book is otherwise comparable to the work on surgical diagnosis by de Quervain, but has the added value of showing in great detail the exact manner of carrying out the physical examination. The book is excellently printed on good paper, and the illustrations are well reproduced.

ESSENTIALS OF SURGERY. A Textbook of Surgery for Students and Graduate Nurses and for Those Interested in the Care of the Sick. By Archibald Leete McDonald, M.D., Johns Hopkins University. Second edition. Cloth. Price, $2.50 net. Pp. 293, with 49 illustrations. Philadelphia: J. B. Lippincott Company, 1923.

This textbook on essentials of surgery is prepared for the instruction of nurses in training. General principles as applied to surgery are first considered by taking up bacteriology, infections, tumors, wounds, bones, joints and the vascular, lymphatic and nervous systems. The remaining half of the book is devoted to a consideration of surgical conditions and pathologic changes occurring in the various regions of the body. General principles of treatment are outlined, but operative and nursing technic are avoided. The book is carefully written, is not too long, and explains surgical conditions in a simple manner.

DIE KRANKHEITEN DES VERDAUUNGSKANALS (OESOPHAGUS, MAGEN, DARM). Ein Leitfaden für praktische Aerzte. Von Dr. Paul Cohnheim, Spezialarzt für Magen- und Darmkrankheiten in Berlin. Fourth edition. Paper. Price, 4 marks, 80 pfennigs. Pp. 281. Berlin: S. Karger, 1923.

To the practicing physician who reads German, this little book can be heartily recommended as a means of improving his grasp on the diagnostic essentials and the practical therapeutic details of gastro-enterology. The subject is treated here and there in perhaps a somewhat too schematic and dogmatic manner, but this is actually of advantage in a work intended as a practical guide.

DER FUNKTIONELLE BAU DES MENSCHLICHEN HERZENS. Von Dr. Walter Koch, Privatdozent an der Universität Berlin. Paper. Price, 1620 marks. Pp. 146, with 61 illustrations. Berlin: Urban & Schwarzenberg, 1922.

This work is chiefly concerned with the musculature and the conduction system of the heart. It is not alone a compilation, for it embodies the results of much original, careful investigation. While these results are largely confirmatory of those arrived at by others, the volume will serve a useful purpose as a reference book that contains much information helpful to the anatomist, physiologist and clinician. The subject is well presented, and there are many excellent illustrations.

L'ANNÉE THÉRAPEUTIQUE. Médications et Procédés Nouveaux. Par le Dr. L. Cheinisse. Troisième Année, 1922. Paper. Price, 7 francs net. Pp. 208. Paris: Masson et Cie, 1923.

The third annual volume (in French) by Cheinisse on therapeutic progress during the year 1922 should be welcome to all who appreciate the scholarliness, command of literature, and practical tendencies of this author. His aim is to render available to the general practitioner the therapeutic technic of the latest methods of treatment. Though he aims to cover "foreign" as well as French literature, he has not taken cognizance of some new American and German products.

PRACTICAL ANAESTHETICS FOR THE STUDENT AND GENERAL PRACTITIONER. By Charles F. Hadfield, M.B.E., M.A., M.D., Hon. Anaesthetist, Prince of Wales's Hospital. Cloth. Price, $3. Pp. 244, with 32 illustrations. New York: William Wood & Co., 1923.

This book briefly covers the practical features of anesthesia and anesthetics, and is designed as an elementary handbook for medical and dental students. Problems of purely theoretical interest and, with the exception of chloroform, the physiologic actions of the various anesthetic agents, are not discussed. The methods of administration selected for detailed description are those found to be the most satisfactory in the author's experiences. American anesthetists, accustomed to electrically driven vaporizing machines, would not be content to use the hand bellows Junker inhaler, which is recommended. Considerable space is devoted to the administration of nitrous oxid for dental extractions and manipulations. With the exception of spinal anesthesia, local and regional anesthesia are entirely omitted. The author very pertinently states that "the best treatment of anesthetic accidents is to anticipate them, and adopt measures to prevent their occurrence."

Miscellany

THE NEW TREATMENT FOR TUBERCULOSIS

The reports in the public press of the new "antigen" treatment of tuberculosis, although authoritatively based, have, we think, the stamp of being at least premature. The extraordinary propensity, now being demonstrated, to rush into lay newspaper print the announcement of a therapeutic laboratory result, long before whatever clinical value it may have has been confirmed, is certainly against the public interest. A conspicuous example of this has been in the case of Professor Dreyer. The true scientist shrinks from and abhors publicity of the kind, and in this instance he had probably nothing to do with the "booming." Meanwhile, the question is being asked, How was it that a scientific lecture, of a distinctly technical character delivered at a metropolitan hospital, should have attracted lay notice, and led to prominent reports on the morning following in the press? Again, the reports were exceedingly accurate and, from their technical details, far beyond the capacity of the average reporter to have compiled. However, we need not pursue the matter further, save to repeat that such premature announcements are against the public interests. The general effect is to inspire an undue confidence in sufferers in need of help, and to raise hopes which may never be realized. If the new "antigen" treatment should fail to justify the expectations, so widely advertised, for the treatment of tuberculosis, science will have dealt a cruel blow of disappointment to all those afflicted with the disease. Meanwhile, it may be asked, if this new treatment should be entirely successful, what will become of the £30,000 offered by the Red Cross Society to M. Spahlinger, to enable his researches to be continued?—*Medical Press and Circular* **115**:518 (June 27) 1923.

ENLIGHTENING THE PUBLIC

Only too often, when a physician of today tries to explain to his patient what is the matter with him, he finds it impossible to get the explanation into terms within the patient's understanding. The latter, if he is intelligent enough, will face the fact of his lack of training without rancor, and content himself with whatever parts of the exposition he can grasp. But that sort of intelligence, unluckily, is rather rare in the world; it is confined, indeed, to men of the sort who are said to have the scientific mind, i. e., a very small minority of men. The average man, finding himself getting beyond his depth, instantly concludes that what lies beyond is simply nonsense.

It is this fact which accounts for the great current prosperity of such quackeries as osteopathy, Christian science, Couéism and so on. The agents of such quackeries gain their converts by the simple process of reducing the inordinately complex to the absurdly simple. Unless a man is already equipped with a considerable knowledge of chemistry, bacteriology and physiology, no one can ever hope to make him understand what is meant by the term anaphylaxis, but any man, if only he be idiot enough, can grasp the whole theory of Couéism in twenty minutes. The fact that such imbecilities prosper increasingly in the world, and gain adherents in constantly superior circles—that is, among persons of more and more apparent education and culture—is no more than proof that the physical sciences are becoming increasingly recondite and difficult, and that the relative number of persons congenitally incapable of comprehending them is growing year by year.—H. C. Mencken, Baltimore *Sun.*

Medicolegal

Evidence in Fracture Case—As to Proper Treatment

(Foreman v. Surber (Kan.), 213 Pac. R. 667)

The Supreme Court of Kansas, in affirming a judgment in favor of the plaintiff, without stating the amount of the judgment, says that it was recovered for alleged negligence in treating the plaintiff's broken arm. The humerus of his left arm was broken, and the defendant set the arm. There was evidence which tended to show about two days after the arm was set, the plaintiff felt the parts of the broken bone grating on each other; that he reported that fact to the defendant; that the defendant, after a cursory examination of the arm, stated that it was all right, was straight, the parts of the bone were in apposition to each other, and were not moving—that the trouble was in the plaintiff's head and not his arm; that the plaintiff continued to feel the bone grating for a number of days and continued to report to the defendant, who continued to state that the bone was all right and that the trouble was in the plaintiff's head; that, when the splints and bandages were removed, the arm was crooked; that the plaintiff wanted his arm straightened; that the defendant advised against rebreaking and resetting the arm; that the arm was again broken and the bone reset, but the parts never united again; and that the arm was useless. A physician and surgeon described what would have been proper treatment for the arm and what would have been proper examinations of it after the plaintiff's complaints. The defendant demurred to the evidence. It was not error to overrule his demurrer. The evidence compelled the submission of the case to the jury.

Complaint was made by the defendant of hypothetic questions asked of the physician and surgeon who testified in behalf of the plaintiff. The questions were not asked to show that the treatment used was improper, but were asked to show what would have been proper treatment. The evidence tended to show that physicians disagree concerning their treatment of broken bones, and that the same physician will not always act in the same way, but is governed largely by the conditions that exist in each case. The evidence objected to was consistent with those differences. No reason is apparent why a physician and surgeon should be permitted to testify in response to hypothetic questions concerning what would be improper treatment and not be permitted to testify concerning what would be proper treatment. Wherefore the court holds that a physician and surgeon may testify as an expert concerning what would be the proper treatment of a broken bone.

Power to Prohibit Sale of Intoxicating Liquors for Medicinal Purposes

(Ex parte Hixson (Calif.), 214 Pac. R. 677)

The District Court of Appeal of California, Second District, Division 2, in discharging a writ of habeas corpus and remanding the petitioner into the custody from which he had sought to be released, says that he was a licensed pharmacist in Los Angeles, who had been convicted of filling a physician's prescription that called for more than 8 ounces of alcoholic liquor, in violation of a city ordinance which was adopted prior to the ratification of the Eighteenth Amendment. His principal contention was that while a state or a political subdivision thereof, in the exercise of its police power, may regulate the sale of alcoholic liquors for medicinal uses, it cannot prohibit their sale for such uses. Then he contended that the practical effect of the combined operation of the ordinance, which made it an offense for a pharmacist to fill any single prescription calling for more than 8 ounces, and of the Volstead Act, which he interpreted as not allowing a physician to issue more than one prescription for the same person in any ten-day period, was to make it unlawful for a licensed pharmacist to sell to any one person, on a physician's prescription, more than 8 ounces of alcoholic liquor in any period of ten days, which amount, it was contended, was so small as to be valueless for medicinal purposes. Assuming, without conceding, that such was the result of the operation of the city ordinance and the national law, the court does not think that the ordinance had been rendered unreasonable. More than that, the court thinks that the ordinance would not have been unreasonable and void if it had entirely prohibited the sale of alcoholic liquor as a medicine.

That the state or any political subdivision thereof, vested with local police power, may prohibit all traffic in intoxicating liquors for beverage purposes is no longer a debatable proposition. Not only may the sale of intoxicants as beverages be prohibited, but it also is well established that a state, or any of its political subdivisions invested with local police power, may adopt such measures having a real or substantial relation to the suppression of traffic in intoxicating beverages as it may deem necessary for that purpose in order to make its action effective. And though alcoholic liquor, when used for certain purposes, may be beneficial and useful, still its sale for such beneficial and useful purposes may be prohibited if it can be seen that prohibitory measures of that nature have a real and substantial relation to the suppression of all traffic in intoxicants for beverage purposes.

If wine, whisky, brandy and the like are useful for medicinal and other nonbeverage purposes, still the evils which flow from their use as a beverage so greatly menace the health, peace, morals and safety of society that the lawmaking branch of the government may with reason regard those evils as overwhelmingly outweighing the good services which such liquors may perform as medicines. If experience shows that the sale of intoxicating liquors for medicinal purposes opens the door to that train of evils which admittedly follows on their general use as beverages, then why may not their use as medicines be absolutely prohibited? That the sale of such liquors for medicinal purposes does greatly facilitate the evasion of the whole scheme of prohibitory legislation is a matter of common notoriety. A city's entire scheme of prohibition might fail if pharmacists were to be permitted to sell alcoholic liquors for medicinal use. And because this is so, the city of Los Angeles, had it deemed it wise and expedient, could have forbidden the sale of such liquors as medicines, even though such sales, regarded as separate transactions, might be entirely innocuous.

Though no case directly in a number of decisions was called to the court's attention, the principles announced in a number of decisions are determinative.

Nor does the court think that there was any merit in the contention that the subdivision of this ordinance relating to the filling of prescriptions by pharmacists discriminated unlawfully between the filling of prescriptions for alcoholic liquors and the filling of prescriptions for drugs or other curative agencies. Even if the sale of drugs, poisons and narcotics had not been similarly regulated, the ordinance did not arbitrarily discriminate between the sales of such articles and the sale of alcoholic liquors as medicines.

Society Proceedings

COMING MEETINGS

American Association of Obstetricians, Gynecologists, and Abdominal Surgeons, Philadelphia, Sept. 19-21. Dr. James E. Davis, 111 Josephine Avenue, Detroit, Secretary.

American Roentgen Ray Society, Chicago, Sept. 18-23. Dr. W. W. Watkins, Goodrich Building, Phoenix, Ariz., Secretary.

Association of Military Surgeons of the United States, Carlisle Barracks, Pa., Oct. 4-6. Col. James Robb Church, Army Medical Museum, Washington, D. C., Secretary.

Colorado State Medical Society, Glenwood Springs, Sept. 4-6. Dr. F. B. Stephenson, Metropolitan Building, Denver, Secretary.

Indiana State Medical Association, Terre Haute, Sept. 26-28. Dr. Charles N. Combs, Terre Haute, Secretary.

Kentucky State Medical Association, Crab Orchard, Sept. 17-20. Dr. A. T. McCormack, 532 West Main Street, Louisville, Secretary.

Michigan State Medical Society, Grand Rapids, Sept. 11-13. Dr. F. C. Warnshuis, 410 Powers Building, Grand Rapids, Secretary.

Missouri Valley, Medical Society of the, Omaha, Sept. 20-21. Dr. Charles W. Fassett, 115 East 31st Street, Kansas City, Secretary.

Pennsylvania, Medical Society of the State of, Pittsburgh, Oct. 1-4. Dr. W. F. Donaldson, Jenkins Arcade, Pittsburgh, Secretary.

Wisconsin, State Medical Society of, Milwaukee, Oct. 3-5. Mr. J. G. Crownhart, 558 Jefferson St., Milwaukee, Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

25: 413-502 (June) 1923

*Importance of Colostrum to New-Born Infant. A. Kuttner and B. Ratner, New York.—p. 413.
Case of Cerebral Cyst in an Infant. H. G. Jacobi, New York.—p. 435.
*Malignant Hypernephroma in Children. L. A. Hoag, Ann Arbor.—p. 441.
*Studies of Tetany. J. L. Gamble, Boston; G. S. Ross, Montreal, and F. F. Tisdall, Toronto.
  I. Effect of Calcium Chlorid Ingestion on Acid-Base Metabolism of Infants.—p. 455.
  II. Effect of Ingestion of Hydrochloric Acid Producing Substances and Probable Manner of Action in Treatment.—p. 470.
Effect of Spray Process of Drying on Vitamin C Content of Milk. G. W. Cavanaugh, R. A. Dutcher and J. S. Hall, Ithaca, N. Y.—p. 498.

Importance of Colostrum to the New-Born.—Careful clinical study made by Kuttner and Ratner of eighteen cases in which there was no possibility of error concerning the ingestion of colostrum revealed no evidence of harm to the infant due to the omission of colostrum. These investigations indicate that colostrum feeding in human beings has no significance whatever comparable to that revealed by the work of Theobald Smith and his co-workers in the feeding of the new-born calf.

Malignant Hypernephroma in Child.—In Hoag's case the presumptive evidence of an abdominal tumor in a girl, aged 4 years and 3 months, showing heterosexual precocity, as evidenced by hypertrophied clitoris, deep voice, and hypertrichosis of distribution characteristic of the male, and brought to the hospital because of convulsions alternating with lethargy, suggested the diagnosis of hypernephroma, with a possibility of intracranial metastasis. A pneumoperitoneal examination revealed a tumor in the region of the right suprarenal. A large tumor was found behind the peritoneum covering the upper pole of the downwardly displaced right kidney, and extending upward to the junction of the hepatic veins with the inferior vena cava. Complete removal was impossible because of the extent of the mass and the patient's poor condition. In spite of blood transfusion she died, four hours after the operation. Microscopic examination confirmed the clinical diagnosis of malignant hypernephroma of the right suprarenal cortex.

Treatment of Tetany.—Gamble and Ross assert that there is theoretic ground for regarding calcium chlorid and hydrochloric acid as more efficient agents than ammonium chlorid in the treatment of tetany.

American Journal of Medical Sciences, Philadelphia

165: 625-780 (May) 1923

*Tetany in Adult; Alkalosis and Calcium Metabolism. W. Tileston and F. P. Underhill, New Haven, Conn.—p. 625.
*Differential Study of Case of Pulmonary Stenosis of Inflammatory Origin (Ventricular Septum Closed) and Two Cases of Pulmonary Stenosis and Pulmonary Atresia of Developmental Origin with Associated Ventricular Septal Defect and Death from Paradoxical Cerebral Embolism. M. E. Abbott, D. S. Lewis and W. W. Beattie, Montreal.—p. 636.
*Heart Block. P. D. White and L. E. Viko, Boston.—p. 659.
Blood Pressure Reactions to Passive Postural Changes Index to Myocardial Efficiency. M. A. Mortensen, Battle Creek, Mich.—p. 667.
Laws of Heredity and Application to Conditions in Man. J. A. Buchanan, Rochester, Minn.—p. 675.
Tolysin in Acute Rheumatic Fever and Other Conditions. H. G. Barbour, E. Lozinsky and C. Clements, Montreal.—p. 708.
Early Symptoms and Diagnosis of Tumors of Spinal Cord; Surgical Treatment. C. A. Elsberg, New York.—p. 719.
*Laryngeal Paralysis Associated with Jugular Foramen Syndrome and Other Syndromes. G. B. New, Rochester, Minn.—p. 727.
Pathology of Nodular (Adenomatous?) Goiters in Patients With and Those Without Symptoms of Hyperthyroidism. L. B. Wilson, Rochester, Minn.—p. 738.
*Clinical Criteria of Activity in Pulmonary Tuberculosis. P. H. Ringer, Asheville, N. C.—p. 742.

Sodium and Calcium Blood Content in Tetany.—Three cases of tetany, all of the secondary form, are reported by Tileston and Underhill. In these cases, the sodium bicarbonate content of the blood was abnormally high. This is easily explained in the first case by the administration of large amounts of sodium. In the second and third cases it is not clear why the bicarbonate was increased. A low serum calcium was found in one case, another showed a normal figure during a period of latent tetany. A study of the calcium metabolism in one case revealed definite abnormalities. Large amounts of indican were found in the urine in one case.

Pulmonary Stenosis and Atresia.—Abbott, Lewis and Beattie, summarize their observations on these cases as follows: Pulmonary stenosis or atresia with closed interventricular septum is of unusual occurrence and is due to a fetal endocarditis setting in after the heart has formed. Narrowing of the pulmonary tract with associated ventricular septal defect is the much more frequent finding and is due to arrested development in early embryonic life and is usually associated with a deviation to the right of the aorta. In pulmonary atresia the degree of cyanosis is naturally more intense and the duration of life shorter than in pulmonary stenosis. In atresia, however, an associated septal defect facilitates aeration of the blood especially with a deviation to the right of the aorta; such cases have, therefore, a better prognosis and present a more moderate degree of cyanosis than does pulmonary atresia with closed interventricular septum. In pulmonary stenosis, on the other hand, an associated septal defect is unfavorable, for it tends both to reduce the volume of blood passing through the stenosed orifice and to permit the passage of venous blood into the arterial stream. The most favorable prognosis, therefore, in pulmonary stenosis, is in cases in which the ventricular septum is closed. Dyspneic attacks are especially frequent and severe in cases in which a marked ischemia of the pulmonary circulation is present, as in pulmonary stenosis with pinhead orifice and closed septum and in certain cases of patent ductus arteriosus. Cerebral complications of the nature of abscess or infarction are a frequent complication of congenital cardiac cases presenting defects in the interauricular or ventricular septum, and are in the great majority of cases embolic in origin, from a focus in the venous system (paradoxical or crossed embolism). Two cases of this interesting finding are here added to the literature.

Intraventricular and Auriculoventricular Block.—White and Viko assert that, intraventricular block is almost as frequently seen in a large medical clinic as in auriculoventricular block, 4 per cent. of the former class having been found in 3,219 cases observed at the Massachusetts General Hospital, as compared with 4.8 per cent. of the latter type. Complete auriculoventricular block showed one-fifth the frequency of unquestionable partial auriculoventricular block. Bundle branch block of high grade made up slightly less than one third of the total number of cases of intraventricular block. Sino-auricular block was rarely found, less than half as often as complete auriculoventricular heart block. Arteriosclerosis was apparently responsible for the majority of cases of complete auriculoventricular block and of intraventricular block of all degrees, but especially, of bundle branch type, where it figured as the chief factor in over 80 per cent. Syphilis was a probable factor in sixteen of 156 cases of auriculoventricular block and in eleven of 130 cases of intraventricular block. In the series of partial auriculoventricular block cases digitalis seemed to be chiefly responsible in more than half, on a background of rheumatic heart disease more often than arteriosclerotic heart disease. Digitalis was also largely responsible for six of the eleven cases of "sino-auricular block." Less than one quarter of the cases of complete auriculoventricular block showed heart failure, either anginal or congestive, at the time of discovery, and also less than one quarter gave a history of Stokes-Adams attacks. The mortality from heart failure in the last seven and a half years has been slightly higher in the group with intraventricular block than in the group with auriculoventricular block. Several of the cases with complete heart block were in fairly good condition some years after the discovery of the block, in fact nine being in "good or in fair health" from one to seven years after the first electrocardiographic evidence of complete heart block. Heart failure was found more often in the patients with intraventricular block than in those with auriculoventricular block, especially heart failure of the anginal type. Angina pectoris was found about four times more often in intraventricular block then in auriculoventricular block. It appears from this study that intraventricular block is of greater significance than auriculoventricular block. For its detection the electrocardiograph is essential.

Drop in Systolic Pressure Evidence of Myocardial Inefficiency.—A drop or more than 8 per cent. in the systolic pressure, in changing from the reclining to the erect posture, is viewed by Mortensen as an evidence of myocardial inefficiency. This test is applicable in cases of angina pectoris or advanced arteriosclerosis in which exercise tests are contraindicated. Cases of angina pectoris uniformly show a decided drop in systolic pressure. The test is uniform for all individuals as it practically eliminates all but the factor of gravity in the circulation. It is easily applied without discomfort to the patient and can be used at intervals for the purpose of noting progress in the management of cases and as an index to the influence of digitalis or exercise on myocardial efficiency.

Laryngeal Paralysis Due to Neoplasm.—A review of the cases recorded in the literature and of his own group of cases, convinces New that laryngeal paralysis associated with a syndrome due to involvement of the last four cranial nerves and the cervical sympathetic nerve in the region of the jugular foramen is quite unusual. When this occurs it is usually due to a neoplasm, although a tuberculous process in the glands of the neck or an acute phlegmon may be the cause.

Estimating Activity of Pulmonary Tuberculosis.—For the man doing general work, Ringer says, the estimation of the presence or absence of activity in tuberculosis will be based, in the main, on the careful consideration of symptoms which alone point out the relative strength of the two great fundamental biologic factors in any infectious disease; virulence of the invading parasite, and resisting powers of the invaded host.

American Journal of Obstetrics and Gynecology, St. Louis

5: 461-580 (May) 1923

*Effects of Irradiation on Fetal Development. H. Bailey and H. J. Bagg, New York.—p. 461.
*Evolution of Operation for Myoma of Uterus: Study Based on Over Two Thousand Laparotomies. D. Von Ott, Petrograd, Russia.—p. 473.
*Routine Treatment for Hyperemesis Gravidarum. E. Speidel, Louisville.—p. 481.
*Dry Labor. J. O. Polak, Brooklyn.—p. 488.
Transplantation of Human Ovaries: Present Status and Future Possibilities. W. S. Bainbridge, New York.—p. 493.
Surgical Treatment of Certain Puerperal Infections. J. F. Baldwin, Columbus, Ohio.—p. 499.
*Gonococcus Arthritis in Pregnancy. G. D. Royston, St. Louis.—p. 512.
Red Degeneration of Fibroids. J. M. Maury, Memphis.—p. 519.
Sarcoma of Uterus, Report of Thirty Cases. M. E. Vogt, Philadelphia.—p. 523.
Case of Hernia of Female Internal Genitalia Through Inguinal Canal. H. W. Hewitt, Detroit.—p. 530.
Female Mammae in Relation with Pelvic Organs. D. Hadden, Oakland, Calif.—p. 536.
Twin Tubal Pregnancy. W. E. Darnall, Atlantic City, N. J.—p. 537.
*Unusual Type of Carcinoma in Woman Twenty-Nine Years of Age. A. Stein, New York.—p. 539.
Case of Paratyphoid Beta Bacillus Infection of Ovarian Cyst. J. A. Corscaden, New York.—p. 545.
Two Cases of Obstetric Sepsis. G. L. Brodhead, New York.—p. 548.
Case of Retinitis Gravidarum with no Other Indications of Toxemia. J. K. Quigley, Rochester, N. Y.—p. 550.

Effect of Roentgen Ray and Radium on Fetal Development.—Experimental and clinical studies relating to the effects of radium and roentgen-ray irradiation on the functional activity of the ovary and the reaction on the developing fetus, when irradiation is given before or during the various stages of pregnancy, are reviewed by Bailey and Bagg. They conclude that it is questionable whether radium or roentgen-ray irradiation should be used to destroy the ripe follicles, leaving the immature ones injured but capable of development. This statement is made entirely on the strength of experimental work on lower animals and we do not feel justified in considering the available clinical records as adding conclusive evidence in this regard. In the treatment of menorrhagia in the child-bearing period, they believe that complete sterility is preferable to the possibility of a damaged germ plasm. Irradiation of the ovum during early pregnancy should never be permitted. Radiation in late pregnancy, while it may not produce gross abnormalities at birth, may hinder the growth and development of the child in later life.

Operation for Myoma of Uterus.—Experience leads Ott to the conviction that, whenever possible, operation for uterine myoma should be performed through the vagina. This guarantees the smallest risk. Hysteromyomectomy is superior in technic to any other abdominal operation, not excluding ovariotomy. Excepting the truly conservative myomectomies, the radical operation should be given preference. Merely palliative measures, such as ligation of vessels, extirpation of the ovaries, etc., must be repudiated. Particularly objectionable is castration, whether obtained by operation or without operation by means of roentgen rays. This method is not only useless, but with the suppression of an important endocrine function, exerts a harmful effect on general endocrine activity and metabolism. Vaginal operations not only minimize the immediate dangers of operation but offer security against some of the sequelae of laparotomy, especially the formation of a hernia. Panhysterectomy is the operation of choice.

Treatment of Vomiting of Pregnancy.—Irrigating the large bowel with a solution containing sodium bicarbonate, rectal feeding, and the administration of sodium bromid and corpus luteum extract, constitutes the treatment advocated by Speidel.

Dry Labor.—Polak urges that each case of dry labor should be considered on its merits; that the determining factors in the selection of a method are the position of the presenting part, the length of the labor and the condition of the cervix; that when infravaginal delivery is possible, cervical dilatation is best handled with morphin and vaginal plugging, and finally, when section is elected, owing to the fact that all dry labors are potentially infected, the classical operation is not that of choice, but one should be selected that excludes the peritoneal infection by peritoneal flaps.

Gonococcus Arthritis in Pregnancy.—Among 4,284 admissions on the obstetric service of two hospitals, four cases of gonococcus arthritis during pregnancy have been found by Royston. In one case there was evidence that the disease was transmitted to the child in utero. This case is of unusual interest on account of this possible transmission. It suggests that the infection was transmitted through the placenta from the mother, who had widespread systemic infection, because five days after birth, with no evidence of a focus of infection, the child developed a marked swelling in both wrists and in the left knee, from which two weeks later gonococci were isolated.

Extraperitoneal Adenocarcinoma Secondary to Ovarian Tumor.—Stein cites the case of a woman, 29 years of age, who had been operated on when she was 19 years old. Nothing definite is known of this operation beyond the fact that the right tube, ovary and the appendix were apparently removed. When the patient came under Stein's observation ten years later, she presented a large extraperitoneally located adenocarcinoma, all of the carcinomatous tissue being of ovarian origin; the tumor was located in the pelvic glands and developed between the outer two thirds of the broad ligament, i. e., extraperitoneally. She presented another tumor of similar structure in the left inguinal region. Postmortem examination revealed no primary tumor. The question then arises, where did this unusual type of carcinoma have its origin? There are several possibilities. First, the case may be a slow growing recurrence from an original ovarian tumor removed at the time of the first operation, ten years ago. (Nothing definite could be ascertained of this operation.) Secondly, the growth may have developed from a supernumerary ovary, extraperitoneally located between the folds of the broad ligament. Thirdly, it may have developed in Mueller's duct. In Stein's opinion the first supposition is the most logical.

American Journal of Public Health, Detroit

13: 441-530 (June) 1923

Epidemiology from Point of View of State Department of Health. F. G. Boudreau, Columbus, Ohio.—p. 459.
Domestic Carbon Monoxid Poisoning from Gas Stoves. E. R. Hayhurst, Columbus, Ohio.—p. 462.
Scarlet Fever in State Juvenile Home. D. M. Griswold Iowa City, Ia.—p. 465.

Serum Lysins. R. W. Pryer, Detroit.—p. 470.
Wassermann and Kahn Precipitation Tests Compared in 900 Cases. A. D. Dulaney.—p. 472.
Comparative Study of Mediums for Quantitative Estimation of Bacteria in Milk. M. Frobisher, Jr.—p. 474.
Chlorination of Swimming Pool Water. W. D. Stovall and M. S. Nichols.—p. 478.

American Journal of Tropical Medicine, Baltimore

3: 159-268 (May) 1923

Hookworm Disease as Related to Industry in Australia. W. A. Sawyer, Brisbane, Aust.—p. 159.
*Toxicity of Carbon Tetrachlorid. J. R. Meyer and S. B. Pessoa, Sao Paulo.—p. 177.
*Effect of Carbon Tetrachlorid on Intestinal Protozoa. M. J. Hogue and C. Van Winkle, Greensboro, N. C.—p. 197.
*Etiology of Blackwater Fever. I. J. Kligler, Jerusalem.—p. 203.
Acetic-Alcohol Fixation for Parasitic Amebas and for Tissues. R. W. French, Washington, D. C.—p. 213.
Moscow Tropical Institute. Sh. Moshkovsky.—p. 225.
*Etiology of Dengue Fever. A. C. Chandler, Houston, Tex., and L. Rice, Galveston, Tex.—p. 233.

Toxicity of Carbon Tetrachlorid.—Among a group of persons suffering from uncinariasis who were treated with carbon tetrachlorid according to Hall's method, and with doses equal to those which he recommends, Meyer and Pessoa saw three cases with severe attacks of pain in the lumbar regions. One patient had marked hematuria, and various other symptoms which also occurred in other members of the group. Experiments were made on dogs to determine the influence of tetrachlorid on the various organs. The most marked lesions were observed macroscopically and microscopically in the liver and kidneys. The severity of these lesions seems to vary in inverse ratio to the age of the animal. The severity of the liver necrosis is in direct proportion to the dose administered, although occasionally hypersusceptibility to carbon tetrachlorid was observed. The liver necrosis appears to be brought about by the same mechanism as that from chloroform intoxication. The renal lesions are less severe than those in the liver and develop more slowly. Both liver and kidneys show active power of regenerating the destroyed parenchyma. Carbon tetrachlorid is a powerful vermifuge. When administered in doses of 0.3 c.c. per kilogram of body weight it removed all ancylostomes in dogs. The authors warn that the administration of this vermifuge should be undertaken with caution in human beings and that the doses recommended by Hall may be too large.

Dose of Carbon Tetrachlorid.—Carbon tetrachlorid in doses of 1 c.c., according to Hogue and Winkle, is not specific for the treatment of infections of *Giardia* and spirochetes in kittens. Carbon tetrachlorid in 3 c.c. doses is not a specific for the treatment of human infections of *Giardia intestinalis, Trichomonas hominis, Chilomastix mesnili, Endolimax nana* and *Iodamoeba williamsi*. Carbon tetrachlorid has no permanent effect on intestinal protozoan infections. Infections of *Trichomonas hominis* and *Chilomastix mesnili* persist in spite of the full dosage, i. e., 3 c.c. Infections of *Giardia intestinalis* appear at times to be affected. Cysts will disappear from the stools for a few days after treatment. However, this is characteristic of *Giardia* infections. Various authors have already shown that the cysts of *Giardia* appear in the stools at irregular intervals, often several days apart so that their disappearance from the stools of these patients under treatment cannot be taken as due to the effect of carbon tetrachlorid. The same appears to be true for *Endolimax nana* though less is known about this infection.

Blackwater Fever: Mechanism of Hemoglobinuria.—The observations reported by Kligler seem to have a bearing on the mechanism of quinin hemoglobinuria. It appears that, in the presence of bile, quinin becomes highly hemolytic even in the small doses ordinarily employed in the treatment of malaria. Some as yet undetermined constituent of bile had the power of rendering quinin hemolytic in one-tenth the concentration usually required. If it is assumed that the substance in question is liberated during the active destruction of blood cells in the course of repeated attacks of malaria, a simple theory of the mechanism of hemoglobinuria suggests itself. Hemoglobinuria patients invariably give a history of repeated attacks of malaria. In the course of these attacks cell products are constantly liberated in the circulation which at times may not be readily eliminated and thus reach a concentration higher than normal. The injection of quinin at that time causes hemolysis and hemoglobinemia which manifests itself by the appearance of hemoglobin in the urine.

Etiology of Dengue Fever.—Negative findings in blood, in inoculated animals (particularly guinea-pigs), and in cultures; the usual absence of liver and kidney involvements; the fact that the relationship of dengue to yellow fever has been overemphasized; and the viability of the virus in blood kept in an ice chest after removal from the host (according to Cleland, Bradley and MacDonald), lead Chandler and Rice to believe it improbable that the organism of dengue is a *Leptospira*.

Archives of Internal Medicine, Chicago

31: 783-934 (June 15) 1923

Clinical Significance of Abnormalities in Urine Volumes. T. Addis, San Francisco.—p. 783.
*Physiology of Liver. IV. Effect of Total Removal of Liver After Pancreatectomy on Blood Sugar Level. F. C. Mann and T. B. Magath, Rochester, Minn.—p. 797.
*Production of Urinary Calculi by Devitalization and Infection of Teeth in Dogs with Streptococci from Cases of Nephrolithiasis. E. C. Rosenow, and J. G. Meisser, Rochester, Minn.—p. 807.
*Study of Macrophages in Human Blood with Special Reference to Their Presence in Two Cases of Subacute Bacterial Endocarditis. J. J. Sampson, W. J. Kerr, and M. E. Simpson, San Francisco, Calif.—p. 830.
Primary Carcinoma of Thymus: Report of Case. V. C. Jacobson, Albany, N. Y.—p. 846.
*Stokes-Adams' Disease Due to Gumma of Heart. R. H. Major, Kansas City Kan.—p. 857.
Hydrogen-Ion Studies. VII. Experimental Nephritis in Rabbits with Monobasic Sodium Phosphate. E. F. Hirsch, Chicago.—p. 862.
Dilatation of Pulmonic Area of Heart and Its Significance. J. A. Honeij, Boston.—p. 866.
*Blood Gases in Auricular Fibrillation and After Restoration of Normal Mechanism. H. J. Stewart, Baltimore.—p. 871.
Experimental Uranium Nephritis: Chemical and Pathologic Study. F. R. Nuzum and L. L. Rothschild, Santa Barbara, Calif.—p. 894.
Vital Capacity in Hyperthyroidism. Influence of Posture: Preliminary Report. I. M. Rabinowitch, Montreal.—p. 910.
Studies on Potassium Content of Human Serum. L. Wilkins and B. Kramer, Baltimore.—p. 916.
*Some Unusual Disturbances of Mechanism of Heart Beat. F. N. Wilson, and G. R. Herrmann, Ann Arbor, Mich.—p. 923.

Effect of Hepatectomy and Pancreatectomy on Blood Sugar.—The liver and pancreas were removed by Mann and Magath at varying intervals in relation to each other. When the two glands were removed at the same time, the resulting condition was the same as though only the liver had been removed. When the liver was removed from twenty-four to ninety-six hours after pancreatectomy, the blood sugar decreased quickly and the same characteristic symptoms developed as after hepatectomy, but at a higher blood sugar level. The injection of glucose restored the animal to a normal state, but the effect of the glucose was transitory. The total removal of the pancreas and partial removal of the liver in an animal in which an Eck fistula had been made was followed by only slight or no increase in blood sugar. These experiments are said to prove that the presence of the liver is absolutely necessary for the hyperglycemia following pancreatectomy.

Urinary Calculi Produced by Focal Infection of Teeth.—The results of their experiments, and of clinical study made by Keyser and Braasch and others, Rosenow and Meisser assert indicate that the factor of focal and other infections should be given thorough consideration in the management of cases of nephrolithiasis. The demonstration of the presence of the micro-organisms precisely where precipitation and crystallization begin suggests strongly that the mechanism of the production of stone is largely a local process and that the reactions incited produce the physicochemical conditions necessary, such as the nucleus and organic framework, for the formation of calculi. The common occurrence, however, of unusually large numbers of calcium oxalate and other crystals in the urine and in the medulla of the kidneys of the dogs that developed calculi, and the loss in weight, suggest that more general effects of infection may also play a part. The conclusion that primary urinary calculi are often due to streptococci which have elective affinity for the urinary tract and, it would seem, specific power to incite the conditions necessary for their formation, the authors state, seems justified.

Study of Macrophages.—In two cases of subacute bacterial endocarditis, cells foreign to the normal blood stream were observed by Sampson, Kerr and Simpson. They varied in size from 10 to 80 microns. The nucleus was round, oval, indented or multiple. These cells were markedly phagocytic with vacuoles containing engulfed cells, possibly bacteria, and unidentified material in all stages of disintegration. With Giemsa stain, marked fine azurophilic granulation of the cytoplasm was observed. By supravital staining, from six to seventy or more granules were noted in the segregation apparatus. Intermediate forms, varying from the cells just described to normal appearing transitional cells, were also observed. Their fluctuations were rapid but without periodicity, and varied from zero to 48 per cent. They varied directly with the number of platelets, inversely with the bleeding time, and descreased at the time of death. There was an increase from three to fifteen hours after transfusion. The fluctuations were evidently not associated with changes of temperature, pulse, respiration, digestion or sudden changes of physical or mental status. Certain deductions are made as to origin, cause of production and release, mode of removal and function of these cells through parallelisms of their behavior with similar cells produced experimentally.

Heart Block Due to Gumma in Heart.—The case of heart block due to gumma of the heart reported by Major, is said to be the twelfth on record. The anatomic diagnosis was: gumma of the heart; aortic stenosis; aortic insufficiency; pulmonary insufficiency; hypertrophy and dilation of the heart, syphilitic aortitis.

Advantages of Quinidin Therapy.—The advantages of quinidin therapy, Stewart says, seem to be four: (1) Marked subjective improvement of the patient under the normal mechanism. (2) Great increase in the cardiac reserve. (3) Improved pulmonary ventilation. (4) Improvement in the oxygen saturation of the venous blood, and on the basis of the coefficient of ultilization, improvement in the peripheral systemic blood flow. Fifteen cases of auricular fibrillation were studied from the point of view of the blood gases.

Disturbances of Mechanism of Heart Beat.—Wilson and Herrmann report four cases: (1) an ectopic tachycardia of fifteen months' duration; (2) toxic depression of the conductivity of the Purkinje system; (3) transient complete bundle branch block, and (4) Stokes-Adams attacks due to the sudden onset of complete block.

Arkansas Medical Society Journal, Little Rock

20: 1-15 (June) 1923

Cancer of Female Breast; Factors Influencing Best Surgical Results. J. N. Jackson, Kansas City, Mo.—p. 1.
Radiotherapy in Treatment of Bone Tuberculosis and Other Conditions. J. D. Southard, Fort Smith.—p. 6.

Boston Medical and Surgical Journal

188: 975-1022 (June 21) 1923

Some Peripheral Nerve Problems. D. Lewis, Chicago.—p. 975.
*Heart Disease in Pregnancy. W. B. Breed and P. D. White, Boston. —p. 984.
Id. B. E. Hamilton, Boston.—p. 987.
Infectious Colitis. H. F. Hewes, Boston.—p. 994.
Surgical Treatment of Ulcerative Colitis. D. F. Jones, Boston.—p. 999.
Practical Management of Dysmenorrhea. S. R. Meaker, Boston.—p. 1000.
Cancer of Cervix Uteri. W. P. Graves, Boston.—p. 1006.

Heart Disease in Pregnancy.—The 102 cases analyzed by Breed and White demonstrate two features which they emphasize: First, the importance of separating at the very outset the patients with organic heart disease from those in whom there is no disease or muscle insufficiency; and second, the relatively slight significance of specific value injuries in relation to cardiac prognosis. Among the 102 women, forty-nine had no organic heart disease; that is, it was impossible to demonstrate any structural change or impairment of cardiac function. These patients presented various symptoms of palpitation, tachycardia, nonprogressive weakness, and irritability. Such symptoms were generally associated with the presystolic murmurs at the apex or base, premature ventricular beats, and marked sinus arrhythmia. None showed diastolic murmurs. The diagnoses included in this group were: effort syndrome, irritable heart, and normal heart. On the strength of such diagnosis, they all were advised to proceed through labor without treatment or more than normal observation. Each woman was delivered routinely without showing signs of cardiac damage. Disposing thus of those cases in which no prognostic decision was necessary, there remain fifty-three cases which showed evidence of organic heart disease, and all were of so-called rheumatic origin. Death occurred in two cases, in one from acute endocarditis, superimposed on a chronic infection (mitral stenosis and aortic regurgitation) and in one from auricular fibrillation in mitral stenosis. The former survived a vaginal cesarean section at four months, but died at home one month later. The latter died a few hours after delivery. Thirteen cases were interfered with, either at the time seen or at term, by abdominal cesarean section. Of those that were not interfered with, none died, but two patients with marked mitral stenosis, in whom intervention was advised refused operative procedure and passed through pregnancy to normal deliveries without cardiac failure. Cases of mitral stenosis occurred most often in those women who suffered most failure, but not oftener than the incidence of this lesion in rheumatic heart disease would warrant. The authors summarize as follows: Approximately 50 per cent. of pregnant women who present cardiac symptoms or signs have no organic heart disease. Heart disease in pregnancy is almost invariably rheumatic in type. Individual prognosis must be based on functional capacity rather than on structural change.

Journal of Experimental Medicine, Baltimore

37: 733-888 (June) 1923

*Relation Between Blood Destruction and Output of Bile Pigment. G. O. Broun, P. D. McMaster and P. Rous, New York.—p. 733.
Action of Serum on Fibroblasts in Vitro. A. Carrel and A. H. Ebeling, New York.—p. 759.
*Separation of Toxins of Bacillus Dysenteriae Shiga. J. E. McCartney and P. K. Olitsky, New York.—p. 767.
Virulence of Epidemic Strain of Bacillus Pestis Caviae. L. T. Webster, New York.—p. 781.
Production of Antibodies in Rabbits by Simplified Intratracheal Method. F. S. Jones, Princeton, N. J.—p. 789.
*Studies Based on Malignant Tumor of Rabbit. III. Intratesticular Transplantation and Clinical Course of Disease. W. H. Brown and L. Pearce, New York.—p. 799.
Id. IV. Results of Miscellaneous Methods of Transplantation. L. Pearce and W. H. Brown, New York.—p. 811.
Deposition and Subsequent Course of Particulate Material (Manganese Dioxid and Manganese Meta-Silicate) Administered Intravenously to Cats and to Rabbits. C. K. Drinker, L. A. Shaw and K. R. Drinker, Boston.—p. 829.
Arsenical Compounds in Treatment of Blackhead in Turkeys. E. E. Tyzzer, Boston.—p. 851.

Relation Between Blood Destruction and Output of Bile Pigment.—In dogs intubated for the collection of all bile, Broun et al. noted a marked falling off in the yield of bilirubin after operation, followed soon by anemia of secondary character. Though, in the absence of complications, the anemia is mild, it persists despite the excellent general condition of the animal. Intercurrent changes in the hemoglobin percentage take place from time to time, and these are accompanied by very similar fluctuations in the bilirubin quantity. Evidently there is a process of pigment conservation which varies in proportion to the body need.

Separation of Dysentery Bacillus Toxins.—By the suppression, through anaerobiosis, of the exotoxin-producing activity of *Bacillus dysenteriae* Shiga, a pure endotoxin was produced by McCartney and Olitsky directly from the culture. The duality of the poison of Shiga bacillus is further substantiated by studies on the diffusion of exotoxin, or neurotoxin, and endotoxin, or enterotoxin, by means of colloidion sacs, implanted intra-abdominally in rabbits or placed in vitro.

Transplantation of Sarcoma.—From an analysis of the results obtained with reference to the operation of various factors, the conclusion was reached by Pearce and Brown that while the quality of malignancy displayed by the tumor was conditioned by the capacity for growth of the tumor cells, the degree of malignancy exhibited in any given instance was a function of animal resistance which was not entirely specific but corresponded closely with the ability of the animal to meet excess demands arising from other causes and, to this extent, represented an expression of the functional capacity of a mechanism which is concerned primarily with the maintenance of the general animal economy.

New Orleans Medical and Surgical Journal

75: 749-824 (June) 1923

Diagnosis of Hip Disease. Cases Illustrating Common Errors. E. D. Fenner, New Orleans.—p. 749.
Facts and Fancies. W. T. Patton, New Orleans.—p. 761.
Clinical Significance of Interpolated Extrasystoles. L. F. Bishop, New York.—p. 766.

New York Medical Journal and Medical Record

117: 649-720 (June 6) 1923

Diagnosis and Treatment of Gallbladder Lesions. M. Einhorn, New York.—p. 649.
Duodenal Motility. H. Wheelon, Seattle, Wash.—p. 652.
Duodenal Alimentation. J. Friedenwald and P. Wiest, Baltimore.—p. 655.
Etiology of Gastroduodenal Ulcer: Why the Stomach Does Not Normally Digest Itself. E. Palier, New York.—p. 659.
Surgical Treatment of Gastric and Duodenal Ulcer. J. J. Wells, New York.—p. 663.
Oxalic Acid Production in Colon as Factor in Disease Causation. C. W. Lieb, New York.—p. 665.
Diagnosis of Acute Surgical Diseases of Upper Abdomen. R. F. Ward, New York.—p. 667.
Upper Abdominal Disease in Relation to Insurance Risks. M. Behrend, Philadelphia.—p. 669.
Carcinoma, with Especial Reference to Alimentary Tract. W. E. Clark and M. W. Perry, Washington, D. C.—p. 672.
Carcinoma of Esophagus. J. M. Marcus and E. A. Aronson, New York.—p. 675.
Subhepatic Abscess Secondary to Appendicitis. P. W. Aschner, New York.—p. 679.
Rôle of Bacillus Welchii in Gangrenous Appendicitis: Use of Antitoxin of Bull and Pritchett in Treatment. J. E. Jennings, Brooklyn.—p. 682.
Diagnosis of Appendicitis. L. Drosin, New York.—p. 686.
Value and Limitations of Roentgen-Ray in Diagnosis of Chronic Appendicitis. L. Levyn, Buffalo.—p. 688.
Tuberculosis Within Rectum. C. V. Drueck, Chicago.—p. 690.
*New Type of Drain for Use in Anorectal Fistulas. J. F. Montague, New York.—p. 692.
Instrumental Aid to Sigmoidoscopy. D. C. McKenney, Buffalo.—p. 693.
Duodenal Intestinal Obstruction, Secondary to Gastric Polyp, and Intussusception Due to Multiple Teniae Saginatae. J. W. Shuman and D. Cruikshank, Beirut, Syria.—p. 694.
Thrombosis of Superior Mesenteric Vessels and Volvulus of Small Intestine. Resection and Recovery. D. H. Orgel, New York.—p. 695.

Drains for Anorectal Fistula.—The drains used by Montague consist, essentially, in a roll of absorbent cotton a quarter inch in diameter and 4, 6 or 8 inches in length. Through the center of this roll is run a piece of stout tape which extends beyond the roll for about 3 inches. The object of the latter is to serve for traction when it is desired to remove the drain, the cotton itself becoming very friable when wet. These rolls may be saturated with whatever medication is to be applied to the fistulous wound. More medication may be conveyed in this manner than with the gauze drains, and, in addition, the cotton rolls give up the medicaments more readily. Should one drain be insufficient to keep the walls of the wound apart, two or three may be used. The roll drains are small enough in diameter to allow three or more to be placed in a wound without causing so much pressure that granulation is impeded or reunion of the sphincteric fibers prevented.

Ohio State Medical Association Journal, Columbus

19: 393-480 (June) 1923

Aortic Aneurysm with Spontaneous Pneumothorax: Report of Case. C. F. Anderson and H. W. Retan, Mt. Vernon.—p. 397.
Biliary Lymphangitis. W. H. Fisher, Toledo.—p. 400.
Diseases of Pericardium. R. S. Morris and C. F. Little, Cincinnati.—p 404
Otolaryngologic Clinics of Vienna of Today. A. L. Stotter, Cleveland.—p. 414.
*Treatment of Subacute and Chronic Arthritis with Milk Injections. C. DeCourcy, Cincinnati.—p. 416.
Differentiation of Skin Eruptions in New-Born. L. P. Howell, Columbus.—p. 417.
Lipoids. H. Iscovesco, Paris, France.
Present Day Knowledge in Treatment of Pneumonia. J. Anderson, Cleveland.—p. 423.

Milk Injections in Arthritis.—In forty-two cases of subacute and chronic arthritis DeCourcy resorted to the intramuscular injection of milk. The solutions were prepared by heating milk (first removing the top milk) at 100 C. for twenty minutes. Injections of about 10 c.c. of this milk were given deep into the muscles of the buttock, and repeated every four or five days, depending on the reaction. The patients invariably noted an amelioration of symptoms and a feeling of well being within from twenty-four to forty-eight hours after injections. The injections were usually followed in six or eight hours by a rise in temperature, which dropped to normal in from twenty-four to thirty-six hours. The leukocyte count was raised, polymorphonuclear leukocytes predominatin, within twelve hours. The results, after six months observation, in the majority of chronic cases have been disappointing, although the patient suffered less pain than formerly. The deformity of the joints remained practically unchanged. In the subacute cases, in which the foci of infection were removed, there was complete amelioration of symptoms, nine cases being under frequent observation for a period of five months.

Southern Medical Journal, Birmingham

16: 407-494 (June) 1923

*Sugar Findings in Normal and Pathologic Spinal Fluids. A. G. Kelley, Atlanta, Ga.—p. 407.
Treatment of Arterial Hypertension. R. N. Jacksonville.—p. 411.
Congenital Syphilis. S. H. Welch, Birmingham, Ala.—p. 417.
Ultraviolet Ray Therapy in Dermatology. J. W. Jones, Atlanta, Ga.—p. 423.
*High Voltage Roentgen-Ray Therapy. R. H. Millwee, Dallas, Tex.—p. 427.
*Id. S. Moore, St. Louis.—p. 430.
Experience with Deep Therapy, 200 Kilovolts or more. D. Y. Keith and J. P. Keith, Louisville.—p. 435.
Diagnosis and Treatment of Certain Mediastinal Tumors (Sarcoma). W. S. Lawrence, Memphis.—p. 441.
Extending Health Span and Life Span After Forty. E. L. Fisk, New York.—p. 447.
Surgical Treatment of Hyperthyroidism. G. W. Crile, Cleveland.—p. 459.
Idiopathic Nephralgia. J. T. Geraghty and W. A. Frontz, Baltimore.—p. 462.
Treatment of Prostatic Tumor with Deep Roentgen-Ray Therapy. P. J. Gelpi, New Orleans.—p. 466.
Ovarian Cysts in Children: Report of Cases. B. C. Nalle, Charlotte, N. C.—p. 469.
Prepartum Care. Value of Early Diagnosis and Treatment of Certain Complications. T. B. Sellers and D. C. McBride, New Orleans.—p. 473.
Low Back Pain. R. W. Billington, Nashville.—p. 478.
Abscess of Temporosphenoidal Lobe Complicating Acute Mastoiditis: Operation and Recovery. E. G. Gill, Roanoke.—p. 483.
Clinical Observations Following Use of Mercury Cyanid in Lenticular Opacities. J. H. Burleson, San Antonio.—p. 486.
New Hemostatic Forceps. W. B. McWhorter, Anderson, S. C.—p. 490.

Sugar Content of Normal and Pathologic Cerebrospinal Fluid.—From his observations on the sugar content of cerebrospinal fluid in certain diseases and his effort to determine the influence of *Spirochaeta pallida* on the sugar content of cerebrospinal fluids, Kelley concludes that (1) the sugar content of cerebrospinal fluid is decreased in untreated cases of syphilis of the nervous system, in meningitis due to the meningococcus, *Staphylococcus aureus* and the pneumococcus, and in moribund cases; (2) as cases of syphilis of the nervous system are treated, the sugar content gradually approaches the normal and on this account repeated estimations of the sugar content of the cerebrospinal fluid in these cases may possibly be of prognostic value; and (3) that there is sufficient evidence to warrant the opinion that *Spirochaeta pallida,* when present in the cerebrospinal fluid, utilizes the sugar normally present in the fluid.

High Voltage Roentgen-Ray Therapy.—High voltage roentgen-ray therapy, in Millwee's opinion, is a distinct step forward in the treatment of malignancy. It offers a palliation never before obtained, and possibly a cure in many cases.

Id.—While endorsing the value of high voltage roentgen-ray therapy in cases of malignancy, Moore points out that it is merely a palliative not a cure. Experience in treating 214 cases over a period of six months would indicate that the earlier of these cases derived sufficient benefit to make this the therapeutic agent of choice. Even in advanced cases the relief of pain and the sometimes astonishing subjective improvement brought about by this method of treatment would indicate its application regardless of the hopelessness of effecting a cure.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

1: 1043-1080 (June 23) 1923

*Cause and Treatment of Dyspnea in Cardiovascular Disease. J. Meakins.—p. 1043.
*Effect of Heat on Operations for Exophthalmic Goiter. A. J. Walton.—p. 1045.
*Intravenous Injections of Peptone as Aid to Vaccine Treatment. H. W. Crowe.—p. 1046.
*Carbon Tetrachlorid and Oil of Chenopodium in Helminthiasis. J. G. Reed.—p. 1048.
Extreme Case of Diffuse Syphilitic Fibrosis of Lungs. F. P. Weber.—p. 1049.
*Volvulus of Large Intestine. A. H. Southam.—p. 1050.
*Autoplastic Ovarian Transplantations. J. H. Nattrass.—p. 1051.
Case of Pituitous Catarrh. P. H-S. Hartley and I. J. Davies.—p. 1052.
Lacerated Kidney Due to Indirect Violence. J. C. Jefferson.—p. 1053.

Cause and Treatment of Dyspnea in Cardiovascular Disease.—The main feature emphasized by Meakins is that dyspnea in cardiovascular disease may be produced by anything that interferes with the proper aeration of the blood as it passes through the lungs, or by the influence of vascular engorgement on the respiratory movement and pulmonary ventilation. He terms these the pulmonary and the circulatory methods. As this condition is fundamentally due to lack of oxygen in the cell, it is naturally to be assumed that it can be relieved by supplying oxygen. The use of oxygen, however, does not remove the necessity for adopting other means of treating cardiac failure, and by no means the least important of these is physical and mental rest. The employment of drugs which increase the cardiac power is not to be ignored. Of these there is, in Meakins' opinion, only one of value, and that is digitalis.

Effect of Heat on Goiter Operations.—Walton has plotted out the percentage mortality among the cases of exophthalmic goiter operated on in the different months of the year; and whereas in February, March, April, May, September, October and November there is no mortality, in the three months of June, July and August the death rate is about 20 per cent. In January and December two deaths occurred. These figures, which were collected over a period of ten years, indicate that no operation in a case of exophthalmic goiter should be undertaken in extremely hot weather, for under such conditions the risk, in spite of all precautions, is too great.

Intravenous Injections of Peptone Aid Vaccine Treatment.—Intravenous injections of peptone were given by Crowe to seventy patients who were very sensitive to vaccines, with satisfactory results. Patients to whom he could not give 100,000 streptococci or the same number of *M. deformans* without producing a reaction and general malaise, after peptone treatment were able to tolerate much larger doses. The contraindications to the treatment are personal intolerance, grave anemia, severe illness, and chronic nephritis.

Carbon Tetrachlorid and Oil of Chenopodium in Helminthiasis.—It has been found by Reed that carbon tetrachlorid alone is a fairly efficient anthelmintic for ascaris, but in combination with oil of chenopodium it has a much higher efficiency and practically never fails. This combination is believed to be somewhat more effective than carbon tetrachlorid alone for a pure hookworm infection also. Doses up to 1 dram (4 c.c.) of carbon tetrachlorid alone are being given to adults. Formerly 80 minims (5 c.c.) were frequently given, but cases that were resistant to 1 dram (4 c.c.) were usually equally resistant to the larger dose. The dose is given first thing in the morning before eating, and no purge is given. The following treatment is routine for adults: one ounce (30 c.c.) of castor oil at night, and the next morning a mixture containing 1 dram (4 c.c.) of carbon tetrachlorid, 1 c.c. of oil of chenopodium, and 0.5 ounce (16 c.c.) of liquid petrolatum. As a rule, the feces are examined again a week to ten days after treatment, and, if necessary, the treatment is repeated. The immediate effect on the patients does not seem to be any more marked when this mixture is used than when the carbon tetrachlorid is given alone. Almost all patients complain of feeling drunk for a time, varying from a few minutes to a day. As a rule, three or four bowel movements are produced in the twenty-four hours following the treatment, and these often contain numerous worms (ascaris). Occasionally, slight vomiting, headache, or pain in the abdomen occur.

Volvulus of Large Intestine.—Southam reports three cases. In two it was the sigmoid that had become twisted, and in the third case it was the colon just above the sigmoid.

Autoplastic Ovarian Transplantation.—Nine years and seven months after ovarian transplantation was performed, the organs of Nattress' patient were still in a healthy condition. The sexual life of the patient had been quite normal. The grafted ovaries apparently discharged their functions quite as well as if they had not been grafted.

Indian Medical Gazette, Calcutta

58: 193-240 (May) 1923

Beriberi and Epidemic Dropsy Problem. J. W. D. Megaw.—p. 193.
Pharmacology and Therapeutics of Boerhaavia Diffusa. R. N. Chopra, S. Ghosh, B. N. Ghosh and P. De.—p. 203.
End-Results in Intracapsular Extraction (Smith's). F. F. S. Smith.—p. 208.
*Spleen Puncture Findings in Malaria. R. Knowles, H. W. Acton and S. A. S. B. Mohan.—p. 211.
Case of Intestinal Obstruction Complicated by Tetanus. F. J. W. Porter.—p. 213.
Fatal Case of Cerebral Contusion. A. C. Syam.—p. 214.
Cysticercus of Subconjunctival Tissues. R. E. Wright.—p. 215.
*Case of Food Sensitiveness. B. M. Chowdhury.—p. 216.
*Unusual Infection with Bacillus Pyocyaneus Simulating Leprosy. S. Mallannah.—p. 216.

Spleen Puncture Findings in Malaria.—Knowles et al. consider that there is no necessity to postulate either special parasite forms associated with malarial relapses or to assume the passage of parasites into either safe areas or into a resting phase. The authors consider that the etiology of malarial relapses may be explained on a purely mathematical basis. If the patient's powers of resistance are such that 98 per cent. of *Plasmodium vivax* parasites, for instance, are destroyed per forty-eight hour cycle, then cure, and, probably, permanent cure without relapse, is assured. If the destruction rate is lower, and at a figure of only from 90 to 94 per cent., the disease is still in its progressive phase. At a figure between 95 and 96 per cent., a condition of balanced equilibrium is reached at which schizogony is still proceeding at the normal rate; but the patient's powers of resistance are sufficient to keep the total number of trophozoites below the febrile threshold; while the brakelike factor introduced by gametocyte formation is also important in reducing the infection to afebrile limits. Should the patient's powers of destruction of merozoites become reduced from any adverse or extraneous cause, however, the destruction rate will fall; the schizogony success rate will be proportionately greater; a febrile dose of merozoites results and fever recurs.

Food Sensitiveness.—The peculiar features of Chowdhury's case were: (1) that the symptoms always appeared in the same order; (2) they had no relation to the nature of the food, as the condition occurred with diets of rice and milk, rice and boiled vegetables, mixed diet of rice, pulse, vegetables, fish, milk; (3) the attack usually occurred during the day; only one attack occurred during the night; (4) the attack occurred just at the end of or immediately after a meal; it never occurred at any other time; (5) the first and second eruptions appeared invariably over the same spots on the left wrist and the right supra-orbital ridge, respectively; (6) at the time of the attack the boy would go to sleep immediately on being put to bed; (7) the boy's father at about the same age had similar symptoms that continued until the age of 6 or 7 years.

Infection with Pyocyaneus Simulating Leprosy.—Mallannah's patient had perforating ulcers of the foot, one on the right heel and the other on the second toe. He had also white discolored patches over the left cheek and on the outer surface of the left arm, on the outer side of the left leg and on the dorsal surface of the left foot. These patches were not anesthetic. He also suffered from burning and tingling sensations in both feet. These symptoms resembled those of leprosy and, in fact, he was treated with gynocardate of sodium and sodium morrhuate, but without much benefit. He had no nodules on the face and the ears were not thickened. His ulnar nerve on the left side seemed somewhat thickened. On examining scrapings from the ulcer, Mallannah was not able to find lepra bacilli, but he found *Bacillus pyocyaneus.* He prepared an autovaccine of *Bacillus pyocyaneus* from the patient which contained 100 million organisms per cubic centimeter. This was given subcutaneously every week. The ulcers completely healed after giving eight injections. The discolored patches were due to *Microsporon furfur* and cleared up completely when treated with sodium hyposulphite. The burning and tingling sensation of the feet also disappeared under vaccine treatment and the left ulnar nerve became normal.

Irish Journal of Medical Science, Dublin

5: 97-144 (May) 1923

*Cause of Death in Intestinal Obstruction. S. Pringle.—p. 97.
Hyperthyroidism. T. G. Moorhead.—p. 107.
Case of Extensive Fibrosis of Left Ventricle. E. C. Smith.—p. 118.
Posterior Ganglionitis with Anterior Poliomyelitis. J. O'Donnell.—p. 122.

Cause of Death in Intestinal Obstruction.—Pringle holds that intestinal toxemia has a large share in causing death in acute septic peritonitis. Three factors are at work in acute peritonitis: (1) shock; (2) septic absorption from the peritoneum; and (3) toxemia from the intestine, the involved part of which is generally in a condition of paresis, producing obstruction. Pringle argues that if the shock and toxemia be combated, there is a possibility of prolonging the patient's life sufficiently to give the fighting powers of the peritoneum a chance of dealing with the infection. Pringle gives morphin and saline-glucose infusions to combat the shock and toxemia, and does an enterostomy high up in the small intestine, after the manner of a Witzel's gastrostomy. An enterostomy after this fashion allows free escape of the toxic intestinal contents and, at the same time, permits the introduction of saline and glucose.

Japan Medical World, Tokyo

3: 95-122 (May) 1923

Organ or Tissue Cells as Irritant or Toxin. Creation of Organ Toxin. Y. Miyagawa.—p. 95.
Basal Metabolism in Vitamin B Starvation and in Beriberi. S. Okada, E. Sakurai, T. Ibuki and H. Kabeshima.—p. 102.
Classification of Bacillus of Pertussis, Vaccine Therapy and Prophylaxis for Whooping Cough. M. Hayano.—p. 104.

Journal of Neurology and Psychopathology, London

4: 1-102 (May) 1923

*Pathologic Anatomy of Ductless Glands in Dementia Praecox. M. E. Morse.—p. 1.
Osteogenetic Dural Endothelioma: True Nature of Hemicraniosis. W. G. Penfield.—p. 27.
Society and Criminal. C. S. Read.
Organic Nervous Diseases Supervening in Subjects of Old Infantile Paralysis or Old Infantile Hemiplegia. F. P. Weber.—p. 40.
Case of Occlusion of Right Posterior Inferior Cerebellar Artery. D. R. Gowler and B. M. Hope.—p. 43.

Pathologic Anatomy of Endocrines in Dementia Praecox.—The gonads, pituitary, thyroid and suprarenals have been studied by Morse in twelve male and fifteen female dementia praecox patients dying under 45 years of age. Sixteen patients had active gonads. The patients dying of accident or of acute diseases had active glands, except in one case, in which there was only slight spermatogenesis. In tuberculous cases the gonads were atrophic, and the testicles showed fibrosis. The patients who were emaciated at the time of death also had inactive glands. In two of the patients in whom the dementia praecox developed on a basis of feeblemindedness the testicles showed abnormalities. Two of the women (one originally feebleminded) presented signs of a genital infantilism. There was no correlation between atrophy of the sex glands and the duration of the mental disease or the degree of psychic deterioration. The conditions in the sex glands of the controls were essentially the same as in the dementia praecox cases for the same terminal diseases, with the exceptions of the feebleminded, the infantile and the emaciated cases. The pituitaries in a little less than half of the cases presented a fibrosis, which could be correlated to some extent with a similar condition in the gonads. The lesions in the suprarenals were such as are usually found in the diseases to which the patients succumbed. The thyroids showed changes less frequently than did the other endocrines. There was occasionally a mild glandular hyperplasia or increase of connective tissue. From the pathologic side there is very little evidence of a primary atrophy of the gonads in dementia praecox, with the possible exception of those cases developing on a basis of mental defect. The atrophy, when present, can be accounted for by the somatic diseases from which the patients suffered. There is no one uniform condition of the gonads or other endocrines in dementia praecox, dependent on the disease process.

Lancet, London

1: 1199-1250 (June 16) 1923

*Duration of Pregnancy in Its Medicolegal Aspect. T. W. Eden.—p. 1199.
*Unhealthy Tonsils Associated with Cervical Adenitis. W. G. Howarth and S. R. Gloyne.—p. 1202.
*Etiology of Indirect Inguinal Hernia. T. E. Hammond.—p. 1206.
*Drug Therapy in Disseminated Sclerosis. W. Johnson.—p. 1208.
Hyperthyroidism as Cause of Severe Uterine Hemorrhage Following Minor Vaginal Operations. A. W. Bourne.—p. 1210.
*Postmortem Findings in Two Cases of Hydrocyanic Acid Gas Poisoning. G. R. S. Thomas.—p. 1210.
Fibroma of Ovary. Report of Case. A. W. Owen.—p. 1211.
*Two Sporadic Cases of Infection: Bacillus Aertrycke, D. Firth and E. ff. Creed.—p. 1212.
Case of Lethargic Encephalitis Recognized by Change in Behavior. J. H. Gellatly.—p. 1213.

Duration of Pregnancy.—Eden submits that sufficient medical data have been accumulated to show that human pregnancy may be prolonged to a period of 336 calculated days, and that there is nothing in the meantime to show that even this figure is the outside limit beyond which prolongation of pregnancy is impossible. Further, cases of prolongation of pregnancy beyond 320 calculated days are so rare that alleged instances should be scrutinized very carefully, and confirmatory evidence should be forthcoming if they are to be accepted as authentic. The child would in all cases be much above the average weight of children born at term; moreover, the bodily dimensions of the child, would be also much above the average.

Diseased Tonsils and Cervical Adenitis.—A series of thirty-four enlarged tonsils from cases with marked cervical adenitis were examined histologically by Howarth and Gloyne. The chief histologic changes noted were (*a*) marked increase in the lymphoid tissue, and (*b*) lesions in the crypts—desquamation of epithelial lining, plugging of the orifices, dilatation of lumen into cystlike spaces, and occasionally the formation of minute abscesses. Every tonsil examined showed evidence of bacterial infection. Many different species of organisms were found, the maximum number of species found in one tonsil being seven, the average number three. The streptococcus was the commonest species noted. In a series of tonsils examined for the presence of pathogenic organisms, it was found that 56 per cent. possessed bacteria virulent for the mouse. These organisms were hemolytic and nonhemolytic streptococci, and pneumococci (Types I and IV). The hemolytic streptococci varied as to their virulence in the mouse. Bacteria demonstrated in sections (chiefly cocci) showed that the infection tended to follow a definite path, namely, through the stratified epithelium (generally in the crypts, where it is thinner than on the surface) into the diffuse lymphoid tissue, thence along the minute lymphatics of the connective tissue trabeculae to the capsule, whence they passed to the lymph tracts of the pharyngeal wall. In a separate series examined for tuberculosis, it was found that the giant cells were generally in the lymphoid tissue, being rarely seen elsewhere. In two cases actinomyces-like organisms were obtained, but there is reason to believe that they were not true ray fungi. The tonsils become infected with bacteria in the first few days after birth. It seems probable that tuberculosis is only a late infection, and that in the majority of cases the cervical adenitis is due to septic absorption from tonsils containing pyogenic organisms such as the streptococcus.

Etiology of Indirect Inguinal Hernia.—On the basis of anatomic and pathologic considerations, Hammond says, it is seen that, as the inguinal canal is very efficiently protected from pressure acting from within the abdomen, the presence of a persistent patent funicular process does not signify that a hernia must necessarily form. This would take place only if the internal ring were exposed at a time when the intra-abdominal pressure was raised, which might follow some severe effort or a trivial accident leading to incoordination of the neighboring muscles. Bruising is not to be expected, and the severity of the symptoms will depend on the size of the aperture in the fascia transversalis; this, if small, leads to strangulation of the bowel, but, if large, the only symptoms present might be a feeling of something giving way or a passing pain. An onset, symptomless and, perhaps, delayed until puberty or later, is, therefore, not inconsistent with the saccular theory, by which alone can other points in the etiology of hernia be explained.

Diagnosis and Treatment of Disseminated Sclerosis.—The main points in the early diagnosis of disseminated sclerosis given by Johnson are: (1) the occurrence of repeated pyrexial attacks followed by groups of nervous symptoms which tend to improve in a few weeks; (2) age of onset (viz., the young adult); (3) certain nervous symptoms, chief among them being slight nystagmus, temporary diplopia, paresthesia of a fleeting character, blurred speech, evidence of spastic paralysis (e. g., absent or diminished abdominal reflex on one or both sides), exaggerated deep tendon reflexes with extensor plantar reflex on one or both sides, any or all of which symptoms may be transient; (4) negative Wassermann reaction; (5) a paretic type of curve with the colloidal gold reaction—in Johnson's experience an inconstant phenomenon. The success in treatment which has been attributed to certain remedies is said to be mainly due (1) to the remissions which independently occur in the disease, and (2) to the dissipation of certain hysterical aggravations of the organic symptoms. Intensive arsenical treatment has been resorted to by Johnson with much success in his last ten cases. The procedure has been a course of six weekly intravenous injections of neoarsphenamin· 0.15, 0.3, 0.45, 0.45, 0.6, 0.6 gm., respectively, which is repeated at the end of six months. In the interval, and for a year subsequent to the second course of injections, the patient is given arsenic by the mouth. He is told to take a mixture containing 3 minims (0.2 c.c.) of liquor arsenicalis (B. P.), three times a day during alternate fortnights. Johnson believes that this treatment exerts some action toward the definite arresting of the pathologic process.

Necropsy Findings After Cyanid Poisoning.—The outstanding features which were common to the two cases recorded by Thomas were: absence of cyanid odor before opening the body, and absence of this smell from the urine; gaseous distention of peritoneal cavity and of intestines: smell of cyanid in all serous cavities; concentration of smell of cyanid in the lateral ventricles; intensity and precise color of facial lividity; blue nails; pink color of intestines and gastric mucosa; bright pink staining of intima of the aorta; uniform blue-green color of the liver; green color of gray matter of the brain; color and chemosis of the conjunctivae; lividity and engorgement of buccal, pharyngeal, esophageal and respiratory mucous membranes; extravasation of blood into the tissues of the stomach wall posteriorly in the region of the fundus; flabbiness of the myocardium; absence of putrefactive changes, of putrefactive odor and of the ordinary postmortem staining; and positive chemical and spectroscopic tests.

Bacillus Aertrycke Infection.—The first case recorded by Firth and Creed represented the usual type, in which sudden onset, pyrexia, diarrhea and vomiting, general abdominal pain and marked tenderness on palpation over the whole abdomen are the usual features. The case was sent to hospital as an "acute abdomen" and reached the medical wards with a provisional diagnosis of atypical typhoid fever, but clinical evidence and pathologic investigation soon corrected this error. In the second case, no suspicion of the causative agent was aroused, although some form of poisoning was suspected, and it was only after the examination of cultures from the cadaver that *Bacillus aertrycke* was implicated. In neither instance was any other member of the household affected, nor was the source of the infection traced.

1: 1251-1298 (June 23) 1923

Oxidative Mechanism in Living Cell. F. G. Hopkins.—p. 1251.
Mild Smallpox. J. H. Garrett.—p. 1254.
Ethyl Chlorid, as an Anesthetic for Minor Operation in Children. S. F. Rose.—p. 1258.
Rocking Slide Precipitation Test (S. G.) for Syphilis. A. H. Priestley. —p. 1260.
*Case of Chloroma. H. T. Ashby and A. Sellers.—p. 1263.
*Fatality of Puerperal Fever. R. Dudfield.—p. 1264.

Chloroma Not Leukemic.—The case cited by Ashby and Sellers resembles previously reported cases of chloroma but differs in some respects. The color of the growth was not absolutely characteristic. Apart from the changes in the spleen, it affords no evidence in favor of the view that chloroma is allied to the leukemias. The association of tuberculosis of the lungs and bronchial glands, followed by a miliary tuberculosis, modified the progress of the disease and the changes in the organs. The illness in this case lasted only six weeks. A week before death the eyeballs became greenish and inflamed, and the eyelids could not be closed. Headache was a prominent feature toward the end. The temperature on admission was 100 F., and rose to 105 F., on the day before death.

Fatality of Puerperal Fever.—For 1921, 2,211 cases of puerperal fever were notified in England and Wales and 1,171 deaths were assigned to "puerperal sepsis," a fatality rate of 52.9 per cent. Dudfield feels that this rate cannot be accepted at its face value. Something is wrong with the classification.

Medical Journal of Australia, Sydney

1: 543-570 (May 19) 1923

Psychotherapeutic Practice. J. V. McAree.—p. 543.
Medical Benevolent Association of South Australia. J. C. Verco.—p. 547.
Glycosuria. A. E. Mills.—p. 549.
*Mite Infestations of Man. R. W. Cilento.—p. 552.
*Anaphylaxis with Sudden Onset. T. A. B. Harris.—p. 554.
Four Cases of Tetanus in Children. J. W. Grieve, R. Southby, L. Stokes and B. L. Stanton.—p. 555.

1: 571-598 (May 26) 1923

Albuminuria in Young People. S. F. McDonald.—p. 571.
Renal Efficiency Tests. M. G. Sutton.—p. 574.
Recovery from Hemophilia After Operation for Ruptured Appendix. P. L. Hipsley.—p. 584.

1: 599-616 (June 2) 1923

Measurement of Intelligence of School Children. G. E. Phillips.—p. 599.
Dysenteric Infections in Australia. C. H. Shearman.—p. 604.
Cesarean Section and Hysterectomy in Patient with Contracted Pelvis and Occipitoposterior Presentation. H. C. E. Donovan.—p. 609.

Mite Infestation of Man.—Investigation, initiated in the search for possible affinities between the epidemic glandular fever of Queensland and Japanese river fever, revealed the presence in tropical Australia and its dependencies of a considerable number of varying species of mites. During the course of this investigation two cases of infestation by *Liponyssus bursa* (Berlese) came to Cilento's notice. These two cases seem to be the first reported from these areas.

Anaphylaxis with Sudden Onset.—In Harris' case the symptoms of shock appeared forty-five minutes after the injection of 1,500 units of antitetanic serum.

Naval Medical Association Bulletin, Tokyo

39: 1-4 (March) 1923

Experimental Studies on Influence of Testis or Its Preparations on Pituitary and Testes. S. Koide.—p. 1.
Relation of Beriberi and Body Weight. Z. Kawaguchi.—p. 2.
Quantitative Determination of Vitamin B. S. Sakamoto.—p. 3.
Disinfection of Vegetables. S. Matsuda.—p. 3.

40: 5-7 (May) 1923

Syphilitic Serum Reaction. R. Mashimo.—p. 5.
Nonacid Dysentery Bacillus. A. Tanaka.—p. 6.
Untoward Reaction (Vagotony) Caused by Inoculation of Triple Vaccine. T. Iijima.—p. 6.
Relation of Albuminuria to Various Activities in Navy. B. Yoshisumi. —p. 7.

South African Medical Record, Cape Town

21: 217-240 (May 26) 1923

Infective Tonsillar Disease. W. P. Mulligan.—p. 217.
Id. Predisposing Factors, Particularly in Children. C. H. Kruger.—p. 219.

Id. Symptomatology. J. Luckhoff.—p. 220.
Id. Diagnosis. R. L. Scott.—p. 221.
Id. Prognosis. C. E. Jones-Phillipson.—p 223
Id. Treatment. Smuts.—p. 224.
Anesthetics in Tonsillar Surgery. G. W. B. Daniell.—p. 226.
Outline of Medical History. M. R. Drennan.—p. 228

Bulletin de l'Académie de Médecine, Paris

89: 519-546 (May 15) 1923

*Prevention of Tuberculosis in Infants. Bernard and Debré.—p. 523.
*Mixed Infection in Pulmonary Tuberculosis. Cournont and Boissel.—p. 533.
Method of Preparation of Organotherapeutic Products. A. Sartory and P. Pellissier.—p. 537.
*Titration and Toxicity of Insulin. Chabanier et al.—p. 539.

Prevention of Tuberculosis in Infants.—Bernard and Debré see the basis of all prophylaxis in infants in a complete separation from the source of infection, especially the tuberculous mother. Tuberculosis of the infant is not always fatal, if superinfections are avoided. They describe the work and results of centers which take care of infants from tuberculous parents.

Mixed Infection in Pulmonary Tuberculosis.—Cournont and Boissel examined 568 specimens of sputum microscopically and by cultures: 30 per cent. of the patients had only tubercle bacilli in the sputum; 51 per cent. had only a few other germs. In 19 per cent. the other microbes seemed to be important. Autovaccines did not produce any effect.

Titration and Toxicity of Insulin.—Chabanier, Lobo-Onell and Lebert found, contrary to Delezenne, that untoward effects after injections of insulin are due to the hypoglycemia which it induces, and not to the insulin directly.

Bulletin Médical, Paris

37: 613-640 (May 26) 1923

*Nervous Origin of Diabetes Insipidus. Camus and Roussy.—p. 619.
*Diabetes Insipidus. J. Lhermitte.—p. 623.
Clinical Aspects of Diabetes Insipidus. L. Binet.—p. 627.
*Impressions of America. Pouey.—p. 629.

Origin of Diabetes Insipidus.—Camus and Roussy assert that polyuria has never followed removal of the pituitary in dogs unless the base of the brain was damaged during the operation. Superficial injury of the base of the brain alone, even without removal of the pituitary, will bring on polyuria, and if the injury is extensive, polydipsia ensues. This region of the tuber cinereum, and not the pituitary, seems to control the water content of the organism. Experiments in this line always failed in puppies, as the regulating mechanism is not developed enough for perfect function in the very young organism. The mechanism of polyuria after injury of the tuber is still obscure; it occurs when the entire nerve supply to the kidneys has been cut. One dog has presented this experimental diabetes insipidus for three years to date, and some dogs, weighing 6 kg., void more than 3 liters of urine daily. Camus and Roussy explain the action of pituitary extract in the treatment of diabetes insipidus as a relief from compression by checking irritation of the base of the brain. Similar relief may be obtained by lumbar puncture. The literature of the last two years confirms their view that diabetes insipidus is due to a lesion of the infundibulum and tuber cinereum.

Differential Diagnosis of Diabetes.—Lhermitte incriminates some endocrine secretion in addition to the lesion in the infundibulum and floor of the third ventricle in the etiology of essential polyuria. He analyzes the data differentiating it from the polyuria secondary to polydipsia in chronic kidney disease, hysteria, epilepsy and dipsomania. A tumor almost anywhere in the brain, meningo-encephalitis of the base, or trauma, is the usual etiologic factor, as diabetes insipidus is not a morbid entity.

Impressions of America.—Pouey of Montevideo describes the work and home of Prof. George Crile.

37: 643-670 (June 2) 1923

Virulent Diseases. Louis Pasteur, 1880.—p. 649.
Pasteur. Bordet (Brussels).—p. 652.
*Pasteur. P. Mauclaire.—p. 658.

Pasteur.—In his reminiscences, Mauclaire quotes Pasteur's remark that he had attended the theater not more than ten times in all his life. "Travaillons, il n'y a que cela qui amuse. The laboratories are the temples of the future."

Bulletins de la Société Médicale des Hôpitaux, Paris

47: 609-643 (April 27) 1923

*Glycemia with Cancer in Digestive Tract. Le Noir et al.—p. 609.
*Bronchus Draining Tuberculous Cavity. Ameuille and Levesque.—p. 612.
Cardiac Psychosis with Insufficiency of Left Ventricle. Targowla.—p. 615.
*Fulminating, Febrile General Paralysis. Mignot and Marchand.—p. 618.
Combined Radiotherapy of Lymphadenitis. Saidman and Robine.—p. 622.
Epidemic Encephalitis with Labial Herpes. Laignel-Lavastine and Largeau.—p. 625.
Ocular Myoclonia. D. E. Paulian.—p. 630.
Case of Stasibasiphobia with Functional Paraplegia and Asthmatoid Attack. D. E. Paulian.—p. 632.
*Polyneuritis from Emetin. Ardin-Delteil et al.—p. 633.
Syphilitic Meningoradiculitis with Froin's Syndrome. Ardin-Delteil et al.—p. 635.
Hyperextension of Head and Dolichocephalism in Infants. L. Ribadeau-Dumas and A. Fouet.—p. 640.

Glycemia with Cancer of Alimentary Canal.—Le Noir, de Fossey and Richet examined the blood sugar content during fasting and after intake of 50 gm. of glucose. They found that the figures obtained in beginning carcinomas and cachectic patients are about the same as in normal controls. About one half of the patients with fully developed symptoms had hyperglycemia.

Draining Bronchus of Tuberculous Cavities.—Ameuille and Levesque call the bronchus leading from a cavity "the draining bronchus." They found that it is apparent on roentgenograms because of the thickening of its walls. It may thus serve to diagnose an indistinct cavity.

General Paralysis.—Mignot and Marchand report the history of a case of early general paralysis with quick progress and fever. The necropsy did not reveal any other cause for the fever.

Polyneuritis from Emetin.—Ardin-Delteil, Azoulay and Salles report a case of polyneuritis due to an overdose of emetin. The patient who suffered from dysentery received by mistake 1.22 gm. of emetin (besides 0.9 gm. neoarsphenamin) in less than forty days. He recovered from the dysentery but had a severe polyneuritis for three weeks.

Paris Médical

13: 285-300 (March 31) 1923

*Nervous Disturbances in Pulmonary Tuberculosis. Perrin and Yovanovitch.—p. 285.
Splenopneumonia and Encysted Pleurisy. Ardin-Delteil et al.—p. 287.
*Wound in the Heart. H. Mondor.—p. 290.
*Complement Fixation in Tuberculosis. A. Hanns.—p. 291.
Enterococcus Septicemia, Followed by Typhoid. Colombe and Foulkes.—p. 293.
Laryngeal Tuberculosis Cured for Two Years to Date. Rosenthal.—p. 296.
Vicious Circles. J. T. A. Walker.—p. 297.
Traumatic Movable Kidney with Chronic Appendicitis. Krafft.—p. 298.

Disturbances of the Vegetative Nervous System in Pulmonary Tuberculosis.—Perrin and Yovanovitch examined the vegetative nervous system with the usual tests in forty-nine patients with pulmonary tuberculosis. They tried, however, to use a smaller amount of pilocarpin, because the patients were hypersensitive, and distinguish between local and general disturbances of the vegetative nervous system. They found in 15 per cent. of the patients an increased tonus of the sympathetic, and in 42 per cent. vagotonia. Other patients had a lowered tonus of both systems, especially when the poisoning of the organism was progressing. The thyroid and suprarenals may be the chief endocrine glands involved. Though these tests cannot be used for remote prognosis, they contribute to show the actual state of the defense of the organism. Increased tonus of the sympathetic system seems to be favorable. Low tonus of the vegetative system is accompanied by an anergic state, and has the same bad significance.

Wound in the Heart.—Mondor found the wounded man suffocating, sitting on the bed bent forward, with arms stretched out in front of him, and told him to lie down gently. The pain increased, the external jugular vein became rigid and swelled to the size of an adult thumb, the venous dilatation extending to neck, face, arms and hands, while the pulse became weak and intermittent. When he again took a sitting position the jugular veins returned to normal size, the cyanosis disappeared, and the pulse improved. Mondor diagnosed compression of the auricle from fluid in the pericardium, and the operation showed noncoagulated and nonencysted hemopericardium of from 200 to 300 c.c. The enormous distention and immediate subsidence of the jugular veins as the patient sat up or reclined were striking.

Complement Fixation in Tuberculosis. — Hanns, using Poulenc's tuberculin in tests for the ophthalmic reaction in fifty-five tuberculous subjects, obtained 61 per cent., and in twenty-six nontuberculous, 27 per cent. positive reactions. The results of his research enable him to affirm that complement fixation as it occurs in the tuberculous is a later phase of the usual phenomenon. It is the result of some still unknown phenomenon which may have no analogy with the Bordet-Wassermann reaction. This is the reason why the complement fixation reaction in tuberculosis is as yet of no value in diagnosis, but must be subjected to further research.

13: 353-372 (April 21) 1923

*Acid-Alkali Equilibrium and Acidosis. Desgrez and Bierry.—p. 353.
*Thermal Treatment in Diabetes. F. Rathery.—p. 355.
*Balneotherapy in Surgery of Bones. E. Sorrel.—p. 359.
*Technic and Indications of "Submarine" Shower. A. Piatot.—p. 365.
The Sea in Treatment of Tuberculosis. Baudouin.—p. 368.

Acid-Alkali Equilibrium and Acidosis.—Desgrez and Bierry determine the variations of the hydrogen ion concentration of the urine after ingestion of an alkaline mineral water (Vichy). They use it to prove acidotic conditions, and to find the "threshold dose" of the water necessary to lower the hydrogen ion concentration to about one third or one fourth of the initial value.

Thermal Treatment in Diabetes.—Rathery reviews different theories of the action of treatment of diabetes with mineral waters. He protests against the usual reports on amelioration of diabetes based exclusively on determination of the glycosuria without regard to diet. He criticizes the "ready-made" diets for diabetes in some thermal stations. Balneotherapy has advantages, but the patients should be selected and taught to keep up the regulation of the diet.

Indications for Balneotherapy and Climatotherapy in Surgery of Bones.—Sorrel recommends balneotherapy for traumatic lesions and conditions after infectious affections of joints, except tuberculosis. The patients with chronic lesions due to a general disease (including tuberculosis) are favorably influenced by climatotherapy. Yet it is absolutely necessary to choose only places where the patients can get the necessary medical and surgical care. Some striking results attributed to climatotherapy are due to a correct diagnosis of syphilis. Treatment should be instituted early.

Technic and Indications of "Submarine" Shower.—Piatot gives the history, technic and indications for a warm shower applied under the water of the bath-tub ("submarine"). Its action resembles that of massage. The method is used especially after acute polyarthritis, in spastic constipation, mucomembranous colitis, and gynecologic affections.

Presse Médicale, Paris

31: 461-472 (May 23) 1923

Treatment of Cancer of Uterine Cervix. J. L. Faure.—p. 461.
Interpretation of Radioscopic Findings in Certain Forms of Aortitis. M. Leconte.—p. 463.
The Drawbacks of Intraspinal Anesthesia. Desplas.—p. 467.

31: 517-528 (June 9) 1923

*Surgical Treatment of Angina Pectoris. T. Jonnesco.—p. 517.
Ionization Treatment of the Eye. Bourguignon et al.—p. 517.
*Clinical Gastrotonometry. R. Gaultier.—p. 520.
*Barbital in Treatment of Epilepsy. Maillard and Meignant.—p. 522.
*Intravenous Therapy. L. Cheinisse.—p. 525.

Surgical Treatment of Angina Pectoris.—Jonnesco relates that since 1896, he has resected the sympathetic nerve on both sides in 200 cases, usually including the first thoracic ganglion. The operation was done to relieve epilepsy, exophthalmic goiter, angina pectoris, migraine or for other indications. Reexamination from five to twenty-four years afterward has never revealed the slightest unfavorable influence on the heart from this total bilateral sympathectomy. The three angina pectoris patients were all cured by sympathectomy on one or both sides. Two epileptic girls were cured and are now the healthy mothers of six or seven children. Nothing like the serious disturbances elicited in animals by even partial resection of the cervical sympathetic was ever observed in his 200 clinical experiences. He mentions that the results realized recently by Coffey and Brown from even a partial unilateral sympathectomy in four of five cases of angina pectoris encourage further attempts in this line.

Clinical Gastrotonometry.—Gaultier gives an illustrated description of the two jars and connecting tubes with which the intragastric pressure and the capacity of the stomach are recorded. The stomach tube branches; one branch is connected with the manometer, the other with the jar into which water is slowly flowing from a higher jar and thus forcing a known quantity of air into the stomach. It thus aids in diagnosis, in prognosis, and in repeated estimation of the effects of treatment. It may even serve for treatment, using it for rhythmic inflation and deflation of the stomach to exercise the muscular walls.

Barbital in Treatment of Epilepsy.—Maillard and Meignant have had no serious mishaps during barbital treatment of more than 300 cases. The tolerance varies within a wide range, from 0.05 gm. to 1 gm. Even this drug fails at times. The great drawback is that the effectual dose is so close to the toxic dose. They add another instance of fatal poisoning from barbital in which 6 gm. of the drug had been taken with suicidal intent.

Intravenous Therapy.—Cheinisse comments approvingly on the report of the Council on Pharmacy and Chemistry in The Journal, May 5, 1923, and other recent articles on the limitations of intravenous medication.

31: 529-536 (June 13) 1923

Colitis of Transverse Colon. Faroy and Baumann.—p. 529.
*Treatment of Alveolar Pyorrhea. L. Monier.—p. 532.

Gingivectomy for Alveolar Pyorrhea.—Monier gives illustrations of a technic for resecting the entire outer edge of the gum in the radical treatment of pyorrhea. The incision in front and back of the teeth parallels the edge of the gum, and the resected portion forms a long strip with the row of tooth holes in the center. He says that any practitioner can do this simple operation, which cures inveterate pyorrhea at once. The only drawback is the appearance of the exposed roots of the teeth thereafter.

Revue de Chirurgie, Paris

61: 1-88, 1923

Isolated Fracture of the Humeral Condyle. Clavelin.—p. 1.
*Contusion of Pancreas and False Cysts. Mocquot and Costantini.—p. 21. Conc'n.
Circulation in Sigmoid and Rectum Region from Surgical Standpoint. E. Forgue and Milhaud.—p. 61.

Contusion of the Pancreas.—Mocquot and Costantini describe a case of complete rupture of the pancreas in a bicycle accident. The shock was intense and the youth died the twenty-fourth day; the escape of pancreatic juice had not been arrested by suture of the organ. In another case the man had been kicked in the abdomen by a horse, and conditions did not seem to demand an operation until the nineteenth day. Almost a liter of brownish pus was found in the traumatic pseudocyst. After marsupialization, conditions slowly returned to clinically normal. They compare with these cases fifty-five of contusion of the pancreas and eighty-eight of posttraumatic pseudocysts they have compiled, and discuss the differential signs, and complications. The article is to be continued. The interval between the trauma and the tumor revealing the false cyst ranged from twelve days to four years, but the average was from three weeks to three months.

61: 89-168, 1923

Emetin Treatment in Twenty-Two Cases of Amebic Abscess in Liver. G. L. Hartmann-Keppel.—p. 89.
*Diagnosis and Treatment of Fracture of Base of Skull. Ferry.—p. 117.
*Intracranial Subdural Hemorrhages in Adults. Wertheimer.—p. 150.

Fractures of Base of Skull.—The injury proved fatal within twenty hours in 9 of the 31 cases reported by Ferry, and 6 others died without regaining consciousness. The mortality in the 22 nonmoribund cases was thus 27.27 per cent. The others recovered under repeated lumbar puncture. Subtemporal trephining effectually supplemented the serial lumbar punctures in some of the cases in which the occipital foramen was blocked. But it was merely symptomatic, and not intended as a primary, preventive measure, in Cushing's sense.

Traumatic Subdural Hemorrhage in Adults.—Wertheimer describes the necropsy findings in two cases. They justify early and active intervention at the slightest signs of pressure on the brain. He does not think drainage is necessary; lumbar puncture at need answers the purpose. In short, he concludes, early trephining wards off secondary epilepsy.

61: 169-248, 1923

*Arthritis of Hip Joint. A. Broca and R. Massart.—p. 169.
Tuberculous Hygroma of Subdeltoid Bursa. Berard and Dunet.—p. 194.
Fracture of Condylar Region of Maxilla: Six Cases. Bercher.—p. 200.
*The Lymphatics of the Uterus. J. Leveuf and H. Godard.—p. 219.

Arthritis of the Hip Joint with Flattening and Fragmentation of the Head of the Femur.—Broca and Massart reject Waldenström's term "coxa plana" for this condition, as coxa refers to the ilium, not the head of the femur. They comment on the prevailing confusion, as unlike conditions are being grouped in this category. The only facts positively established to date are that the head of the femur may develop osteitis with a characteristic roentgen picture; that this process runs a mild course, without serious damage of the acetabulum, and that it generally subsides in time without leaving much trace. In some of the cases, the reossification of the head gives it a very special outline.

The Lymphatics of the Uterus.—Seven fine plates and twelve other illustrations show the arrangement of the lymphatics in the pelvis, each system being injected separately with a different colored fluid.

Revue Franç. de Gynécologie et d'Obstét., Paris

18: 209-256 (April 10) 1923

*Syncopal Condition in Obstetric Patients. A. Grosse.

Obstetric Syncopal Condition and Shock.—Grosse uses the term "obstetric shock" to denote a collapse, similar to that after serious accidents, or after rupture of the uterus, occurring in a patient after delivery without serious rupture or hemorrhage, and without previous lesions of lungs, heart, liver, or kidneys. The shock has been attributed to sudden decompression of the abdomen, to an inhibiting reflex starting in the uterus, to toxemia, or to cardiac collapse. Generally the prognosis is not unfavorable, notwithstanding the dramatic phenomena. Manual exploration of the vagina and uterus eliminates hemorrhage and placental retention, and shows that the uterine wall is intact, and that there is no important laceration of the genital tract. The patient should be kept warm and placed with head low, except in cyanosis, when the head should be raised. In case of atony of the abdominal walls, a tight abdominal bandage should be applied and heart and nerve stimulants should be administered. Oxygen facilitates the interchanges and hematosis, but blood transfusion may be indicated in desperate cases.

Schweizerische medizinische Wochenschrift, Basel

53: 509-528 (May 24) 1923

Blood Circulation at Altitude of 3,460 Meters. E. Lüscher.—p. 509.
*Comparative Tests of Thyroid Function. Pedotti and Branovacky.—p. 516.
Broncholithiasis. C. Leuw.—p. 519.
Heredity in Myopia. Jablonski.—p. 521. Comment. Vogt.—p. 522.
Value of Teaching Ancient Languages from the Standpoint of Psychology of Thinking. H. Sahli.—p. 522.

Comparative Examinations of Thyroid Function with Oxygen Consumption and the Examination of Blood in Asher's Experiment on Rats.—Pedotti and Branovacky injected serum from patients with affections of the thyroid gland into rats, and determined their tolerance to low air pressure. The results agreed with metabolism tests in 66 per cent. of the thirty-one cases, and conflicted with them only in 16 per cent.

Pediatria, Naples

31: 353-408 (April 1) 1923

*Cerebrospinal Fluid in Typhoid. L. Auricchio.—p. 353.
*Physical Development in Children with Infections. F. de Angelis.—p. 357.
Mechanism of Curative and Preventive Action of Extract of Autolyzed Leukocytes. A. Ronchi.—p. 366.
Surgical Treatment of Infantile Paralysis. N. Caprioli.—p. 382.

Research on Immune Bodies in Cerebrospinal Fluid in Typhoid.—Auricchio and Caronia, having frequently found typhoid bacilli in the cerebrospinal fluid of patients with typhoid but without meningeal changes, investigated the cerebrospinal fluid of these patients for immune bodies. Simultaneous tests of the cerebrospinal fluid and the blood serum of eleven such patients, with typhoid of more than ten days' standing, showed agglutination, complement fixation and absolute opsonic index in the peripheral blood, but none in the cerebrospinal fluid.

Physical Development in Relation to Hereditary Syphilis and Tuberculous Infections.—De Angelis examined 200 children in an orphan asylum, both by tuberculin and Wassermann reactions, and found that children infected with either syphilis or tuberculosis develop about as well as the unaffected, and that nearly half of the number, subject to both infections were superior to the average. Of the four groups of immune, syphilitic, tuberculous, and syphilitic tuberculous, children, respectively, 23, 22, 24 and 49 per cent. were above the average; 34, 38, 32 and 22 per cent. were average; and 43, 41, 45 and 30 per cent. were deficient in physical development. In regard to nutritive condition, the figures were respectively, 13, 5, 13 and 32 per cent. excellent; 46, 29, 32 and 27 per cent. good; 21, 44, 42 and 27 per cent. mediocre; and 13, 22, 13 and 14 per cent. deficient. Children with syphilitic and tuberculous infection—without manifestations of the disease—grow about as well as the normal, and those affected with both infections grow even better than normal. All organic functions are stimulated in the organism in its efforts at defense, and more rapid growth comes as a result of the increased stimulation, as long as the tissues and functions of the organs are intact. Defects in growth and nutritive condition are due to deficiency in surroundings and food. Children in well-to-do families grow notably taller than in poor families. The growth-arresting factors are not infections; these bring out latent energy in self defense, and, as a result, increased growth. The growth-arresting factors are external causes. The organism has power to overcome the internal situation, infinite adaptability, and by the immense resources at its disposal, it tends to draw a maximum advantage from all conditions.

Policlinico, Rome

30: 553-584 (April 30) 1923

*Rapid Differentiation of Diphtheria Bacilli. G. Pecori.—p. 553.
*Ether in Treatment of Acute Peritonitis. V. Caccini.—p. 558. Cont'd.
Technic for Artificial Pneumothorax. Capuani.—p. 562. Idem. Pulvirenti.—p. 564.

Differentiation of Diphtheria Bacilli.—Pecori is chief of the department of the public health service that deals with prophylaxis of contagious diseases. His experience has been favorable with the Langer-Krüger method for differentiating diphtheria bacilli in dubious cases. It is based on the different behavior of true and false diphtheria bacilli in decolorization with alcohol after gram staining.

Ether in Treatment of Peritonitis.—Caccini reports the recovery of three patients with acute diffuse purulent peritonitis after intraperitoneal injection of ether through a puncture hole. A fourth patient, moribund when first seen, died. He injected from 30 to 40 c.c. of the ether, to a total of three to six injections. The peritonitis was of six to ten days' standing, and recovery was complete on the twenty-sixth to the forty-sixth day from the first symptoms. His experience teaches that it is best to begin with 10 or 15 c.c., and increase the amount, repeating the injection every twelfth or twenty-fourth hour.

30: 233-280 (May 15) 1923. Surgical Section

*Tuberculosis of the Tongue. G. Fantozzi.—p. 233.
*Complement Fixation in Tuberculosis. N. Piccaluga.—p. 257.
Suprasternal Dislocation of Clavicle. R. Redi.—p. 268.
Primary Tuberculous Ulcer of Upper Lip. R. Rinaldi.—p. 272.

Tuberculous Lesions of the Tongue.—Fantozzi has compiled 129 cases of this kind from the records. He gives an illustration of a woman, aged 52, permanently cured by his wedge resection of a primary tuberculous cold abscess in the tongue. It first attracted attention a month after injury of the zygoma region by a fall on the floor of a consumptive's room. The lesion was resected two months later. Stropeni has reported a case with recovery under roentgen-ray treatment. Arc light treatment does not seem to have been applied. The prognosis depends on the existence of tuberculous lesions elsewhere. The ages ranged from 5 to 80 in his compilation; 10 of the patients were between 10 and 20, and 4 were younger children; 30 of the total 129 cases were in girls and women.

Complement Fixation in Tuberculosis.—Piccaluga compares the results of his own research in this line with what has been published in The Journal and elsewhere. He used the Besredka egg-bouillon antigen and tested 100 tuberculous subjects and large numbers of cases of malaria, cancer, acute infectious disease and others. A positive reaction was never obtained except in tuberculosis and syphilis, and only exceptionally in the latter. If syphilis can be excluded, the reaction can be regarded as a reliable sign of active tuberculosis.

Riforma Medica, Naples

39: 481-504 (May 21) 1923

Cholelithiasis from Surgical Standpoint. O. Uffreduzzi.—p. 481.
*Rouleau Formation of Erythrocytes. P. Mino.—p. 482.
*Glycosuria in Inherited Syphilis. G. Milani.—p. 485.
Sanatoriums in Malarial Zones. M. Gioseffi.—p. 489.
The Extrapyramidal Motor Syndromes. A. Jappelli.—p. 491.

Rouleau Formation of the Blood Cells.—Mino's research has confirmed that any upset in the normal chemical-physical balance of the blood plasm is liable to modify the physiologic tendency of the erythrocytes to pile up in rouleaux.

Glycosuria in Inherited Syphilis.—Milani's patient was a weakly girl, aged 14, with a family history of syphilis. She had recently developed diabetes after a period of chills and fever. The malaria had evidently upset the precarious balance of the endocrine glands and entailed the diabetes.

Amazonas Medico, Manáos

4: 1-172, 1922

Emergency Treatment of Grave Malaria. A. da Matta.—p. 11.
*Malarial Cerebellar Syndrome and Narcolepsy. A. da Matta.—p. 83.
*Autoserotherapy or Integral Serotherapy. E. Escomel.—p. 91.
Treatment of Rabies in Brazil. F. Vidal.—p. 122.
Sand-Flea Dermatophylosis. A. da Matta.—p. 126.
Phagedenic Ulcers of Toe-Nails. Idem.—p. 135.
Treatment of Mal de Caderas. L. E. Migone.—p. 138.
Grave Visceral Malaria. Soto Alfaro.—p. 148.
Fig-Tree Pest. A. da Matta.—p. 158.
Platypus Mattai Bréthes. N. Sp. J. Bréthes.—p. 160.
Eruption from Lepidoptera Insect Larvae. A. da Matta.—p. 167.

National Centennial Number.—This profusely illustrated special number is devoted mainly to biographical and historical reviews, but contains twelve articles on diseases and insect hosts common in northern Brazil.

Cerebellar Syndrome in Malaria.—The man presented narcolepsy in addition to the multiple and pronounced cerebellar symptoms, including incontinence of urine. All subsided under quinin as the hematozoa disappeared from the blood. No organisms were found at any time in the cerebrospinal fluid.

Integral Serotherapy.—Escomel recalls that the blood serum contains endocrine secretions, natural and acquired immunisins, and the substances formed in the reactions to other substances. Used in treatment, the serum, he says, is "always polyvalent, polytherapeutic, integral, personal and opportune." By heating the patient's own serum, the toxins destroyed by heat are eliminated, as also the pathogenic micro-organisms. The simple technic is described and the excellent effect of this integral autoserobacterial treatment is extolled. The effect is often striking, pyorrhea and acne subsiding with the acute rheumatism which had been the occasion for the autoserotherapy. He adds that it does not conflict with other therapeutic measures.

Archivos Españoles de Pediatría, Madrid

7: 129-192 (March) 1923

*Vertebral Tuberculosis in Children. J. Estella y Bermúdez de Castro. —p. 129.

Surgical Treatment of Vertebral Tuberculosis in Children.—Estella expatiates on the advantages of surgical rather than orthopedic treatment, and advocates Albee's method. He has applied it in a number of cases to date, and gives an illustrated description of the technic. Besides the mechanical support, the implant, he says, has a direct stimulating action on the biologic and chemical processes of repair. The chief indication for it is circumscribed Pott's disease in adolescents, while it is absolutely contraindicated in incipient cases in children, and in cases with septic lesons in the vicinity, or multiple foci at any age. In 112 cases at six different clinics, a complete cure was realized in 81.2 per cent., and 2.7 per cent. were improved. The immediate and absolute disappearance of the pain was constant with the Albee operation, but in his one case of paraplegia, the paralysis has persisted unmodified to date. To fit the implant to the spine, a green-stick fracture may be induced at need.

Prensa Médica Argentina, Buenos Aires

9: 957-980 (April 30) 1923

*Gonorrhea. M. V. Carbonell and Germinal Rodríguez.—p. 957.
*Palpation of Pylorus. C. Bonorino Udaondo.—p. 962.
Treatment of Fracture Below the Knee. R. Finochietto.—p. 966.

Prophylaxis of Gonorrhea.—The epithelial cells, gonococci, diplococci and leukocytes in the urethral secretion in gonorrhea increase and decrease proportionally to the stage and prognosis of the case. As recovery advances, the gonococci grow less numerous and disappear. Next the associated micro-organisms disappear; then the leukocytes, and finally the epithelial cells. In chronic cases the secretion may have to be provoked, but the microscope will show to which one of the seven phase groups the case belongs at the moment. Gonococci are found only in the first three groups; in the next to the last group, epithelial cells are numerous, as well as polymorphonuclears, but in the last stage before complete recovery, the microscope shows only numerous epithelial cells. A number of photomicrograms showing the seven groups are reproduced.

Palpation of Normal Pylorus.—Bonorino Udaondo was able to palpate the normal pylorus in 9.5 per cent. of 200 persons examined during digestion. He emphasizes the extreme variability in the findings, even in the same case, and warns against mistaking the normal play of the pylorus for pathologic conditions.

Repertorio de Medicina y Cirugía, Bogota

14: 167-206 (Feb.) 1923

*Gastric Cancer. J. B. Montoya y Florez.—p. 169.
*Campaign Against Hookworm in Colombia. W. M. Monroe.—p. 183.
Ovarian Cyst Weighing 155 Pounds. A. Lee M.—p. 188.
*Casts for Radium Applicators. A. Esguerra, O. Monod and G. Richard. —p. 192.

Surgical Treatment of Gastric Cancer.—Montoya of Bogota, recalling the suffering and mortality from gastric cancer asserts that in reporting operations on the stomach for cancer, the report should read, not "60 per cent. mortality" but "40 per cent. saved." He adds that this inversion of terms would influence not only the public but the profession itself, as physicians would be encouraged to advise operation, and at an earlier period, instead of shrinking from advising an "operation that has a death rate of 60 per cent." He has applied Cardenal's method in thirty-seven cases, with the cure of all the thirty-one ulcer patients and two of the three patients with cancer.

The Hookworm Campaign in Colombia.—Monroe describes the work accomplished in 1922. Of the 72,597 persons examined for the first time, 67,755 were found infested, and 28,077 continued treatment till cured. This is the largest number of cures recorded in any Latin-American country. More than 50,000 took two or more treatments, which is almost equivalent to a cure. The total number of treatments given during the year was 169,326. In 12,547, four treatments were given; in 5,695, five; in 2,170, six; in 880, seven; in 350, eight; in 121, nine, and in 87, ten. The public, the clergy and the press aided the work so effectually that appeals are being constantly received for establishment of new laboratories. The building of latrines meets with considerable opposition, the principal objection being that they increase the number of mosquitoes. The government appropriated $50,000 for the work. The proportion contributed by the Rockefeller Foundation is to become progressively less in time.

Casts to Hold Radium Applicators in Immovable Contact with Lesion.—The advantages of these casts and the technic for making the "Colombia paste" for them have already been described in The Journal, Sept. 30, 1922, p. 1180.

Semana Médica, Buenos Aires

1: 781-832 (April 26) 1923

*Access to Glands in Neck. C. M. Squirru.—p. 781.
Chemotherapy of Cancer. R. Bullrich and Rabuffetti.—p. 786.
The Recent Research on Rickets. C. Lagos García.—p. 789.
*Significance of Nocturnal Gallstone Colic. F. A. Gallino.—p. 804.
Experiences with the Inflatable Bag in Obstetrics. J. E. Bazán.—p. 811.
Plasmogenesis in 1922. A. L. Herrera.—p. 815.

Extirpation of Glands in the Neck.—Squirru's sixteen illustrations show the advantage and drawbacks of various technics for a radical operation on the glands in the neck in removing a cancer in the mouth. The access by his own method seems to be most convenient and ample. He begins with the Sebilleau but supplements it with another incision, curving away from the first where it crosses the anterior margin of the sternocleidomastoid, and extending down to the anterior margin of the trapezius. He removes the cancer and the glands on one side, completing the operation on the other side a week or two later. Not until after this does he apply radium or roentgen rays. The operation is done with the table at an angle of almost 45 degrees to reduce the congestion in the neck. His ample incision often revealed glands already involved when nothing had suggested their invasion.

Nocturnal Colic with Gallstones.—Gallino says that in sixty-six of eighty cases of gallstone colic, the pains came on in the night, and he ascribes great differential value to this nocturnal tendency. In sleep, certain inhibiting influences are suspended, and the horizontal position may facilitate shifting of the calculi.

Siglo Médico, Madrid

71: 381-404 (April 21) 1923

Tribute to Jenner. G. Pittaluga.—p. 381.
Biochemistry in Medicine. J. Caballero y Fernández.—p. 383.
Bismuth in Treatment of Syphilis. Barrio de Medina.—p. 387.
The Use of Proprietaries by Physicians. Piñerúa.—p. 388.
Hookworm in Spanish Mines. Sánchez Martin.—p. 390. Conc'n p. 453.

Archiv für klinische Chirurgie, Berlin

124: 387-564 (May 26) 1923

*Fracture of the Pelvis. V. Orator.—p. 387.
*Histology of Intestinal Suture. M. Gara and F. Mandl.—p. 419.
Axillary Artery from Surgical Standpoint. Gesselevitsch.—p. 435.
Vessels in Air Passages and Lungs from Surgical Standpoint. A. Melnikoff.—p. 460.
*Köhler's Disease and Coxa Plana. G. Axhausen.—p. 511.
*Experimental Joint Implants. G. Axhausen.—p. 543.
Acute Vertebral Osteomyelitis. K. Wohlgemuth.—p. 554.
*Gastric Mucosa After Gastro-Enterostomy. Oshikawa.—p. 559.

Fracture of the Pelvis.—Orator found that the fracture had healed in thirty-nine out of sixty-one cases of fracture of the pelvis in the last twenty years in Eiselsberg's service. The healing was often complete restitution in the young, but the prognosis in the elderly is bad. When the acetabulum was fractured, only 50 per cent. were left without crippling, and only 25 or 30 per cent. after Malgaigne's fracture, or fracture of the posterior ring.

Plastic Covering for Suture of the Intestine.—Gara and Mandl report histologic confirmation of the advantages of turning back, like a cuff, the serosa on the bowel that is being resected. The stumps are then sutured end-to-end, and the cuff is turned back over the suture, and sutured to cover the line of stitches.

Nature of Köhler's Disease and of Coxa Plana.—Axhausen presents evidence that incriminates the vascular system in the causation of these two affections. He has traced the course under roentgen-ray control, and found it the same in each. Both are the consequences of some primary interruption in the nourishment of the epiphysis, probably from obstruction of some vessel by an embolus. The microorganisms involved are not virulent, or they are conquered by the defensive forces, and the epiphysis presents merely a bland embolic total necrosis. Both affections belong in the category of bone arthritis deformans. If the affection is recognized in time, and the part relieved from weight-bearing, the dead epiphysis will not be forced out of shape. Otherwise the head of the bone gets flattened, and the regenerative process develops along the same lines.

Experimental Research on Joints.—Axhausen cut wedges from joints and reimplanted them, seeking for light on Köhler's disease. The findings all sustain his views summarized in the preceding abstract.

The Gastric Mucosa in Dogs After Gastro-Enterostomy.—Oshikawa discusses in particular the Bizzozero spirochetes.

Deutsche medizinische Wochenschrift, Berlin

49: 633-666 (May 18) 1923

Experimental Tar Tumors. Hoffmann et al.—p. 633.
*Desensitization in Hay-Fever. C. Prausnitz.—p. 634.
*Contagious and Noncontagious Tuberculosis. Braeuning.—p. 635.
*Diagnosis of Open Pulmonary Tuberculosis. Wankel.—p. 637.
Calcium Content of Human Serum. Herzfeld and Lubowsky.—p. 638. Conc'n.
*Hemoclasis and Colloidoclasis. Adelsberger and Rosenberg.—p. 639.
*Bilirubin in Human Serum. G. Lepehne.—p. 641.
*Diagnosis and Treatment of Nephritis in Children. Mendel.—p. 643.
Preventive and Curative Serotherapy of Dysentery. Kuhle.—p. 645.
Outdoor and Sun Treatment for Children. I. Rosenstern.—p. 646.
Dermatological Diagnosis. M. Joseph.—p. 648. Conc'n.
*Removing Warts. L. Blendermann.—p. 650.
Surgical Treatment of Dilatation of Vesical End of Ureter. A. Rothschild.—p. 650.
Physicians of Jails. Friedrich.—p. 651.

Desensitization in Hay-Fever.—Prausnitz found that the serum of patients who were treated with pollen extracts acquired the faculty of neutralizing, to a certain extent, the toxic effect of pollens.

Differentiation Between Contagious and Noncontagious Pulmonary Tuberculosis.—Braeuning finds that some patients with active tuberculous affections of the lungs have no bacilli in the sputum. The only distinct difference between open and closed tuberculosis is in the presence of bacilli in the sputum. Clinical signs are not decisive.

Inoculation of Guinea-Pigs with Sputum in Diagnosis of Open Pulmonary Tuberculosis.—Wankel found with the experiment on animals more than one third more open tuberculous affections than with other methods. Yet even this method was negative in almost two thirds of the tuberculous patients who produced sputum.

Hemoclasis and Colloidoclasis.—Adelsberger and Rosenberg consider the increased speed of sedimentation after ingestion of milk more instructive than the leukopenia. The test gave very good results in insufficiency of the liver, while alimentary leukopenia depends to a large extent on the vegetative nervous system.

Clinical Significance of Bilirubin Determination in Human Serum.—Lepehne recommends a modification of van den Bergh's test for general practice. He does not believe that the direct reaction depends only on the concentration of bile.

Diagnosis and Treatment of Nephritis in Children.—Mendel points out the necessity of examination of urine in infants. A simple lack of increase in weight may be due to nephritis. Not every infant with much albumin and casts has nephritis. Presence of erythrocytes is more important. The affection of the kidneys during diphtheria is an excellent gage of the severity of the disease, and guide to specific treatment. He follows Volhard in the classification of kidney diseases, and differs from him only in substituting the hunger and thirst treatment in diffuse nephritis by giving 250-300 gm. of sugar (preferably milk sugar) in 500-750 c.c. of water as the exclusive diet for two to four days. Degenerative affections of kidneys with edemas, very high specific gravity of urine and good elimination of urea are favorably influenced by thyroid preparations and large amounts of urea (at least 20 gm. daily). Digitalis, if necessary, should be given in large doses. Determination of blood pressure is very valuable in diagnosis after the child gets accustomed to it. The children have to be observed for years after the nephritis.

Removing Warts.—Blendermann disinfects the wart with tincture of iodin, freezes it with ethyl chlorid, and removes it with a sharp curet. The method is painless and the scar insignificant.

Deutsche Zeitschrift für Chirurgie, Leipzig

178: 145-288 (March 30) 1923

*Etiology of Köhler's Disease. O. Schreuder.—p. 145.
Vessels of Parenchymatous Organs from Surgical Standpoint. A. Melnikoff.—p. 160.
Experiences with Friedmann's Remedy. B. Hein.—p. 172.
*The Blood Pressure During Operations. E. König.—p. 187.
*Torsion of Internal Organs. B. Tenckhoff.—p. 224.
*Volvulus of the Cecum. H. Beeger.—p. 240.
*Blood Pressure in Local and Regional Anesthesia. O. Wiemann.—p. 268.

Etiology of Köhler's Disease. — Schreuder argues that chronic trauma is responsible for the affection of the second metatarsal bone to which Köhler called attention in 1915. In two of the twenty-four cases on record it was bilateral; fifteen of the patients were girls between 10 and 21. Rest is the main thing in treatment, with suitable shoes.

Blood Pressure During Operations. — König recorded the blood pressure before, during and after operations, and found that in several hundred cases, with both chloroform and ether, the blood pressure dropped in proportion to the depth of the general anesthesia. Intraspinal anesthesia reduces the pressure likewise, but an ordinary operation, in itself, has little effect on the pressure. The excitement and fear before the operation raise the pressure, and this rise accompanies local anesthesia, from the same psychic causes. Continuous control of the blood pressure during the operation allows instructive oversight of the patient's condition, as every serious mishap is preceded by a warning, rapid fall of the pressure.

Mechanism of Torsion of Internal Organs. — Tenckhoff theorizes that the slight twisting of the trunk, at each step in walking, is enough to induce torsion of a pedicle in time. A wisp of omentum and an inguinal hernia became twisted in two cases reported.

Volvulus of the Cecum.—Beeger states that the volvulus was complete in 42 per cent. of the 69 operative cases he has found on record. In 3 cases personally observed, the disturbances from the volvulus were the first symptoms indicating obstruction of the passage. Over 53 per cent. terminated fatally, 26 dying in collapse and 9 from peritonitis. Two patients died although the interval was only six and eight hours, and 5 recovered with a delay of two weeks before the operation.

Blood Pressure During Local and Regional Anesthesia.—Wiemann ascribes to difficulty of absorption of the anesthetic, injected for a hernia, the slight influence on blood pressure during hernia operations under local anesthesia. Conditions are entirely different with goiter operations; both blood pressure and pulse show extreme variations. In the majority, a difference of 41 to 80 mm. in the pressure was recorded, and in some it reached 100 and 120. The drop in pressure was even more pronounced with paravertebral anesthesia, especially in the neck region. Such an intense upset in the circulation explains many mishaps at operations. It teaches the necessity for waiting for the circulation to regain its balance to some extent before beginning the operation.

Klinische Wochenschrift, Berlin

2: 909-956 (May 14) 1923

*Invisible Infectious Substances. R. Doerr.—p. 909.
*Serum Modifies Action of Tuberculin. Jadassohn.—p. 913.
*Respiratory Tetany. Behrendt and Freudenberg.—p. 919. Conc'n.
*Periarterial Sympathectomy in Arteriosclerotic Gangrene. F. Brüning.—p. 923.
*Alimentary Stimulation-Hyperglycemia in Diabetes. Rosenberg.—p. 925.
*Phlorizin Glycosuria in Liver Diseases. Bauer and Kerti.—p. 927.
Treatment of Vulvovaginitis of Small Girls. J. Müller.—p. 928.
Steeple Skull and Fragile Erythrocytes. Barkan.—p. 929.
Urea Determination with Urease. H. Deist.—p. 930.
"Nature of Bacteriophagia." K. Hajós.—p. 931.
*New Function of the Thyroid. B. Stuber.—p. 931.
Mechanism of Bilirubin Reaction in Blood. Adler and Strauss.—p. 932.
Treatment with Artificial Light in Dermatology. Halberstädter.—p. 933.
Importance of Private Hospitals for the Public Health and Their Present Plight. Schaeffer.—p. 934.
Significance of Physical Chemistry in Bacteriology. E. Putter.—p. 936. Conc'n.

Invisible Infectious Substances and Their Relation to Problems of General Biology.—Doerr points out that the unlimited passage of an infectious agent is not in itself absolute proof that the agent is living, especially as long as we connect living matter with ideas of a definite structure without admitting the possibility of the occurrence of a dissolved phase. A passage through animals cannot be compared with repeated inoculations in dead mediums. As in the Twort-d'Herelle phenomenon, bacteriophagia, the problem of animal passage is complicated by the presence of other living elements on which the substance acts. The evaluation of passage through animals as a proof of living virus must be reduced to the limits of logic. Yet even in dead matter, continued passage is not a proof of a living agent: Delezenne and Ledebt were able to activate thirty passages of trypsinogen by one amount of enterokinase added to the first solution. The real question in d'Herelle's phenomenon is whether the agent is corpuscular, or in colloidal solution.

Enhancement and Enfeebling of Action of Tuberculin with Serum.—Jadassohn found that a mixture of human serum and tuberculin causes a stronger intracutaneous reaction if it stands for some time at room temperature. The action is not changed by heating the mixture to 58 C. If the mixture is injected immediately, the action is weaker than that of tuberculin alone.

Points of Action of Stimuli Inducing Clinical Tetany by Forced Respiration.—Behrendt and Freudenberg noted spasms in tetany even after application of procain to the nerves. They believe that the spasms depend on the blood changes which act on the intermediary neuromuscular substance. They assume a double innervation, and believe that procain left one intact. These impulses are probably parasympathetic.

Permanent Results and Failures of Periarterial Sympathectomy, and Its Technic in Arteriosclerotic Gangrene.—Brüning gives some technical points, and recommends the operation not only in trophic and vasomotor disturbances, but also in beginning gangrene. In this case, however, the spasm of the artery, which persists after the operation for some time, may cause a more rapid appearance of the gangrene as was demonstrated in one case. Yet on the fifth day the clinical picture changed, and the patient recovered.

Alimentary Stimulation-Hyperglycemia in Diabetes. — Rosenberg found that ingestion of 100 gm. of boiled meat provoked in severe cases of diabetes a hyperglycemia which was stronger than in light cases. In mild cases it sometimes did not appear at all. The action may be as strong as that of a corresponding quantity of carbohydrates. He believes that it is caused by a specific stimulation of the liver. Persons without diabetes, especially neurotics under emotional strain, may show the same symptom.

Phlorizin Glycosuria in Liver Diseases.—Bauer and Kerti found in affections of the liver a strong and prolonged glycosuria after intramuscular injections of 0.02 phlorizin. Normal persons excreted usually between 2 to 4 gm. (maximal 6 gm. in two to four hours). Patients suffering from exophthalmic goiter had an excretion of maximally 8 to 9 gm. in six to eight hours. A patient with cirrhosis of the liver excreted over 26 gm. in twenty-four hours. The extreme lowering of the blood sugar, without marked glycosuria, in one case leads them to the theory of the passage of glucose into the tissues, a tissue diabetes.

A New Function of the Thyroid, and the Biologic Significance of Iodin.—Stuber found that a thyroidectomized rabbit is unable to synthesize guanidin-acetic acid with methyl to creatin. Feeding of thyroid or inorganic iodin restored this faculty. He points out that iodin is a favorite means of introducing alkyls into organic compounds in chemistry.

Medizinische Klinik, Berlin

19: 671-708 (May 20) 1923

*Surgery of Vegetative Nervous System. F. Brüning.—p. 671.
So-Called Sexual Anesthesia of Women. A. Moll.—p. 675.
Etiology and Recurrence of Exophthalmic Goiter. F. Deutsch.—p. 678.
Lymphosarcomatosis of Gastro-Intestinal Tract. F. Zimmer.—p. 681.
Treatment of Sequelae of Epidemic Encephalitis. F. Bardachzi.—p. 683.
Hygienic Jars for Sputum in Hospitals. E. Stark.—p. 688.
Complement Fixation in Tuberculosis. Kwasniewski and Ciric.—p. 688.
Prolapse of Vagina and Uterus. E. Runge.—p. 691.
Principles for Classification of Nutritional Disturbances of Infants. Rietschel.—p. 693.
Inflammatory and Itching Affections of Skin. F. Pinkus.—p. 694.

Surgery of Vegetative Nervous System.—Brüning deals especially with the theory of indications for and results of periarterial sympathectomy. Extirpation of the cervical sympathetic in epilepsy, glaucoma, and exophthalmic goiter had no good results. In angiospastic conditions however, especially in angina pectoris, the operation is indicated.

Monatsschrift für Geb. und Gynäkologie, Berlin

62: 1-118 (Feb.) 1923

Superfetation. M. Hofmeier.—p. 1.
Influence of Drugs on Capillary Circulation. F. Grzechowiak.—p. 7.
Use of Retroplacental and Umbilical Vein Blood in Diagnosis of Syphilis. F. Klee and E. Hofmann.—p. 21.
*Influence of Pregnancy on Blood Pressure. Hinselmann.—p. 37.
*Principles for Treatment of Eclampsia. Id.—p. 41.
Lymph-Cystic Ovary. R. Fleischer.—p. 45.
Spontaneous Version or Spontaneous Delivery of Fetus? Fleischer.—p. 50.
*Fate of Children with Hydramnion. M. Floris.—p. 55.
Lobelin in Asphyxia Neonatorum. T. v. Miltner.—p. 60.
Justification for Embryotomy Intra Partum. Enzinger.—p. 69.
Regulation of Midwifery. N. Ellerbroek.—p. 79.
Ovarian Endometrioma. O. Frankl.—p. 93.
*Suggestion to Medical Writers. K. Heil.—p. 95.

Influence of Pregnancy on Blood Pressure.—Hinselmann has established that the total volume of blood is increased in the pregnant, but that the pressure tends to drop rather than rise, as the terminal arterial vessels are dilated. This insures the needed extra supply of blood to the tissues. When the pregnancy is proving too much of a strain, the terminal dilation is arrested, and vasoconstriction may be detected in the capillary circulation before any other symptoms attract attention. He thinks this is a sign that the vascular system of *this* patient in *this* pregnancy is functionally insufficient. This assumption removes eclampsia and pregnancy kidney from the toxicoses, and ranks them as overstrain of the vascular system.

Treatment of Eclampsia.—Hinselmann's conception of eclampsia as an overstrain of the vascular system, explains the benefit from repose, venesection and immediate cesarean section. But the vascular insufficiency invites infection, and two of the twelve women thus treated died from peritonitis. He urges that the task now is to find some means of reducing the blood pressure by acting on the central nervous system—some cerebral vasodilating influence—as the last link in the chain of this conception of eclampsia.

Fate of Hydramnion Children.—Floris has traced to date sixty-five of 236 children born with hydramnion. Only 14 per cent. are known to have died. The physical and mental development of the others has been excellent, averaging well with other children.

Suggestion to Medical Writers.—Heil suggests that the author of a monograph should present to some central library with a reprint of his article all the manuscript tables, bibliography, and other data which were crowded out of his published work from lack of space or on account of the expense or for other reason. The monograph should mention the special library in view.

Münchener medizinische Wochenschrift, Munich

70: 619-658 (May 18) 1923

"Moleculardisperse" Silver Solution in Gonorrhea. L. v. Zumbusch.—p. 619.
*Chance of Cure in Syphilis. Hoffmann and Hofmann.—p. 620.
*Development of Epidermis. W. Frieboes.—p. 622.
*Arsphenamin in Experimental Syphilis. Plaut and Mulzer.—p. 623.
Bismuth Treatment of Syphilis. Müller et al.—p. 625.
*Bismuth in Syphilis. H. Felke.—p. 627.
*Action of Temperature on Spirochaeta Pallida. Krantz.—p. 628.
Transmission of Congenital Syphilis. F. Salomon.—p. 630.
*Treatment of Syphilis. O. Salomon.—p. 631.
"Green Benzaldehyd Reaction" as Simple Test for Noncoagulable Nitrogen in Blood. G. Burghardt.—p. 632.
*Tests for Syphilis During Pregnancy. Georgi and Handorn.—p. 632.
Famine and Epidemics in Russia. Abel.—p. 633.
Perforating Ulcer of Foot After Shot Through Nerve. Schaeffer.—p. 637.
*Method for Testing Knee-Jerk. J. Plesch.—p. 637.
Malaria and Its Abortive Treatment. G. Baermann.—p. 637. Conc'n.
Skin Diseases Due to Animal Parasites. L. v. Zumbusch.—p. 640.
*Abolition of Brothels or Reglementation? F. Schwink.—p. 641.

Early Chance of Cure in Acquired and Congenital Syphilis.—Hoffmann and Hofmann emphasize the advantages of intensive early treatment of syphilis. The appearance of a positive Wassermann reaction in the blood and even a secondary eruption do not indicate that it is too late to try energetic instead of prolonged intermittent treatment. Large amounts of arsphenamin should be injected at short intervals and combined with mercury or bismuth treatment. The interval between the first two series should not exceed five to six weeks.

Structure and Development of Human and Animal Epidermis: Structure of Epithelium of Cornea.—Frieboes believes that the epidermis is an organ derived not only from the ectoderm, but also from the mesoderm. The latter is represented by a system of fibers which are important in the metabolism of water and in immunity. The cornea contains similar structures.

Action of Insufficient Arsphenamin Treatment on Experimental Syphilis of Rabbits.—Plaut and Mulzer injected syphilitic rabbits with insufficient doses of arsphenamin. They found that inoculation of the surviving spirochetes from the rabbits caused an earlier appearance of the affection in the inoculated animals. They found, also, changes in the cerebrospinal fluid, and severe general eruptions, while the control experiments with the same untreated strain caused only mild infections. No arsphenamin is better than insufficient doses.

Action, Untoward Effects and Dosage of Bismuth in Treatment of Syphilis.—Felke found in the third or fourth week of bismuth treatment many epithelial kidney cells in the urine, which acquires even macroscopically a peculiar opalescence. Albumin is not always present. This injury can be avoided by keeping the amount of bismuth injected in six weeks under 0.8 gm. The action of this amount on the clinical symptoms is good, though the Wassermann reaction becomes negative only in one third of such cases at the end of the treatment. Mercury should be substituted by bismuth in the treatment of early syphilis, and the drug should be used to supplement arsphenamin and mercury in the chronic treatment.

Action of Low Temperatures on Cultures of Spirochetes.—Krantz found that cultures of *Spirochaeta pallida* grow at room temperature. Keeping the cultures for 101 hours in the ice box (temperature between 0 and 5 C. did not destroy them. A freezing mixture of minus 20 C. could act on the cultures for an hour without any apparent injurious effect.

Treatment of Syphilis.—Salomon recommends the use of thermocoagulation of the primary chancre, besides the general treatment.

Reliability of Serologic Tests for Syphilis During Pregnancy and Postpartum.—Georgi and Handorn find the serologic tests in pregnancy and during and after delivery reliable.

Method for Testing Knee-Jerk.—Plesch recommends compressing the lowest part of the patella and the tendon of the quadriceps between the thumb and index, or squeezing a fold in the skin over the patella while testing the reflex. The method works even if Jendrassik's method fails.

Abolition or Regulation of Brothels?—Schwink publishes the unanimous resolution of the health council of Nuremberg against the impending abolition of brothels. The chief reason for this opinion is the expected increase in venereal diseases. He brings statistical data to demonstrate the relatively rare infections in brothels. Only 2.22 per cent. of these prostitutes were found infected against 32 per cent. of uncontrolled girls captured in raids.

Zeitschrift für Geburtshülfe und Gynäk., Stuttgart

86: 1-220 (May 8) 1923

*Roofing Over Gynecologic Focus with Peritoneum. Beuttner.—p. 1.
Rare Form of Ovarian Cancer. R. Zimmermann.—p. 19.
*Female Genitals in Lymphatic Leukemia. O. Brakemann.—p. 23.
*Operative Treatment of Uterine Myoma. H. H. Schmid.—p. 36.
Changes in Ovaries During Pregnancy. K. M. Walthard.—p. 74.
*Syphilis and Pregnancy. E. Klaften and W. Kalman.—p. 123.
Favorable Experiences with Kielland Forceps. v. Schubert.—p. 134.

Peritoneum to Roof Over Focus After Gynecologic Operations.—Beuttner gives the detailed history of ten cases of complicated adnexitis or uterine lesions in which he utilized the peritoneum to roof over the focus. The aim of the article is to establish the general principles for this "peritonization," to imitate Nature most closely.

Changes in Genitals in Lymphatic Leukemia.—The disease ran its fatal course in less than four months in the nullipara, aged 31. Leukemic infiltrations were found in the genital organs as elsewhere.

Conservative Myoma Operations.—Schmid reports recurrence of the myoma in 7 per cent. of his fifty-seven patients traced to date after conservative operations. The general mortality of conservative operations has dropped in the last decade to 1 or 2 per cent. and of radical operations to 2 or 5 per cent. The duration and severity of the hemorrhages were reduced in two thirds of the cases after conservative treatment, and the ultimate subjective condition and earning capacity were as good after this as after radical measures. Enucleation of the myoma is followed by pregnancy in 38 or 40 per cent. of the cases in women under 35, and serious complications of childbirth later are extremely rare.

Syphilis and Pregnancy.—At the Vienna maternity in charge of Peham, the Wassermann test applied to 5,738 parturients in a recent eighteen months revealed latent syphilis in 96 cases. The Wassermann reaction often veered transiently to negative during the puerperium. Infarcts in the placenta were evident in 25 cases in this syphilitic group, and anomalies were common. In 26 cases, the women bore repeatedly nonviable children although there was nothing except the positive Wassermann to suggest syphilis, and no history of contagion. The necessity for resumption of treatment at every pregnancy is emphasized.

Zentralblatt für innere Medizin, Leipzig

44: 337-352 (May 26) 1923

*Capillary Circulation and Sedimentation of Erythrocytes. Kürten and Gabriel.—p. 337.

The Capillary Circulation in Relation to Speed of Sedimentation of Erythrocytes.—Kürten and Gabriel find no parallelism between a directly observed capillary blood stream in "granules" and the sedimentation speed of erythrocytes. This peculiarity of the blood stream is local, and may be produced together with a broadening of capillaries by irradiation.

Casopis lekaruv ceskych, Prague

62: 193-220 (Feb. 24) 1923

*Predilection of Eye for Tuberculosis. J. Deyl.—p. 193. Conc'n, p. 226.
Plastic Reconstruction of Vagina with Total Defect. J. Trapl.—p. 197.
Treatment of Abortion. O. Saitz.—p. 202.

Causes of Predilection of Some Parts of the Eye for Tuberculosis.—Deyl points out that tuberculosis of the eye occurs most frequently in the anterior parts of the eye (episclera, iris, ciliary body). In the posterior part it affects almost exclusively the choroid, comparatively rarely the retina or optic nerve. It is a peculiar fact that it may affect only the iris and the ciliary body without localization in the choroid. It hardly ever occurs in the striated muscles of the eye, the orbital fat, tarsus, vitreous body, lens or cornea, except by extension from other parts. The anterior points of predilection are supplied by at least two arteries, which form very dense capillaries. The different streams clash and cause at times a slowing down of the blood stream. This, in bacillemia, leads to an easier localization of bacilli. Similar anatomic conditions of the vessels and broadening of the capillaries are responsible for the other peculiarities.

Gann, Tokio

16: 1-78 (Feb.) 1923. English and German Edition

Antibody Against Mouse Carcinoma. Yamagiwa and Kimura.—p. 1.
Fibroplastic Myxoma in a Goldfish. H. Wago.—p. 11.
Spindle-Cell Sarcoma in a Salmon. Y. Kazama.—p. 12.
*Tumor Formation in Internal Organs. Id.—p. 14.
Effects of Chloroform on Growth of Transplanted Tumors. T. Kimura, K. Ohba and Y. Wada.—p. 19.
Sarcoma in Transplanted Mouse Cancer. T. Asada.—p. 22.
Effects of Wool Fat Feeding on Transplanted Chicken Chondroma. N. Akamatsu.—p. 30.
Primary Hepatic Carcinoma in Child. M. Takaidzumi.—p. 31.
*Tumor Substance in Treatment of Mouse Cancer. M. Takahashi.—p. 33.
*Influence of Gonads on Growth of Mouse Cancer. T. Asada.—p. 35.
Cancer Metastases in Organs of Circulation. K. Eguchi.—p. 44.
Case of Carcinosis of Spleen. I. Honda.—p. 50.
Tumors in Jaws of Horses. T. Kimura and S. Taguma.—p. 51.
Metastasis of Chicken Sarcoma. K. Tadenuma.—p. 55.
Metastasis of Mouse Carcinoma. Okonogi and Tadenuma.—p. 60.

Cancer Research in Japan.—This issue of *Gann* is accompanied with six fine plates illustrating the articles by Yamagiwa, Kazama, Asada, Eguchi, Honda and Kimura. It also contains the general index for the entire sixteen volumes of the quarterly, which is issued by the Japanese Society of Cancer Research. Pathologic Institute, Imperial University, Tokio, Japan.

Experimental Tumors in Internal Organs.—Kazama used mechanical irritants, as well as chemical and combined chemical and mechanical irritants, in his numerous extensive experiments on dogs, rabbits, guinea-pigs, fowls and pigeons. The results confirm those of others in this line: In the stomach and bladder of rabbits and in the stomach and gallbladder of guinea-pigs, the irritants mixed with the food or applied locally resulted in producing not only atypical proliferation of epithelium, but tumor-like proliferation or actual cancer. In the majority, the new growth was single, and at the point of greatest irritation. There was metastasis in six of the eighteen cases of adenocarcinoma of the gallbladder in guinea-pigs. Clinical experiences with cancer in gallbladders containing gallstones were repeated in the animals in which a tumor developed after a particle of stone had been introduced into the gallbladder.

Treatment of Mouse Cancer with Cancer Tissue.—Takahashi states that the autolysate of two strains of transplantable mouse cancer displayed an inhibiting action when injected into animals developing the same kind of tumor. Or possibly the inhibiting effect was due to a kind of induced immunity. A similar inhibitory effect followed implantation of a heated fragment of the cancer tissue.

Influence of Sex Glands on Growth of Transplantable Mouse Tumor.—Asada concludes that the internal secretion of the sex glands evidently has some inhibiting influence on the growth of transplantable mouse tumors, as there is a larger proportion of "takes" and they grow faster after castration. This phenomenon is more pronounced in females than in males, and it occurs only when the inoculation is made after puberty. The virulence of malignant disease is at its highest in spring and summer, and the transplanted tumor shows a more active growth the briefer the interval between the castration and the inoculation.

Mitteilungen a. d. medizinischen Fakultät, Tokio

29: 237-420 (Sept. 25) 1922. German Edition

Inhibitory Action of Vagus on Heart Movements. K. Omori.—p. 237.
Virulence for Rabbits of Fixed Virus of Rabies. Imamura and Satoh. —p. 307.
Influence of Fat on Assimilation of Sugar. Sakaguchi et al.—p. 321.
Cultivation of Rabies Virus in Vitro. A. Imamura.—p. 347.
Research on Human Gastric Juice. V. Itakura.—p. 379.
Formation and Resorption of Cerebrospinal Fluid. Kumagai.—p. 389.

Mededeelingen v. d. Burg. Geneesk. Dienst, Batavia

1-136, 1923. English Edition

Need of Antiberiberi Vitamin and Amount of This Vitamin in Different Foods. B. C. P. Jansen.—p. 1.
*Nutrient Value of Old Rice. B. C. P. Jansen.—p. 123.

Nutrient Value of Rice One Hundred Years Old.—Jansen explains that the surplus rice harvested in a part of Java which has been comparatively inaccessible has been stored in the ear in local warehouses for many years. The stores thus accumulated in 100 years amount to 100,000,000 kg. of rice. A road has now been built into the region, and Jansen's research has demonstrated that there has been very little if any loss in vitamin and ferment content of the rice or in digestibility.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

1: 2001-2080 (May 12) 1923

Blood Picture in Tertian Malaria. Woensdregt and van Dam.—p. 2002.
Isohemagglutinins in Cancer. Wassink et al.—p. 2011.
Pathogenesis of "Brittle-Bone Disease." G. C. Bolten.—p. 2015.
Examination of the Left Eye. H. K. Hattink.—p. 2019.
Persisting Migraine in Young Man. A. Q. van Braam Houckgeest.—p. 2021.
Future of the Practice of Medicine. H. Koch.—p. 2049.

Ugeskrift for Læger, Copenhagen

85: 373-386 (May 24) 1923

Spontaneous Fluctuations in Wassermann Reactions. J. R. Mørch and T. E. Hess Thaysen.—p. 373.
Fatal Mercurial Poisoning. L. O. Christensen.—p. 379.
Technic of Intravenous Injections. S. M. Saxtorph.—p. 380.

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PEDIATRICS AND THE CHILD *

BORDEN S. VEEDER, M.D.
ST. LOUIS

The development of pediatrics in recent years has been quite remarkable. Two score years ago there were scarcely a dozen men engaged exclusively in children's work, while today there are nearly nineteen hundred physicians devoting their time to pediatrics, and nearly thirty-five hundred more who are particularly interested in our specialty. It is all the more remarkable when one considers its unique position in the field of medicine, for it differs from all other specialties in that it is not based on an anatomic part or system, as ophthalmology, or on a disease, as tuberculosis, or on a method of treatment or practice. As the name denotes, it has to do with the child. This and this alone is the *raison d'être* of considering pediatrics as a specialty, and it has seemed to me at times that we as pediatricians are not always keeping this fundamental conception clearly in the foreground.

It has been my feeling that the name of our section, the Section on Diseases of Children, is a misnomer, or that, at least, it indicates a very limited view or what we usually speak of as pediatrics. The one factor that distinguishes the child from the adult is that childhood is the period of physical and mental growth. If one excepts the relatively few defects and diseases peculiar to growth and development in the child and the sclerotic diseases of the adult, there is no fundamental difference between disease as it occurs in the child and in the adult. Measles is the same disease in the adult as in the child, although a typical disease of childhood. A disease may have a difference in frequency, manifestations and prognosis in the child and n the adult, as for example, pneumonia, but the pathogenesis is the same. From the standpoint of disease, if we except the conditions connected with growth, the pediatrician is nothing more or less than the general practitioner who limits his practice to children. From he standpoint of the specialist, it is the "child angle" hat is the essential—not the medical—and I am of the opinion that, in spite of the fact that the important nderlying movements in the development of pediatrics have had this vaguely in mind, it has not been clearly xpressed in our teaching and practice. If one runs over, for example, the index of a recent volume of any f our pediatric journals, one will be surprised to find ow little there is in it about the child. One will find lot about unusual and rare diseases occurring in childhood, chemistry, bacteriology, etc., or, in other words, about disease in children, and comparatively little about the growth and development of the child and the conditions and factors that tend to direct it away from, or toward, the norm.

Granted that, fundamentally, the physician must have a knowledge of disease, the added knowledge that he must have to become a pediatrician is a knowledge of the child. This requires (1) a knowledge of the physical growth and development of the child and the factors which affect it—or nutrition, and (2) a knowledge of the mental development and psychology of the child. There is no other period of life in which the two are more interdependent. There is an old conception of the pediatrician as the physician who devotes himself to infant feeding—a conception still erroneously held by many today, including even a few specialists. While this is an important part of the work of the pediatrician, in many ways progress in pediatrics in the last ten years has gone hand in hand with the overthrowing of this idea or conception. The school of thought or teaching which dominated pediatrics fifteen or twenty years ago with what was then called "scientific infant feeding," and which we now realize was based on false ideas, while a large factor in developing our specialty, was at the same time one of the chief factors in retarding its development. The turning away from algebraic feedings to the stressing of nursing and hygiene, and the utilizing of simple means or methods of substitute feeding when these were necessary, have given us the time to think of other things. The entire question of the nutrition of the older child has been, with few exceptions, a development of the last few years, and it has been found to be a field of almost equal importance with that of the infant, and a field susceptible of almost limitless exploration.

Turning to the other side of the growth and development of the child, one hesitates to ask how much the average pediatrician or general practitioner knows of the psychology of childhood. I should be embarassed to ask a show of hands on how many here present are familiar not only with the older textbooks on the psychology of childhood, but also with the newer conceptions and developments in this field which have taken place in the last few years. A knowledge of the psychology of childhood is as essential to the pediatrician as a knowledge of disease, as it is an integral part of the development of the child, and without it one cannot understand many of the factors influencing physical growth. In discussing this point with some of our group, I have encountered the view that this pertained to the "art" rather than the "science" of medicine. This so-called art, however, is nothing but the science of psychology—applied, perhaps, by the pediatrician in a blundering, unintelligent way—which follows as many rules and principles as the science of medicine, and which the psychologist, furthermore, is of the opinion is a science that can be taught. This is a subject of importance to the pediatrician which cannot be stressed too much, and is a field of pediatrics the surface of which has scarcely been touched. It is in recognition of this that the short symposium has been arranged on this year's program.

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* Chairman's address, read before the Section on Diseases of Chil-ren at the Seventy-Fourth Annual Session of the American Medical ssociation, San Francisco, June, 1923.

If pediatrics has any reason to be proud, it is chiefly because of the part it has played in the development of preventive medicine. This is far and away the most important development of our specialty. Child hygiene is at present the most important motif in our work, as it will continue to be in the future, and in child hygiene work it has been the child that has been the topic of consideration—not disease or medicine. Child hygiene is nothing more than the application to the individual of the measures that lead to the normal growth and development of the child, and the methods by which these measures can be applied to large numbers of children. It includes not only physical health but also mental health. The change in conception of the physician from the healer of disease to the counselor of health is the great advance made by the present era of medicine, despite the tremendous impetus and éclat that have been associated with medical research in the last few years; and this is particularly true in the field of pediatrics. Not that in any way the basic importance of medical research is to be belittled or the debt which preventive medicine owes to pure science is to be minimized. The scientific investigator of the diseases that play a large factor in childhood must necessarily be a specialist in some fundamental branch of the medical sciences; but the mere fact that a specialist in chemistry or pathology is studying the diseases of childhood does not necessarily make him a pediatrician—it is a knowledge of the child which does this. The reduction in infant mortality, which is the proudest achievement of pediatrics, has not been due primarily to the development of any method of artificial feeding or to the study of disease, but to education in hygiene and the study and correction of the environmental factors which lower the physical well-being of the infant.

TEACHING OF PEDIATRICS

In discussing the teaching of pediatrics, I intend to speak not of the training of the specialist, which is wholly a question of postgraduate instruction, but only of the question of the undergraduate course in pediatrics. The purpose of the medical school is to give a sound and useful training to the practitioner of medicine, and a broad medical training to the physician who specializes in any branch of medicine. There have been two distinct points of view regarding the position of pediatrics in the medical school curriculum. One is that it is a distinct specialty, and the other that it should be considered and taught as a subdivision of medicine. In the last few years, departments have been organized under both plans with the decision based on secondary considerations, as the question of finance, available facilities, personnel, and the like. It is my feeling that the decision should be based on a broad conception of the medical school curriculum, and that the question should be decided on what it is purposed to teach under the heading of pediatrics. If the pediatric department devotes a large part of its time to the teaching of medicine, with laboratory instruction and the like, the organization is simplified, unnecessary duplication is avoided, and the instruction is harmonized if pediatrics is a subdivision of medicine, as such teaching does little more than extend or amplify the work of the department of medicine. If, however, pediatrics is taught from the standpoint of the child, I believe that it has a just claim to be considered as a specialty. From this standpoint, its problems and special knowledge are something quite apart from the problems of general medicine. I believe that this aspect is worthy of serious reflection in view of the fact that so much of the time of the average department of pediatrics is spent in teaching medicine. Moreover, there has been a decided tendency in the last few years to the organization of pediatric departments along lines intended to develop medical research. While the value of this is obvious and the purpose desirable, it is unfortunate that much of the teaching work has been organized so as to create duplicate or miniature departments of medicine and to overlook the problems of the child for the problems of disease, and in this way has tended to obscure the essential basis of pediatrics as a specialty. I am thoroughly in accord with the recent scientific developments in the study of the diseases of children, but it is my contention that this is only a part of pediatrics.

As a result of my experience during the last four years in giving physicians postgraduate instruction in pediatrics, I have come to believe that what they lack is not a sound knowledge of medicine but a knowledge of the child and of childhood. This apparently has not been given them in their medical school courses, and yet it is the thing they have found they needed in their daily work and practice. It is the duty of the teachers of pediatrics to see that the medical student has this instruction, even if he gets nothing else in his course in pediatrics. The large proportion of children are under the care of the general practitioner, and unless his pediatric training is from the point of view of the child, the children under his care will miss the supervision of the physician who is devoting his time wholly to pediatrics. My conception of the pediatrician is nothing more or less than the physician of broad medical training who, in addition, is trained properly to supervise the physical growth and development of the child, and who is interested enough to watch the reaction of the individual child to its environment.

In an address of this type it is impossible to do more than touch on the points under discussion. I have but one purpose, and that is to express a conviction that I know is growing on many pediatricians with whom I have talked, namely, that the essential development of pediatrics must be from the standpoint of the child and not from that of disease; that the special knowledge the pediatrician must have is a knowledge of the nutrition of the infant and child and a knowledge of the psychology of childhood, and that the application of this must be along the lines of preventive medicine, or what may be roughly summed up as child hygiene. To summarize my theme in a phrase—pediatrics is the study of the biologic problems of the child, not simply the study of disease in children, and it is from this point of view that it should be practiced and taught.

County Health Officers.—The question of all questions in regard to the county health officer is how to keep the office out of politics. Once the office becomes a question of political patronage, all hope of permanent constructive work is gone.—Allen W. Freeman.

THE CYTOLOGIC DIAGNOSIS OF NEOPLASMS *

WILLIAM CARPENTER MacCARTY, M.D.
ROCHESTER, MINN.

Progress in the diagnosis of morbid anatomic condions has advanced by steps made possible by new pportunities for research: Thus, the first great opporunity came as a result of permission to study the uman body by gross dissections; the second came rough the invention of the earliest forms of magnifyig lenses, and the third came as a result of methods of xation, embedding and staining of tissues.

We are, I believe, at the beginning of still another pportunity presented by operative surgery through hich we are supplied with perfectly fresh, living tisies that are being removed during the active process f disease instead of at the end of disease.

It is this opportunity which I wish to place before ou—not so much for what has been accomplished as r what might be accomplished in the future. I have ved through the evolution of, and the height of, the riod of the perfection of the technic of fixation, nbedding, staining and section cutting. I have been vored also by perhaps the greatest opportunity for eing surgical material under the most favorable cirmstances, and now I hope to stimulate others to asp the opportunity of utilizing not only a new ethod of observation but also a new method of applyg a knowledge of morbid anatomy to the actual prace of medicine. That this is needed may be seen from e accompanying tables.

TABLE 1.—*Percentage of Incorrect Preoperative Clinical Diagnoses*

Condition	Location	Per Cent. Incorrect Diagnoses	No. of Cases
nign	Stomach	4	25
alignant	Stomach	0	29
alignant	Rectum	0	26
nign	Uterus	0	138
alignant	Uterus	0	13
alignant	Breast	6.5	46
alignant	Breast	5.5	2,100
nign	Breast	4.5	44
nign	Breast	11.2	2,100
iodenal ulcer	......	9.7	83
l malignant conditions............	......	2.5	168
l clinical diagnoses..............	......	9.9	1,000
all surgical patients (producing specimens)	......	2.65	
all surgical patients (malignancy not even suspected)...............	......	0.8	

Stimulated by this demand for a better knowledge of ing morbid anatomy and the fourth great opportunity r study of morbid anatomy, I wish to make a few tements from experience. There is a large group of rbid anatomic conditions which general pathologists th low power observations call borderline specimens; y cannot determine whether the condition is benign malignant; and they cannot decide the histogenetic gin of many conditions which they call neoplasms. perience has taught me that the latter difficulty is little importance for practical purposes, although it y be of value from the standpoint of pure research l more fascinating in the presentation of the subject students. The group in which the diagnosis cannot made with the old methods is of importance because it is a large one in which we may be, as modern pathologists, of clinical service.

The whole problem, in dealing with this group, is one of the conditions of the material when studied; the technic of preserving these conditions as they exist in their natural state, and the utilization of biologic facts in their interpretation.

TABLE 2.—*Percentage of Cases in Which Clinicians Avoid Making a Positive Diagnosis*

Condition	Location	Per Cent.	No. of Cases
Benign	Stomach	16	25
Malignant	Stomach	13.8	29
Malignant	Rectum	4	26
Benign	Uterus	35.6	138
Malignant	Uterus	77	13
Malignant	Breast	19.5	46
Malignant and benign pathologic conditions in breast..................	......	17.5	2,100
Benign pathologic conditions in breast	......	54.5	44
All malignant conditions............	......	27.3	168
All clinical diagnoses..............	......	36.7	1,000
All clinical diagnoses..............	......	24.66	16,000
All abdominal and pelvic cases......	......	36.7	698

The methods of study of cells, heretofore utilized, have been handicapped by: (1) changes in morphology due to metabolic disturbances existing in the immediate premortem phase of disease; (2) postmortem changes occurring betweeen the time of death and fixation of tissues; (3) coagulation of cell constituents by strong solutions for fixation; (4) abnormal treatment in the process of embedding; (5) the introduction of foreign pigments into the coagulated cell constituents; (6) the shrinkage coincident to dehydration, clearing and mounting, and (7) the variety of pictures resulting from the cutting of many different planes through coagulated opaque cells.

TABLE 3.—*Percentage of Absolutely Necessary Microscopic Diagnoses in a Series of 12,964 Specimens from 24,368 Surgical Operations*

		Diagnosis Possible Only With a Microscope	
	Specimens	No.	Per Cent.
HOSPITAL A (GENERAL SURGERY)			
Breast	289	18	6.2
Extremities	118	20	16.0
Gallbladder	1,086	0	...
Genito-urinary organs	486	33	6.7
Head	33	17	51.0
Intestines	249	32	12.0
Lip and glands...........	44	6	13.0
Neck	259	54	20.0
Stomach	191	61	31.0
Thyroid	1,638	4	...
Trunk	153	31	20.0
Uterus (portion)	165	11	6.0
Uterus (entire)	655	21	3.0
Tubes	625	4	....
Ovaries	601	5	....
Parovarian cysts	75	0	....
Specimens for diagnosis...	432	207	47.0
HOSPITAL B (GENERAL SURGERY)			
General specimens	2,635	461	21.0
HOSPITAL C (EYE, NOSE AND THROAT)			
Diagnostic specimens	461	432	93.0
CLINICAL OFFICES			
Diagnostic specimens	586	558	95.0

On these artificial and unnatural conditions, our present conception of neoplasms is based.

We, in the medical profession, have appeared to be satisfied with these conditions despite the fact that modern biology, which has advanced, is based on facts coincident to the study of living nature. No longer do we base our knowledge of birds on stuffed skins, or our knowledge of plants on pressed dried specimens. We go out into the open and study nature as it is, and exclude all modifying factors that might deprive us of the truth.

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* Read before the Section on Pathology and Physiology at the enty-Fourth Annual Session of the American Medical Association, Francisco, June, 1923.

From an experience which has been very extensive, I shall make a few statements which, if true, greatly advance our efficiency. If thought to be false, the thought may be due to ultraconservatism or indifference. If found, after just trial, to be erroneous, they may nevertheless stimulate some advance.

Fresh living cells of malignant neoplasms are perfect spheroidal or oval bodies presenting large spheroidal or ovoidal nuclei in which may be found one or more large spheroidal or ovoidal nucleoli. In my experience, they contain multiple polar mitotic figures very rarely, but never the so-called atypical irregular or asymmetrical mitotic figures described by von Hansemann and others as characteristic of cells of malignant neoplasms. At least it may be said that any asymmetrical mitotic figure which I have seen may be just as well explained by disintegration of the cells, or by cutting planes through perfectly regular figures. The cytoplasm and nucleoplasm are not reticular, as described and shown in textbooks. They have the structure of a fine emulsion, as described by Bayliss.

Malignant cells resemble morphologically no adult tissue cell in the body, despite the fact that they may have a similar general arrangement. The cells differ from ordinary regenerative cells in having a coarser or denser cellular wall, a denser cytoplasm, a denser nucleoplasm, a larger nucleus in proportion to the rest of the cell, and a larger nucleolus. There is a greater variation in the extremes of size of cells, nuclei and nucleoli than in the normal regenerative cells of repair.

These cells cannot be differentiated, in many instances, by the 16 mm., 8 mm. or 4 mm. lenses from regenerative cells; the stages of differentiation cannot be accurately recognized, and the relative size of cellular component parts cannot be definitely determined. We have no standard of comparison with normal cells, because histologists have not given high power morphologic standards for living human cells.

Many, if not all, general pathologists—whose knowledge is based on methods of fixation, embedding and staining, and low power pictures of postmortem material—tell us that diagnoses cannot be made on two or three cells, and I agree to this with such methods; but I know that it can be done by oil lens studies of perfectly fresh living cells with or without Unna's polychrome methylene blue or vital stains, because such diagnoses are being made almost daily and checked clinically. A few examples may serve to show the methods of checking.

A specimen was removed from a rectal polyp; it was reported malignant on fresh tissue examination, the diagnosis being made on a few cells. Grossly and clinically, the condition was not considered malignant; local removal was done. The patient died of recurrence.

A gastric ulcer was excised; a few cells were found answering to the foregoing description, but I was not confident enough of my diagnosis to demand wide resection. The patient returned in less than two years with an inoperable carcinomatous condition of the stomach.

A small specimen, the size of the head of a pin, was accidentally removed during the utilization of a tube in extracting a gastric test meal. It was reported carcinoma; the patient did not have the clinical signs and symptoms of gastric cancer; there was no obstruction, no palpable tumor; no abnormal gastric analysis, no loss of weight which might not be ascribed to diet. The surgeon and associated clinicians believed the case to be one of plyorospasm—probably secondary to cholecystitis or appendicitis. They performed an exploratory operation, however, on the basis of the pathologic diagnosis. A carcinoma was found on the posterior wall; the condition was inoperable.

The uterus of a patient, aged 35, was curetted; a small portion of the endometrium was removed. Grossly, there was no appearance of carcinoma. The specimen was small, and there was nothing in the arrangement of the tissues present to allow the diagnosis of carcinoma. On a study of the cells unfixed and stained with Unna's polychrome methylene blue they were found to be completely undifferentiated (large spheroidal and ovoidal with large ovoidal and spheroidal nuclei which contained one or more densely stained large nucleoli). A diagnosis was made of malignant cells. The uterus was removed on this diagnosis and was found to contain two polyps, one benign and one containing a carcinomatous area 1 cm. in diameter.

These are only a few of the many illustrations which might readily be given from a series of more than 40,000 neoplasms. They serve to show that a new method of diagnosis is available to him who will take the time to become familiar with unfixed perfectly fresh cells by means of the highest power of the microscope. A bit of tissue, immediately on removal, is placed on the stage of a freezing microtome, frozen and cut from 5 to 15 microns thick. The section is then placed in physiologic sodium chlorid solution and unrolled. It is then dipped by means of a glass lifter into a strong solution of Unna's polychrome methylene blue from one to ten seconds, and then transferred to and washed in physiologic sodium chlorid solution from which it is transferred to Brun's glucose, from which it is almost immediately drawn up on a slide and studied.

When such a preparation is properly made, the only part of the regenerative and neoplastic cells which stains is the nucleolus. The differentiation between regenerative cells, partially or completely differentiated cells and the undifferentiated cells of malignant neoplasms may be made, provided the examiner is familiar with the high power morphology of normal adult cells of the differentiated tissues of the human body, and has a knowledge of the normal phases of differentiation in the normal regeneration of tissues.

The general pathologist and postmortem morbid anatomist cannot be expected to make such diagnoses without special training. This is no more to be expected than we should expect any one who can operate an automobile to operate an aeroplane.

In conclusion, this method of diagnosis has a clinical value which is increasing rapidly as the public and profession becomes educated to early diagnosis. It has value in research because we know very little about living cells, our knowledge being based on artefacts.

ABSTRACT OF DISCUSSION

Dr. Michael G. Wohl, Omaha: Dr. MacCarty has said that he diagnoses carcinoma of the stomach from bits of tissue that he has obtained from the stomach washings; but he likewise said that when the patient was opened up by Dr. William Mayo, an advanced form of cancer of the stomach was found. If Dr. MacCarty is able to diagnose carcinoma in its earlier stage by the oil immersion lens rather than by the usual power lenses and the conventional embedding methods, then his method has a definite field of practical usefulness. I have examined bits of tissue from the pleural cavity and washings from the urinary bladder, for instance and diagnosed them as carcinoma by the paraffin method the condition being proved by postmortem in the former and surgical intervention in the later; but these cases were s dvanced that any finer cytologic methods of diagnosis vould have been of no practical value. We all recall the ifference of opinion that was voiced some years ago on lides that were sent by Dr. Bloodgood to different patholoists. How much greater difference would there have been vere these slides studied by the oil immersion lens? It has een our experience that we are able to decide the question f malignancy of tissue by the study of the relationship that xists between the functioning parenchyma and its supportng connective tissue framework in conjunction with a thorugh clinical history of the case rather than by picking out ertain so-called "cancer cells." We all know the bizarre nicroscopic picture we are apt to see in pathologic conditions f glandular organs such as the stomach and breast, and in terine scrapings, and we often find inflammatory changes iving us pictures closely resembling carcinoma, yet later linical experience proves them to be benign. I recall a voman that had a mastitis of the breast; a section for diagosis revealed a picture that three experienced pathologists iagnosed as malignant. The patient, who was the wife of an ndertaker, refused operation, and today, six years later, vhenever I see her in our town, she serves me as a living eminder of our mistake. The cells that the author has nown on the screen look to me like cells that we often e in benign irritative conditions. I should like to ask him tell us definitely, if possible, the exact points of diferentiation between such cells and those that spell for him nalignancy. Of course, the paper is somewhat revolutionary character, and if Dr. MacCarty could prove to us that he n diagnose earlier cancer, the well known criteria for hich are fulfilled, by the study of the fresh individual cells, should be more than glad to learn these finer cellular difrentiations of the cancer cells.

Dr. William Ophuls, San Francisco: I have been eatly interested by the paper of Dr. MacCarty and by his tempt to go back as much as possible to the study of living ructures. I am sure that this idea is good and will prove lpful. Of course, the question from a practical point of ew is whether by such studies malignant changes in cells n be discovered earlier than by the ordinary methods. This the main purpose of the whole investigation, and it will ke a careful comparison of the two methods by competent servers to settle this point. I do not think that anybody ill have any hesitation in saying that in certain cancers ere are many cells which at first glance we can recognize malignant; but whether these morphologic changes in the lls occur first or whether the cells first exhibit their malignt properties in other ways, say, by invading deeper strucres, is something which it will take much study to decide, t offhand reasoning.

Dr. H. E. Robertson, Rochester, Minn: The proof of the dding is the eating, and if Dr. MacCarty, in the years that e to come, can demonstrate that he can diagnose from dividual cells examined freshly tumors that ordinary thologists could not diagnose if they were stained in the utine manner, why, then the proof of his thesis has been ll established. Dr. MacCarty has had enough experience d has had access to enough fresh material so that, as time es along, he can help settle this question. But it will take ner pathologists, using the criteria that he establishes, and ing the methods that he advises, to confirm or disprove conclusions. The important clinical point, to me, is rather side issue, and that is the point that, more and more, work ch as Dr. MacCarty is doing is impressing on the minds of rgeons the fact that it takes the microscope to decide many these questions; and I hope that that group of surgeons o are trying to educate themselves in gross pathology in ler that they may get away from the pathologists entirely d diagnose their own tumors will grow to be a diminishing oup as time goes along, because the time when these tumors curable, as far as the patient is concerned, is the time en early diagnoses, such as Dr. MacCarty is attempting, n be made.

Dr. Ward Burdick, Denver: Will Dr. MacCarty say nething regarding the minute details of the technic of king these examinations?

Dr. F. W. Hartman, Detroit: Does Dr. MacCarty find, in these inflammatory conditions, that stimulation of the epithelioma gives him the same type of cells? It seems to me that I have seen the same type of cell in smokers' burned lips and precancerous lesions of the breast, for instance, certainly before the stage comes at which the entire breast has to be excised to make the cure. I have also seen the same cells in attempting to produce malignant changes in the breasts of rabbits with stimulation. We were able to produce sometimes four or five mitotic figures, and also this type of cell; still, those lesions go right on and resolve, and yet we were unable to produce an invading metastasizing growth. I want to ask Dr. MacCarty whether this cell always means that it is a lesion which is malignant and which will metastasize and invade the surrounding tissue.

Dr. H. J. Corper, Denver: Just a point about Dr. MacCarty's last lantern slide: I know there are many among us who wondered about the significance in carcinoma of the particular peculiar type of cell pointed out in this blood slide. Is it of any diagnostic or prognostic importance?

Dr. Albert A. Schneider, Portland, Ore.: It was Dr. Virchow, sixty years ago, who deplored bitterly the fact that we were getting away from the examination of living cells and centering our attention on the study of sectioned and stained material. I was rather strongly impressed by that opinion of Dr. Virchow's, and early in my work with the microscope, which now extends over a period of nearly forty years, I centered my attention on the study of living tissue. It is something like four or five years ago that I began to give some attention to cancer, and following Dr. MacCarty's idea, I have made use of living cells. The method which I have followed is simple. I make scrapings of the pathologic tissue which is supposed to be cancerous, mounting it in physiologic sodium chlorid solution or in hydrant water and examining it at once. I do not, as a rule, employ the oil immersion lens, simply using a power of about 500 diameters. I have found many pictures that were exceedingly interesting and extremely novel from the standpoint of the routine pathologist. In the examination of fresh tissue according to Dr. MacCarty's method one is enabled to observe structures that do not appear in the stained and sectioned material. It is these new structures that have interested me vitally, and I feel that by and by those who follow Dr. MacCarty's method will probably be able to tell us what cancer really is. Our cancer diagnosis leaves much to be desired. It is six to one and a half dozen to the other as to whether a surgeon diagnoses a case correctly. I have at the time three cases under observation in the bay region; one case is emphatically declared to be inoperable carcinoma of the intestinal tract by the surgeon who operated. I have just had a report from another pathologist who asserts with equal emphasis that there is absolutely no sign of cancer.

Dr. William Carpenter MacCarty, Rochester, Minn.: I am not looking for a new discovery; I merely want to give a new opportunity. I suggested at the beginning that this was a new opportunity of research. I am fairly familiar with the history of medicine, and I know what happened to develop some of the epoch-making things. I know the study that Virchow started, and I know what his conception of cellular pathology was; and that is quite different from the cellular pathology I am talking about. Research is the important thing. Those who are interested in cells should try to make some observations in order to confirm or refute anything I have said. As for the friendship of surgery, as one of the speakers mentioned, I do not know whether I have the surgeons' friendship or not, but I happen to have been with these surgeons for sixteen and one-half years, during which time I have examined 250,000 of their specimens, which included 40,000 neoplasms. As to Dr. Bloodgood's specimens which he sent around to different pathologists, Dr. Bloodgood did not honor me with those specimens, and I did not make the diagnosis. But last year I honored myself by getting Dr. Bloodgood to give me a chance to examine the specimens, and I, with my associate, Dr. Broders, spent two days with him and gave him the diagnosis and prognosis from the slides themselves. Dr. Bloodgood had the histories, the roentgenograms and the operative findings, and when we got through he said, "I suppose you boys would like to know what your batting average is." I said "All right, if you want to tell us." He said "You have made the diagnosis and prognosis 100 per cent." I did not say that one could always make the diagnosis of a malignant neoplasm from cells; I said it *can* be done. And there are many cases that I see in which I would hesitate to make the diagnosis; but if I saw the cells which I saw here, then I would do just what I said I would. The technic is simple: The tissues are obtained perfectly fresh and examined immediately. That is absolutely essential. They should not be allowed to stand around and disintegrate. In thirty minutes one can see disintegration of cells if one watches them, after starting out with living cells. These sections are cut on a Spencer microtome from 5 to 15 microns thick. It does not make any difference about the thickness. The perfect living cell is not coagulated; one can look right through it; a section from 5 to 15 microns is just as good as one of 5 microns. These sections are cut into physiologic sodium chlorid solution, just barely dipped into strong Unna's polychrome methylene blue, washed in physiologic sodium chlorid solution, placed in a solution of glucose, and mounted on a slide and studied with the oil immersion lens with ordinary artificial light.

Regenerative cells cannot always be differentiated from malignant cells. Many factors must be taken into consideration in studying malignancy, degrees of cellular and tissue differentiation, lymphocytic infiltration, fibrosis and hyalinization. It is not morphology alone that determines it. The slides of cells in the blood I merely threw on the screen as a matter of curiosity. They have nothing whatever to do with cancer, merely illustrating that hematology should be restudied—in view of the new opportunity of studying living cells—if we are going to have the best type of hematology. Those interested in blood should attempt to do something in a new way. Whether one succeeds or not, one should at least do something. All I ask is that we just open our eyes to new opportunities.

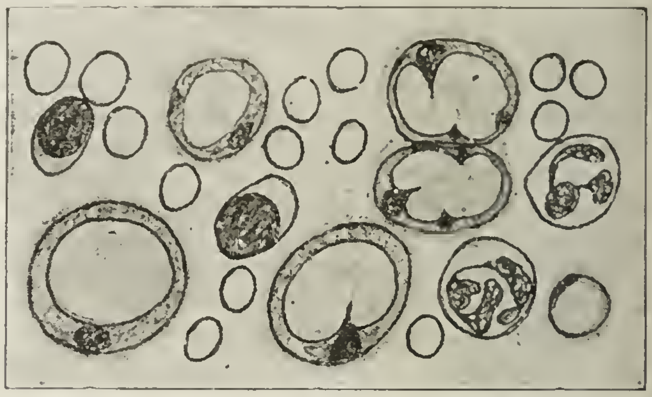
THE OCCURRENCE OF BLASTOCYSTIS IN INTESTINAL INFLAMMATION

WITH A NOTE ON ENDOLIMAX NANA *

KENNETH M. LYNCH, M.D.
DALLAS, TEXAS

I have previously recorded that *Blastocystis* is a very common inhabitant of the intestine of man in the United States [1] as well as in other countries. In the previous reports it was given as present in the stools of about 50 per cent. of hospital inmates in South Carolina, being somewhat more frequent in cases of pellagra than in others. It was also given as constantly present at necropsy in the large intestine in a small series of pellagrins. The activity of the organism, as evidenced by the presence of great numbers, by larger size and by active division, was much greater in case of diarrhea and especially in case of ulceration of the intestine. One case of pellagra was cited in which there was marked ulceration of the cecum, extending over the ileocecal valve into the lower end of the ileum, with *Blastocystis* present in large numbers in the ulcers, the organisms being large and active. This was the only instance in which the organism occurred in the small intestine, and here it was limited to the extent of the ulcers of the ileum.

In examination of feces in Texas, *Blastocystis* has occurred in about the same proportion of people and has also occurred more actively in those with diarrhea. On account of the fact that *Blastocystis* grows very well in liquid culture mediums in which the nutrient element is blood serum or a like substance,[2] the activity of the organism in diarrheal stools and in intestinal inflammation has been explained on the basis of a favorable medium for growth, and the organism has not been seriously considered, beyond a suspicion, as pathogenic in any way.



Blastocystis from rectal ulcers mixed with blood cells.

Wenyon [3] has noted that the organism, while very commonly found in healthy people, has a tendency to great activity in case of diarrhea, and he records an instance in which *Blastocystis,* previously present in small numbers, increased markedly in association with the development of acute diarrhea, and subsided to the original proportions after the attack was over. He looks on this as suggesting a possible pathogenicity for *Blastocystis* when present in any quantity; but, as is entirely proper, he cautions against the arrival at such a conclusion without the elimination of all other factors.

REPORT OF CASE

Recently an instance has come to hand which has aroused further suspicion of the organism in connection with intestinal inflammation.

A young man stated that he had an automobile accident three months previously, which was followed in a few days by an attack of acute diarrhea, with the passing of some blood and mucus. Attacks of diarrhea without pain or tenesmus followed every few days for three months with a constant looseness of the bowel movement from which he had not been free except for a few days following a twenty-four hour fast and the taking of bismuth. He was in good general condition, with a negative history and clinical laboratory examinations except for the findings mentioned. The roentgen-ray examination revealed an apparent spasticity of the intestine from the middle of the transverse colon to the rectum, along which course there was abdominal tenderness. The mucous membrane of the rectum was red and inflamed, and showed numerous small ulcers. There were 10,500 leukocytes per cubic millimeter of blood, with 63 per cent. polymorphonuclears. The stool was semiformed and brown, and contained no mucus, leukocytes or red blood corpuscles. *Endolimax nana* was present in considerable numbers, and there was a fair number of small *Blastocystis* organisms. Smears taken directly from the ulcers after cleaning the surface showed no amebas, a fair number of miscellaneous bacteria, and enormous numbers of *Blastocystis.* The average size of each *Blastocystis* was about 25 microns, and a large proportion of them were in active division, which consisted of binary division and multiple fission. These organisms were surrounded by the characteristic mucilaginous envelop, which stained a finely granular red with Wright's stain. In the same preparation, the periphery of the organism was blue, the nucleus red, and the central body pink. In some of the bodies were a number of small, rounded, light red areas, but no peripheral budding was seen. Multiple fission, with four cells formed, was not as common as simple binary division.

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* Read before the Section on Pathology and Physiology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

[1] Lynch, K. M.: The Pellagrous Intestine and Some of Its Parasites, South. M. J. **10**: 286 (April) 1917; Blastocystis Hominis: Its Characteristics and Its Prevalence in Intestinal Content and Feces in South Carolina, J. Bacteriol. **2**: 369 (July) 1917.

[2] Barret, H. P.: A Method for the Cultivation of Blastocystis, Ann. Trop. Med. **15**: 113 (July) 1921. Lynch, K. M.: Blastocystis Species in Culture, Am. J. Trop. Med. **2**: 215 (June) 1922.

[3] Wenyon, C. M.: Human Intestinal Protozoa in the Near East, London, 1917.

These features apparently identify the organism as *Blastocystis hominis,*[4] although the organism was not obtained in culture in this case.

The fact that *Blastocystis* occurred here in small numbers and of small size in the passed stool, but in large numbers and in large, actively dividing form in preparations taken directly from cleaned rectal ulcers of unexplained origin, seems to warrant suspicion of its connection with the ulcerative process. It must be recognized that, as previously expressed, this may be nothing more than growth of the organism in a favorable medium; but its close relation with an ulcerative lesion on several occasions and its liking for such a medium must place it under suspicion as a possible factor in intestinal inflammation.

In this instance it is worthy of note that *Endolimax nana,* although present in the stool, did not occur in the ulcers.

5610 Swiss Avenue.

ABSTRACT OF DISCUSSION

Dr. David J. Davis, Chicago: I have seen a few cases of ulcer of the rectum in which the smears made from the discharge showed large numbers of eosinophilic leukocytes. Such cases have been called eosinophilic proctitis. I do not know what the significance of the eosinophils may be, and I would ask Dr. Lynch whether he has encountered these cells in these interesting cases he has investigated, and what the significance of eosinophils in rectal ulcers may be.

Dr. Kenneth M. Lynch, Dallas, Texas: I am sorry that I cannot give any definite light on the question asked by Dr. Davis. In the smears from these ulcers there were no definite eosinophils, although the polymorphonuclears rather showed eosinophilic tendencies in most of them. As to what that means, of course, I am not prepared to say at present. Blood smears, however, did not give any evidence of these eosinophils, and it appears to me that it was a local change in the leukocytes, I suspect as the result of contact with some material in the ulcers, in all probability.

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[4] Lynch, K. M.: Cultivation of Blastocystis and Determination of Species, Am. J. Trop. Med. **2**: 539 (Nov.) 1922.

Seventeenth Century Pioneer Life.—The U. S. Department f Labor has issued a report on "Maternity and Infant Care n a Mountain County in Georgia." The survey, which eported the eighth of a series of studies of country babies nd mothers made by the Children's Bureau in six states, says hat noteworthy results in the protection of mothers and hildren were obtained through legislation and an effective dministration of the state board of health since the time of he bureau's study. The county surveyed by the bureau lies n the southernmost extension of the Blue Ridge Mountain elt. The lack of good roads makes the homes sometimes lmost inaccessible. Some could not be reached even by wagon, aving to be sought out by trail over mountains and through treams. The father of a family whose home was separated rom the nearest postoffice by a mountain range had not alled for his mail in twelve months; the mother had not een to the settlement for seven years. Another woman had ot been to the nearest settlement, 6 miles distant, in twenty ears. A mother who lived 3 miles from town stated she had ved there a year without seeing another woman. Eighty-ix per cent. of the mothers questioned went through pregancy without any medical aid whatever; 77 per cent. of the nothers who were attended by physicians were not visited at ll after the confinement, and no physician was reported in ttendance for more than two thirds of the babies in the roup studied which died in their first year.

CERTAIN FACTORS IN DEVELOPMENT OF NEUROSYPHILITIC LESIONS IN LATE CONGENITAL SYPHILIS *

EDWIN G. ZABRISKIE, M.D.
NEW YORK

The late appearance of syphilitic lesions in the various organs of the body in so-called congenital syphilis has always aroused interest ever since it was first recognized that the disease may be implanted during intrauterine life and remain unrecognized until it manifests itself in late childhood or puberty, after emotional disturbances, infections and trauma. The protean features of syphilis are remarkably well illustrated in this department of the subject. Although the present communication deals chiefly with late manifestations of syphilis of the nervous system, in the literature may be found many instances of gumma and other tertiary lesions of the vascular apparatus, upper respiratory tract, eyes and abdominal viscera.

In 1879, Augagneur pointed out that these lesions were always tertiary in character and never secondary, and he made the interesting observation that whenever he had an opportunity to investigate the stage of the disease in the parents at the time of procreation, he invariably found it to be actively contagious. He divided the etiologic factors determining the late appearance of congenital syphilis into two groups: (1) those depending on the parents, that is, the hereditary traits constituting resisting power to the disease, etc., and (2) although much less reliable, the age, sex, physiologic condition and environment of this last group, the age of puberty and trauma being the most considerable factors.

W. S. Anderson, in 1902, reported the relative frequency of late syphilitic lesions of the upper respiratory tracts in children and adolescent girls. Diard, in 1901, describing gummatous lesions of this type, said that clinically they do not differ from lesions in adults, and that the diagnosis rests on the history of the parents and collaterals. The maximum frequency of gummatous lesions, like other manifestations, lies between the ages of 10 and 20, and young girls are especially prone at this time.

T. T. Meyer, in 1904, found that the etiologic relations of congenital syphilis to chronic brain affections in children are very restricted and that, aside from hydrocephalus, which often seems referable to congenital syphilis, chronic encephalitis of children is rarely caused by this etiologic factor. He ranks syphilis last among the infections transmitted by the progenitors.

E. Fournier, in 1907, reviewed the subject of syphilitic heredity in children, adolescents or adults, and again in 1912 insisted that these lesions may appear at any age, and that although childhood and early adult life are the periods at which they are most frequently seen, nevertheless it is possible to find adults and even the aged with characteristic lesions. As a rule, they become progressively rarer as the individual approaches maturity. He pointed out that the nervous system is most frequently affected in some form or other.

F. Bering believes that there is a probability of only a few isolated spirochetes passing from the maternal to the infantile organism, in those cases in which chronic processes advance slowly, as, for example, in bone diseases. It may be that the spirochetes penetrate at a very early stage of fetal growth into the vital parts of the affected bones, producing local changes which lead to arrest of development and malformations, in the same manner as in the case of Hutchinson's teeth.

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* Read before the Section on Nervous and Mental Diseases at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

W. T. Heimann believes that congenital syphilis is transmitted to its victim during the most important period of development, namely, before birth, and that the struggle to overcome this burden takes place partly before and partly after birth. Thus, aside from its actual pathologic alterations, the disease may cause all sorts of anomalies of development, physical deformities and dystrophies and mental retardation, if not actual imbecility or even insanity; except for these considerations, prenatal syphilis and postnatal syphilis are identical.

Hochsinger states that the nervous system is most frequently attacked in children with congenital syphilis. In a series of 112 cases, 43 per cent. were found to exhibit some clinical signs of affections of the nervous system, either as hydrocephalus, Little's symptom complex, epilepsy, paresis, tabes, rigid pupils, congenital inferiority (nervous states, hysteria) and imbecility.

In congenital syphilis, as in the acquired form, there is the same tendency to develop neurosyphilis, and also to develop it after a period of latency. If we are to believe Hochsinger's figures, and I am sure they are correct, a relative increase in frequency of lesions of the nervous system is also found in the congenital forms.

On the other hand, no one will deny that the appearance of gummatous or other tertiary lesions of the acquired type of the disease after a period of latency extending over years without primary or secondary lesions is far more rare than the like tendency of neurosyphilitic lesions. The reasons for this peculiar capacity of the spirochete to exist and multiply within its host without other signs than those of delayed development or other evidence of deviation from the normal strain, until after some factitious event such as puberty or trauma, are still obscure. The statement has been made that there exist several strains, differing in virulence in incubation time and affinity for different structures. It is based chiefly on the fact that there are many well known instances of tabes and paresis developing in from five to seven individuals all infected from a single source, and the interesting experiments of Marie and Levaditi. These authors insist that the spirochete causing general paresis is different from that of banal syphilis; they call it neurotropic, and the latter dermotropic. In support of their views, they point out that the spirochete recovered from the blood of patients with general paresis is characterized by a longer incubation period from man to rabbit and from rabbit to rabbit; the initial lesion is much milder; it is not transferable to monkeys or to man, and the rabbit inoculated with dermotropic virus becomes immune to this virus, but not to the neurotropic virus, and vice versa.

These interesting experiments need further confirmation, however, and up to the present the life history of the spirochete has been too obscure to permit of positive conclusions. As a matter of fact, there is quite as much evidence, both clinical and experimental, against the existence of different strains as there is in favor of this theory.

RESULTS OF SYPHILIS ON OFFSPRING

For example, the following case of juvenile general paralysis demonstrates that a patient with banal syphilis, i. e., an ordinary primary lesion with secondary eruption including mucous patches, may so infect his offspring that miscarriages, weaklings, one daughter with syphilitic teeth and a child with juvenile general paralysis constitute the result of his efforts at procreation:

G. D., a youth, aged 16 years and 6 months, had had a normal birth and developed normally, except that the teeth came rapidly at the eleventh month. He walked at the age of 9 months, and talked about the same time. He had a mild attack of pneumonia at 2½ years, and measles, chickenpox and whooping cough between the second and third years. Between the eighth and ninth years he exhibited a ticlike movement of the eyes, which disappeared after some medicine had been given. A year or two later he twitched his mouth in the same fashion; this affection lasted only two weeks. He went through school in an uneventful manner until he was about to graduate at the age of 15½. At this time he was required to stay home from school for religious preparation for his first communion. This happened to be the week of his examinations in school. During this week he exhibited a marked change of attitude toward religion, and whereas formerly he had been quite indifferent, he now became actively interested. The Monday after communion he returned to school, but through a misunderstanding developed the idea that he would not be permitted to graduate. He became agitated and upset; and, although he was given the opportunity to take a special examination with the other Catholic boys, he refused to do so and failed to graduate. During the ensuing summer months a marked change in his personality was noted. He became irritable and quarrelsome; he quarreled with his companions; he became seclusive; he did not go out with them, and he exhibited a memory defect and made stupid mistakes in the matter of errands. At this time he developed a definite speech defect, characterized by ataxia, and syllable stuttering. He became lazy, apathetic and indolent. He returned to school in the fall, and after about a month he was found unfit to continue. He was irritable, indolent, obstreperous and very excitable.

Physical examination in February, 1923, gave the general impression of his being well nourished, slow, dull, apathetic and of poor comprehension but affable. The first and second cranial nerves were normal. The pupils were slightly irregular in outline, and the reaction to light was sluggish. The extra-ocular muscles were normal. The other cranial nerves were normal. There was a fine tremor of the extended tongue and lips. The speech was slow, with slurring syllables. The gait was slow and steady, with slight Romberg sign. No tremor or incoordination of either arms or legs was noted.

The deep reflexes of the arms were all present, active and equal. The abdominals were present, active and equal. The right knee jerk was somewhat diminished; the left was normal. The right ankle jerk was normal, the left ankle jerk diminished. Cutaneous sensibility was normal. The teeth were normal and rather small. The Wassermann reaction was four plus in the serum. The spinal fluid Wassermann reaction was four plus with 0.4 c.c. of fluid. There were 122 cells per cubic millimeter, and a moderate increase of globulin. The colloidal gold test was 5555555421.

The emotional tone was one of silly elation; there was no depth of feeling, and he could be suggested into a superficial sadness with comparative ease. There was no discrimination in his statements. Insight was almost entirely lacking. His hand-writing was unsteady, especially in the finer coordinated movements. Spontaneous thought appeared to be lacking.

The family history was as follows: The patient's father, a serious, middle aged Italian, was of good intelligence, although lacking in education. The mother was a hard working, intelligent, cooperative woman who had had no serious illnesses and was robust. The two oldest children were 33 and 30 years of age, respectively. They had always been well, and they had each borne healthy children. Two years after the birth of the second girl, that is, about twenty-eight years ago, the father contracted syphilis when his wife was on a visit to Italy. He took treatment chiefly by mouth, with a few injections, for about three years, but during this course of treatment he had intercourse with his wife. The next six conceptions were males, and all died. One was a stillbirth, the fetus weighing 14 pounds (6.4 kg.); one child succumbed to pneumonia, one to measles and the other three to so-called croup, all before the age of 3. The ninth conception was a miscarriage; the tenth was a girl, who is now 19 or 20 years of age, who developed normally but exhibited slight conduct disorders at the age of 17, which consisted in running away from home and going to live with an uncle because her father refused to allow her to go to dances. By living with the uncle she met the man she subsequently married, and has borne two healthy children by him. The eleventh conception was the present patient. The girl just described exhibits typical hutchinsonian teeth of the horizontal rib type; otherwise she is apparently healthy, and shows no objective signs of syphilis of the nervous system.

The serum examinations of the father, mother and daughter are negative. Objectively, neither the father nor mother shows any signs of syphilis of the nervous system. The pupils, station, gait and reflexes are normal.

We were able to procure the spinal fluid of both father and mother. Wassermann reactions in the serum and in the cerebrospinal fluid of the father and mother were negative. There was no increase in cells or in globulin, and the colloidal gold test likewise was negative. The reaction of the serum in the daughter was negative. We were unable to obtain permission for a lumbar puncture on her.

AFFECTION OF ENDOCRINE GLANDS IN CONGENITAL SYPHILIS

There can be little doubt that these changes are reflected in the structural development of the individual, for there is a constantly increasing number of observations on the relationship of congenital syphilis to these structural defects, through the presence of spirochetes rather than by their influence on the germ plasm itself.

There is considerable evidence of disease of the endocrine glands in congenital syphilis, consisting chiefly of ordinary chronic fibrous changes, which are therefore different from the usual lesions of the tertiary type. The suprarenals, thyroids and hypophysis may contain numberless spirochetes without gross lesions. Fibrosis, atrophy and hydropic changes of the parathyroid have been noted.

Strauch reports that although the suprarenals in congenital syphilis may be literally swarming with spirochetes, very little structural change is found aside from infiltration and fibrosis of the capsule. Simmonds, in a study of the changes in the hypophysis, finds that syphilitic affections of that organ are more frequent in congenital than in acquired syphilis; and although gummas are occasionally seen, chronic fibrosis changes are those most often encountered.

According to Strauch, congenital syphilis not infrequently inflicts damage involving the whole organism through remote effects of local organic lesions, especially by alteration of one or more members of the endocrine cycle with subsequent disordered function.

Thyrogenic disorders in early childhood or adolescence, and pituitary dystrophies, nanism, gigantism, acromegaly and suprarenal disturbances have been described by Hutinel in a publication on hereditary syphilis and its dystrophies. Pentagna found that in 43 per cent. of his cases of all types the patient had congenital syphilis.

Barthelemy believes that nanism, infantilism, gigantism, dyscrasias and dystrophies are caused by the effects of syphilis on the endocrine glands; i. e., the mechanism that controls the development of body and mind.

Hochsinger found that syphilitic infantilism occurred only in children that had marked heredosyphilitic manifestations during the first few weeks of life, whereas Peritz and others observed it especially in those in whom previous local signs were abssent. They point to juvenile tabes, which is often combined with infantilism, as illustrating this.

Kahan believes that the long standing character of the lesions of the internal secretory glands found in necropsies in cases of juvenile general paralysis seems to show that the syphilitic virus begins by first attacking the endocrine glands, whose antitoxic power is considerable. It is only after thus having partially deprived the nervous system of stimulating and antitoxic endocrine substances that the syphilitic virus may here produce irremediable effects through its prolonged action. It is at the time of puberty, namely, when the activity of the endocrine glands is in a state of usable equilibrium, when their antitoxic power is temporarily weakened, that the nervous system in general and the cerebral cortex in particular become an easy prey of syphilitic toxins.

Cordier and Rebatta describe delayed infantilism, in which retrogressive changes indicative of this state appear after puberty in individuals who have undergone complete sex and genital development. They are therefore not persistent infantile conditions. They find two etiologic varieties, one of the thyroid with myxedematous features, and a gonadal type, but they do not attempt to ascribe it to congenital syphilis.

INFLUENCE OF GONADS

On the other hand, we have certain evidence that the gonads may play an important rôle in the capacity of the host to arrest the development of acquired syphilis.

J. E. Moore, in a study based on 5,400 cases of syphilis in which the percentage of females nearly equaled that of the males, concludes that:

> Clinically, neurosyphilis is three times as frequent in men as in women.
>
> The nervous system of the two sexes is invaded with equal frequency in the early stages, as shown by the table of percentages of spinal fluid abnormalities.
>
> The course of early syphilis is greatly altered by the simultaneous occurrence of pregnancy.
>
> Pregnancy is a most important point of differentiation in the life history of both sexes.
>
> In women with late syphilis (of more than one year's duration), the incidence of abnormal fluids is twice as high in a group of sterile women as in a group in which one or more pregnancies have occurred since infection.
>
> Almost half the women clinically neurosyphilitic have not been pregnant since infection.
>
> It is suggested, on the basis of this study, that pregnancy is one factor which may partially account for comparative freedom from neurosyphilis. The same phenomenon is observed whether tertiary manifestations were present or whether syphilis is latent.

It is not suggested that pregnancy occurring some time after infection and during the usual course of early syphilis may exert an influence on the subsequent development of neurosyphilis, nor does the silent course of congenital syphilis protect against later neurosyphilis. A larger series is necessary. It is well established that, in males, a mild early syphilis predisposes to neurosyphilis. Possibly because of some immune reactions developed in the body in women, on the contrary, the factor of pregnancy in some way alters the defense mechanism so that the absence of early syphilitic lesions does not render the nervous system more susceptible.

Moore's fourth table of percentages of spinal fluid abnormalities compared with the number of pregnancies, while not conclusive, suggests interesting indications for further study. One might expect the highest percentage of abnormal fluids among the nonpregnant women, and the next highest among the primiparas; but the interesting variation between the low percentages of those with two and four pregnancies, on the one hand, and the relatively higher percentages of those with three and five pregnancies, not only indicates the necessity for a larger number of cases to determine whether this will remain constant, but also that it must be determined what other factors may combine to disturb the regular biochemical reaction to pregnancy.

EMOTION

The relation of emotional states as a precipitating factor is but little understood. That they do bear some causal relationship is conceded by many, especially since their intimate connection with the various secretions and activities presided over by the sympathetic system have been established clinically as well as experimentally. There is also a long chain of evidence connecting emotional states with various endocrine activities; and the stability or instability of the emotions is frequently associated with different endocrine types. But we are still ignorant of the biochemical changes incident on these states, what part of metabolism is affected by prolonged anxiety or worry, for instance, and whether these changes occur as a result of disturbances of endocrine balance.

Puberty, one might say, is the first great commotional period of the organism. The individual becomes emotionally unstable, liable to uncertainty of mood, distractible, and the foundations for his future are often determined during this time. The gonads, the thyroid, etc., may become temporarily or permanently disorganized at this period of life; and if it is true that one of these organs may be greatly concerned in the mechanism by which the organism protects itself against bacterial invasion, it is quite within the realms of possibility that the disturbed function results in greatly lowered resistance to the pathogenic micro-organism, or possibly actually fosters its growth.

THE THYROID

Thus far the thyroid has appeared to play some part in the relationship of the organism to the growth of spirochetes. Stern, quoted by Pende, reports constant sclerosis of the thyroid in tabetic patients. Dr. W. H. Brown has informed me that extirpation of the thyroid has a definite effect on the rapidity of development of primary and secondary lesions on rabbits, one of which showed evidence of what might be termed involvement of the nervous system. The presence of masses of spirochetes on the suprarenal cortex might easily disturb gonad development just at puberty, thus creating a general imbalance which would allow the increased activity of the spirochete and even its affinity for the central nervous system.

WEIGHT OF ENDOCRINE GLANDS IN SYPHILIS

Brown[1] makes a contribution to our knowledge of biology, both normal and pathologic, the effect of which is to open up a great territory for future research and investigation. For the purpose of making a standard of control, careful observations were made on the weight of each endocrine gland in rabbits for every month. The weight of the gland was brought into relation with the body weight of the animal. The results show an interesting uniform variation of weight of each gland, especially during the period of seasonal change, such as the spring and the fall. A series of rabbits inoculated with syphilis was then subjected to similar investigation, and the results demonstrated a most impressive variation in weight corresponding to the seasonal changes in normal rabbits, which now, however, vary according to the stage of the disease. Immediately after inoculation, there is a fall in weight of each endocrine gland, which rises during the height of the primary lesion, and sinks at the end of this stage, to rise still higher during the period of greatest activity of the secondary lesion, becoming constant during the latent period that follows this stage. Although this is merely the preliminary communication of a most important series of studies on the subject, it will readily be seen that it at once establishes experimentally a relationship between the endocrine system and the activities of a pathogenic organism which not only confirms a great many clinical observations, but may serve as an important method for which the relative importance of each gland may be demonstrated.

REACTION TO TOXINS

There are factors in the production of neurosyphilitic lesions other than the endocrine disturbances referred to elsewhere. They consist in mass reactions of the individual to certain toxic properties in the blood which serve as exciting agents. Whether they act directly by breaking down the resisting or antitoxic properties of the individual cells, whether they foster the rapid growth of the spirochete or augment these toxic properties of their secretion, whether by some subtle biochemical mechanism they act indirectly through the endocrine, sympathetic system, we are unable to say. We know too little of the life reactions and history of the micro-organism to do more than speculate on what takes place. We do know, however, that, just as emotional disturbances, trauma or the advent of sexual maturity act as exciting causes in the appearance of neurosyphilis, severe infections and what one might term massive shock reaction may have a similar effect.

A group of four children born of a syphilitic mother and a nonsyphilitic father illustrate very well the result of what might be termed severe protein shock reaction.

The group consists of two boys and two girls, aged 14, 8, 6 and 2 years, respectively. The oldest, a boy of 14, we were unable to examine because it was impossible for the mother to bring him to the clinic. His history was that of delayed dentition and development, and gastro-intestinal disturbances. At 6 years, he began to exhibit gait disturbances, which progressed fairly rapidly and were accompanied by mental deterioration and severe vomiting attacks.

The second, a girl of 8, was born normally but developed slowly in dentition and learning to walk and talk. She had measles and mumps at 5, and mild pertussis at 6. She presented the picture of severe spastic diplegia with mental retardation and emotional instability. Examination revealed the pupils rigid to light and in accommodation; left facial paresis; constant drooling; deviation of the tongue to the left; absence of dysphagia; explosive speech; stuttering; spasticity of the arms; ataxia; partial contracture of the left biceps, and markedly exaggerated tendon reflexes of the flexors of the left wrist; abdominal reflexes upper and lower, left less than right; gait of the scissors type with abductor spasm; inability to take more than a step alone; partial contracture of both quadriceps groups and both Achilles tendons; beginning equinovalgus of the left foot; great exaggeration of the knee jerks; double ankle clonus; double Babinski and Oppenheim reflexes; loss of postural sense in the toes; undisturbed cutaneous sensibility, as far as could be determined, in view of the poor cooperation afforded by the child's mental state; incontinence of urine but not of feces. The mental picture was one of definite deterioration.

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[1] Brown, W. H.: J. Exper. Biol., to be published.

The serum Wassermann reaction was four plus; cerebrospinal fluid Wassermann reaction, positive; cells, 14; globulin, positive; Fehling's test positive.

The third child, aged 6, was somewhat slow in dentition, had measles, mumps and pertussis, and suffered from frequent mild febrile attacks. There were no convulsions or digestive disturbances, and no mental changes. She seemed a normal, bright, good tempered child, with normal intelligence and emotional make-up. All cranial nerves were normal. The pupils were normal. The teeth were decayed and widely spaced; they were not hutchinsonian. The arms, and the reflexes, abdominal and epigastric, were normal. The knee jerks were active and equal. The ankle jerks on the right were present; on the left, not obtained.

The serum Wassermann reaction was one plus. Puncture was not permitted.

The fourth child, aged 2 years, appeared perfectly normal, physically and mentally. There were neither signs of neurosyphilis nor stigmas of congenital syphilis in the teeth and bony frame, but the serum could not be obtained because of the small size of the veins.

As near as it is possible to ascertain, the older two children developed slowly but otherwise gave no evidence of syphilitic infection until their sixth year. Shortly after this period, both children began to exhibit the first evidences of the disease in the form of gait disturbances, which progressed with the rapidity indicated in the histories. The fact that, in both instances, evidences of syphilis of the nervous system began at the same time of life was interesting enough to warrant investigation. Careful inquiry disclosed that each child, although sustaining measles, mumps and pertussis successfully, had at this time been subjected to vaccination, and had reacted quite severely with a high temperature, prostraion and vomiting, although the local sore was small. A few months after this the signs of neurosyphilis became apparent.

Thus far very little has been published concerning metabolism of syphilitic patients, and the little knowledge that we possess seems to shed practically no light on the subject.

Cedarkreutz, in 1902, employing the methods in vogue at that time, found little toxic destruction of proein in syphilis, although it may be present when there s fever.

Tileston and Comfort, and Schwartz and McGill ound no change in the blood urea, although some patients with tertiary lesions may exhibit figures coniderably above normal.

LIPOIDS

The lipoids, on the contrary, furnish the most fruitul field for research, both experimental and pathologic. The existence of complex lipoid substances in nervous issue in the gross has been demonstrated by Levene, ut we are still ignorant of the normal amounts of hese substances in the various structures of the nervous ystem. We do not know the amounts or the proporons necessary for the healthy normal preservation of erve tissue, or what part a variation of these proporons may play in the capacity of the tissue to break own and disintegrate as in myelin degeneration, or to esist destruction. Their importance is indicated in the able of Koch, who places cholesterols and the phoshatids in equal proportion to the protein substances of he adult brain, and in the fact that the difference in cerebrosids—nitrogenous substances free from phoshorus—are determined by the fatty acid they contain.

W. and M. L. Koch have made interesting studies on he lipoid changes occurring during the growth of hite rats. They find a diminution in the relative perentage of proteins in the total solids due to the formaon of a large amount of lipoid matter. The lipoids hich appear coincident with medullation and whose evelopment is *pari passu* with medullation are the cerebrosids and the phosphatids. There is a great outburst of phosphatid formation at the very beginning of medullation. The phosphatids are present, therefore, in the cells as well as the sheaths.

There is certain evidence that the lipoids of other body tissues vary greatly in disease states, although our knowledge of the finer changes and the meaning of these changes is still very meager and confined to mere speculation. Bloor has demonstrated the cholesterol lecithin and fatty acid variation in the blood plasma and cells in diabetes, pernicious anemia and uremia.

In acute septic conditions, infections or intoxications, the anisotropic lipoids disappear from the suprarenal cortex. In chronic infection, anemias and severe hemorrhages they also disappear, but at a much slower rate, whereas in chronic circulatory disturbances they are increased. Their disappearance from the suprarenal cortex is generally interpreted to mean a passage into the blood by means of the endothelial leukocytes of this layer.

Pfeiffer also achieved the same result experimentally in cases of artificially produced protein intoxication. He demonstrated that, after scalding or the injection of photodynamic substances with subsequent exposure to light, the lipoid and chromophil substances are greatly reduced. The same changes were also noted in the suprarenals of the uninjured animal when the experiment was repeated parabiotically, and he suggests that the lipoids are mobilized in the blood in order to neutralize excessive proteolytic enzymes set free by the primary intoxication.

In regard to syphilitic infection there is a definite amount of evidence to connect certain of its reactions with the lipoids. In the first place, the antihemolytic properties of cholesterol are well known, and, secondly, the Wassermann reaction is undoubtedly dependent on the presence of certain lipoidal substances.

Kolmer, in a recent article commenting on infection with the spirochetes of yaws and of syphilis, says that a substance called reagin by Neisser is elaborated. It has the property of uniting or reacting with certain lipoidal substances, and the resulting complex, regarded as a precipitate by some investigators, is able to absorb or fix hemolytic complement in the test tube. Kolmer believes it is the product of the cells of all tissues, including the cardiovascular system as well as leukocytes and other inflammatory cells surrounding spirochetes, and that through possible antigenic properties of the lipoids or spirochetes the production of reagin is induced, although there are no valid reasons for regarding it as a true antibody. On the contrary, its capacity to fix complement in the presence of a suitable suspension of lipoids, as well as any complement fixation, is to be regarded as an index of the degree of infection rather than of immunity. Kolmer does not believe that it is a lipoid or is identified with the lipoid content of either the serum or the fluid, but admits that its actual composition is still unknown.

Consideration of the cases presented shows how spirochetal infection, which has hitherto been latent in the individual, may under proper provocation overwhelm him so that he rapidly becomes incapacitated and soon deteriorates at a rate that is astounding. In a few months, whether it be under stress of combined emotional shock and puberty or a protein shock before puberty, individuals who have heretofore appeared quite normal develop signs of neurosyphilis that progress as rapidly as the fulminating type of the acquired forms.

The causes of this peculiarity are not much nearer a true explanation than when the facts were first noted. Time alone as a factor, or variations in virulence of the strain, have little value because a great many young children, often of the same stock and infected by the same strain, as in the case of the general paralytic boy, succumb at an early date to the infection, or give evidence of gross lesions if the spirochetes are actually present in large numbers in the tissues. As far as we know, the only organs in which larger masses of spirochetes may exist without specific lesions are the endocrine glands.

The time element can be considered a factor only if one postulates the presence of small numbers of spirochetes in the blood that are held in check by sufficient resistance on the part of the individual through antibodies or other immunizing agents until they are either gradually eliminated, or else through some such factors as mentioned above they suddenly overcome the resistance, multiply with great activity, and overwhelm the individual. If by the time element it was merely meant that the organism was slowly increasing in numbers in the various structures of the host until the presence of an actual lesion became clinically manifest, it would be possible to trace the development step by step, as it were, from the history and direct observation of each case. There is great likelihood that this actually does occur in the case of congenital lesions of the cardiovascular apparatus; but the process is hardly to be considered latent in the strict sense, because all lesions of these structures are apt to develop insidiously and become apparent long after relatively gross changes have become well established. Furthermore, the structure of the vessels, the primary infiltration in the vasa vasorum, which may last a long time before the effect on the walls of the large vessels is felt, and the fact that the organism, whose virulence is still a matter of dispute, are in a constantly moving medium are the chief factors in the development of lesions of the vascular system.

There can be little doubt that the ductless glands may play an important rôle in the late development of these lesions. The evidence at hand is too significant to be disregarded, although it is not exact enough to establish with sufficient detail their exact part in the process.

The constant appearance of structural variations of different types in syphilitic offspring are referable to disturbed function of these organs. Again granting the influence of the suprarenals on gonadal development, it can readily be seen how the former, containing large numbers of spirochetes, may suffer just enough functional disturbance to interfere either with the proper functional or with the structural development of the latter. It is quite possible that the association of infantilism with juvenile tabes or general paralysis is to be explained in this manner, although the intimate connection with the neurosyphilitic features are still quite obscure. In other words, there is no evidence that might explain syphilitic lesions of the nervous system through disturbed gonad function, even though Moore's table of the influence of pregnancy on neurosyphilis is very significant, and carries fruitful suggestions for further research.

The myxedematous type of infantilism demonstrates that the thyroid may also be concerned in this group; and, though positive evidence of direct connection of this gland with the development of neurosyphilis is lacking, the constant association of sclerotic changes in the thyroids of tabetic patients must have some signficance, however indirect it may be.

The whole endocrine system certainly becomes involved in great emotional disturbances; and if these occur during puberty, whether it be early or late, a trauma of the entire nervous system occurs, which consists not only of circulatory changes but probably of some type of molecular change in the cells as well. Just as local trauma to the skin, mucous membranes or periosteum will cause sudden activity of latent spirochetes, and a gumma or other tertiary lesion develops, in like manner emotional disturbances produce similar reactions in the tissues of the nervous system. It may be that the biochemical balance is disturbed, either among the lipoids alone or between the lipoids and the protein constituents of the cells. In any event, something occurs which mobilizes, as it were, the destructive effect of spirochetal activity in the central nervous system. Whether the gonads are more involved in the paretic type and the thyroid in the juvenile type is still undetermined, and constitutes one of the problems on which we are now at work.

While our knowledge of the part played by the lipoids, thus far, is limited to the results of the reaction of the organism, I do not believe that there is sufficient evidence to say positively that they may not have something to do with the process of maintaining the capacity of the cells to resist spirochetal invasion. It is fairly well established, to be sure, that the Wassermann reaction is closely connected with the lipoids; indeed, if Kolmer is correct, it is their capacity to unite with reagin that produces the precipitate which is able to fix hemolytic complement in the test tube. As he says, it is to be regarded as an index of the degree of infection rather than an index of immunity. On the other hand, the fact that women who undergo several pregnancies are less liable to neurosyphilitic lesions than primiparas or sterile women, when considered with the fact that cholesterol is constantly found increased in the blood of pregnant women, immediately assumes a significance quite apart from the severity of the infection and brings up the question whether or not some of the lipoids may not have immunizing properties.

Lecithin also may have an important part in this reaction, through its abilty to combine with other substances. Its capacity to combine with compounds of heavy metallic salts and organic substances, such as toxins or other protein substances, is well established, and it might easily combine either with toxins elaborated within the body during infections, or other toxic proteins, as in the two cases of vaccination, and, through an unfavorable influence on nervous tissue, might effect a loss of the capacity to hold spirochetal activity in check.

Whether or not the various fatty acid combinations take part in this reaction is most obscure; and, aside from their presence and their importance in determining the identity of some of the lipoids, such as the cerebrosids, very little is known.

One cannot avoid the feeling, however, that the whole or part of the lipoidal group is an important factor in the subtle biochemical changes whereby tissue, which for years holds spirochetal activity in check, under unfavorable influences, such as trauma, emotional disturbances, stormy puberty or the presence of toxic substances, rapidly loses the capacity to withstand the invasion and permits the development of these lesions.

Finally, it would appear that the development of neurosyphilis depends more on the capacity of the individual to overcome or resist the activity of the spirochete than on a variation in virulence of the strain.

OCULAR DISTURBANCES IN PREGNANCY AND DURING THE PUERPERIUM *

NELSON M. BLACK, M.D.
MILWAUKEE

During pregnancy, numerous changes are manifest n the eyes and their adnexa that are normal to the state and disappear with its termination. Not infrequently, however, disturbances of vision arise in the course of gestation and during the puerperium which are danger signals of the greatest importance. These visual disturbances may be the first indication of the gravest danger to the life of the woman, or the first symptoms of disease of the various ocular structures which may terminate in diminished vision or even blindness.

All the elements necessary for the growth of the fetus and for the promotion of its metabolic activity are derived from the maternal body, which must also ake care of the waste products arising from the ncreasing cell activity. While the pregnant state is a physiologic condition, there is, nevertheless, an enormous demand made on the reserve material of the maternal body. In addition, there is the mechanical nterference with bodily functions due to pressure disurbances.

The increased demand on the reserve material of the pregnant woman is bound, under all circumstances, to diminish the resistance of the body to all injurious nfluences, autogenous or ectogenous. Thus, in any organ of the body in which there exists some abnormality, or in which there is present, at the time of conception, some morbid process, the chances for pathologic changes to take place or to increase are greatly enhanced by the generally lowered bodily resistance. Further, the general lowered resistance cannot uccessfully combat the effects of foci of infection that may be active in the body, which may act as the exciting factors in lighting up morbid processes in any organ, he eye not excepted.

The early recognition of ocular disturbances during gestation is of great importance, as they frequently are warnings of marked systemic changes that menace not only the eyesight of the woman, but possibly her life.

Increased deposit of pigment in the rete mucosum of he lids, as well as in other parts of the body, is frequently noticed. These chloasmata uterina consequent on the destruction of a large number of red blood orpuscles usually disappear after delivery, depending on the depth and extent of the pigmentation. In patients with marked chloasmata, examination of the blood is indicated, as well as determination of whether ctivity of the kidneys is diminished.

Occasionally, the secretion of tears is increased from he third month on to term, and is quite annoying. This is frequently accompanied by increased secretion rom the salivary glands. Usually, in these cases, the acrimal and salivary glands are swollen. Subconunctival hemorrhages, if frequent and large in amount, indicate some cardiovascular change, and should be egarded as danger signals. They may be early signs f a grave toxemia.

The phlyctenular inflammations of cornea and conunctiva which occasionally occur during pregnancy are not peculiar to the condition and will not be dwelt on. Ulcers of the cornea are not frequent in pregnancy, but develop from the usual causes, i. e., injury and infection. Softening of the cornea, keratomalacia, occasionally develops in subjects very much enfeebled by pernicious vomiting and dyscrasias.

Conical cornea is said to have developed in pregnancy, and to have its origin during the stress at delivery. Any previously existing weakness of the intrinsic and extrinsic ocular muscles may be aggravated, especially if the general physical condition has become below par as the result of nausea and vomiting. As a result of reflex disturbance through the sympathetic nervous system, miosis or mydriasis may be in evidence.

Cycloplegia may appear during the latter half of pregnancy, the result of insufficient innervation of accommodation, and is most annoying.

Polyopia may develop in the early months, and is usually one of the manifestations of an hysterical condition. Yet hysteria should be the last condition thought of in any case of pregnancy.

External and internal squint is occasionally present, especially in those with unstable muscle balance, and is most difficult to relieve, owing to the irregularity of the manifestations of the strabismus.

Intercurrent iritis or cyclitis is dependent on preexisting causes, systemic infections or toxemias generated by the pregnant state. The formation of cataract has always been considered as due to preexisting disease. Vitreous hemorrhages occur frequently, causing great alarm. As a rule, however, there is complete absorption with no loss of vision.

RETINITIS AND NEPHRITIS

The ocular disturbances liable to complicate pregnancy are classified by Woods as: (1) the sudden amaurosis usually called uremic; (2) the retinal changes spoken of as albuminuric retinitis of pregnancy; (3) loss of vision in some parts of the visual field without retinal lesion, sometimes with pallor of the disk, and (4) neuroretinitis not resembling that called albuminuric.

"It is now accepted that the eclampsia of pregnancy is not uremic in origin but is allied to pernicious vomiting which is caused by the circulation of toxic substances in the blood." So the amaurosis of eclampsia is believed to be due to a sudden toxic saturation of the optic nerve and retina, retinal changes being absent because of insufficient time for them to develop. This view is supported by the fact that optic atrophy sometimes follows uremic amaurosis.

The term albuminuric retinitis of pregnancy has been superseded by retinitis of pregnancy. "So far as they occur together, retinitis of pregnancy and albuminuria may be disassociated, for it is a patent fact that either may and frequently does exist without the other. Therefore, an albumin-free urine need not rule out a diagnosis of toxic retinitis in a pregnant woman."

Retinitis of pregnancy is a rare occurrence, being found, according to Silex, but once in from 3,000 to 4,000 pregnancies; while albuminuria during gestation is not uncommon, varying from 2 to 20 per cent. (and retinitis is found in albuminuria once in forty-five cases).

The retinal disturbance is not considered to be a form of albuminuric retinitis, although the true albuminuric retinitis may develop during pregnancy from a preexisting chronic nephritis; nor is the

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* Read before the Section on Obstetrics, Gynecology and Abdominal urgery at the Seventy-Fourth Annual Session of the American Medical ssociation, San Francisco, June, 1923.

nephritis of pregnancy a true inflammation. Both the retinitis and the nephritis are undoubtedly dependent on the same cause, a toxemia. What the nature of this poison is has not been fully settled, but progress has been made. At least a name has been attached to the toxins, viz., syncytiotoxins, by which is meant the products of the disintergration of the syncytial cells. These are described as the outer of two layers of cells of fetal origin, which form part of the developing placenta and lie next to the maternal mucosa. They are so named from their immediately connecting the fetal and maternal structures. Their origin and function are physiologic; and, when their purpose is served, their death is, likewise. One might say the formation of toxins in one's body is a physiologic process. It is not the formation, but the failure of proper elimination of toxins, which acts deleteriously on the economy.

The ophthalmoscopic signs of the retinitis may not differ from those associated with other forms of nephritis. In general terms, there is a widespread neuroretinitis with exudation and hemorrhage. The retinitis is toxic rather than vascular in origin, although gross endarteritis with obliteration in the choroidal vessels and in the posterior ciliary as well as the retinal vessels has been found. The findings in the majority of cases have been such as to allow us reasonably to suppose that the vascular changes that take place in pregnancy and in the nephritis are of a temporary nature. Perhaps in half of the eclamptic cases, the patients complain of disturbances of vision, but decidedly few will show evidences of retinitis, and among these the star figures are rarely found.

In the retinitis of pregnancy, the prognosis, so far as it concerns the vision and life of the patient, depends on the duration of the gestation. If the visual disturbances appear during the first six months, usually the pregnancy should be terminated if the sight is to be saved. It must be borne in mind that any serious eye lesions may be made worse by a subsequent pregnancy.

Chronic nephritis and retinitis caused by it form sufficient indications for the termination of the pregnancy, as the patient may recover entirely from the nephritis, or at least be greatly improved. The induction of labor, therefore, has been recommended as a therapeutic measure, because with the termination of pregnancy the inflammatory deposits in the retina may be absorbed and good vision be restored, provided the process has not continued so long that secondary changes have taken place.

In general, it may be said that retinal hemorrhages usually indicate a grave toxemia.

If, when the hemorrhages are over the macula, and the optic nerve is involved, the symptoms are not heeded, during which time the toxemia becomes increased, a permanent impairment of vision is inevitable. The life, future health and vision of the woman are, therefore, best safeguarded by an interruption of the pregnancy. Usually, the vision improves rapidly after delivery, and the exudation and hemorrhages become absorbed to a large extent, although in extensive effusions a certain amount of permanent impairment is usual.

The prognosis as regards sight in these cases is probably not so good as is commonly thought, though as regards life it is much better than in the nephritis of the nonpregnant. Sight, however, never improves until the pregnancy is terminated. Without the induction of labor, the prognosis is most serious. Cases which go on to term show the largest proportion (15 per cent.) of deaths, and the greatest damage to sight. Spontaneous premature delivery shows 11 per cent. of deaths, while after the artificial delivery, the mortality is but 4 per cent.

Silex found a return to normal vision in only three cases out of thirty-five. Therefore, only moderate vision can be anticipated if labor is induced at the seventh or eighth month of pregnancy. Accordingly, in the last two months, ocular symptoms are to be weighed with other findings. Usually, partial optic atrophy is present with white or pigmented spots at the macula. Fortunately, recovery follows in the majority of the cases in which visual disturbances have not come on until the last two or three weeks.

A true optic neuritis, that is, papilledema, is not infrequently found associated with the toxemia of pregnancy. In such instances, the relations of the optic nerves to the pituitary body must not be overlooked, and because that structure is so frequently affected in the course of pregnancy, it should be borne in mind that pressure on the nerve may arrive from swelling of the hypopysis.

DETACHMENT OF RETINA

Detachment of the retina is one of the unusual ocular complications of pregnancy and of the puerperium, arising from the strain of prolonged and difficult labor; it occurs more frequently in the course of retinitis of the pregnant than in the retinitis of the nonpregnant woman. In certain of the cases reported, myopia had already existed, a condition that should always be considered as well as the effects of the stress of the puerperium, because stress in the susceptible can be sufficient to cause detachment. Bilateral detachment of the retina has occurred, but, in some fortunate cases, the membranes became reattached, although optic atrophy supervened.

From the cases reported, the chances of recovery of perfect vision after detachment of the retina during pregnancy, labor or in the puerperium seem to be better than in the nonpuerperal state. The induction of labor, therefore, may favor the reattachment.

EMBOLISM OF RETINAL ARTERY

It is well known that distinct modification of the cardiovascular system occurs during pregnancy, and that the constitution of the blood is changed, comprising an initial reduction followed by increase in amount of fibrous elements; and it is marked by variations in the blood pressure during the last three months. Numerous cases of what has been considered to be embolism of the central artery have been reported, for which affection no other cause than the general blood changes could be assigned. Merely a branch, as the superior temporal, may become affected, so that only the portions above the macula become ischemic with the consequent defects in the lower portions of the field and a reduction of the general visual acuity. The value of the cilioretinal vessels in supplying the ischemic area is here fully shown. Occasionally, the vision may be greatly regained owing to the restoration of the lumen.

OBSERVATIONS AT CHRISTIANIA CLINIC

In the Christiania clinic, eye examinations were made by Schiötz [1] on all pregnant patients with subjective eye disturbances, on those with pregnant toxicosis and on most patients who showed more than ordinary confinement albumin. During five years, 680 patients were examined; 158 cases of eclampsia occurred during that time. Among his patients with no albumin and no symptoms of intoxication were found two cases of hemorrhage into the vitreous, one of embolism of a branch of the central artery, one of recrudescence of old chorioretinitis, one of keratitis superficialis, one of keratitis disciformis, two of retinal detachment in excessive myopia, three with old fundus changes, one of transitory myopia during pregnancy, and two of retrobulbar neuritis in hyperemesis gravidarum.

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[1] Schiötz: Monatsbl. f. Augenh. **66**: 301, 1921.

Forty cases of pregnancy retinitis were observed; of these, ten patients had chronic nephritis before and after the pregnancy; seventeen were healthy before, but showed nephritis after, the pregnancy; six were free of symptoms before and after pregnancy, and in seven, the follow-up examination was missing, or the retinitis was not healed at the time of the report. Retinitis was found sixteen times in primiparas, and twenty-four in multiparas. The retinitis usually began in the second half of the pregnancy. Of the forty patients, fourteen had, in follow-up examinations, normal vision; all others, with the exception of one who was totally blind, had vision sufficient for work and for reading. This good vision is due to the active treatment, especially to the induction of labor. Most patients had nephritic symptoms before the pregnancy, while some seemed to have developed a chronic nephritis in consequence of the pregnancy kidney. In six cases, a pure pregnancy kidney seemed to have existed, the patients having no symptoms before or after the pregnancy; four of these patients subsequently became pregnant again.

EYE SYMPTOMS WITH ECLAMPSIA

Of the 132 patients with eclampsia, and twenty-six with threatening eclampsia, twenty-seven showed retinitis or papilloretinitis, four, complicated with detachment; one showed hemorrhagic retinitis, and three, detachment without retinitis; in two patients papillitis, in two edema of the retina, and in three chromatopsia was noticed. In all, 33 per cent. of the patients showed eye symptoms. During follow-up examination of twenty eclamptic patients, all were found perfectly well, free of albumin and with normal blood pressure. This contrasts greatly with the pregnancy retinitis cases; thirteen of these patients subsequently became pregnant.

FOCAL INFECTION

Since foci of infection in the paranasal sinuses, teeth and tonsils have been proved to be such active factors in the etiology of ocular disorders in apparently healthy persons, it is only reasonable to suppose that they would be increasingly dangerous as etiologic factors in the condition of lowered bodily resistance such as that induced by pregnancy.

In four cases of neuroretinitis of pregnancy with marked albuminuria and marked reduction of vision that have come under my observation, I found in each case extremely active infectious processes in the teeth and tonsils. Unfortunately, the damage to the eyes had already occurred, but improvement in the ocular condition, which in two cases was marked, and in the other two slight, did not take place until treatment was directed to the infected teeth and tonsils.

Would it not be wise, therefore, during gestation, in addition to the early frequent examinations of the urine which is practically always done, also to search for possible foci of infection, especially in the teeth, paranasal sinuses and tonsils, and correct morbid processes when found, rather than to run the risk of allowing the patient to proceed to term with the possibility of having to terminate the pregnancy in order to save life or preserve vision?

It is also suggested that visual examination should be made, as a routine procedure, during the latter months of pregnancy, with especial regard to the fundus and visual fields.

ABSTRACT OF DISCUSSION

DR. ALLEN GREENWOOD, Boston: Some observers have asserted that retinitis of pregnancy is not a true albuminuric retinitis. That is true, and, again, it is not true. There is in the pregnant woman a tendency to retinitis, in a few cases usually accompanied by albuminuric retinitis, from which the patient recovers with good vision and with a good prognosis, as a rule, as far as the eyes and kidneys are concerned; but there are women who become pregnant as a complication, one might say, of nephritis, a nephritis that has not been discovered and that has already produced changes in the fundus. Those two fundus pictures are quite different, in a way. The retinitis of the toxemia of pregnancy is a retinitis without excessive areas of degeneration. It is a retinitis of toxemia with inflammation of the optic nerve, papillitis, and edema of the retina, with some exudate and some disturbances of the circulation. In the retinitis of the albuminuric type occurring in pregnant women, there is more evidence of retinitis. In those cases there is every evidence of degeneration and destruction of the smaller vessels of the eye. In such cases the prognosis as to vision is bad. Dr. Black has also called attention to the possibility of separation of the retina. That is usually a bilateral separation, and, as a rule, is recovered from as soon as pregnancy is terminated, so that the prognosis is good. There is an accumulation of fluid between the retina and the choroid, and it is almost always in the dependent portion of the eye. Patients have recovered from that condition almost invariably, and it is virtually never necessary to operate for a replacement of the retina. Dr. Black has also called attention to cases of amaurosis with toxemia having a marked effect on the optic nerve without producing an actual papillitis. Those cases are less common than any of the other ocular manifestations of pregnancy. Recently, a great deal of attention has been paid by ophthalmologists to the effect of the pituitary enlargement that accompanies pregnancy. That enlargement, if it is of considerable size, is liable to produce a change in the field of vision such as is produced by other enlargements of the pituitary gland. Observers who have gone into this have demonstrated that the temporal field of vision becomes drawn in during the last months of pregnancy.

Ions.—Why certain solvents, such as water, should cause or permit the splitting of a compound into electrically charged bodies, called ions, has not yet been clearly explained. That they do has been demonstrated with reasonable certainty. A chemical element is conceived to be an aggregate of unit, negative, electrical charges (electrons) grouped at relatively enormous distances about a central, neutralizing nucleus of positive electricity. The numerical value of this nucleus, in terms of the number of electrons required for neutralization, and the geometrical configuration of the positions of the surrounding electrons are supposed to distinguish the several elements. Certain of the electrons are but weakly incorporated in the planet-like system of certain elements. When such an electron has escaped, the element is left with a unit excess of positive electricity. It is then a positive ion, a cation, having distinctive properties. If an element is so constituted that it can hold an extra electron, the extra charge gives it new characteristics. The negatively charged element is called an anion.—Clark: Determination of Hydrogen Ions, Baltimore, Williams and Wilkins Company, 1923.

A REVIEW OF A GROUP OF PROFESSIONAL DONORS *

HERBERT Z. GIFFIN, M.D.
AND
SAMUEL F. HAINES, M.D.
ROCHESTER, MINN.

Statements in the literature concerning the subsequent condition of patients who have acted as donors are not accompanied by statistical data. Minot and Lee,[1] in their article on the transfusion of blood, state that several transfusions of 500 c.c. may be given by a single donor, at intervals of one week or more, without apparent disturbance. After 500 c.c. has been given, the donor will feel well within a few hours. A loss of 1,000 c.c. may cause lassitude for two or three days. The blood volume in normal persons is made up rapidly from the fluid reserve of the body, and the number of erythrocytes returns to normal within a few weeks. The inadvisability of using students and nurses as donors has been discussed in the *Lancet*[2] and in the *Guy's Hospital Gazette*.[3] It is rather surprising that, aside from these discussions, nothing has appeared in the literature on this subject.

In view of the lack of published information, it seemed necessary to collect data on a series of donors in order to determine, if possible, just what are the more remote effects of repeated donations. The immediate effects of loss of blood have been studied in detail by Keith[4] and others.

The list of donors at the Mayo Clinic includes about 1,000 persons who have been grouped, 200 of whom are on the active list, and may be called on at short notice. It was possible to make a personal study of eighty-four of these, who returned for this purpose at our request, and were accepted consecutively; therefore, the group is not a selected one, and includes donors who had given from one to thirty-five donations.

NUMBER AND FREQUENCY OF DONATIONS

One donor had given thirty-five donations; two, thirty-two donations; one, thirty donations; eight had given twenty-five donations or more; fifteen, twenty donations or more; twenty-four, fifteen donations or more, and thirty-five, two donations or more.

The frequency of donations varied to a considerable degree. The donor who had given thirty-five donations had been used on an average of once in six weeks over a period of more than four years. Another donor had given eleven transfusions in twelve months, or an average of one every four and one-half weeks. A third donor had given eleven donations in eight months, or one every three weeks. Twenty donors had given more than ten donations each, at an average interval of less than two months.

AGE AND SEX OF DONORS

The ages of the donors varied from 19 to 62 years. Only three were under 20 years of age, and these were 19. The majority of the donors were under 40 years, and the largest group was between 30 and 40 years. The distribution according to age is shown in the accompanying table.

There were fifty-one men and thirty-three women in the series observed.

WEIGHT OF DONORS

An inquiry into the gain and loss of weight following donations resulted in interesting findings. Of the eighty-four donors, there were data as to weight in seventy-three; of these, thirty-six had gained weight, thirty-two had remained the same, and five had lost weight. The group that gained in weight had given from one to thirty-two donations, the average being eleven. Nineteen donors, who had given from one to twenty-four donations, with an average of ten, had gained 10 pounds (4.5 kg.) or more; the average gain for this group of nineteen was 20 pounds (9 kg.). One donor, a man, had gained 60 pounds (27 kg.) after twenty-four donations; two others, 35 pounds (16 kg.), and a fourth, 30 pounds (13.5 kg.). One donor, after having given one donation, gained so much in weight that she decided not to act as donor again. Of those who had gained more than 10 pounds (4.5 kg.) in weight, seven were women and twelve were men. The average gain in the women was 19 pounds (8.6 kg.), and in the men, 16 pounds (7.3 kg.), excluding the man who had gained 60 pounds (27 kg.). The gain in weight in such a large proportion of donors is in striking contrast to loss of weight. Only two donors had lost 10 pounds (4.5 kg.) or more, and neither of these had lost more than 15 pounds (6.8 kg.).

Age of Donors

	Donors
19 years	3
From 20 to 30 years	23
From 30 to 40 years	33
From 40 to 50 years	19
From 50 to 60 years	5
More than 60 years	1
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Total	84

It would be of value to determine whether the gain in weight after donations is due to a preponderant increase in fat rather than in muscle. This might be determined by a comparison of the blood volume for each kilogram, before and after the gain in weight, as the plasma volume for each kilogram is reduced in the obese. There is a noticeable improvement in the appetite after donations which may have a relationship to the increase in weight.

GENERAL CONDITIONS OF DONORS

It may be a significant fact that not one of these donors has shown any evidence of serious organic disease or of infection since the first donation. The general condition and feeling of general well-being of the donor corresponds quite closely with the gain in weight. Of the entire group of eighty-four, twenty-three (27 per cent.) voluntarily stated that they felt much better after they had begun to act as donors; forty-nine of the group felt neither better nor worse, and from the remainder a statement was not obtained. It is a striking fact, however, that none felt worse, or gave evidence of diminished vitality. It might be assumed that those who felt worse ceased to act as donors; but this does not apply to our series, as it included thirty-two donors who had given less than five transfusions, and nine who had given only one each. Undoubtedly there is occasionally a person who feels that donations of blood are weakening, and it is difficult to determine whether this is entirely psychologic or not. Our group does not include donors under 19 years of age, and hence the conclusions may not apply to those of high school age. Aside from the question of health, it is not wise from a moral standpoint to allow boys to act as donors, as they are often tempted to spend, in exploits, money too easily obtained.

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* From the Section on Medicine, Mayo Clinic.

* Read before the Section on Practice of Medicine at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

[1] Minot, G. R., and Lee, R. I.: Transfusion of Blood, Nelson Loose-Leaf Medicine, New York, Thomas Nelson and Sons **4**: 167.

[2] Blood Donors, Lancet **2**: 1123, 1921.

[3] Passim, Guy's Hosp. Gaz. **35**: 317, 1921.

[4] Keith, N. M.: Blood Volume in Wound Shock, Special Report 26, Natl. Health Ins. Med. Res. Com., London, 1919, pp. 36-44; Blood Volume Changes in Wound Shock and Primary Hemorrhage, Special Report 27, 1919.

ANEMIA FOLLOWING DONATIONS

A group of twelve consecutive men and twelve consecutive women was compared with respect to the presence of anemia before and after their donations. The blood counts were as a rule made less than one month before donations were given, and more than three weeks after. In the men, the average hemoglobin content, by the Dare instrument, was 78 per cent. beforehand, and slightly more than 76 per cent. afterward. The average erythrocyte count before donations was 4,630,000, and after donation, 4,610,000. In other words, no anemia was evident in men after a single donation, or after a long series of donations. In the group of twelve women, the average hemoglobin before donation was 73 per cent., and after donation, 68 per cent. The average erythrocyte count before donation was 4,460,000, and after donation, 4,380,000.

In a series of twenty-two men and ten women, it was possible to obtain the estimations of hemoglobin after donations, by the Newcomer acid hematin method, and the average estimations for the men were 85.5 per cent., and for the women, 78.3 per cent. By the acid hematin method, 100 per cent. equals 16 mg. of hemoglobin per hundred cubic centimeters. This finding would, therefore, indicate a low normal for the men, and a definite anemia for the women.

A comparison of the hemoglobin in men and women shows that, before donations, the hemoglobin by the Dare method in women was, on an average, 5 per cent. lower than in men, and after donations averaged more than 8 per cent. less. The erythrocytes were not markedly reduced, but both the general averages and the study of individual cases demonstrate a greater tendency to anemia in women than in men, following donations. In certain women, a single donation reduced the hemoglobin very markedly, and, in one instance, the hemoglobin was appreciably decreased after each of a series of several donations given by the same woman.

Consideration in detail of anemia in women following transfusion disclosed the fact that twenty-two of the entire series of thirty-three women showed evidence of anemia of varying degrees. In a group of six women, the erythrocyte counts after donations were below 4,000,000 cells. The counts varied from 3,660,000 to 3,990,000. The shortest time after donation at which the estimation was made was fifty-seven days, so that a sufficient period had elapsed for complete recovery of cell volume. These six women were all married, and varied in age from 29 to 54 years; however, young unmarried women in the series have shown persistent anemia after even a single donation. On the other hand, an occasional woman has given large numbers of donations without any evidence of anemia.

Only four men of the entire series of fifty-one men became anemic.

The differential counts which were made before and after donations revealed nothing that was especially noteworthy. Anisocytosis and poikilocytosis were present in only two cases, and these were in women.

In all instances, reticulated cell counts were made, and no variation from the normal noted. However, as these counts were all made more than three weeks after a donation, normal reticulated cell counts may not have been present during the first three weeks. The platelets in the smears appeared to be normal in character and number.

Speculation concerning the reason for the development of slight anemia in women leads to the suspicion that it may be due to three factors: (1) the probability that the total mass of bone marrow devoted to the regeneration of blood is smaller in women than in men because of smaller stature and smaller bones; (2) the likelihood that the diet of men, including as it does a larger amount of meat, is more effective in blood regeneration, and (3) the fact that the habits and work of women are not conductive to blood regeneration.

BLOOD GROUPS AND CONDITION OF DONORS

Observations were made with respect to the blood grouping of the donors, according to the Moss classification. In Group 4 there were forty-four; in Group 2, thirty-two; in Group 3, six, and in Group 1, two. All of those who had given fifteen donations or more were in Group 4 and Group 2. One donor of Group 2 had given thirty-two donations; three donors of Group 4 had given thirty, thirty-two, and thirty-five donations, respectively; one donor of Group 3 had given ten donations, and another of Group 3 had given six donations. Of the six donors in Group 3, four were women, and two of these developed slight anemia after giving blood. Two donors in Group 1 showed no ill effects whatever. No relationship between the grouping and the condition of donors was evident.

A study of the blood grouping of donors in relation to the reactions in recipients was made in seventeen instances. One donor in Group 1 had given two donations, one of which was followed by a moderate reaction, and the other by no reaction whatever. Of those in Group 2, nine had given an average of seventeen donations; eleven reactions of mild and moderate grade ensued. Three of the donors in Group 3 had given nine donations, each; these were followed by five reactions, mostly of a mild grade. An average of ten donations had been given by four donors from Group 4, with only three reactions of mild grade. In this study of a small group with respect to reactions in recipients, it seems to be indicated that blood from donors in Group 4 has caused fewer reactions than the blood of other groups. These data refer to transfusion work for blood dyscrasias, the citrate method having been used. Reactions with the citrate method are extremely rare with posthemorrhagic and postoperative transfusions.

STUDIES CONCERNING BLOOD VOLUME

It has been established that, following the sudden loss of a quantity of blood, the plasma volume is rapidly restored to normal from the fluid reserve of the body. It is during this process, of course, that the evidence of anemia first appears in the peripheral circulation. The restoration of the cellular elements to normal is a slower procedure, and it probably takes about three weeks to bring the total red cell volume back to normal. It is for this reason that we have made our studies on donors at an interval of more than three weeks after the last donation of blood.

Blood volume estimations were made in five instances, all frequently used donors, in order to determine, if possible, whether there were any permanent changes in plasma or cell volume. The donors on whom these estimations were made had been used from nineteen to thirty-two times each. The estimations were made by the vital red method of Keith, Rowntree and Geraghty,[5] at a period of at least a month after the last donation of blood. Two women who had given twenty-five and twenty-nine donations, respectively, had moderate grades of secondary anemia. Both were obese, and had relatively low plasma volumes for each kilogram (40 and 41 c.c.), but no lower than would have been expected considering the degree of obesity. In two men who had given nineteen to thirty-two donotions, respectively, there was a slight elevation of the cell volumes in the hematocrit, and a slight diminution in the plasma volumes. The cell volumes in the hematocrit were 65 and 50 per cent., and the plasma volumes for each kilogram were 40 and 38 c.c. The blood counts, hemoglobin, smears and reticulated cell counts in these men were normal. In the fifth donor, a man, the hematocrit and plasma volumes, as well as the blood counts, were normal. There was, therefore, in this group of frequently used donors no marked, or apparently significant, change in the plasma and blood cell volumes as estimated by the vital red method.

HYPERTENSION AND DONATIONS

Seven donors with hypertension are included in the series of eighty-four. They had given from two to thirty-two donations, averaging thirteen. There is no evidence that hypertension is decreased by multiple donations; on the contrary, a slight, but probably not a significant, rise in blood pressure occurred in all of these donors. Moreover, a majority of those of the entire series who had normal blood pressures had a slight increase of blood pressure following multiple donations.

GENERAL CONSIDERATIONS CONCERNING DONORS

Familial Considerations.—The familial occurrence of pernicious anemia is too frequent to be coincidental. The question therefore arises whether or not the child of a patient with pernicious anemia should act as donor. It cannot be answered with certainty. We have concluded, however, from our experience with donors in general, that the child of a patient with pernicious anemia, provided he passes a satisfactory examination, including a complete blood count, is more likely to be benefited than harmed by acting as donor. However, the brothers and sisters of patients with pernicious anemia should be examined with special care for symptoms of incipient pernicious anemia before they are utilized as donors, because they are likely to be at an age when pernicious anemia may already be present. We have seen two patients with incipient pernicious anemia, who had acted as donors, develop an exacerbation of their symptoms and a rapidly developing anemia afterward.

Patients with Polycythemia as Donors.—Three patients with polycythemia vera have been used as donors. They seem to be neither more nor less effective as donors than normal persons. Their symptoms are usually relieved temporarily by the loss of blood. Care must be taken not to traumatize the veins of polycythemic patients because of the likelihood of producing thrombosis, and their use as routine donors is not to be recommended.

The Routine Examination of Donors.—It is our routine to examine donors with care before placing them on the list. A history is obtained, and a general physical examination, a Wassermann test, urinalysis and a complete blood count, are made. The Wassermann test, the blood count, and a general survey of the donors are repeated every six months. Inquiry concerning their social status and social habits is also made, and frequent Wassermann tests are done when indicated. This careful attention to donors is doubtless a factor in their good condition even after having given many donations. It is most important from all standpoints, and is regarded as a necessity.

The eligibility of each donor is decided individually, but a hemoglobin of at least 70 per cent. and an erythrocyte count of 4,250,000 with negative differential are regarded as prerequisites.

It is important that donors receive careful treatment and due consideration. One sore arm, or an incision to a vein, noticeably diminishes the number of applicants.

SUMMARY AND CONCLUSIONS

The remote effects of donations of blood on donors have not been discussed in the literature. Out of more than 200 donors "on call" at the Mayo Clinic, a consecutive series of eighty-four were available for personal study concerning their condition three weeks or longer after donations, and these conclusions were drawn:

1. Multiple donations of 500 c.c., when given at intervals of four or five weeks, have not been found to be harmful.
2. Women who have acted as donors often develop a definite anemia, and are slower than men to recover their cell volume and hemoglobin. Sixty-six per cent. of the women of the series had slight anemia.
3. Twenty-seven per cent. of the donors felt definitely better after multiple donations than they had before, and the general health had deteriorated in none of them.
4. Fifty per cent. had gained in weight, and only a few of the series had lost in weight. Nineteen had gained more than 10 pounds (4.5 kg.), with an average gain of 20 pounds (9 kg.).
5. A study of the blood volume in five donors, more than three weeks after donation, revealed no significant changes in plasma volume or cell volume.
6. Seven patients with hypertension had no reduction of blood pressure following multiple donations. Many of those with normal blood pressures, and several of those with hypertension had a slight elevation of blood pressure following multiple donations.
7. The history of prospective donors should be taken as a routine, and they should be subjected to physical examinations, including the Wassermann test and complete blood count, before they are placed on the list of approved donors. An inquiry into the social habits of the donor is very important. Moreover, a general survey of the donor's condition, and a repetition of the Wassermann test and blood count should be made every six months; Wassermann tests should be obtained more frequently when indicated.
8. More detailed information concerning the remote effects of donations is desirable, and may prove to be important from a physiologic standpoint.

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[5] Keith, N. M.; Rowntree, L. G., and Geraghty, J. T.: A Method for Determination of Plasma and Blood Volume, Arch. Int. Med. **16**: 547-576 (Oct.) 1915.

ABSTRACT OF DISCUSSION

Dr. E. H. Falconer, San Francisco: This paper deals not so much with actual disease as it does with physiology, and it is very important to understand physiology if we are to understand disease. The physiology of bone marrow, unfortunately, is not very well known. Bone marrow is a very delicate organ and has very delicate functions to perform. It is estimated that there are twenty-five trillion corpuscles in a normal man weighing 60 kg., and that about 10 per cent. of this number are destroyed and replaced each twenty-four hours. It is evident that the bone marrow has enormous powers of regeneration in order to keep the blood stream filled with the essential number of corpuscles. And it is possible, as Dr. Giffin has shown in his paper, to withdraw great amounts of blood from the circulation without particularly reducing the amount required for the daily needs of the body. However, repeated small blood losses probably throw a great strain, a deleterious strain, on the bone marrow. Taking a careful history from prospective donors is important, as there are, undoubtedly, persons with a congenital weakness of the bone marrow. They do not stand blood losses well. It is important to ascertain whether the prospective donor has had previous periods of anemia. I had one patient who acted as a donor for her sister, who was ill with pernicious anemia, nine times in a period of about ten months. From 300 to 500 c.c. of blood was withdrawn each time. This woman told me that she had been anemic in her girlhood, but had entirely outgrown it. At the time, I overlooked this point, thinking it of no importance, but the woman developed secondary anemia which laster for almost a year. During this period, the menses ceased. The question of increase of weight after giving blood is interesting, and is rather difficult to explain, except that the loss of cells, which act as oxygen carriers from the blood stream, and the fact that immature cells absorb more oxygen than old cells, may tend to suboxidation of the tissues and the storing of fat. The immature cells absorb more oxygen, but possibly do not give it up so readily as do the more mature cells. It would be interesting to know just how long it takes bone marrow to return to normal after the loss of, say, 500 c.c. of blood, and after repeated blood losses.

Dr. Walter V. Brem, Los Angeles: We have been giving blood transfusions for about twelve years. In that time we have given more than 2,000 transfusions and we have not had any difficulty from our donors feeling untoward effects. Our routine has been to use them at intervals not shorter than three months; but we do not adhere to this routine, and sometimes we use them after a few weeks' time. We find that their blood cells, after giving about 500 c.c. of blood, return to normal within a week's time. The hemoglobin, of course, recovers less quickly. Five hundred cubic centimeters of blood is not a great deal to lose, and this is immediately made up, in volume, by the tissue juices, and the red blood corpuscles and hemoglobin come rapidly back to normal. We find frequently, as has Dr. Giffin, that the donors feel better after having given blood. There is one point in connection with the Wassermann test with which I disagree. Dr. Giffin recommended that the test be repeated every six months. That is not sufficient in our community, as we have found to our sorrow. We have, unfortunately, transmitted syphilis to two patients with pernicious anemia from donors whose Wassermann test was negative four or five weeks previously. In another instance, we had made a Wassermann test in taking the history of the donor, and within two weeks he came in to act as a donor, and told us that he had a slight lesion on the penis. When we investigated, we found that the lesion was an early chancre and full of spirochetes. We know of a case in which the son of a pernicious anemia patient did not reveal that he had a slight sore at the time that he gave his blood, and his father got a virulent attack of syphilis from the transfusion. This chancre was only five days old. So that we have to review our donors every time we use them to see whether anything has happened, and make Wassermann tests frequently.

Dr. H. Z. Giffin, Rochester, Minn.: There is, as Dr. Falconer has stated, no *a priori* reason why the loss of 500 c.c. of blood should be deleterious. It is, however, rather peculiar that repeated daily losses of a small amount of blood over a long period of time may cause a very severe anemia, whereas a periodic loss of 500 c.c. of blood usually causes no anemia. I should like to emphasize, as Dr. Brem has already done, the importance of inquiring into the social habits of donors. One cannot be too careful in conducting repeated surveys of donors, especially of those whose social status is questionable. In answer to the question concerning the reticulated cell count: Our cases, which were all studied three or more weeks following donation, showed no increase or reduction in the number of reticulated cells, and no change in the differential count.

SOME OF THE CAUSAL FACTORS IN THE INCREASED HEIGHT OF COLLEGE WOMEN

THIRD NOTE

CLELIA DUEL MOSHER, M.D.
Associate Professor of Personal Hygiene and Medical Adviser of Women
STANFORD UNIVERSITY, CALIF.

College women during the last three decades have increased in size. The studies[1] made at Stanford University of 4,170 women students who entered during a period of thirty years show at the time of admission not only an increase in weight but also an increase of 1.2 inches in average height. These results have been confirmed by the Vassar College statistics[2] based on the examinations of 7,064 women during thirty-seven years, an investigation which shows an increase in height "well over 1.5 inches"; and also by Smith College measure-

TABLE 1.—*Height of 21,383 College Women by Years**

	Stanford University		Smith College		Vassar College		Stanford, Smith and Vassar Combined (21,383)	
College Year	No. of Women	Average Height, Inches	No. of Women	Average Height, Inches	No. of Women	Average Height, Inches	No. of Women	Average Height, Inches
1884-1885	...	....	...	....	30	63.5	...	....
1885-1886	...	....	...	....	39	62.8	...	....
1886-1887	...	....	...	....	31	62.5	...	....
1887-1888	...	....	...	....	44	63.5	...	....
1888-1889	...	....	...	....	52	62.9	...	....
1889-1890	...	....	...	....	59	63.4	...	....
1890-1891	...	....	...	....	51	63.4	...	....
1891-1892	94	62.4	...	....	113	63.1	207	62.8
1892-1893	91	63.2	...	....	127	63.0	218	63.1
1893-1894	89	63.0	...	....	129	63.1	218	63.0
1894-1895	124	63.3	...	....	105	63.4	229	63.4
1895-1896	108	63.0	...	....	146	63.0	254	63.0
1896-1897	127	63.4	...	....	164	63.5	291	63.4
1897-1898	124	63.2	...	....	201	63.5	325	63.4
1898-1899	124	63.2	...	....	185	63.5	309	63.4
1899-1900	117	63.5	300	63.2	218	63.6	635	63.4
1900-1901	118	63.4	335	63.6	222	63.8	675	63.6
1901-1902	104	63.8	262	63.5	290	63.9	656	63.7
1902-1903	150	63.8	309	63.6	220	63.7	679	63.7
1903-1904	102	64.9	307	63.7	207	64.2	616	64.2
1904-1905	39	62.9	403	63.3	247	64.0	689	63.4
1905-1906	78	63.5	406	63.6	208	63.8	692	63.6
1906-1907	158	63.8	469	63.0	160	64.0	787	63.6
1907-1908	180	63.6	445	63.2	295	63.8	920	63.5
1908-1909	63	63.5	494	60.9	286	64.2	843	62.9
1909-1910	133	63.9	501	63.4	260	64.2	894	63.8
1910-1911	193	63.6	454	63.5	267	63.8	914	63.6
1911-1912	131	63.8	414	63.8	256	64.3	801	63.9
1912-1913	91	63.7	480	63.2	276	64.1	847	63.7
1913-1914	146	63.7	498	63.6	296	64.2	940	63.8
1914-1915	168	63.9	545	63.6	343	64.1	1,056	63.9
1915-1916	178	63.7	526	63.7	303	64.2	1,007	63.8
1916-1917	170	64.0	642	63.6	227	64.1	1,039	63.9
1917-1918	238	64.2	646	64.1	241	64.4	1,125	64.2
1918-1919	276	63.8	730	64.3	228	64.5	1,234	64.2
1919-1920	157	63.6	479	64.1	242	64.4	878	64.0
1920-1921	299	64.0	504	64.0	296	64.7	1,099	64.2

* Stanford, 4,170; Smith, 10,149; Vassar, 7,064.

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[1] Mosher, C. D.: Concerning the Size of Women, Preliminary Note, California State J. Med. **19**: 53 (Feb.) 1921; The Height of College Women, Second Note, M. Woman's J., November, 1921.

[2] Newcomer, Mabel: The Physical Development of Vassar College Students, 1884-1920, Quart. Pub. Am. Stat. A., December, 1921.

ments[3] of 10,149 women during a period of twenty-two years.

Table 1 gives the data concerning height for Stanford University, Vassar College and Smith College individually in year groups, with the number of cases, and the average height for each year, and also shows the same data for 21,383 women, the combined examinations from the three institutions.

Table 2.—*Average Height of 4,170 Stanford University Women by Ten-Year Periods (from Table 1)*

Years in 10-Year Periods	Number of Women	Average Height, Inches
1891-1892 to 1900-1901 (inclusive)...........	1,116	63.2
1901-1902 to 1910-1911 (inclusive)...........	1,200	63.6
1911-1912 to 1920-1921 (inclusive)...........	1,854	63.9

Table 2 gives the same data for Stanford women by decades.

Consideration of the average height of college women either separately in terms of the individual college and university group, or in terms of the measurements of the 21,383 examinations of women from Stanford, Vassar and Smith combined, shows the same increase (Table 1). We may therefore conclude that college women have increased in average height 1.2 inches or more in the last thirty years.

A careful study of the 4,170 women who entered Stanford University during the last three decades shows that while the range in height has remained about the same (14 inches), there has been an increasing number of women in the upper end of the series; or, in other words, while there are women coming to the university just as short in height as during the first decade, their number is decreasing, while at the same time the number of tall girls is increasing. Not every woman has gained in height 1.2 inches, but an increasing number of women who are tall are entering the university.

EXPLANATIONS FOR INCREASED HEIGHT OF WOMEN

Is the increase in height during these later years due to the greater admixture of the northern races through immigration? This does not appear to be the case.

The arguments against this are several. First, this increase in height is found in a western university and in two eastern colleges. There is a greater increase in the Vassar height than in the height of the Stanford women. Although the Smith records show a somewhat smaller average increase, yet these records extend over twenty-two years, only a little more than the last two decades, and at both Stanford and Vassar the increase in average height is greater from the first to the second decade than from the second decade to the third. Moreover, the study of the birthplaces of the Stanford women shows that these women are a cross section of the college women of the United States and not a localized group (Table 3). Every state in the Union, with the exception of North Carolina and Delaware, is represented, only about 37 per cent. being from California. There are 135 from the New England states and 127 from Oregon and Washington; 248 from the Middle Atlantic states, as contrasted with 297 from the Mountain states; the Southern states show a smaller attendance in college—the South Atlantic having forty-three, and the East South Central forty-six, together having eighty-nine representatives at Stanford, as contrasted with the West South Central states, with seventy-four daughters in the university; the East North Central states, which have 695 students, are not far away from the West North Central states, which have 703 students, only eight more than in the previous division. Again, may not the question be raised whether the daughters of parents born in other countries are able to go to college in any very great numbers in the first generation? The answer seems to be in the negative; certainly they do not go in sufficient proportion to influence the height in a consideration of 21,383 women who are represented in this study.

It is therefore evident that we must seek some other explanation for the increased height of women than either a greater percentage of the northern races due to immigration, or the presence of westerners who are known to be on the average somewhat taller than eastern people.

Table 3.—*Birthplaces of 4,170 Stanford Women by Decad*

New England States (135)	First Decade	Second Decade	Third Decade
Connecticut....	8	5	13
Maine..........	13	9	11
Massachusetts.	21	14	19
N. Hampshire..	4	3	1
Rhode Island..	2	1	2
Vermont.......	6	2	1
Total No. ...	54	34	47

Pacifis States (1,704)	First Decade	Second Decade	Third Decade
California.....	364	440	[illegible]63
Oregon.........	29	16	35
Washington...	11	1[illegible]	30
Total No. ...	404	472	828

Middle Atlantic States (248)	First Decade	Second Decade	Third Decade
New Jersey.....	5	10	11
New York......	67	36	36
Pennsylvania..	32	22	29
Total No. ...	104	68	76

Mountain States (297)	First Decade	Second Decade	Third Decade
Arizona........	2	7	15
Colorado......	8	29	61
Idaho..........	2	6	17
Montana.......	4	16	27
Nevada........	19	10	9
New Mexico....	4	4	3
Utah...........	3	11	26
Wyoming......	4	2	8
Total No. ...	46	85	166

South Atlantic States (43)	First Decade	Second Decade	Third Decade
Dist. Columbia	4	4	5
Florida........	0	2	1
Georgia........	1	3	1
Maryland......	1	3	3
So. Carolina...	1	0	2
Virginia........	5	1	1
W. Virginia....	1	2	2
Total No. ...	13	15	15

East South Central States (46)	First Decade	Second Decade	Third Decade
Alabama.......	2	1	1
Kentucky......	9	6	7
Missouri.......	4	1	1
Tennessee......	2	3	7
Total No. ...	17	11	20

East North Central States (695)	First Decade	Second Decade	Third Decade
Illinois.........	89	70	106
Indiana........	48	29	50
Michigan.......	23	23	34
Ohio...........	47	47	29
Wisconsin......	37	24	37
Total No. ...	244	193	258

West North Central States (703)	First Decade	Second Decade	Third Decade
Iowa...........	71	82	94
Kansas.........	24	40	54
Minnesota.....	19	20	55
Missouri.......	24	37	42
Nebraska......	10	32	48
N. & S. Dakota	1	20	30
Total No. ...	149	231	323

West South Central States (74)	First Decade	Second Decade	Third Decade
Arkansas......	3	6	5
Louisiana......	3	2	2
Oklahoma.....	0	0	7
Texas..........	3	10	33
Total No. ...	9	18	47

Foreign Born	First Decade	Second Decade	Third Decade
Alaska.........	0	1	1
Hawaii.........	2	6	2
Foreign........	56	32	53
Unknown......	18	34	20
Total No. ...	76	73	76

It is quite true that the average height of California women is slightly greater than the height of non-California women, as shown in Table 4. But the inclusion of a greater number of Californians in the later decades will not account for the increase in height, for it will be noted that the non-Californians increased in height to a much greater extent than did the Californians. That the non-Californians have shown a greater increase in height than have the Californians is an indirect proof of the contention that exercise and more hygienic clothing are among the causal factors in the development of this finer physical type of woman.

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[3] Smith College Statistics, New York Herald, May 9, 1921. These were submitted to Miss Elizabeth Richards of Smith College for correction and approval, after having been arranged to correspond to the Stanford and Vassar figures.

TABLE 4.—*Height of Californians and Non-Californians by Decades* *

Ten-Year Groups	Californians		Non-Californians		Total of Californians and Non-Californians	Birth-places Unknown; No. of Women
	No. of Women	Average Height, Inches	Average Height, Inches	No. of Women		
1891-1892 to 1900-1901 (inclusive)	364	63.4	63.0	745	1,109	7
1901-1902 to 1910-1911 (inclusive)	440	63.8	63.7	722	1,162	38
1911-1912 to 1920-1921 (inclusive)	763	63.9	63.8	1,072	1,835	19
Total..........	1,567	63.7	63.5	2,539	4,106	64

* Eight women were known to be non-Californians but the birth state was unknown. Thus there is a discrepancy in Tables 3 and 4 in the number of unknown birthplaces.

The outdoor life with its tramping, climbing, riding and exercise in the open was common to women to a much greater degree in California in the first decade than in the eastern United States. Certainly bicycling, which was one of the chief forms of athletics in the first decade, was almost universal at Stanford, where the limited means of transportation made it an essential to every-day living during those pioneer days. With bicycling came the necessity for shorter, lighter and looser clothing. It became imperative to discard the voluminous skirts measuring from 9 to 15 feet in diameter, which often weighed as much as 7 pounds,[4] and thus here and there some venturesome college girl tried something in the way of dress which was the forerunner of the sport suit of today.

In my first paper, "Concerning the Size of Women," [1] it was stated after a general survey of all the available data that two great factors are concerned in these results: (1) the change in fashion, making possible the wearing of clothing which interferes less with the hygiene of the woman (2) the increased physical activity, which has been brought about by the (*a*) change in dress; (*b*) development of physical training and sports in the secondary schools as well as in our colleges, and (*c*) change in the conventional attitude toward these activities for women.

INCREASED PHYSICAL ACTIVITY OF WOMEN

Let us consider, first, the increased physical activity of women. It is a matter of common knowledge that the modern college girl is more physically active than the women of thirty years ago, but the Vassar studies make a real contribution to this subject. From 1896 to 1900, 26.5 per cent. of the entering students at Vassar College had engaged in no form of sport before coming to college; from 1916 to 1920, only 0.6 per cent. reported no sports before admission to the college. This almost universal physical activity during the preparatory years has been fostered, not only by the laws for compulsory physical training in the secondary schools, but also by the municipal play grounds and swimming pools. This eagerly to be desired, more fully developed woman will, therefore, be found in constantly increasing numbers among all classes of women, those who go to college and those who do not go, thus insuring better wives and mothers, and consequently a better race.

INFLUENCE OF FASHION

The other factor is the influence of fashion. It has already been noted that, with increasing physical activity, a change to lighter and looser clothing was made and fashion was forced to adapt itself to the introduction of the bicycle and automobile. The changes in fashion have been studied by A. L. Kroeber,[5] the anthropologist, who has traced these variations over a period of more than sixty years. His figures for twenty-nine years of the period covered by the Stanford measurements have been plotted in curves. The ratios given for the width of skirt, the length of skirt, and the width of waist throw some light on the problem of the relation of change in fashion to increased height and functional disability, as shown by the Stanford studies on these two subjects.

The detailed curves after Kroeber are given, and also the average curve, which shows even more clearly the gradual narrowing and shortening of the skirt and at the same time the increased breadth of waist.

In any consideration of the advantages to the health of women in the narrowing and shortening of the skirt, we must bear in mind that I am not referring to such vagaries of fashion as are represented in the detailed curve for the year 1911, and again in 1920, developments which would be just as hampering to freedom of motion as were the heavy, voluminous skirts, although the excessive narrowness was compensated for in part, at least, by an equally and unduly excessive shortening. These very extreme styles were of relatively short duration and therefore of minor significance. The trend of the curve, when studied in connection with the Stanford curves for periodic disability and height, shows an unmistakable parallel.

TABLE 5.—*Arithmetical Means of Girth of Waist of Vassar College Students, 1884-1920* *

Year	No. of Women	Mean, Cm.	Standard Deviation, Cm.	Year	No. of Women	Mean, Cm.	Standard Deviation, Cm.
1884......	30	65.2	4.6	1903......	206	60.5	4.9
1885......	39	63.2	3.6	1904......	248	59.0	4.8
1886......	31	62.7	6.4	1905......	208	60.0	4.6
1887......	44	62.7	4.3	1906......	160	61.5	5.4
1888......	53	62.9	3.8	1907......	293	61.2	5.5
1889......	59	62.7	3.9	1908......	283	61.0	5.1
1890......	51	62.1	4.9	1909......	267	63.8	5.5
1891......	112	63.0	4.5	1910......	263	63.3	5.0
1892......	127	62.6	3.6	1911......	254	63.8	4.9
1893......	127	62.7	4.0	1912......	274	63.9	5.2
1894......	107	62.5	5.1	1913......	297	63.9	4.5
1895......	146	62.7	4.4	1914......	340	65.4	4.4
1896......	160	59.6	4.2	1915......	307	65.6	5.0
1897......	199	60.2	4.1	1916......	227	65.6	4.7
1898......	183	60.9	4.8	1917......	239	64.9	4.3
1899......	216	61.2	4.8	1918......	...	....	...
1900......	223	61.0	4.4	1919......	240	65.1	4.4
1901......	283	60.6	4.5	1920......	296	65.3	4.1
1902......	220	60.8	4.5				
Total................................					6,812	62.7	5.1

* Newcomer, Mabel: The Physical Development of Vassar College Students, 1884-1920, p. 979.

Reliable data on the menstrual conditions of the women at Stanford were available only for the years 1893, 1894, 1895, 1912, 1913, 1914, 1915, 1916 and 1917. In an earlier paper I discussed the unreliability of general statements about the menstrual function as collected from the women concerning themselves.[6] The records for the years mentioned I can personally vouch for as being as reliable as single statements can be made. No case in which there was pain has been overlooked. The close relation between these changes in fashion and the relief from menstrual pain is obvious. This relation has been repeatedly shown in my clinical experience, but lack of space prevents the citing of cases. The evil effect of heavy clothing is also reflected in the percentage of pain at the menstrual period, as shown in the Stanford no dysmenorrhea curve, which from 1911 to 1917 steadily rises, until in 1915 and 1916 it shows that 68 per cent. of the women were free from pain at the time of menstruation—a great contrast to 1894, when there were but 19 per cent who did not suffer pain at their menstrual periods.

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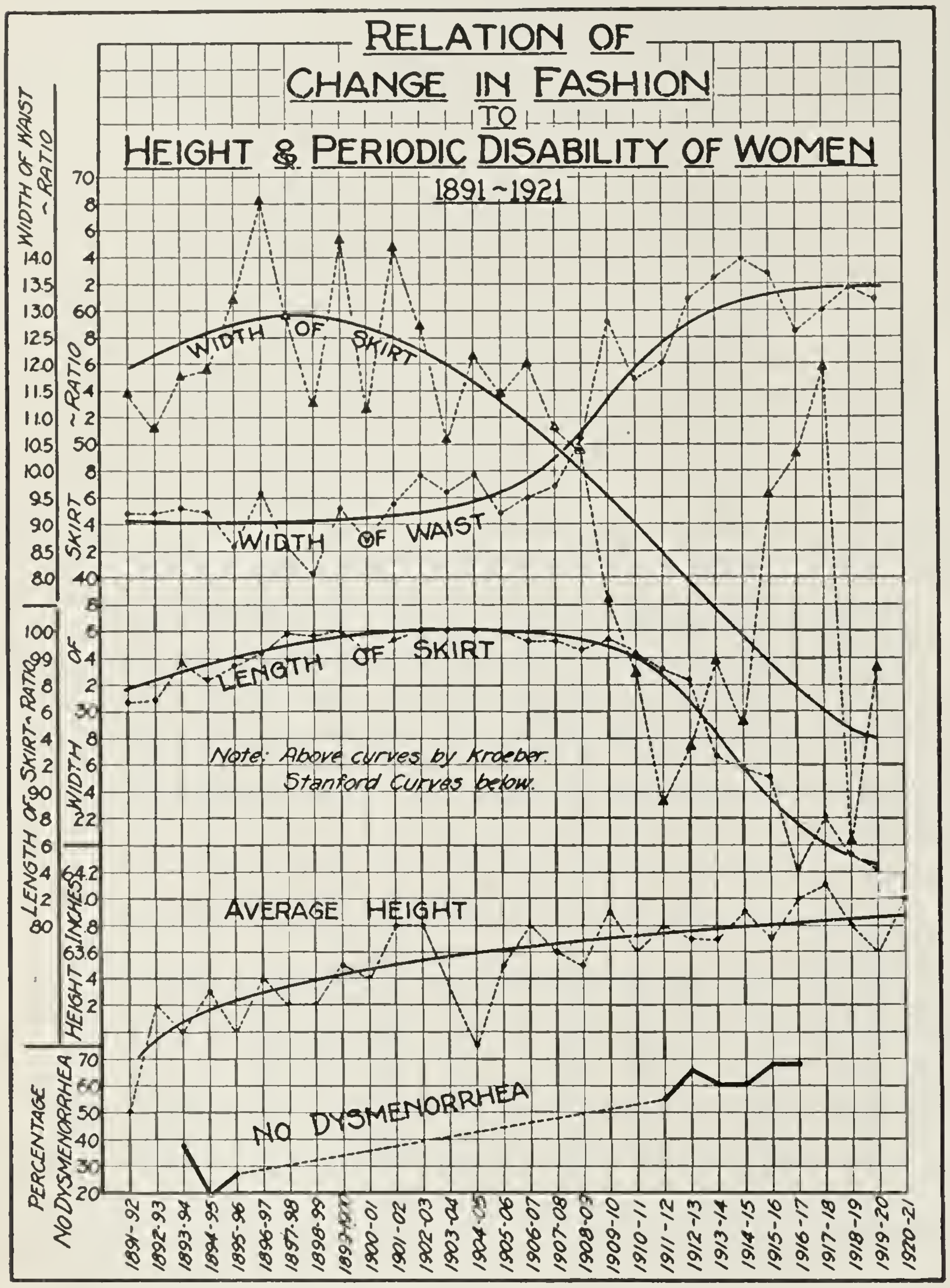
[4] Mosher, C. D.: Health and the Woman Movement, Ed. 2, New York, Woman's Press, 1918, p. 22.

[5] Kroeber, A. L.: On the Principle of Order in Civilization as Exemplified by Changes in Fashion, Am. Anthropologist **21**: 235-263, 1919.



Relation of change in fashion to height and periodic disability of women, 1891-1921.

The Vassar investigation in regard to the girth of waist is shown in Table 5. It will be noted that there was a steady decrease in the girth of waist up to 1904, and a steady increase from 1904 to the present time. This is readily explained by the study of Dr. Kroeber's curve for breadth of waist given in the accompanying chart. As breadth of waist is a fair indicator of the degree of compression, it is not surprising that the demand of fashion for a small waist should be evident in the ratio of less than 0.5 up to 1904, while as this demand gradually lessened, the ratio changed to 3.5 from 1905 to 1919. The ratios should be correlated with a decreasing girth of waist as a result of continuous compression over a period of years. When the demand of fashion for a small waist finally ceased, the increase in width of waist occurred, as shown in the curve from 1904 to 1921. To this is related the increase previously considered in the number of women who do not suffer pain at menstruation.

RELATION OF CHANGE IN FASHION TO INCREASED HEIGHT

How is this change in fashion, which permits more normal functioning and greater freedom of exercise, related to increased height?

One of the serious problems in regard to college girls during the early days was how to induce these delicate, undeveloped women to eat enough nourishing food. The girl of this first decade lacked appetite. The vigorous modern girl, physically fit, eats in season and out, and is as hard to satisfy as a growing boy—and for the same reason: the body is working normally and needs more food for growth and development. Here we find a reasonable explanation of the fact that the woman not only functions more perfectly, but weighs more and is growing taller, while, as was demonstrated in 1917, the difference in muscular strength[7] between men and women is due to the difference in use of muscles and not to sex.

This more fully developed and more perfectly functioning woman is well fitted for motherhood, while her desire for children is shown by the fact that she no sooner comes out from under the anesthetic at one labor than she begins to plan for the coming of her next baby.

In this age, when questions of population and the falling birth rate are of such vital import, it behooves us to give attention to every factor that has any bearing on this subject.

It is time that we ceased thinking in terms of the unfitness and weakness of women. This splendid modern woman, grown taller and more vigorous because, freed from restricting fashions of dress, she exercises more and consequently eats more, has become better fitted to be the mother of finer sons and daughters, the promise of a stronger race.

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[6] Mosher, C. D.: Functional Periodicity in Women and Some of the Modifying Factors, Second Note, California State J. Med., January and February, 1911; M. Woman's J., April, 1911; Am. Phys. Ed. Rev., November, 1911.

[7] Mosher, C. D., and Martin, E. G.: Muscular Strength of College Women, J. A. M. A. **70**: 140 (Jan. 19) 1918. The Strength of Women, Proceedings of the International Conference of Women Physicians **1**: 160, 1919.

Fatigue and Tuberculosis.—For the tuberculous, fatigue is the flash from the focus, and he who acknowledges the message by immediately throwing on the brakes is the patient whom we can appoint engineer of his own case. The patient who never pushes himself to the point of fatigue, or who at once stops short when it is upon him, will never delay his "cure" by any measures within his control, but will hasten it. —Allen K. Krause.

THE CLASSIFICATION OF HEART PAIN *

PAUL D. WHITE, M.D.
AND
J. EDWIN WOOD, M.D.
BOSTON

Heart pain may be a very important symptom or it may be negligible. Its general interpretation is so obscure and vague that we have made an attempt to work out a provisional classification of practical value in the clinic, where in the past there has tended to be confusion, such as the partial and unsatisfactory separation of pseudo-angina pectoris from true angina pectoris. We have found that apparently more important in the analysis of the pain than its position and character is the underlying cause. Therefore our classification is mainly etiologic.

HISTORICAL

Very little was written by early medical authorities on the subject of heart pain. Hippocrates mentioned breast pain but without connecting it with the heart. Coelius Aurelianus took scant notice of pain in the breast, and Erasistratus wrote of a "kind of paralysis by which walkers are suddenly seized," forcing them to halt for a moment; but whether this symptom was heart pain or intermittent claudication or some other condition is not clear. Galen did not mention breast pain.

In more recent times, Morgagni and Rougnon described cases of probable angina pectoris, but it was not until Heberden (1710-1801) wrote his "Commentaries on the History and Cure of Diseases" that a good description of the so-called angina pectoris was recorded. These commentaries, consisting of original bedside notes and discussion collected to 1782, contain a chapter on pectoris dolor. Thus it is evident that Heberden recognized not only the severe anginal type of pain but also other types of breast pain. In the course of this chapter he wrote:

> But there is a disorder of the breast marked with strong and peculiar symptoms, considerable for the kind of danger belonging to it, and not extremely rare, which deserves to be mentioned more at length. The seat of it, and sense of strangling and anxiety with which it is attended, may make it not improperly be called angina pectoris.

Further remarks about this severe type of heart pain by Heberden are so instructive and interesting and so little heeded that they deserve quotation.

> The pulse is, at least sometimes, not disturbed by this pain, as I have had opportunities of observing by feeling the pulse during the paroxysm. Males are most liable to this disease, especially such as have past their fiftieth year. . . . I have seen nearly a hundred people under this disorder, of which number there have been three women . . . (The pain may be brought on not only by exertion, excitement or meals, but also) by swallowing, coughing, going to stool, or speaking.
>
> The angina pectoris, as far as I have been able to investigate, belongs to the class of spasmodic, not of inflammatory, complaints. For
>
> In the first place, the access and the recess of the fit is sudden.
>
> Secondly, there are long intervals of perfect health.
>
> Thirdly, wine, and spirituous liquors, and opium, afford considerable relief.
>
> Fourthly, it is increased by disturbance of the mind.
>
> Fifthly, it continues many years without any other injury to the health.
>
> Sixthly, in the beginning it is not brought on by riding on horseback, or in a carriage, as is usual in disease arising from scirrhus, or inflammation.
>
> Seventhly, during the fit the pulse is not quickened.
>
> Lastly, its attacks are often after the first sleep, which is a circumstance common to many spasmodic disorders.
>
> On opening the body of one, who died suddenly of this disease, a very skillful anatomist could discover no fault in the heart, in the valves, in the arteries, or neighbouring veins, excepting some small rudiments of ossification in the aorta. The brain was likewise everywhere sound.
>
> With respect to the treatment of this complaint, I have little or nothing to advance: nor indeed is it to be expected we should have made much progress in the cure of a disease, which has hitherto hardly had a place, or a name in medical books. Quiet, and warmth, and spirituous liquors, help to restore patients who are nearly exhausted and to dispel the effects of a fit when it does not soon go off. Opium taken at bed-time will prevent the attacks at night.

It is interesting to observe that little advance has been made in the treatment of this condition in the last hundred and fifty years. The introduction of nitrites, the tendency to enforce absolute rest, and now the possible relief by surgical intervention (such as Jonnesco's operation) are the only steps forward in combating this condition, which has seemed to grow more and more common.

One final observation by Heberden is worth noting. He cited the case of a man, aged 60, who had an uneasy sensation in his left arm without breast pain. Heberden's diagnosis of angina pectoris sine dolore seemed to be confirmed by the sudden death of the patient.

In 1799, Parry of Bath confused Heberden's clear description of severe paroxysmal heart pain by writing his book, entitled "An Inquiry Into the Symptoms and Causes of the Syncope Anginosa, Commonly Called Angina Pectoris." The fainting attacks of cardiac origin, so well described later by Adams and Stokes, should not, of course, be confused with heart pain. As long ago as these early authorities, Heberden, Parry and Jenner, there was much controversy as to the cause of the severe paroxysmal heart pain. This controversy still exists at the present day, represented largely on the one hand by the followers of Sir Clifford Allbutt, who consider aortic disease and distention of the aortic walls the cause of the pain of angina pectoris, and, on the other hand, by the majority of authorities in cardiovascular disease, represented by Sir James Mackenzie, who consider it due to the acute myocardial fatigue of ischemia. Among the other less popular theories is that of the production of the severe pain by acute dilatation of the heart from overstrain. Jenner, at the end of the eighteenth century, and Allan Burns, in 1809, considered coronary artery disease responsible for angina pectoris.

In 1846 Latham wrote very cautiously concerning the etiology of angina pectoris thus:

> Our knowledge then of angina pectoris stops short with its symptoms. The idea of it cannot be made to rest in any definite form of disease beyond them. We are sure of what it is as an assemblage of symptoms. We are not sure of what it is as a disease.

Always much more attention has been paid by medical authors to the question of what theory is the most reasonable in explanation of angina pectoris than in

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* Read before the Association of American Physicians, Atlantic City, N. J., May 1, 1923, and Bristol County Medical Society, Fall River, Mass., May 3, 1923.

any attempt to distinguish between the various types of heart pain. Sir James Mackenzie has gone further in this regard than any one else, but it seems to us that he has not sufficiently differentiated the etiologic types of pain. He includes under the term angina pectoris much that should be classed as dolor pectoris instead. "Angina" literally means "strangling," while "dolor" is "pain." Mackenzie has written:

> If a large number of cases be studied, symptoms of angina pectoris will be found to arise in patients with the most diverse forms of lesion, and even in patients without any evidence of cardiac disease. In the appendix I quote a number of cases from which it will be seen that angina pectoris can arise in cases of overstrain, aortic aneurysm, aortic valvular disease, atheroma of the coronary arteries, myocardial degeneration or enfeeblement of the heart muscle from poor nourishment, increased arterial pressure, sudden changes in the rate and rhythm of the heart, temporary conditions of an obscure origin, and "senile" changes. . . . In predisposed individuals, all circumstances which throw more work on the left ventricle induce an attack of angina pectoris.

CLASSIFICATION

We have found that a satisfactory classification etiologically of heart pain is into the following groups: (1) Simple fatigue pain of either ventricle or of both; (2) "irritable heart" pain; (3) paroxysmal heart pain; (4) pain of coronary thrombosis; (5) aortic pain, and (6) pain of pericarditis. As will be seen, this separation according to etiology is more helpful than separation according to position or severity.

1. *Simple Fatigue Pain.*—Muscle fatigue is without much doubt responsible for the great majority of heart pains. Any muscle, when exhausted, tends to become painful. This fatigue pain may be the result of a number of different factors. It may occur in the case of the hypertrophied hearts of chronic hypertension or of aortic regurgitation or aortic stenosis or of adherent pericarditis as a sign largely of left ventricular fatigue. It may occur in the case of the hypertrophied hearts of chronic and well marked mitral stenosis or congenital pulmonic stenosis as a sign of right ventricular fatigue. Dr. James P. O'Hare, in a recent analysis of a hundred cases of essential or vascular hypertension, found that in these patients "cardiac pain is most commonly present as a dull ache in the region of the apex and lower precordia. Pain at the base of the heart, apart from the classical angina pectoris, is less common. Typical angina occurred in only three of our cases." This has also been our experience.

Uncomplicated mitral stenosis may or may not give rise to precordial pains and aches. Such discomfort comes mostly on exertion and is apt to be brief and sharp, but sometimes is a dull ache. It has been present in about half of our cases of well marked uncomplicated mitral stenosis. It has not been right-sided. With complications such as auricular fibrillation, congestive failure, marked nervousness, or further valve lesions, precordial pain is found more frequently, but by no means constantly. Aortic regurgitation, aortic stenosis and pulmonary stenosis similarly may or may not be attended by heart pain, precordial in position.

Fatigue pain may sometimes occur in arteriosclerotic heart disease where the coronary arteries are so narrowed permanently that the myocardium is insufficiently nourished with blood, a sign of fatigue of either, or often of both, ventricles. This does not include the paroxysmal pain, the so-called true angina pectoris, although in the past the two types have been confused, as by Burns in 1809.

Fatigue pain may also result from the added effort due to paroxysmal tachycardia or paroxysmal auricular fibrillation or flutter (causes of many cases of so-called acute dilatation), or permanent fibrillation or flutter when the ventricular rate is not under digitalis control. It may occur with congestive failure, no matter what the cause. In fact, taken by itself in the presence of some one of the structural lesions or functional disturbances mentioned above (and in the absence of excessive nervous irritability), this type of heart pain probably should be regarded as an early symptom of the so-called congestive type of failure, which may not advance beyond this point. Confirmation of this fact lies in the observation that either rest or digitalis decreases or abolishes this type of heart pain.

A therapeutic test with digitalis is always of value when the diagnosis is doubtful, without changing in other ways the method of life of the patient during the test. Nitroglycerin is without effect. In this way, by the comparison of the effects of the two drugs, digitalis and nitroglycerin, a differentiation can be made between simple fatigue pain and the paroxysmal pain of angina pectoris. When neither drug helps we may need to rely on antisyphilitic therapy (especially potassium iodid) in aortic pain, or morphin for the pain of coronary thrombosis or on bromids or other sedatives for nervous heart pain.

It must always be remembered that the more sensitive the nervous system of the individual, the lower the threshold and the less the abnormality needed to produce pain. This undoubtedly is one reason for the different reactions in symptomatology in different individuals afflicted apparently by the same pathologic condition. There would seem to be other cause or causes for the variable occurrence of heart pain of which we know little or nothing at present.

2. *Nervous Heart Pain.*—Just how far the heart pain of effort syndrome may be included under the heading of the fatigue type is uncertain. It seems more likely that it should be classed separately. In the absence of extreme overexertion it is found in nervous, high-strung individuals, old or young, but more likely the latter. It is the result of excitement as often as of effort. It would seem to be the result of overaction of the heart in a person with a low sensory threshold. Then, too, there is an exaggeration of the importance of even a slight pain if it happens to be in the region of the heart, particularly if the physician consulted by the patient is also doubtful about it or considers it definite evidence of heart trouble.

Mackenzie writes:

> The majority of these cases are highly strung nervous people, and especially women. They have frequently been exposed to some strain, mental or physical, and their cardiac symptoms may be but a part of the manifestation of ill health. We find such symptoms frequently at the menopause, or when the patient is subject to some other complaint, as intestinal stasis or poisoning from some microbic infection. I have watched such individuals for over twenty years.

During the war, of course, there were many thousands of such patients in every army, most of them inheriting a sensitive nervous system and further depressed by fatigue, hardship or infectious disease. Even the most robust soldier, however, if enough exhausted, may show symptoms.

There seems at times to be some definite connection between the glands of internal secretion and irritable heart pain. We have seen three women who for years had suffered from heart pain following double oophorectomy. In all three considerable relief followed the administration of ovarian extract.

Both the ordinary fatigue pain and that of the nervous heart vary much in intensity. Generally the pain consists of a precordial ache, but at times it may be so severe that there is a sharp and knifelike stab in the precordia, with radiation to the back, left shoulder or axilla, and down the left arm to the finger tips and even to the right side of the body. In the case of fatigue pain, exertion is practically always the exciting factor. In the case of the pain of the so-called nervous heart (or effort syndrome), excitement may produce more pain than effort. While rest and digitalis act to relieve or to diminish the likelihood of the fatigue pain, reassurance and nerve sedatives act best in the case of the "nervous heart" pain. Nitroglycerin is of no avail.

3. *Paroxysmal Heart Pain.*—Although we do not yet know the mechanism of the production of the paroxysmal heart pain called angina pectoris, it is a definite symptom of heart disease and should be classed separately.[1] Most of the cases of so-called pseudo-angina pectoris belong in this group, the others fitting into one of the other groups: fatigue, nervous or aortic pain. The misleading term pseudo-angina should be dropped altogether.

Paroxysmal heart pain may be brought on in susceptible hearts of older people by any stimulus, whether exertion, excitement, cold air, food in the stomach, or gas in the bowels, and, when more severe, may occur when the person is quiet in bed without an obvious exciting factor. It is essentially of paroxysmal nature without pulse disturbance, substernal or precordial in site of origin and dramatically relieved by the nitrites and not by digitalis. It is important, as Heberden pointed out, to remember that pain and not disturbed rhythm is characteristic of this condition; we have seen a number of cases of older people with paroxysmal auricular fibrillation wrongly diagnosed and unwisely warned and treated as angina pectoris. It is also interesting to recall Heberden's early observation that alcohol acts favorably to prevent or even to stop the pain. We have found that brandy and whisky in small doses actually prevent the attacks of pain or greatly reduce their frequency and intensity.

The fatigue pain of hypertension, of mitral stenosis and of paroxysmal tachycardia, the nervous heart pain of young people and the substernal pain of syphilitic aortitis, must be differentiated from this paroxysmal pain of probable coronary disease.

The paroxysmal pain is a relatively rare finding in large public hospitals, since it is more a condition induced by the nervous strain of business and professional life. In private cases it is seen frequently, thirty-six patients with the condition having consulted us during the last year. Prof. K. F. Wenckebach of Vienna states that patients with this paroxysmal pain of true angina pectoris are very numerous now in Vienna as compared with years ago, probably as the result of the strain of the great war and its consequences.

It is apparently particularly true in the case of the paroxysmal heart pain that the more nervous the victim the less need be the abnormality. Stolid people may live to the age of 70 years and give the first evidence of heart trouble when they drop in a Stokes-Adams attack; sensitive people may have barely reached the age of 40 years when they begin to have typical paroxysmal heart pain. The recognition of this fact is probably of much importance both in prognosis and in treatment. It must be remembered, too, that the paroxysmal pain of angina pectoris may be slight in degree, especially in its early stages. A fairly long life is still possible after the first appearance of the pain. This is well exemplified in the case of John Hunter himself, who survived by more than twenty years the onset of his angina pectoris. He further illustrates the favorable prognosis for life that is likely in a person of highly nervous temperament. Sometimes pseudo-angina pectoris has at first been diagnosed in such cases, sudden heart death later on showing the diagnostic error.

Mackenzie has written interestingly of the variation of individual response.

> It is a well-recognized fact that seemingly identical lesions of the heart give rise to different phenomena in different people. This difference is seen especially in the reaction of different individuals to pain-producing stimuli. It is probably because of this individual peculiarity that we find angina pectoris the expression of a grave lesion in others, while in many pain is absent in even the most advanced cases of disease and heart failure. Experience has taught me to look on angina pectoris from a twofold aspect, an expression of cardiac exhaustion and also an expression of a susceptible nervous system.

Estimation of the nervous irritability of the patient is thus of great importance in judgment of the symptom of heart pain. Simple observation of the patient is of chief importance in making this estimate. The history, past and present, and particularly the family history from the standpoint of the nervous system, the activity of the reflexes, and the reaction to stimuli, such as excitement and coffee, are helpful. Dr. Libman of New York has used for years the test of pressure on the styloid process to judge the individual's sensitiveness.

Radiation of heart pain depends largely on the intensity of the pain. The more severe the pain, the greater its radiation. Since the paroxysmal pain of angina pectoris is likely to be the severest heart pain of all, its radiation tends to be greatest. But even in other types of heart pain, relatively unimportant so far as life is concerned, the pain may be severe enough to radiate to the finger tips.

An attempt has been made to distinguish between right ventricular and left ventricular pain. Rarely this has seemed possible; we have seen two cases of right sided pain showing at postmortem examination much more involvement (practically occlusion) of the right coronary artery than of the left. All sorts of variations in the position of heart pain and its radiations occur, such as burning sensations in the right or left wrists actually preceding the pain in the thorax, somewhat similar to the famous case cited by Heberden of "angina pectoris sine dolore." Further study of these variations is necessary.

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[1] It is likely that coronary irritability causes paroxysmal heart pain by giving rise to coronary spasm, and thus to acute anemia and acute exhaustion of the myocardium. There does not need to be extensive arteriosclerosis or, indeed, possibly any macroscopic pathologic condition at all. In fact, the more abnormal and hard an artery, the less possibility of vasoconstriction. It is therefore conceivable that the condition may be an early sign of coronary disease and not a late one. Since the process of arterial change is usually not uniform, there may be for many years some vessels just diseased or irritable enough to produce the paroxysmal pain. But no matter what the cause, the type is clear.

4. *Pain of Coronary Thrombosis.*—Rapid blocking of a large coronary vessel, almost always thrombosis of a sclerosed artery, is accompanied usually by long continued heart pain of very severe nature, not relieved by rest, digitalis or the nitrites, and requiring repeated doses of morphin. The seat of the pain is generally precordial or substernal, but now and then it is abdominal, particularly epigastric, or right or left hypochondrial, and in such instances it is likely to be confused with acute abdominal conditions, such as gallstone colic or perforation of a peptic ulcer. Recovery may occur in spite of the extreme severity of the pain and the gravity of the condition.

5. *Aortic Pain.*—In aortic disease of syphilitic origin—that is, syphilitic aortitis and aneurysm—there is a fairly characteristic dull high substernal ache, sometimes increased to a sharper pain and even radiating, but not paroxysmal. This does not respond to digitalis, rest or nitroglycerin, but tends to melt away under antisyphilitic treatment. It is likely that potassium iodid has gained some of its great reputation through its action in this type of case. It must be remembered that in syphilitic aortitis, in addition to the aortic pain, involvement of the coronary arteries may give rise apparently to the typical paroxysmal pain of coronary disease.

6. *Pains of Pericarditis* (and of hepatic engorgement).—Finally, there are also the transient pains of acute fibrinous pericarditis (and the epigastric and right hypochondrial distress of engorgement of the liver due to congestive cardiac failure) which are generally easily recognized.

Mention should be made of the probable coexistence in various cases of pains of different type; for example, the fatigue pain of mitral stenosis and the pain of the nervous heart in a neurotic woman with advanced mitral stenosis, or the aortic pain of syphilitic aortitis and the fatigue pain of aortic regurgitation, perhaps also the paroxysmal pain of angina pectoris in a middle-aged man with cardiovascular syphilis. (In syphilitic aortitis there is frequent involvement of the mouths of the coronary arteries.) In such cases the analysis of the pain is difficult but interesting.

SUMMARY

Heart pain may be thus classified:

1. Simple fatigue pain:
    - (*a*) Chronic hypertension.
    - (*b*) Aortic stenosis or regurgitation.
    - (*c*) Mitral stenosis.
    - (*d*) Pulmonic stenosis—congenital heart disease.
    - (*e*) Adherent pericarditis.
    - (*f*) Paroxysmal tachycardia or paroxysmal auricular fibrillation or flutter.
    - (*g*) Permanent auricular fibrillation or flutter with high ventricular rate.
    - (*h*) Permanent coronary narrowing due to arteriosclerosis.
2. Nervous heart pain, including effort syndrome.
3. Paroxysmal heart pain (probably of coronary disease or irritability), the so-called true angina pectoris.
4. Pain of coronary thrombosis.
5. Aortic pain, of syphilitic aortitis and aneurysm.
6. Pain of pericarditis.

Frequently, combinations of these factors occur.

CONTRIBUTION TO THE PATHOLOGIC PHYSIOLOGY OF BOTULISM *

CHARLES W. EDMUNDS, M.D.
AND
PERRIN H. LONG
Professor of Materia Medica and Therapeutics, and Assistant in Pharmacology, Respectively, University of Michigan Medical School
ANN ARBOR, MICH.

During the last few years, an increasing interest has been taken in the form of food poisoning known as botulism. The condition is by no means a new one, as it has been recognized and described for almost 200 years. In this country, however, numerous outbreaks have occurred recently, and these, on account of certain characteristics, have served to call the attention of both the profession and the laity to the seriousness of the intoxication. That the condition appears in widely separated districts, that it frequently attacks several members of a family, and that its appearance is sudden and its mortality high are all facts which combine to give the outbreaks somewhat of a spectacular nature. With all this interest, however, it has not been possible to arrive as yet at an agreement as to the pathologic foundation for the clinical manifestations of the intoxication.

In one of the most extensive monographs[1] that have appeared on the subject in recent years, it is pointed out that there are two views as to the pathology of the disease, but that as yet the cause of the symptoms, or the way in which the paralysis of the muscles is produced, is unknown. Dickson[1] holds that one of the lesions characteristic of botulism is the thrombosis in the blood vessels of the brain, which was described by Wilbur and Ophuls as occurring in the Stanford fatal case. It was found also in three of the fatal cases described by Dickson, but, as he says, the importance of the thrombi in relation to the clinical symptoms is unknown.

The other view is that the pathologic lesion consists of degenerative changes in the nerve cells in the motor nuclei, a view advanced by Marinesco and supported by later workers. There are serious difficulties connected with accepting either of these views as representing the whole story of the pathology. For one thing, it is hard to explain on the thrombosis theory that there are no sensory symptoms described as an essential part of the disease. This is strange, since the thrombi are supposed to be widespread in the brain vessels. Then, also, the relatively rapid and complete recovery sometimes seen in serious cases is hard to understand if the symptoms are due to thrombi shutting off the circulation to the nuclei in the brain. Finally, thrombi have been found in only a certain number of cases that have been examined pathologically.

The theory that the underlying trouble is due to degenerative changes in the nerve cells is quite attractive, but the difficulty here is that the distribution of these lesions does not correspond to the motor paralysis. For instance, the third cranial nerve is perhaps the one which clinically shows the most constant involvement, and yet here Marinesco found the least severe nerve cell change. These and other facts, which are discussed fully by Dickson, have led him to conclude that there must be some other factor involved than those mentioned. He discusses the possibility that the toxin may act on the terminations of certain nerves, and suggests a similarity between poisoning by belladonna and by botulinus toxin. He cites the dilatation of the pupil, the drying up of the secretions and the inhibition of the intestinal movements as points of similarity, but it must be pointed out that the comparison between the two intoxications is seen only on very superficial examination. For instance, the mydriasis and the drying of the secretions are by no means seen in every case of botulism—the reverse condition of the secretions is by no means uncommon. Then, and perhaps most important, atropin has no action on the terminations of the motor nerves in warm blooded animals, whereas the paralysis of the voluntary muscles is characteristic of botulism.

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* From the Pharmacological Laboratory of the University of Michigan.

* Presented before the Association of American Physicians, Atlantic City, N. J., May 2, 1923.

[1] Dickson: Monograph 8, Rockefeller Inst. M. Res., July, 1918.

As regards such a peripheral motor paralysis, a recent paper by Dickson[2] says that in dogs, cats and rabbits no such paralysis exists—that the motor nerves are normal. He does find some block in the vagus, but this is of an unstable nature, being only temporary.

Finally, as an explanation of some of the vascular changes, the possibility of an action of the toxin on the endothelium of the vessels is suggested. That there may be such an action is supported by the investigations of Warthin,[3] reported recently.

A survey of the literature since the paper by Dickson shows many important contributions to the subject, reports of cases, some with necropsy findings, others with reports as to the various aspects of the bacteriology of the condition; but none, so far as our present purpose is concerned, add anything material to that given in the general discussion above. Many cases have been described in the literature as botulism which are clearly something else. As an example, a recent case[4] may be mentioned: A child ill six weeks showed, among other symptoms, severe pain, delirium, rigidity of neck, muscular twitchings, knottings, rigidity, head bowed back, paroxysms of pain, and so on. Such a case was described as botulism, but the postmortem examination disclosed leptomeningitis, internal hydrocephalus, and other complications. Such a report does not add much to our knowledge of botulism.

SYMPTOMS

It should be emphasized that the essential symptoms of botulism are motor—a paralysis of certain nerves or muscles, but a loss of motor power in any case. There is early involvement of the third nerve, and, finally, paralysis of all the extrinsic muscles of the eye, and difficulty in swallowing and talking, due at least in part to paralysis of the pharyngeal muscles and impairment of the movements of the tongue. Progressive muscular weakness may become so marked as to lead to inability to raise the arms and legs, or even the head. There is marked immobilization of the face muscles, leading to a masklike expression. The increasing weakness of the respiration is well described by Fischer,[5] who speaks of the paralysis of the diaphragm with the disappearance of the abdominal type of breathing. He also speaks of the gradual loss of movement in the lower thorax, with the movement of the upper ribs becoming slighter and slighter until respiration stops from paralysis of the "respiratory center."

One of the best of the recent descriptions is that by McCaskey,[6] who reports seven cases with four deaths. The interesting point in this report is that McCaskey states that while histologic changes have been described in the central nervous system, the clinical picture appears to be that of a peripheral paralysis. He compares the clinical picture to that produced by diphtheria, a disease which produces its paralytic manifestations by an action on the peripheral nerves. While struck by this similarity suggesting a like pathologic basis, McCaskey is compelled to accept the general view of a central lesion.

RESULTS OF EXPERIMENTS

From this short discussion of the recent literature of the subject, it will be clearly seen that there is no explanation of the symptoms of botulism that is generally satisfactory. We therefore decided to investigate the subject, using the ordinary pharmacologic methods, to see whether these would add anything to our knowledge. The toxin employed was furnished us by Prof. Herbert W. Emerson of the department of bacteriology of this university, and was prepared by him from material obtained from different sources. While all the toxins supplied by Professor Emerson acted essentially alike, some were stronger than others, but by far the most toxic was that prepared from bacilli isolated from the intestinal contents of a patient dying in Grand Rapids as a result of eating spinach. The second sample of toxin was prepared from bacilli isolated by Dr. Krumwiede from olives concerned in the New York cases of poisoning. The third sample was from bacilli isolated by Dr. Emerson from the New York olives. The foregoing were all of Type A. The fourth sample was toxin of Type B, prepared from bacilli isolated from cheese by Miss Nevins while with the New York State Laboratories at Albany.

With these toxins, but mainly with the first mentioned, we have carried out experiments, utilizing frogs, guinea-pigs, rabbits, cats, dogs and chickens. Up to the present, our experiments with frogs have been negative, but we intend to carry these investigations further. All the animals mentioned (except the frogs) were injected intraperitoneally—the guinea-pigs with doses averaging about 0.01 c.c., a dose which would kill in about twenty-four hours. The cats were much more resistant. Two or three injections of 5 c.c. each were required to kill in a week's time, and as the cats usually would not eat after the symptoms had developed, it was hard to tell how much of the weakness was due to the toxin and how much to lack of food. To obviate the difficulty, larger doses of 10 c.c. each were given, and two such doses would, on the average, kill a cat within seventy-two hours. Dogs were also resistant. After a little experience, we found that an injection of 10 or 15 c.c., followed by a second dose of the same size, would usually produce symptoms in thirty-six hours, and a total of 30 c.c. would usually kill in forty-eight hours. Cocks were more susceptible; 0.5 c.c. of a good toxin injected into the breast muscles usually killed in from twenty-four to forty-eight hours.

Considering now the results obtained on the mammals, it would not seem necessary to describe the symptoms for each species in detail, as they have been given by earlier workers. One of the earliest and most characteristic symptoms seen in guinea-pigs, rabbits and cats is the great relaxation of the abdominal walls. They seem to offer no resistance to the palpating hand. Well nourished cats undergo quite a change in their appearance, as their flanks apparently fall in, giving the impression that they are starved. Perhaps the next symptom to attract attention is the change in character of the respiration. Normal cats, sitting quietly, show the abdominal type of breathing. With each downward excursion of the diaphragm, pressing as it does on the contents of the abdomen, the sides of the abdomen are pressed outward. In botulism cats, however, the type of respiration changes early. Doubtless owing to paralysis of the diaphragm, it becomes passive, and the accessory muscles being called into play, the thorax is raised, creating an increased negative pressure in the abdomen, and thus pulling in the nonresisting abdominal walls. The type of movement is thus completely reversed, giving quite a striking respiratory picture. As the intoxication progresses, the thoracic muscles become weaker and weaker, so that the phenomenon described becomes less marked, until the respiration stops. The muscular weakness which first appears in the hind legs is a later manifestation than the respiratory disturbance. This too, becomes progressively greater, and involves the forelegs, but it rarely passes into a total paralysis, as just before death the animal may be able to make movements. It may try to turn over or even to make efforts at standing. The movements of the head do not seem to be interfered with seriously until very late in poisoning, except, of course, in chickens, which show the characteristic limber neck due to paralysis of the neck muscles. As to the secretions, there was nothing very characteristic. Certain of the cats were salivated, and the saliva would slowly trickle from their mouths. This symptom was not common in dogs, in which the secretions were apparently lessened, as it was quite common for these animals to have a dry, rasping cough as though they were making efforts to expel dry mucus, but it was always without avail. This dry cough was not a common symptom with cats, but was occasionally found. The symptoms from the gastro-intestinal tract also differed in different animals. Constipation seemed to be the rule with dogs, but diarrhea was very common in cats and especially in chickens. In man, as is well known, obstinate constipation is the rule in botulism.

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[2] Dickson: Proc. Soc. Exper. Biol. & Med. **18**: 313, 1921.
[3] Warthin: Tr. A. Am. Phys. **37**: 357, 1922.
[4] Semerak, C. B.: J. Infect. Dis. **29**: 190 (Aug.) 1921.
[5] Fischer: Ztschr. f. klin. Med. **59**: 58, 1916.
[6] McCaskey, G. W.: Am. J. M. Sc. **158**: 57 (July) 1919.

ETIOLOGY

Passing from this general discussion of the symptoms, we shall take up a closer analysis of their causation. As constipation is such a prominent symptom as just mentioned, we decided first to investigate the condition of the gastro-intestinal tract. Guinea-pigs, rabbits, cats and chickens were utilized for the purpose. The animals were injected as stated, and then as the intoxication progressed, they were carefully watched until they died, so as to get them at the moment that respiration ceased. At that time, the chest and abdomen were opened and sections were cut from the esophagus, stomach, and upper and lower intestine. These were placed in cold Ringer's solution and, in case they were not to be used at once, the container with the tissue was placed in a refrigerator. When needed, the pieces were washed and then placed in warm oxygenated Ringer's solution and arranged in the usual manner to record the movements on a kymograph. Addition now to the bathing fluid of the drugs usually used in such an experiment, epinephrin, pilocarpin, atropin, physostigmin, barium and pituitary extract, showed that in every case the addition of the drug was followed by a perfectly normal response—contraction or relaxation, as the case might be. The result in each tissue from each animal was, of course, compared with normal controls. The only difference to be found was in the duration of life of the tissue under examination. As is well known, normal tissues preserved in this manner will retain their vitality and activity for hours, while we found that the tissues removed immediately after death caused by botulism would remain active for only a short time—for half an hour usually, but rarely for an hour. However, so far as the qualitative reaction is concerned, the tissues from all parts of the gastro-intestinal tract reacted to stimuli in a normal manner, affording, therefore, no explanation for the difficulty in swallowing, for the paralysis of the stomach which several writers have described, or for the obstinate constipation observed in human cases. The explanation must be sought outside the gastro-intestinal tract, either in the central nervous system or in the extrinsic nerves. The addition of pure toxin to the fluid bathing normal tissues had no appreciable effect on their activity.

Our next examination was as to the effect of the toxin on the circulatory apparatus when it is injected intravenously in acute experiments. These experiments were carried out on rabbits, cats and dogs. The toxin showed itself to be surprisingly harmless when injected in this way. The injection of 1 or 2 c.c. doses of pure toxin diluted with a little salt solution had little effect beyond a slight lowering of blood pressure and some acceleration of the heart, the rate increasing from a normal of 180 to 200 or 210. Records of the contractions of the two chambers of the dog's heart showed a slight weakening, especially of the auricles, followed by augmentation. These changes, which will not be discussed at greater length at this time, were greatly exceeded in interest by depression of the vagus nerve, which appeared in varying degrees in different animals. This is evidently the "block" referred to by Dickson in his paper. As the toxin was being injected in small doses frequently repeated, a gradually lessened response on the part of the vagus was noted until, after 15 or 20 c.c., the vagus of a cat or rabbit was almost inactive. In most cases recovery was fairly rapid. In a number of dogs we were unable to demonstrate this action on the vagus, but in one we succeeded in getting a total paralysis from the injection of a small dose of toxin. Also in one or two other dogs and cats and in one cock, in all of which, after normal respiration had ceased, and the heart had been kept going under artificial respiration, the vagus was tested and found to be without action on the heart. Numerous variations in vagus response were found during the acute experiments, one of the common ones being that stimulation of the vagus after the injection of the toxin was ineffective for perhaps fifteen seconds, as it produced no slowing, but would lower the blood pressure; this was followed by a lessened rate for a few seconds, which might again pass off. It would appear that certain fibers might be depressed, while others would not be attacked to a like extent. We expect to examine into the causes of these changes later.

As will be seen, these acute injection experiments did not throw much light on the cause of the clinical manifestations of the condition in man. They had, however, furnished the key to the solution of the matter, viz., in the condition of the vagus.

In order to examine into these changes further, we changed our method of attack and injected lethal doses of the toxin into animals, and then endeavored to get the animals at the moment of death. We then either examined the reaction of the tissue at that time, or, in the larger animals, we kept the circulation going under artificial respiration. This brings up an important point, namely, that animals never die of cardiac failure in botulism. It is always failure of the respiration which kills, and if respiration by artificial means be instituted, the animal's life can always be prolonged, as we shall discuss later. Many times in the literature it is stated that in this condition death is due to respiratory or cardiac failure. It would seem doubtful whether in man also death ever occurs in cases of pure botulism from failure of the heart. Some of the more recent writers do say that the heart beats after the respiration has stopped, thus confirming our views gained from an extensive experience with animals.

We shall first consider the results obtained in lethal experiments with guinea-pigs. These animals were all examined at the moment that respiration ceased. Of course, it goes without saying that many animals were lost, as they died at night or in the early morning hours when no one was around to make the necessary examinations. With the larger animals, after some experience, we found it possible to make a closer estimate as to the probable duration of life, and so most of them were saved for investigation.

Following the examination of the heart, which we always found to be beating, the condition of the sciatic and phrenic nerves was next investigated. In no case were they found to be normal. In about a quarter of the sciatic nerves examined, the response may be said to have been nearly normal—roughly speaking, 80 per cent. normal; in another quarter of the cases, they might be said to be from 25 to 50 per cent. normal, while the sciatic nerves in the remaining 50 per cent. of the cases were only very feebly active; that is, they could bring out a momentary contraction of the muscle and then cease to act. Even more striking was the difference in duration of response after death. The sciatic nerve of a normal pig, killed by a blow on the head, will remain active for from twenty to twenty-five minutes after death. With the botulinus pigs, on the other hand, even in those sciatic nerves which most closely approached normal, a response was never obtained later than six minutes after death. The muscles in every case seemed to give a normal response. Examination of the phrenic nerves yielded approximately the same results. About twenty-five per cent. were found to be about 80 per cent. normal; 25 per cent. may be said to be from 25 to 50 per cent. normal, while the remaining 50 per cent. were almost, or totally, inactive.

The results obtained on guinea-pigs were confirmed on cats. In six animals, the sciatic nerves were examined immediately after death. In one, they were found to give a good response, but the response ceased within five minutes after death, while in normal cats the sciatic nerve was found to give a response from thirty to forty minutes after death. In four cats the nerves were only feebly active, just bringing out a response when stimulated, and then ceasing to act. In two cats, the sciatic nerves were entirely inactive.

The phrenic nerves followed in general the same rule. Those in one animal gave a good initial response, which failed in five minutes; two were feebly active, and four were totally inactive. The diaphragm responded well to direct stimulation.

In cocks, the story was much the same; the sciatic nerves examined were found to be almost inactive—a contraction of the leg muscles would be brought out by stimulation of the nerve, but it immediately passed into a state of inactivity even with continued stimulation.

An examination into the condition of the motor nerves supplying the neck muscles was next made. Some of these were dissected out in cocks which were kept alive under artificial respiration, and these too were found to be almost inactive—a temporary contraction being all that could be obtained by their stimulation. In one of these botulinus cocks, an effort was made to localize more closely the action of the toxin as being on the nerve ending, or on the receptive substance. The nerve trunk being ineffective, and the muscle responding normally, the connection mechanism must be at fault. Therefore, in one of these cocks, in which sciatic stimulation was ineffective, the gastrocnemius was arranged to record its contractions on a kymograph by attachment of the tendon to a writing lever. As will be remembered, Langley [7] showed that in cocks the injection of nicotin will bring out a long sustained contraction, which in turn is antagonized by curare. These two drugs, acting after the nerve ending has degenerated, must produce their effects by acting on the receptive substance. Injections of nicotin into a botulinus cock in which the sciatic nerve was paralyzed produced the typical curve which was described by Langley, and it was antagonized by curare. These reactions demonstrated that the receptive substance was probably normal, and that the botulinus toxin had exerted its action on the histologic nerve ending. This being true for the cock's leg muscle and sciatic nerve, it would seem to be safe to transfer the point of toxin action also to the phrenic nerve, and the peripheral nerves elsewhere. Also in such a cock the vagus was found to be almost inactive. A heart rate of 162 a minute was slowed to 150, and in another case from 152 to 138.

In dogs we have not been able to carry the work quite as far as in the other animals, but have found essentially the same condition of impaired activity on the part of the sciatic nerves indicated by lessened response and early failure. On the whole, however, the nerve ends in dogs seem to be more resistant than those in the smaller animals or in the cock. This is shown during life by the fact that very late in the intoxication, when the respiration is seriously disturbed, the dog will frequently make rather extensive movements—attempts at standing, or changes in position. These movements become more futile until it seems almost impossible for the animal to raise its head. At times, when the respiration has apparently ceased and the animal has been placed on the table for tracheotomy, it will make efforts at moving, and the respiration may be reinstated temporarily.

COMMENT

The essential action of the botulinus toxin is therefore a more or less complete paralysis of the motor nerve end plates in the striated muscles and in the diaphragm. There is also impairment in some other nerve endings, such as those of the vagus. The full significance of the latter changes we have not arrived at thus far, but hope to report on them further in a later paper. All the truly characteristic symptoms of botulism, however, can be explained by the peripheral motor paralysis—the paralysis of the extrinsic eye muscles, the ptosis, the difficulty with talking, with protrusion of the tongue, and difficulty in swallowing. In the latter case, it is not the esophagus that seems to be at fault, but the nerves to the pharyngeal muscles, as patients say that if they can get the food past the pharynx it will go down. The increasing weakness in the legs, the relaxation of the abdominal wall, the early change in the respiration due to the paralysis of the diaphragm, all have the same origin, and the final failure of the respiration is due to the failure of the nerve endings in the respiratory muscles. It is a death due to peripheral causes, and not to failure of the respiratory center.

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[7] Langley: J. Physiol. 33: 374, 1906.

Late in poisoning, when the movements of the ribs are becoming weaker and weaker, there is just enough activity in the nerve ends to transmit the impulses to the respiratory muscles, and additional demands will result in death. This was illustrated well in one of the cats which was maintaining a respiration which was just adequate to its needs. One of us placed his hand lightly on the chest to get the heart rate, but even this slight pressure stopped the respiration, and the animal straightened out as though dying—as indeed it was. A tracheal tube was rapidly inserted, and artificial respiration instituted and maintained for three hours. At the end of that time, as we wished to examine the condition of the sciatic nerves, the artificial respiration was discontinued, but, to our surprise, the cat, after a few moments, started to breathe voluntarily and kept up an adequate respiratory movement until it was killed that we might make the examination mentioned.

The circulatory apparatus in these animals is apparently normal. In one cat, which had ceased to breathe and which had had artificial respiration for three hours, a carotid cannula was inserted and the blood pressure taken. It was found to be 170 mm. of mercury. Stimulation of a sensory nerve gave a good reaction, increasing the blood pressure to 200 mm.

In dogs, too, after hours of artificial respiration, blood pressures higher than 100 mm. have been found, thus making us think, as we said earlier, that in uncomplicated cases of botulism the cause of death is always failure of the respiration, and not of the heart.

FATE OF THE TOXIN IN THE BODY

We have made a few observations on the fate of the toxin in the body. In some of the dogs which have been poisoned with the toxin, we have withdrawn urine, with a syringe, from the bladder and have injected it intraperitoneally into guinea-pigs in doses as large as 5 or 10 c.c., but with no ill effects.

In the same way, we have withdrawn blood from the carotid of a dog which had been kept alive for twenty-four hours by artificial respiration, and have injected this into guinea-pigs and produced typical symptoms of botulism in the pig. The toxin, then, apparently is not excreted in the urine, but may be found in the blood of a dog seventy-two hours after it has been injected intraperitoneally, and twenty-four hours after the animal's respiration has ceased.

TREATMENT

These findings have led us to formulate certain ideas as to the best method of treatment of the poisoning in man. The first measure should, of course, be directed toward artificial respiration. We have tried this in dogs with a certain degree of success. We have kept a dog alive for thirty hours, and others, for shorter periods of time—the shortest time being six hours. There are, of course, difficulties in the way in animals, and doubtless in man. The question of dose of toxin is, of course, important. The idea is to tide persons over until they can destroy the poison. If there is an overwhelming dose, as in some of our animals, it may not be possible to do this. On the other hand, in certain cases, the dose of toxin ingested may not be great, and the question of a few hours extra may prove lifesaving. The difficulty we have had thus far, and which we hope to obviate in the future, is that, with our method of carrying on artificial respiration wtih a bellows, we wash out the animal's carbon dioxid and it dies of carbon dioxid poverty, and not of botulism. Some time before death all reflexes disappear, the heart accelerates, and at postmortem it is found in complete systole. The condition coincides perfectly with that described years ago by Henderson,[8] and produced by him in animals by excessive respiration. In our dogs, the production of carbon dioxid is doubtless at a minimum, as they are lying quietly, and in many cases they are asleep from small doses of chlorbutanol which have been given to keep them from moving. On the other hand, the constant ventilation of the lungs with fresh air lowers the carbon dioxid until a point is reached below which life is impossible. We hope in further experiments to be able to overcome this difficulty. We believe that in human beings the difficulty would probably not be so great, as personal cooperation would be possible and an anesthetic not necessary. It is true that there is no machine which is satisfactory for the maintenance of artificial respiration in man, but the ordinary bellows connected with a tracheal cannula would suffice in the case of an emergency.

The question as to drug treatment naturally arises. It is clear from what has been said earlier in the paper that we have to do with a curare action, using this term in rather a loose sense and not distinguishing between nerve ending and receptive substance. For curare, it is well known that the best antagonist is physostigmin. Animals which have been paralyzed with curare can be recovered at times by physostigmin.

We have tried the effect of this alkaloid in only a few animals, but up to the present have not worked out a satisfactory dosage, and, in addition, the dogs we have been able to reach at just the right moment of cessation of the respiration, we have utilized to study the effect of artificial respiration and the condition of the circulatory system. In the few animals in which we have been able to try it, we have seen improvement. Cocks which have limber neck and have seemed to be totally paralyzed have, after a small dose of physostigmin, made efforts at standing and have shown more movement in the neck. All animals in which we have tried the alkaloid have responded with increased movements and a general improvement in symptoms. Our main difficulty up to this time has been with the question of dosage. We hope, with more material, and with a careful regulation of dose, to be able to report further progress at a later time. It is very important that the dosage in man should be carefully regulated until the reaction of the patient has been seen. This would apply especially to the increase of secretions along the respiratory tract, which, in case they became excessive, might be embarrassing. As to the effect on the skeletal muscles, the action of physostigmin is well known. In excessive doses, it is doubtless true that those muscles, the nerve ends of which still retain some activity, will react more than those which are more or less completely paralyzed. We have seen this in dogs with excessive dosage, in which cases convulsive movements might appear in the mouth and neck muscles, while the muscles of the hind legs remained totally inactive. An interesting result of a large dose of physostigmin was seen in one dog, which, as a result of botulism, was under artificial respiration, as its normal breathing had failed and there was almost total paralysis of the entire animal. Four milligrams of physostigmin was injected into the circulation, and in a short time the animal had a generalized convulsion lasting several minutes. This was followed by failure of the heart, and death.

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[8] Henderson, Yandell: J. Biol. Chem. 33: 355 (Feb.) 1918.

In this brief discussion of the treatment of cases of human botulism, we have not gone into the use of the specific antitoxin or into the general care of the patient, but merely into those two lines of treatment which are suggested by our experimental work. We should have liked to be able to report more conclusive results on the effect of these two therapeutic measures, especially as to the effect of physostigmin; but, while continuing our experiments, we are offering them as suggestions, as, doubtless, cases of botulism will occur in isolated areas as in the past, and opportunity will be found of testing the value of the measures. Certainly, nothing in this newer knowledge of the pathologic physiology of the condition would give any grounds for thinking that there is any value to be expected from the use of any one of the numerous drugs that have been suggested in recent reviews of the therapeutics of the intoxication.

SUMMARY

There is in botulism a partial paralysis of the endings of the motor nerves going to the voluntary muscles. In some cases, this curare-like action is almost complete, as in the case of the nerves supplying the neck muscles of chickens. This action will explain all of the characteristic symptoms of botulism which are motor in origin. The involvement of the phrenic nerves explains the early paralysis of the diaphragm. The effect of the toxin on the nerves to the respiratory muscles is responsible for the gradually increasing weakness of the respiration, and for its final failure, which is responsible for death under this form of poisoning.

The involuntary muscle of the esophagus, stomach and intestine acts in a normal manner to epinephrin, physostigmin and other peripherally acting drugs, indicating that the symptoms, such as difficulty in swallowing, and constipation, are probably not due to an action of the toxin on structures located in the gastro-intestinal wall. The vagus nerve is also affected, as it largely loses its control over the heart rate, thus probably accounting for the accleration of the heart described in certain of the cases of human botulism.

The toxin is apparently not excreted in the urine, but may be demonstrated in the blood long after it has been injected.

On the basis of the experimental work, it is recommended that in cases of human botulism, when the respiration shows signs of failure, artificial respiration be instituted—if necessary, by means of bellows and a tracheal cannula. In dogs this procedure has given promise of success. The careful administration of physostigmin is also recommended.

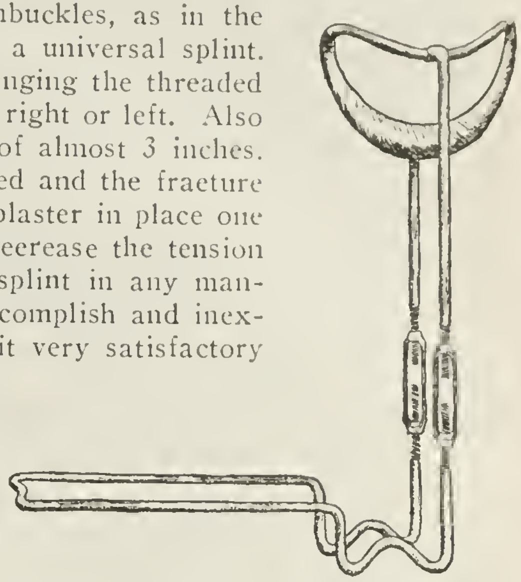
Clinical Notes, Suggestions, and New Instruments

IMPROVED JONES EXTENSION ARM SPLINT

Joel Denman, M.D., Kansas City, Mo.

The regular Jones extension arm splints are made for the right and for the left arm, with no provision for lengthening or shortening. I conceived the idea of sawing into the upper part of the splint, threading the ends with a right and left thread, and adding turnbuckles, as in the illustration. This gives a universal splint. Taking it apart and changing the threaded ends will make it either right or left. Also there is an adjustment of almost 3 inches. After the splint is applied and the fracture reduced, with adhesive plaster in place one can either increase or decrease the tension without disturbing the splint in any manner. This is easy to accomplish and inexpensive. I have found it very satisfactory to use and convenient. My assistant, Dr. C. A. Sherman, deserves the credit for the illustration.

508 Chambers Building.



Improved Jones extension arm splint.

CESAREAN SECTION WITH TOTAL HYSTERECTOMY NECESSITATED BY CONGENITAL MALFORMATION OF VAGINA

J. E. Countryman, M.D., and J. C. Suter, M.D., Grafton, N. D.

Miss O., aged 28, was admitted to the Deaconess Hospital, March 19, 1923, having been in labor eighteen hours, with pains on admission at five minute intervals and resembling those of a well advanced second stage. On routine examination it was apparent that an abnormality existed, but the patient was so unruly that an anesthetic was necessary to determine the condition present.

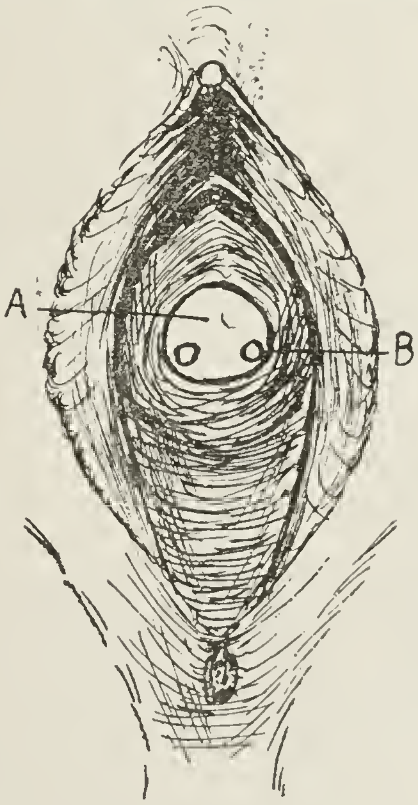


Fig. 1.—*A*, dilated urethra; *B*, sinus leading to vaginal pouch.

The external genital organs had the appearance of virginity; the labia majora were normal, and the space between was covered with mucous membrane. The urethral orifice was markedly dilated, easily admitting the index finger to the interior of the bladder. No vaginal outlet could at that time be determined, and it was supposed that the vagina opened into the bladder.

By rectal examination the head could be felt well down in the pelvis and the cervix about two thirds dilated.

A cesarean section with hysterectomy was the only solution of the problem, the latter being necessary as there could otherwise be no provision made for the discharge of the lochia.

The operation was completed with no shock to the patient. The hysterectomy was a little more difficult than usual on account of the increased vascularity of the broad ligaments. The child weighed 7 pounds, 8 ounces (3.5 kg.), was normal and vigorous, and appeared to be of full term. During operation, when the uterus was removed, the vaginal canal could be readily determined as normal in its upper portion but ending abruptly with no outlet.

On further examination the day following operation, a bloody discharge was noticed coming from the urethra, and, by careful sponging, two small outlets were found opening on the sides of the urethral orifice, each having the diameter of a small probe, and being about 5 cm. in length, opening into the blind vaginal pouch.

The operation was followed by a smooth convalescence. Lactation was established and maintained as usual.

The patient gave a history of menstruation having been established at 15 years of age. The periods were regular and normal, and she apparently had no knowledge of any abnormality.

This case is also of interest from a medicolegal point of view on account of the fact that pregnancy took place from spermatozoa deposited at the urethral orifice, and in spite of the fact that a sinus of 5 cm. intervened between that point and the vaginal pouch.

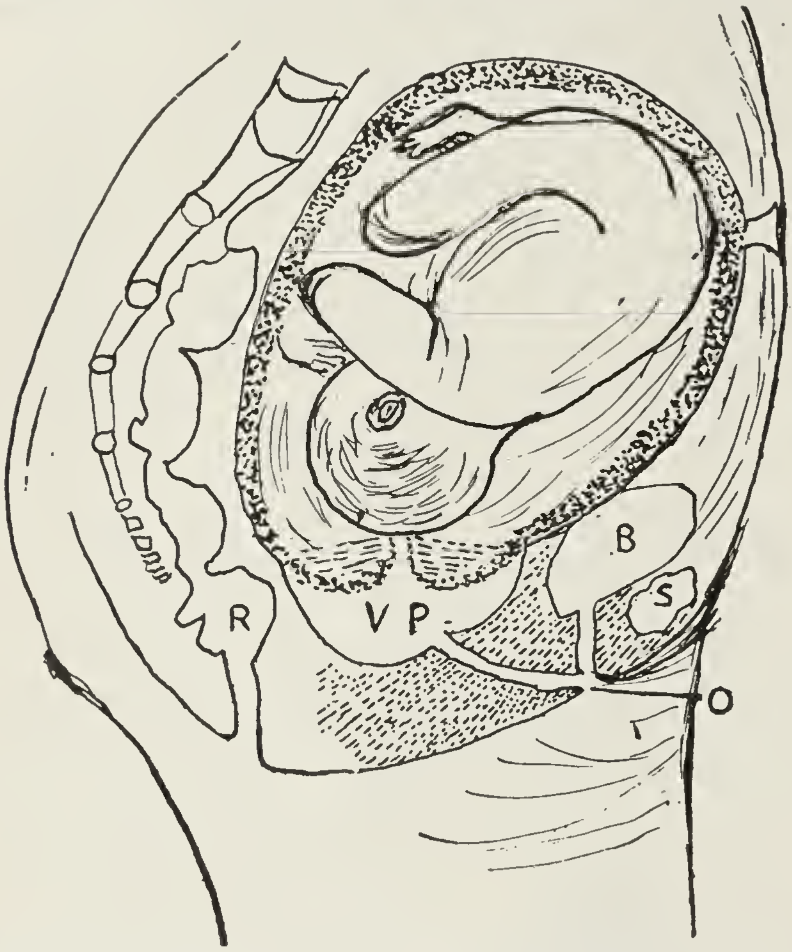


Fig. 2.—*R*, rectum; *B*, bladder; *V P*, Vaginal pouch; *O*, orifice of urethra; *S*, symphysis pubis.

The accompanying two illustrations will be of some assistance in the description of the abnormality.

UNUSUAL USES OF PARAFFIN-WAX DRESSINGS

L. D. McMillan, M.D., Onaway, Mich.

Case 1.—V. R., a girl, aged 8, was scalded by boiling water during the spring of 1922. The wound had healed with much cicatrization of the elbow and the adjacent portions of the arm, and with almost complete fixation in flexion of the elbow. May 7, 1923, I removed about a square inch of scar tissue contiguous to the healthy skin, and dressed the wound daily with surgical paraffin (parresine—Abbott), after the usual method used for burns. The defect filled in and became smoothly epithelialized in two weeks. Under general anesthesia, I then removed the main portion of the scar over an area of 20 square inches, including the anterior surface of the elbow, thus severing the tissue fixing the elbow and allowing the arm to be straightened and splinted in full extension. In two weeks, most of the defect was filled in and epithelialized. The splint was then removed and the same treatment applied on alternate days without the use of splints. In three weeks, healing was completed. Although the area treated was discolored, the surface was smooth, there was no contracture, and the child had recovered full use of the arm.

Case 2.—W. P., a man, aged 50, had five varicose ulcers of the leg, varying in diameter from 3 mm. to 2 cm. The anterior surface of the lower leg was erythematous and oozing in two places. There was a systolic murmur at the cardiac apex, not transmitted, and slight cardiac hypertrophy. The Wassermann reaction was negative. The blood pressure was 115. Treatment consisted of rest in bed, a preparation of digitalis, graduated exercises, and daily applications of surgical paraffin to the leg, after the method used for burns. The largest ulcer was filled in and epithelialized in two weeks, the others in three weeks, at which time erythema and oozing was nearly absent. The patient was then furnished with an elastic bandage and discharged with directions to refrain from work or other than the lightest exercise for several weeks. He has again returned after four weeks, having resumed light farm work immediately following discharge. Erythema and oozing are completely absent, and the leg, aside from slight discoloration, is entirely healed. This case is notable, as the patient reported that the erythema was of twenty years' duration, and that several physicians had failed to clear up the ulcers by the classical methods of treatment.

I have used this dressing with remarkable cosmetic effect after a large abscess and subsequent sloughing of the face.

IMPROVEMENT IN METHOD OF OPERATING IN FISSURE AND FISTULA

A. T. Custer, M.D., Indianapolis

Much improvement in the technic of rectal surgery has been made in the last five years, although there has been little improvement in the method of operating in fissure and fistula.

Having been frequently placed in a position of responsibility for a possible incontinence from operation for repair following unsuccessful primary operation, I have devised a method which I have not seen reported and which may prove of interest.

The technic is that usually accepted for fistula operation up to the point of severance of the sphincter muscles. In other words, all tissue is severed on a grooved director until the sphincters appear in sight. All tissue is dissected away from sphincters, the fistulous tract is curetted and carefully cleaned out, and the wound is packed in the usual manner, leaving the sphincter muscles intact at the site of operation. Opposite the site of operation or at the point of election in healthy tissue, a tenotomy knife is introduced through the skin near the anal margin, and the sphincter muscles are partially or completely severed, as seems best. This produces the desired paralysis of the muscle, obviating injury to the mucous membrane of the bowel and eliminating danger of nonunion in the diseased area.

I have used this method in both fissure and fistula operations when paralysis of the muscle is necessary, with excellent results.

New and Nonofficial Remedies

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.
W. A. Puckner, Secretary.

LUMINAL (See New and Nonofficial Remedies, 1923, p. 63).

The following dosage form has been accepted:

Elixir of Luminal.—Each 4 Cc. (one fluidrachm) contains 0.15 Gm. (¼ grain) in a menstruum containing alcohol 20 per cent.

SCARLET R MEDICINAL BIEBRICH (See New and Nonofficial Remedies, 1923, p. 275).

Scarlet Red Medicinal-"National."—A brand of scarlet R medicinal Biebrich-N. N. R.

Manufactured by the National Aniline and Chemical Co., New York. No U. S. patent or trademark.

MEDICAL EDUCATION IN THE UNITED STATES

ANNUAL PRESENTATION OF EDUCATIONAL DATA FOR 1923 BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

The tabulated statistics herewith presented are for the year ending June 30, 1923, and are based on reports received from the medical colleges and other reliable sources. We acknowledge here the splendid courtesy and cooperation of the officers of the colleges who have made the compilation of these complete statistics possible.

STATISTICS OF COLLEGES

Table 1, on pages 550, 551, gives the colleges in session during 1922-1923; the population of the city; the rating given to the college by the Council on Medical Education and Hospitals; the number of students, men and women, registered during the year; the number of 1923 graduates, men and women; the number of graduates holding collegiate degrees; the number of teachers for each college; the number of weeks of actual work in the college year; the total fees for each year; the executive officer of the college, and the dates of beginning and ending of the next session. The figures in heavy-faced type show the totals by states. Beginning on page 561 are given essential facts concerning all medical colleges arranged by states.

HOME STATES OF MEDICAL STUDENTS

Table 2, on pages 554, 555, shows from what state the students came who were in attendance at each medical college during the session of 1922-1923. The influence of the proximity of the medical school is seen in the fact that states having medical colleges contribute more students in proportion to the population than those which have no colleges. This is shown by the dark zone of figures running diagonally down the page. A comparison of this table with the large tables based on state board examinations,[1] which show the distribution of the alumni of each college, is interesting. The college that has widely distributed alumni usually has a student body from an equally large number of states.

The state furnishing the largest number of students this year was New York with 2,423. Illinois contributed 1,317 and Pennsylvania, 1,294. The next states in the order of the number of students contributed, are: Ohio, 972; Massachusetts, 707; Michigan, 652; California, 642; Texas, 564; Missouri, 562. Two states had less than 10 each, these being Nevada, 4, and Wyoming, 8. There were 111 students from Hawaii, Porto Rico and the Philippine Islands, and 368 students from foreign countries.

NUMBER OF STUDENTS BY CLASSES

In Table 3, on page 556, the students enrolled in each college are shown by classes. This permits one to see whether the attendance at each college is increasing or decreasing. The total attendance for the first year was 5,162, as compared with 5,412 last year, and 4,825 in 1921. The second year attendance was 4,615, as compared with 4,219 last year, and 3,588 in 1921. The third year attendance was 3,861, as compared with 3,355 last year, and 2,637 in 1921. The enrolment of the fourth and fifth (intern) years, combined this year, is 3,794, as compared with 3,154 last year, and 3,822 in 1921. The first year shows a decrease of 250, while the second, third and fourth year class enrolments show increases, respectively, of 396, 506 and 640 over the enrolments in those classes last year. The increases in the total enrolment for 1920, 1921, 1922 and 1923, respectively, were 1,036, 784, 1,268 and 1,292—an average of 1,095 each year.

NUMBER OF MEDICAL STUDENTS

The total number of medical students (Table 4) in the United States for the year ending June 30, 1923, excluding premedical, special and postgraduate students, was 17,432, an increase of 1,292 over last year. This is the largest enrolment of students since 1912. Of the total number of students, 16,771 were in attendance at the nonsectarian (regular) colleges, 341 at the homeopathic, 99 at the eclectic, and 221 at the three nondescript colleges.

Table 4.—*Medical College Attendance*

Year	Non-sectarian	Homeo-pathic	Eclectic	Physio-Med.	Nonde-script	Total
1880..............	9,776	1,220	830	...	...	11,826
1890..............	13,521	1,164	719	...	...	15,404
1900..............	22,710	1,909	522	...	...	25,171
1901..............	23,846	1,683	664	80	144	26,417
1902..............	24,878	1,617	765	91	150	27,501
1903..............	24,930	1,498	848	149	190	27,615
1904..............	23,662	1,309	1,014	123	234	28,142
1905..............	24,119	1,104	578	114	232	26,147
1906..............	23,116	1,085	644	110	249	25,204
1907..............	22,303	1,039	545	97	292	24,276
1908..............	20,936	891	479	90	206	22,602
1909..............	20,554	899	413	52	227	22,145
1910..............	20,136	867	455	49	19	21,526
1911..............	18,414	890	433	49	...	19,786
1912..............	17,277	827	308	...	...	18,412
1913..............	15,919	850	256	...	...	17,015
1914..............	15,438	794	270	...	...	16,502
1915..............	13,914	736	241	...	...	14,891
1916..............	13,121	638	263	...	...	14,012
1917..............	12,925	580	250	...	...	13,764
1918..............	12,727	540	138	...	225	13,630
1919..............	12,259	397	86	...	310	13,052
1920..............	13,220	386	93	...	389	14,088
1921.......	14,033	440	98	...	301	14,872
1922..............	15,247	517	85	...	291	16,140
1923..............	16,771	341	99	...	221	17,432

NUMBER OF MEDICAL GRADUATES

The total number of graduates for the year ending June 30, 1923, was 3,120, or 591 more than last year. The number of graduates from the nonsectarian colleges was 2,984, or 626 more than last year. The number from the homeopathic colleges was 49, or 15 less

(Continued on page 552)

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[1] State Board Number, J. A. M. A. **80**: 1220-1225 (April 23) 1923.

TABLE 1—STATISTICS OF MEDICAL COLLEGES IN THE UNITED STATES AND CANADA

Marginal Number	NAME AND LOCATION OF COLLEGE	Population of City where College is Located (Census Bureau Estimate of 1920)	Classification by Council on Medical Education	No. of Students Registered 1922-23		Graduates 1923		Grads. with A.B., B.S., or Ph.B.	Number of Teachers	Weeks in College Year	Total Fees (Dollars)				Executive Officer	Session of 1923-24		Marginal Number
				Men	Women	Men	Women				1st year	2d year	3d year	4th year		Begins 1923	Ends 1924	
	ALABAMA			**71**	..	..	..	..										
1	University of Alabama School of Medicine, University (Tuscaloosa)*	11,996	A	71	..	..	..	..	12	34	226	226	...	...	Clyde Brooks, M.D., Dean	Sept. 12	May 27	1
	ARKANSAS			**71**	..	..	..	..										
2	University of Arkansas Medical Department, Little Rock	65,142	A	71	..	..	..	..	54	34	70	75	75	...	Morgan Smith, M.D., Dean	Sept. 19	June 6	2
	CALIFORNIA			**540**	**89**	**81**	**14**	**78**										
3	College of Medical Evangelists, Los Angeles	576,673	A	200	22	30	5	32	134	36	236	231	221	226	P. T. Magan, M.D., Dean	Sept. 5	June 3	3
4	Stanford University School of Medicine, San Francisco	506,676	A	138	20	20	2	21	145	34	261	261	261	261	William Ophüls, M.D., Dean	Oct. 2	June 18	4
5	University of California Medical School, San Francisco †	506,676	A	202	47	31	7	25	230	35	290	248	235	225	L. S. Schmitt, M.D., Acting Dean	Aug. 20	May 14	5
	COLORADO			**100**	**15**	**22**	**1**	**6**										
6	University of Colorado School of Medicine, Denver †	256,491	A	100	15	22	1	6	56	34	144	144	130	135	Charles N. Meader, M.D., Dean	Sept. 24	June 9	6
	CONNECTICUT			**184**	**8**	**31**	..	**25**										
7	Yale University School of Medicine, New Haven	162,537	A	184	8	31	..	25	123	34	305	300	300	320	Milton C. Winternitz, M.D., Dean	Sept. 27	June 11	7
	DISTRICT OF COLUMBIA			**575**	**16**	**78**	**3**	**40**										
8	Georgetown University School of Medicine, Washington	437,571	A	193	..	34	..	14	98	34	215	200	200	210	George M. Kober, M.D., Dean	Sept. 27	June 11	8
9	George Washington University Medical School, Washington	437,571	A	172	8	19	1	8	114	33	241	238	238	228	William C. Borden, M.D., Dean	Sept. 26	June 4	9
10	Howard University School of Medicine, Washington	437,571	A	210	8	25	2	18	49	33	168	158	158	165	Edward A. Balloch, M.D., Dean	Oct. 1	June 6	10
	GEORGIA			**319**	**1**	**61**	..	**28**										
11	Emory University School of Medicine, Atlanta	200,616	A	218	..	51	..	26	113	33	238	233	225	250	William S. Elkin, M.D., Dean	Sept. 26	June 3	11
12	University of Georgia Medical Department, Augusta †	52,548	A	101	1	10	..	2	50	34	65	60	60	60	Harry Goodrich, M.D., Dean	Sept. 19	June 2	12
	ILLINOIS			**2002**	**132**	**337**	**23**	**241**										
13	Chicago Medical School, Chicago	2,701,705	C	126	6	37	2	..	...	..	190	185	185	215	....	....	....	13
14	General Medical College [1]	2,701,705	[1]	129	5	22	2	11	111	33	250	250	250	250	John C. Blake, Ph.D., Dean	Oct. 1	June 10	14
15	Loyola University School of Medicine, Chicago	2,701,705	A	253	11	27	1	8	120	34	275	275	250	250	Louis D. Moorhead, M.D., Dean	Oct. 1	June 14	15
16	Northwestern University Medical School, Chicago	2,701,705	A	485	..	84	..	44	165	34	190	190	200	200	Arthur I. Kendall, M.D., Dean	Oct. 2	June 14	16
17	Rush Medical College (University of Chicago)	2,701,705	A	593	90	125	13	135	294	34	225	225	240	240	Ernest Edward Irons, M.D., Acting Dean	Oct. 1	June 14	17
18	University of Illinois College of Medicine, Chicago †	2,701,705	A	416	20	42	5	43	201	33	185	165	165	165	Albert C. Eycleshymer, M.D., Dean	Oct. 1	June 7	18
	INDIANA			**313**	**14**	**55**	**3**	**55**										
19	Indiana University School of Medicine, Bloomington-Indianapolis	314,194	A	313	14	55	3	55	165	35	125	125	150	150	Charles P. Emerson, M.D., Dean	Sept. 17	June 11	19
	IOWA			**309**	**8**	**42**	**2**	**24**										
20	State University of Iowa College of Medicine, Iowa City †	11,267	A	309	8	42	2	24	79	33	175	150	150	160	Lee Wallace Dean, M.D., Dean	Sept. 24	June 3	20
	KANSAS			**91**	**4**	**18**	**1**	**13**										
21	University of Kansas School of Medicine, Lawrence-Rosedale †	433,261	A	91	4	18	1	13	62	35	131	131	133	133	Mervin T. Sudler, M.D., Dean	Sept. 17	June 5	21
	KENTUCKY			**194**	**5**	**28**	**1**	**8**										
22	University of Louisville Medical Department, Louisville	234,891	A	194	5	28	1	8	109	36	260	260	270	290	Stuart Graves, M.D., Dean	Sept. 3	June 5	22
	LOUISIANA			**345**	**14**	**73**	**4**	**36**										
23	Tulane University of Louisiana School of Medicine, New Orleans	387,219	A	345	14	73	4	36	142	34	225	225	215	245	Charles C. Bass, M.D., Dean	Sept. 27	June 11	23
	MARYLAND			**620**	**53**	**129**	**15**	**116**										
24	Johns Hopkins University Medical Department, Baltimore	733,826	A	293	45	79	14	93	219	33	318	317	317	317	J. Whitridge Williams, M.D., Dean	Oct. 1	June 10	24
25	Univ. of Maryland School of Med. and Coll. of P. & S., Baltimore†	733,826	A	327	8	50	1	23	190	33	265	265	265	265	J. M. H. Rowland, M.D., Dean	Oct. 1	June 7	25
	MASSACHUSETTS			**1229**	**63**	**231**	**11**	**123**										
26	Boston University School of Medicine, Boston	748,060	A	159	24	20	4	11	92	35	256	256	256	266	Alexander S. Begg, M.D., Dean	Sept. 27	June 16	26
27	College of Physicians and Surgeons, Boston [2]	748,060	C	34	2	8	1	..	...	..	105	140	120	115	....	....	....	27
28	Harvard University Medical School, Boston	748,060	A	498	..	126	..	103	275	35	305	300	300	300	David L. Edsall, M.D., Dean	Sept. 24	June 19	28
29	Tufts College Medical School, Boston	748,060	A	442	30	60	4	9	145	33	260	245	235	240	Stephen Rushmore, M.D., Dean	Sept. 24	May 29	29
30	Middlesex College of Medicine and Surgery, Cambridge.—N.	109,694	C	96	7	17	2	..	57	36	175	175	175	175	Roger S. York, M.D., Dean	Sept. 17	June 14	30
	MICHIGAN			**773**	**49**	**106**	**9**	**53**										
31	Detroit College of Medicine and Surgery, Detroit †	993,678	A	174	6	1	..	..	119	35	50	50	50	50	W. H. MacCraken, M.D., Dean	Oct. 1	June 21	31
32	University of Michigan Medical School, Ann Arbor † [3]	19,516	A	599	43	105	9	53	138	35	180	180	180	180	Hugh Cabot, M.D., Dean	Sept. 25	June 16	32
	MINNESOTA			**444**	**30**	**78**	**7**	**85**										
33	University of Minnesota Medical School, Minneapolis †	380,582	A	444	30	78	7	85	260	35	199	199	199	199	Elias P. Lyon, M.D., Dean	Sept. 26	June 18	33
	MISSISSIPPI			**55**	**2**	..	..	..										
34	University of Mississippi School of Medicine, Oxford *	'2,150	A	55	2	..	..	..	19	34	156	156	...	...	Walter S. Leathers, M.D., Dean	Sept. 19	June 3	34
	MISSOURI			**883**	**38**	**203**	**13**	**107**										
35	University of Missouri School of Medicine, Columbia * †	10,392	A	76	3	..	..	..	27	34	100	100	...	...	Guy L. Noyes, M.D., Dean	Sept. 11	June 4	35
36	Kansas City College of Medicine and Surgery, Kansas City.—N. [2] [4]	433,261	[3]	52	8	20	3	..	...	..	200	200	200	200	....	....	....	36
37	Kansas City Univ. of Physicians and Surgeons, Kansas City.—N.	433,261	C	53	5	25	1	1	26	34	180	180	180	180	A. M. Wilson, M.D., Dean	Sept. 10	May 29	37
38	St. Louis College of Physicians and Surgeons, St. Louis [5]	772,897	C	57	8	33	5	..	...	..	205	200	200	225	....	....	....	38
39	St. Louis University School of Medicine, St. Louis	772,897	A	399	..	77	..	76	179	32	300	300	300	300	Hanau W. Loeb, M.D., Dean	Oct. 1	May 31	39
40	Washington University School of Medicine, St. Louis	772,897	A	246	14	48	4	30	158	34	315	310	310	315	Nathaniel Allison, M.D., Dean	Sept. 27	June 12	40
	NEBRASKA			**452**	**17**	**89**	**4**	**80**										
41	Creighton University College of Medicine, Omaha	191,601	A	153	2	35	..	35	70	33	195	190	190	200	Hermann von W. Schulte, M.D., Dean	Sept. 21	May 31	41
42	University of Nebraska College of Medicine, Omaha	191,601	A	299	15	54	4	45	95	34	165	160	150	150	Irving S. Cutter, M.D., Dean	Sept. 24	June 7	42
	NEW HAMPSHIRE			**44**	..	..	..	..										
43	Dartmouth Medical School, Hanover *	1,551	A	44	..	..	..	..	13	36	250	250	...	...	John M. Gile, M.D., Dean	Sept. 20	June 18	43

				1911	164	404	40	221										
	Albany Medical College, Albany	113,344	A	84	4	12	2	4	107	34	235	220	205	205	Thomas Ordway, M.D., Dean	Sept. 24	June 10	44
45	University of Buffalo Medical Department, Buffalo	506,775	A	220	17	46	3	3	134	34	322	312	312	312	C. Sumner Jones, M.D., Dean	Sept. 24	June 11	45
46	Columbia University College of Phys. and Surgs., New York City	5,620,048	A	337	44	83	12	93	352	33	332	332	332	352	William Darrach, M.D., Dean	Sept. 26	June 4	46
47	Cornell University Medical College, New York City	5,620,048	A	212	44	52	11	63	173	34	345	335	335	350	Walter L. Niles, M.D., Dean	Sept. 24	June 12	47
48	Long Island College Hospital, New York City-Brooklyn	5,620,048	A	332	14	79	6	12	134	33	356	350	350	380	Adam M. Miller,, M.D., Dean	Sept. 24	May 29	48
49	New York Homeopathic Medical College and Flower Hospital.—H.	5,620,048	B	148	10	18	..	2	86	34	350	300	300	300	Israel S. Kleiner, Ph.D., Acting Dean	Sept. 21	June 5	49
50	University and Bellevue Hospital Medical College, New York City	5,620,048	A	414	21	79	6	19	237	35	350	350	350	350	Samuel A. Brown, M.D., Dean	Sept. 19	June 11	50
51	Syracuse University College of Medicine, Syracuse	171,717	A	164	10	35	..	25	117	35	324	324	324	334	Herman G. Weiskotten, M.D., Acting Dean	Sept. 19	June 14	51
	NORTH CAROLINA			120	1	..	..	..										
52	University of North Carolina School of Medicine, Chapel Hill *	1,483	A	75	1	..	..	..	25	34	195	195	...	...	I. H. Manning, M.D., Dean	Sept. 20	June 6	52
53	Wake Forest College School of Medicine, Wake Forest *	1,425	A	45	..	..	..	..	15	34	200	200	...	...	Thurman D. Kitchin, M.D., Dean	Sept. 25	June 13	53
	NORTH DAKOTA			38	..	..	..	..										
54	Univ. of North Dakota School of Med., University (Grand Forks)*	14,010	A	38	..	..	..	..	18	34	50	50	...	...	H. E. French, M.D., Dean	Sept. 22	June 11	54
	OHIO			795	45	134	11	103										
55	Eclectic Medical College, Cincinnati.—E.	401,247	B	99	..	16	..	3	46	32	170	160	160	160	R. L. Thomas, M.D., Dean	Sept. 14	May 14	55
56	University of Cincinnati College of Medicine	401.247	A	231	15	54	5	39	116	35	320	320	270	215	Henry Page, M.D., Dean	Sept. 21	June 14	56
57	Western Reserve University School of Medicine, Cleveland	796.841	A	168	10	27	3	30	163	34	275	265	250	260	Carl A. Hamann, M.D., Dean	Sept. 27	June 12	57
58	Ohio State University College of Medicine, Columbus †	237,031	A	297	20	37	3	31	107	33	153	153	153	153	Eugene F. McCampbell, M.D., Dean	Oct. 1	June 6	58
	OKLAHOMA			134	2	24	..	22										
59	University of Oklahoma School of Medicine, Norman-Oklahoma City	91,295	A	134	2	24	..	22	73	34	62	70	50	50	LeRoy Long, M.D., Dean	Sept. 17	June 4	59
	OREGON			169	15	23	3	13										
60	University of Oregon Medical School, Portland †	258,288	A	169	15	23	3	13	105	34	185	180	180	180	Richard B. Dillehunt, M.D., Dean	Oct. 1	June 14	60
	PENNSYLVANIA			1505	166	348	38	180										
61	Hahnemann Medical College and Hospital of Philadelphia.—H.	1,823,779	A	183	..	31	..	11	116	32	260	257	257	279	William A. Pearson, M.D., Dean	Oct. 1	June 5	61
62	Jefferson Medical College of Philadelphia	1,823,779	A	595	..	147	..	63	165	33	325	325	325	325	Ross V. Patterson, M.D., Dean	Sept. 25	June 6	62
63	Temple University School of Medicine, Philadelphia	1,823,779	B	130	1	24	1	..	131	34	230	225	215	215	Frank C.Hammond, M.D., Dean	Sept. 24	June 13	63
64	University of Pennsylvania School of Medicine, Philadelphia †[3]	1,823,779	A	417	32	110	13	66	216	35	333	325	325	329	William Pepper, M.D., Dean	Sept. 28	June 18	64
65	Woman's Medical College of Pennsylvania, Philadelphia	1,823,779	A	...	119	..	21	13	80	34	275	279	277	269	Martha Tracy, M.D., Dean	Sept. 26	June 11	65
66	University of Pittsburgh School of Medicine, Pittsburgh	588,343	A	180	14	36	3	27	145	34	328	313	313	323	Raleigh R. Huggins, M.D., Dean	Sept. 24	June 11	66
	SOUTH CAROLINA			125	6	24	1	12										
67	Medical College of the State of South Carolina, Charleston	67,957	A	125	6	24	1	12	65	33	165	165	165	165	Robert Wilson, J., M.D., Dean	Sept. 27	June 5	67
	SOUTH DAKOTA			39	1	..	..	..										
68	University of South Dakota College of Medicine, Vermilion *	2,590	A	39	1	..	..	..	12	36	60	60	...	...	Christian P. Lommen, B.S., Dean	Sept. 17	June 14	68
	TENNESSEE			542	6	122	3	50										
69	University of Tennessee College of Medicine, Memphis †	162,351	A	170	4	21	1	6	144	33	207	202	202	227	James B. McElroy, M.D., Acting Dean	Oct. 1	June 9	69
70	University of West Tennessee Medical Department, Memphis [6]	162.351	C	2	..	2	..	..	...	..	...	...	...	...	....	....	....	70
71	Meharry Medical College, Nashville	118,342	A	183	2	61	2	36	64	31	162	152	152	172	John J. Mullowney, M.D., President	Oct. 2	May 22	71
72	Vanderbilt University School of Medicine, Nashville	118,342	A	187	..	38	..	8	95	34	165	165	165	190	Lucius E. Burch, M.D., Dean	Sept. 26	June 11	72
	TEXAS			396	25	55	4	16										
73	Baylor University College of Medicine, Dallas	158,976	A	134	10	15	2	4	93	32	208	198	188	188	Walter H. Moursund, M.D., Dean	Oct. 1	May 31	73
74	University of Texas School of Medicine, Galveston †	44,255	A	262	15	40	2	12	51	32	108	73	45	33	William Keiller, M.D., Dean	Oct. 1	May 31	74
	UTAH			36	1	..	..	..										
75	University of Utah School of Medicine, Salt Lake City *	118,110	A	36	1	..	..	..	26	34	150	150	...	...	Ralph O. Porter, M.D., Dean	Sept. 27	June 10	75
	VERMONT			122	3	23	..	9										
76	University of Vermont College of Medicine, Burlington †	22,779	A	122	3	23	..	9	44	36	200	200	200	225	Henry Crain Tinkham, M D., Dean	Sept. 19	June 20	76
	VIRGINIA			407	18	68	2	24										
77	Medical College of Virginia, Richmond	171,667	A	245	12	41	2	8	125	35	230	230	220	250	Manford Call, M.D., Dean	Sept. 12	June 3	77
78	University of Virginia Department of Medicine, Charlottesville	10,688	A	162	6	27	..	16	46	36	235	235	185	175	Theodore Hough, Ph.D., Dean	Sept. 13	June 10	78
	WEST VIRGINIA			103	1	..	..	..										
79	West Virginia University School of Medicine, Morgantown * †	12,127	A	103	1	..	..	..	15	35	90	90	...	...	John N. Simpson, M.D., Dean	Sept. 17	June 10	79
	WISCONSIN			346	18	19	1	19										
80	University of Wisconsin Medical School, Madison * †	38,378	A	140	16	..	..	..	66	36	115	95	...	...	Charles R. Bardeen, M.D., Dean	Sept. 26	June 23	80
81	Marquette University School of Medicine, Milwaukee	457,147	A	206	2	19	1	19	116	33	305	295	295	275	Eben J. Carey, Sc.D., Dean	Oct. 1	June 11	81
	PHILIPPINE ISLANDS			502	31	59	3	10										
82	University of the Philippines, College of Med. and Surg., Manila	266,943	..	99	31	14	3	10	74	36	79	84	64	56	Fernando Calderon, M.D., Dean	June 15	Mar. 18	82
83	University of St. Thomas, College of Med. and Surg., Manila [7]	266,943	..	403	..	45	..	..	24	36	58	62	62	62	José L. de Castro, M.D., Dean	July 3	Mar. 31	83
	CANADA [8]			2929	132	472	20	64										
84	University of Alberta Faculty of Medicine, Edmonton, Alta	60,000	..	89	13	..	..	..	62	35	130	180	180	180	Allan C. Rankin, M.D., Dean	Sept. 24	May 16	84
85	Dalhousie University Faculty of Medicine, Halifax, N. S.	46,619	..	140	9	18	2	4	52	32	123	200	200	200	John Stewart, M.D., Dean	Sept. 10	May 13	85
86	Queen's University Faculty of Medicine, Kingston, Ont.	18,874	..	260	..	36	..	8	50	33	141	146	141	155	J. C. Connell, M.D., Dean	Sept. 26	May 28	86
87	University of Toronto Faculty of Medicine, Toronto, Ont.	376,538	..	904	73	183	14	12	178	33	163	163	163	163	Alexander Primrose, M.D., Dean	Sept. 25	May 31	87
88	University of Western Ontario Medical School, London, Ont.	46.300	..	116	3	23	..	2	59	32	155	155	163	183	Paul S. McKibben, Ph.D., Dean	Oct. 1	May 30	88
89	McGill University Faculty of Medicine, Montreal, Que.	470,480	..	709	12	124	2	27	150	33	222	222	222	222	C. F. Martin, M.D., Dean	Sept. 24	June 1	89
90	University of Montreal Medical Faculty, Montreal, Que.	470,480	..	300	..	59	..	..	81	36	207	200	242	215	Louis de Lotbiniere Harwood, M.D., Dean	Sept. 15	June 15	90
91	Laval University Faculty of Medicine, Quebec, Que.	78,190	..	170	..	9	..	6	37	34	135	135	135	135	Arthur Vallée, M.D., Secretary	Sept. 12	May 31	91
92	University of Manitoba Faculty of Medicine, Winnipeg	136,035	..	241	22	20	2	5	114	32	180	175	185	185	S. Willis Prowse, M.D., Dean	Sept. 18	May 18	92

E.—Eclectic; H.—Homeopathic; N.—Nondescript.

* Gives only the first two years of the medical course.

† The following universities make an additional charge for nonresidents: California, $300; Colorado, $30; Georgia, $90; Illinois, $35; Iowa, $200; Kansas, $10; Maryland, $50; Michigan, $80; Detroit, $150; Minnesota, $30; Missouri, $10; Ohio, $147; Oregon, $60; Tennessee, $100; Texas, $150; Vermont, $100; West Virginia, $150; Wisconsin, $95.

1. The General Medical College succeeds the Hahnemann Medical College and Hospital, Chicago, which was a Class B institution. The new school is at present unclassified.

2. The number of students is approximate; the number of graduates is exact.

3. Two medical schools make a lower tuition charge for women than for men. The charge is $5.00 less each year at the University of Michigan and $15.00 less at the University of Pennsylvania.

4. This college is an offshoot of a Class C institution, which has since ceased to exist. Inspections have been refused by the new institution but sufficient information is on file to show that it could not be given a rating higher than Class C. It is reported not recognized by the licensing boards of forty-one states.

5. The numbers of students and graduates are approximate.

6. The University of West Tennessee closed its Medical Department with the session which ended in May, 1923.

7. The figures given are for the session of 1921-1922.

8. Of the Canadian medical schools, the University of Alberta gives the first five years of the six year medical course. All others give the six years. The first one or two years are devoted to subjects which in the United States are referred to as "premedical."

(Continued from page 549)

than last year, and from the eclectic colleges there were 16, or 18 less than last year. The three nondescript colleges had 71 graduates, or 2 less than last year.

Table 5.—*Medical College Graduates*

Year	Non-sectarian	Homeo-pathic	Eclectic	Physio-Med.	Nonde-script	Total
1880.........	2,673	380	188	..	..	3,241
1890.........	3,853	380	221	..	..	4,454
1900.........	4.715	413	86	..	..	5,214
1901.........	4 879	387	148	18	12	5,444
1902.........	4.508	336	138	16	11	5,009
1903.........	5,088	420	149	24	17	5,698
1904.........	5,190	371	146	20	20	5,747
1905.........	5,126	276	153	22	23	5,600
1906.........	4.841	286	186	22	29	5,364
1907.........	4,591	225	121	11	32	4,980
1908.........	4,370	215	116	12	28	4,741
1909.........	4,163	209	84	15	44	4,515
1910.........	4,113	183	114	16	14	4,440
1911.........	4,006	152	110	5	..	4,273
1912.........	4,206	185	92	..	..	4,483
1913.........	3,679	209	93	..	..	3,981
1914.........	3,370	154	70	..	..	3,594
1915.........	3,286	195	55	..	..	3.536
1916.........	3,274	166	78	..	..	3.518
1917.........	3,134	180	65	..	..	3,379
1918.........	2,454	114	42	..	60	2,670
1919.........	2,423	89	28	..	116	2,656
1920.........	2,826	97	30	..	94	3,047
1921.........	2,969	115	30	..	78	3,192
1922.........	2,358	64	34	..	73	2,529
1923.........	2,984	49	16	..	71	3,120

GRADUATES HOLDING DEGREES IN ARTS

Of the 3,120 medical graduates, 1,787 (see Table 6) also obtained degrees in arts or science, or 332 more than last year. There has been a steady increase since 1910, when attention was first called to this item. This year 57.2 per cent. of all graduates held collegiate degrees, as compared with 57.5 per cent. last year and with only 15.3 per cent. in 1910. This increase is what was expected under the general adoption by medical schools of the entrance requirement of two years of college work. Of the 2,984 nonsectarian school graduates, 1,770, or 59.3 per cent., were reported to have baccalaureate degrees; of the 49 homeopathic graduates, 13, or 26.5 per cent., were so reported, and of the 16 eclectic graduates, 3, or 18.7 per cent., were so reported; and of the 71 graduates of the nondescript colleges only 1 was reported as holding a bachelor's degree in arts or science. As will be noted by referring to Table 11, of the 1,787 graduates holding baccalaureate degrees, 241—the largest number—came from the Illinois colleges. New York reported 221; Pennsylvania reported 180, and Maryland reported 116. The percentage o graduates holding collegiate degrees will probably continue to increase, since all the better medical schools ar now requiring two years of college work for admission which brings more students in reach of the combine course for the B.S. and M.D. degrees. Of the 4,23 students admitted by medical schools in 1919, 950, o 22.4 per cent., had already obtained baccalaureat degrees. It appears that 837 others obtained degree through six or seven year combined courses. Of th 1,787 graduates who held baccalaureate degrees, therefore, about half secured them before beginning th study of medicine.

Table 6.—*Medical Graduates with Liberal Arts Degrees*

Year	Nonsectarian			Homeopathic			Eclectic			Totals		
	Graduates	A.B., B.S.	Per Cent.	Graduates	A.B., B.S.	Per Cent.	Graduates	A.B., B.S.	Per Cent.	Graduates	A.B., B.S.	Per Cent.
1910	4,113	664	16.1	183	13	7.1	114	3	2.6	4,440	680	15.3
1911	4,006	683	17.0	152	18	11.8	110	4	3.6	4,273	705	16.5
1912	4,206	744	17.7	185	15	8.1	92	4	4.3	4,483	763	17.0
1913	3,679	732	19.9	209	20	9.6	93	1	1.1	3,981	753	18.9
1914	3,370	794	23.5	154	7	4.5	70	6	8.6	3,594	807	22.5
1915	3,286	839	25.5	195	16	8.2	55	3	5.5	3,536	858	24.3
1916	3,274	928	28.3	166	20	12.0	78	...	...	3,518	948	26.9
1917	3,134	1,078	34.4	180	19	10.5	65	2	3.1	3,379	1,099	32.5
1918*	2,454	1,007	41.0	114	15	13.2	60	...	...	2,670	1,024	38.4
1919*	2,423	1,162	48.0	89	16	18.0	28	2	7.1	2,656	1,180	44.4
1920*	2,826	1,307	46.2	97	11	11.3	30	3	10.0	3,043	1,321	43.5
1921*	2,969	1,447	48.2	115	33	28.7	30	...	...	3,192	1,465	46.0
1922*	2,358	1,440	61.1	64	13	20.3	34	2	5.9	2,529	1,455	57.5
1923*	2,984	1,770	59.3	49	13	26.5	16	3	18.7	3,120	1,787	57.3

* Only two graduates of nondescript colleges were reported to have collegiate degrees during the last six years.

WOMEN IN MEDICINE

During the past year there were 1,030 women studying medicine, the largest number since 1905, whe there were 1,073. The percentage of women to a medical students this year is 5.9. There wer 214 women graduates this year, 60 more than last year Of all the women matriculants, 119 were in attendanc at the one medical college for women, while 911 (88. per cent.) were matriculated in the 65 coeducationa colleges. From the one women's college there were 21 graduates, while 193 (90.2 per cent.) secured thei degree from coeducational colleges. This high percentage of women students in coeducational colleges is n surprising, since in recent years most of the medic schools have thrown open their doors to women.

Table 7.—*Women in Medicine*

Year	Total Women Students	Percentage of All Students. Both Sexes	Total Women Graduates	Percentage of Graduates, Both Sexes	Women's Colleges	Students	Percentage of All Women Students	Graduates	Percentage of All Women Grads.	Co-ed. Schools	Students	Percentage of All Women Students	Graduates	Percentage of All Women Grads.
1904	1,129	4.3	244	4.0	3	183	16.2	56	23.0	97	946	83.8	198	77.
1905	1,073	4.1	219	4.0	3	221	20.6	54	24.5	96	852	79.4	165	75
1906	895	3.5	233	4.3	3	189	21.0	33	14.1	90	706	79.0	200	85.
1907	928	3.8	211	4.2	3	210	22.6	39	18.5	86	718	77.4	172	81
1908	835	3.7	185	3.9	3	186	22.3	46	24.9	88	649	77.7	139	75.
1909	921	4.2	162	3.7	3	169	18.4	33	20.3	91	752	81.6	129	79.
1910	907	4.2	157	3.5	3	155	17.1	41	26.1	82	752	82.9	116	73.
1911	680	3.4	159	3.7	2	134	19.7	36	22.6	74	546	80.3	123	77.
1912	679	3.2	142	3.2	2	143	21.1	32	22.5	64	536	78.9	110	77.
1913	640	3.8	154	3.8	2	138	21.6	33	21.4	55	502	78.6	121	78.
1914	631	3.8	121	3.4	2	135	21.4	25	20.7	54	496	78.6	96	79
1915	592	4.0	130	3.7	2	116	19.6	38	29.2	53	462	80.4	92	70.
1916	566	4.0	134	3.8	2	102	18.0	28	20.0	51	464	82.0	106	80
1917	610	4.5	153	4.5	2	81	13.3	29	18.9	56	529	86.7	124	81
1918	581	4.3	106	4.0	2	70	12.0	12	11.3	60	511	87.9	94	88
1919	686	5.2	107	4.0	1	66	10.0	7	6.5	59	620	90.4	100	93
1920	818	5.8	134	4.4	1	89	10.9	12	9.0	64	727	90.1	122	91.
1921	879	5.9	151	4.7	1	103	11.5	15	10.0	63	776	88.5	136	90
1922	989	6.1	154	6.1	1	121	12.2	32	20.8	67	764	77.2	122	79
1923	1,030	5.9	214	6.9	1	119	11.6	21	9.8	65	911	88.4	193	90

NUMBER OF COLLEGES

Since June 30, 1922, one medical college, the med cal department of the so-called University of We Tennessee, a low grade school for negroes, has bee closed, leaving 80 still existing. One homeopathic med cal school, the Hahnemann Medical College of Chicag is undergoing a reorganization on a nonsectarian bas Of the 80 colleges, therefore, 74 are nonsectarian (reg lar), 2 are homeopathic, 1 is eclectic and 3 a nondescript. Two of these nondescript college the Kansas City University of Physicians and Su geons, and the Middlesex College of Medicine an urgery, are intimately connected with osteopathy r give liberal advanced standing to students of steopathic colleges. The third, the Kansas City 'ollege of Medicine and Surgery, claims to be clectic, but is reported as not so recognized by the 'ational Eclectic Medical Association. These three olleges are reported as not recognized by the licensing oards of more than forty states.

Table 8.—*Medical Colleges*

Year	Non-sectarian	Homeo-pathic	Eclectic	Physio-Med.	Nonde-script	Total
50	44	3	4	1	..	52
60	53	6	4	2	..	65
70	60	8	5	2	..	75
80	76	14	8	2	..	100
90	106	16	9	2	..	133
00	126	22	9	2	1	160
01	125	22	10	2	1	160
02	126	20	9	3	2	160
03	126	20	9	3	2	160
04	127	19	9	3	2	160
05	125	19	9	3	2	158
06	130	19	8	3	2	162
07	127	18	9	3	2	159
08	120	18	9	2	2	151
09	115	15	8	1	1	140
10	109	12	8	1	1	131
11	103	12	7	..	..	122
12	101	11	6	..	..	118
13	92	10	5	..	..	107
14	87	10	5	..	..	102
15	83	9	4	..	..	96
16	82	10	3	..	..	95
17	83	9	4	..	..	96
18	79	6	2	..	3	90
19	76	5	1	..	3	85
20	76	5	1	..	3	85
21	74	5	1	..	3	83
22	74	3	1	..	3	81
23	74	2	1	..	3	80

LENGTH OF TERMS

During the last twenty years, as shown in Table 9, ere has been a decided lengthening of college terms. his has reference to the weeks of actual work exclu- ve of holidays. Prior to 1904 the majority of col- ges had sessions of twenty-eight weeks or less.

Table 9.—*College Terms*

	23 to 26 weeks		27 to 28 weeks		29 to 30 weeks		31 to 32 weeks		33 to 34 weeks		35 to 36 weeks		Over 36 weeks	
ar	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
	58	36.5	42	26.4	8	5.0	26	16.4	4	2.5	18	11.3	3	1.9
	44	28.4	44	28.4	11	7.1	33	21.3	3	1.9	18	11.6	2	1.8
	33	21.4	46	29.9	15	9.7	37	24.0	2	1.3	19	12.4	2	1.3
	27	16.3	44	26.5	22	13.3	37	22.3	13	7.8	20	12.0	3	1.8
	15	9.4	35	21.8	12	7.5	44	27.5	13	8.1	28	23.8	3	1.9
	14	8.7	35	21.7	26	16.1	32	19.9	24	14.9	28	17.4	2	1.3
	6	3.7	27	16.8	26	16.1	42	26.1	29	18.0	29	18.0	2	1.3
	2	1.3	21	13.8	28	18.4	51	33.6	24	15.8	22	14.5	4	2.6
	4	2.3	17	11.6	23	16.4	51	34.9	18	12.3	30	20.5	3	2.0
	2	1.5	8	6.0	19	14.3	42	31.5	30	22.6	30	22.6	2	1.5
	..	...	6	5.0	16	13.3	37	30.8	32	26.7	28	23.4	1	0.8
	1	0.9	1	0.9	11	9.5	34	29.3	37	31.8	31	26.7	1	0.9
	..	...	3	2.8	5	4.7	29	27.4	41	38.7	27	25.5	1	0.9
	..	...	2	2.0	4	4.0	25	24.8	41	40.5	28	27.7	1	1.0
	..	...	1	1.0	5	5.3	22	23.2	36	37.9	30	31.6	1	1.0
	..	...	..	...	4	4.2	17	17.9	43	45.3	28	29.5	..	...
	..	...	..	...	1	1.0	15	15.6	46	47.9	31	32.3	..	...
	..	...	..	...	2	2.2	23	25.6	37	41.1	22	24.4	..	...
	..	...	..	...	1	1.2	11	12.9	44	51.8	23	27.1	1	1.2
	..	...	..	...	1	1.2	10	11.8	38	44.7	29	34.1	..	...
	..	...	..	...	..	...	11	13.1	39	46.4	28	33.3	..	...
	..	...	..	...	..	...	10	13.1	43	56.6	23	30.3	..	...
	..	...	..	...	..	...	6	7.5	48	60.0	22	25.0	..	...

Information not furnished by five Class C colleges during the last years.

ice then the percentage of colleges having sessions 33 to 34 weeks has increased from 2.5 to 60.0. For ht years no colleges have had sessions shorter than enty-nine weeks, and for three years the shortest sion reported has been thirty-one weeks. Sessions of from thirty-three to thirty-six weeks were reported by 70, or 87.5 per cent., of all colleges.

TUITION AND OTHER FEES

Attention is called in Table 1, on pages 550, 551, to the amount charged by the various medical colleges per annum for tuition, matriculation, and laboratory and graduation fees for each student. In Table 10, the eighty colleges have been grouped according to the amount of fees charged and according to their classification by the Council on Medical Education and Hospitals. Eleven colleges charge fees of $125 or less per year; thirty-three between $125 and $225; thirty between $225 and $325, and six charge above $325. Of the eleven colleges charging $125 or less, ten are listed among Class A (acceptable) colleges [2] by the Council on Medical Education, while one is in Class C. The ten Class A colleges having these low fees include the schools of medicine of several state universities for residents of those states. In contrast, four colleges listed by the Council in Class C charge fees of $175 to $225 per year even though the diplomas from these colleges are reported as not recognized by from forty-two to forty-seven state licensing boards.[3] Although forty-seven colleges listed in Class A charge fees higher than $175 per year for each student, the actual expense for teaching that student for the year in these colleges is much more than the fee charged—made possible because of either state aid or private endowment. No medical college can properly teach modern medicine on the income received from fees alone. Although fees have been advanced, at the same time, greater provision has been made for scholarships and loan funds (see page 558) for the benefit of deserving students who are financially poor.

Table 10.—*College Fees*

Total Fees	Number of Colleges			
	Class A	Class B	Class O	Total
$ 75 or less	6	..	..	6
75 to 175	4	..	1	5
125 to 175	13	1	1	15
175 to 225	13	1	4	18
225 to 275	18	1	..	19
275 to 325	10	1	..	11
Above 325	6	..	..	6
Totals	70	4	6	80

COLLEGES, STUDENTS AND GRADUATES BY STATES

Illinois formerly had the largest number of medical colleges (Table 11), but for the last six years the first place has been held by New York, where there are still eight colleges—all in Class A. Illinois, Missouri and Pennsylvania have six colleges each and Massachusetts has five. Of Class C colleges, however, Missouri has three, Massachusetts has two and Illinois one. These Class C colleges exist because the licensing boards in those states do not have or do not exert the power to have their charters revoked.

For the last two years Illinois has had the largest number of students enrolled, where in former years

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[2] See classification in Table 1, pages 550, 551.
[3] See J. A. M. A. 80: 1228 (April 28) 1923, Table D.

(Continued on page 556)

Marginal Number	NAME OF COLLEGE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Marginal Number
		Alabama.......253	Arizona........14	Arkansas......106	California.....642	Colorado......160	Connecticut....290	Delaware........20	Dist. Columbia.149	Florida..........70	Georgia.........316	Idaho............42	Illinois.......1,317	Indiana..........485	Iowa.............511	Kansas..........214	Kentucky.......210	Louisiana.......146	Maine.............96	Maryland.......223	Massachusetts..707	
1	University of Alabama School of Medicine	64																				1
2	University of Arkansas Medical Department			36	1		1				1		1								1	2
3	College of Medical Evangelists		3		85	8			11	2	1	1	3	1		7			1		3	3
4	Stanford University School of Medicine		1		127				1			5	1			1		1			1	4
5	University of California Medical School				223	3							2		1	1					1	5
6	University of Colorado School of Medicine					84						2	3	3	2	1		1			1	6
7	Yale University School of Medicine				2		109		1		1		3						10	3	5	7
8	Georgetown University School of Medicine						16		24		1		2								14	8
9	George Washington University Medical School	1			1	1	3	1	50		2					2	1			10	2	9
10	Howard University School of Medicine	5		1	2		4		36	8	4		2		1	1	9	4		8	1	10
11	Emory University School of Medicine	37								9	142			1			2					11
12	University of Georgia Medical Department									1	86							1				12
13	Chicago Medical School	1											91	1		1		2				13
14	General Medical College						2					2	74	3	2					1		14
15	Loyola University School of Medicine				1	1							178	4	10	4	3	2		1		15
16	Northwestern University Medical School	5	3	3	19	6	1				1	5	182	18	27	14	2	2			1	16
17	Rush Medical College (University of Chicago)	5	1	3	14	11	1		2	2	2	6	281	38	37	15	6		2			17
18	University of Illinois College of Medicine		2	1	6	3				1			334	6	11	2	1					18
19	Indiana University School of Medicine	1			1								2	300	2		1	1				19
20	State University of Iowa College of Medicine												1		289							20
21	University of Kansas School of Medicine					1					1					81						21
22	University of Louisville Medical Department	2			1					1	1		3	31	1	2	109		1			22
23	Tulane University of Louisiana School of Medicine	56		21	8	1	5		1	15	5	3	1			2	1	105				23
24	Johns Hopkins University Medical Department	9		3	9	2	7	2	4	3	10	1	7	5	4	3	5	1	2	71	5	24
25	Univ. of Maryland Sch. of Med. and Coll. of. P. & S.						10	1	2	1										93	6	25
26	Boston University School of Medicine				2		6				2				1	1	1		15	1	54	26
27	College of Physicians and Surgeons, Boston *																				36	27
28	Harvard University Medical School	3			25	7	13		1	2	7	1	7	4	4	4	1		26	3	134	28
29	Tufts College Medical School	2					29						1						19		324	29
30	Middlesex College of Medicine and Surgery.—N.						6												1		55	30
31	University of Michigan Medical School			1	8		1		1	1	4	1	12	27	3		3			2	4	31
32	Detroit College of Medicine and Surgery												1									32
33	University of Minnesota Medical School				3								2		5			1		1		33
34	University of Mississippi School of Medicine	1				1				1								4				34
35	University of Missouri School of Medicine														1							35
36	Kansas City College of Medicine and Surgery.—N.*			4												6						36
37	Kansas City University of Physicians and Surg.—N.	1			1	3	1		1						4	6						37
38	St. Louis College of Physicians and Surgeons *																					38
39	St. Louis University School of Medicine	1	3		24	3			1	1		1	52	9	22	12		5		1	2	39
40	Washington University School of Medicine	1		9	15	4			1	1	1	3	29	3	7	14	3	1				40
41	Creighton University College of Medicine				2	3						2	2	1	30	10						41
42	University of Nebraska College of Medicine				5	8	1						1		11	9						42
43	Dartmouth Medical School						5		2				1						3		8	43
44	Albany Medical College						1														2	44
45	University of Buffalo Medical Department						1						1									45
46	Columbia University College of Physicians and Surg.	2	1	1	5	2	13				3			2	1	1	1				7	46
47	Cornell University Medical College	1			7		11			1			2		1	1	1				10	47
48	Long Island College Hospital						4								1				1			48
49	New York Homeo. Med. Coll. and Flower Hosp.—H.				1																1	49
50	University and Bellevue Hospital Medical College				1		7				1				1				1		1	50
51	Syracuse University College of Medicine						2		1												3	51
52	University of North Carolina School of Medicine																					52
53	Wake Forest College School of Medicine																	1				53
54	University of North Dakota School of Medicine																					54
55	Eclectic Medical College, Cincinnati.—E.										1		2	6		2	9			1		55
56	University of Cincinnati College of Medicine	2			3									8	1	3	15					56
57	Western Reserve University School of Medicine	1			1					2			1	3		1			2	1		57
58	Ohio State University College of Medicine				1						1			2						1		58
59	University of Oklahoma School of Medicine															2						59
60	University of Oregon Medical School				16	1						3			1							60
61	Hahnemann Med. Coll. and Hosp. of Philadelphia.—H.				2		2	3	1						2		3				2	61
62	Jefferson Medical College of Philadelphia	4			3	1	12	9	3	2	3	2	5	3	2	1			3	7	14	62
63	Temple University School of Medicine								1					1					1		1	63
64	University of Pennsylvania School of Medicine	2			7		3	2		1	4		2	3	6	2	2		3	7	2	64
65	Woman's Medical College of Pennsylvania			1	3		1	2					1	1	2		1			4	1	65
66	University of Pittsburgh School of Medicine	1															1					66
67	Medical College of the State of South Carolina																					67
68	University of South Dakota College of Medicine														5							68
69	University of Tennessee College of Medicine	13		3	1				1	2	7		5				2	3				69
70	University of West Tennessee Medical Department																					70
71	Meharry Medical College	5		11	1		1			5	18		7	1		1	6	4				71
72	Vanderbilt University School of Medicine	24		6	1					2	4		2		1	1	16	2				72
73	Baylor University College of Medicine	1			2	2									1			3				73
74	University of Texas School of Medicine																					74
75	University of Utah School of Medicine			1		2						3										75
76	University of Vermont College of Medicine				1		9			1									5		5	76
77	Medical College of Virginia			1			2		1	1							1	1		4		77
78	University of Virginia Department of Medicine	2			1				2	4	2						2	1		3		78
79	West Virginia University School of Medicine											1										79
80	University of Wisconsin Medical School					2							3		6							80
81	Marquette University School of Medicine												7		5		2					81
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	

* Figures and distribution approximate.

E.—Eclectic; H.—Homeopathic; N.—Nondescript.

	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51		
Marginal Number	Michigan........652	Minnesota......532	Mississippi......157	Missouri........562	Montana........47	Nebraska.......368	Nevada..........4	New Hampshire..57	New Jersey......458	New Mexico......14	New York......2,423	North Carolina.360	North Dakota...83	Ohio.............972	Oklahoma.......178	Oregon..........180	Pennsylvania.1,294	Rhode Island....82	South Carolina 214	South Dakota..86	Tennessee.......235	Texas...........564	Utah...........122	Vermont.........90	Virginia........383	Washington....156	West Virginia..201	Wisconsin.......491	Wyoming........8	Philippines, etc.111	Foreign.........368	Totals......17,432	Marginal Number
1	....	....	2	....	....	....	....	....	....	....	....	1	....	1	....	....	....	....	....	....	....	2	....	....	....	....	....	....	....	....	1	71	1
2	1	....	....	1	....	2	....	....	1	....	19	....	....	....	....	....	1	1	....	....	1	2	....	....	....	....	....	1	....	....	....	71	2
3	11	4	....	1	1	13	1	....	....	1	4	1	1	3	2	8	2	....	....	....	5	....	....	....	1	18	....	....	1	1	17	222	3
4	....	....	....	....	....	....	2	....	....	....	1	....	....	1	....	4	....	....	....	....	....	1	3	....	....	3	....	1	1	1	2	158	4
5	....	....	....	....	....	1	....	....	....	....	2	....	....	1	....	3	....	....	....	....	1	....	....	....	....	1	....	2	....	....	7	249	5
6	....	1	....	1	....	....	....	....	....	1	2	....	....	....	1	....	2	....	....	1	....	....	1	....	1	2	1	1	1	1	1	115	6
7	2	....	....	1	....	....	....	....	2	....	22	....	....	9	....	1	6	3	2	....	....	2	....	....	1	1	1	1	....	....	4	192	7
8	1	3	....	....	3	....	....	....	36	....	46	....	....	1	....	....	22	4	....	1	....	1	....	....	6	....	1	....	....	....	11	193	8
9	1	....	....	2	....	....	....	....	14	....	45	5	1	3	....	....	8	....	....	1	....	....	8	....	9	....	2	....	....	5	2	180	9
10	2	....	2	3	....	....	....	....	4	....	12	15	....	5	2	....	16	1	7	....	3	6	....	....	27	....	3	....	....	....	24	218	10
11	....	....	4	1	....	....	....	....	....	....	1	8	....	....	....	....	....	....	2	....	5	1	....	....	3	....	1	....	....	1	....	218	11
12	....	....	....	1	....	....	....	....	1	....	2	2	....	....	....	....	....	....	4	....	....	....	....	....	1	....	....	....	....	3	....	102	12
13	1	....	1	....	....	....	....	....	....	....	6	....	....	....	....	....	....	....	....	....	....	1	....	....	1	....	1	1	....	9	15	132	13
14	6	1	....	1	....	....	....	....	3	....	12	....	2	7	1	....	2	....	....	....	....	....	....	....	1	....	1	....	....	8	5	134	14
15	7	3	....	2	1	1	....	....	....	....	6	1	3	3	2	2	3	....	....	....	1	1	....	....	....	1	1	9	....	7	6	264	15
16	16	11	10	14	5	7	....	....	2	....	3	....	10	13	9	3	7	....	1	4	2	7	12	....	1	25	....	20	....	3	11	485	16
17	12	9	4	6	5	8	1	....	1	2	5	1	11	24	3	9	9	1	1	17	4	14	9	1	1	14	1	61	1	5	17	683	17
18	6	2	....	1	1	....	....	....	....	....	6	1	6	4	....	....	4	....	1	4	....	....	3	....	....	1	....	19	....	4	6	436	18
19	1	....	....	....	....	....	....	....	1	....	2	....	....	8	1	....	2	....	....	....	....	....	....	....	....	....	....	1	....	2	1	327	19
20	....	10	....	....	....	1	....	....	1	....	....	....	....	....	....	....	....	....	....	1	....	1	....	....	....	....	....	2	....	3	8	317	20
21	....	....	....	7	....	....	....	....	....	1	....	....	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	1	95	21
22	....	1	....	2	....	....	....	....	....	1	5	1	....	15	2	2	....	....	1	....	4	....	....	....	4	....	9	....	....	....	....	199	22
23	....	....	40	2	....	....	....	....	3	1	12	14	....	....	3	....	1	....	4	....	7	33	1	....	2	....	....	2	1	....	9	359	23
24	4	2	2	5	....	2	....	....	8	....	19	9	....	19	1	4	31	3	12	....	4	10	2	1	17	2	8	3	....	2	15	338	24
25	1	....	....	....	....	....	....	....	44	....	60	28	....	8	....	....	35	4	2	....	....	....	3	....	3	....	23	....	....	2	9	335	25
26	....	....	....	....	....	1	....	9	4	....	57	1	....	1	....	1	3	4	....	....	....	....	....	1	4	....	1	1	....	3	9	183	26
27	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	36	27
28	9	3	2	12	1	7	....	7	11	....	52	....	3	24	7	9	22	15	3	3	3	9	5	3	4	5	3	11	1	....	22	498	28
29	....	1	....	....	....	....	....	17	6	....	39	....	....	....	....	....	3	23	....	....	....	....	....	1	....	....	....	....	....	1	6	472	29
30	....	....	....	....	....	....	....	2	4	....	12	1	....	....	....	....	....	4	....	....	....	....	....	....	1	....	....	....	....	1	16	103	30
31	350	5	....	5	2	5	....	2	7	1	49	3	2	62	2	1	30	2	1	1	2	....	....	2	3	6	1	5	....	8	17	642	31
32	175	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....	1	180	32
33	7	401	....	....	3	....	....	1	....	....	6	....	6	3	....	....	2	....	....	5	....	....	2	....	....	4	....	19	....	....	3	474	33
34	....	....	46	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	2	....	....	....	....	....	....	....	1	....	57	34
35	....	....	....	67	....	....	....	....	....	....	7	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	4	79	35
36	....	....	....	50	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	60	36
37	1	1	....	24	1	....	....	....	....	....	....	....	....	2	....	....	1	....	....	....	....	1	1	....	....	1	....	1	1	....	6	58	37
38	....	....	....	65	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	65	38
39	10	14	....	129	3	1	....	....	3	1	12	....	3	49	2	1	5	....	....	2	....	3	2	....	....	4	....	8	....	1	9	399	39
40	....	2	1	111	3	1	....	....	....	....	2	2	....	1	1	1	1	....	....	1	....	4	10	....	1	6	....	15	....	2	3	260	40
41	....	11	....	1	9	60	....	....	....	1	....	....	1	1	1	1	....	....	....	8	....	....	1	....	....	8	....	....	....	2	....	155	41
42	....	8	....	7	2	243	....	....	....	....	4	....	....	....	....	1	....	....	....	5	....	....	....	....	....	....	....	2	1	....	6	314	42
43	....	....	....	....	....	1	....	8	3	....	8	....	....	....	....	....	1	....	....	....	....	....	....	4	....	....	....	....	....	....	....	44	43
44	....	....	....	....	....	....	....	1	4	....	76	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	3	88	44
45	....	....	....	1	....	....	....	....	1	....	218	1	....	1	....	....	9	....	....	....	....	....	....	....	....	1	1	....	....	....	2	237	45
46	1	....	3	1	....	....	....	....	39	....	258	2	1	4	1	1	4	3	1	....	2	1	4	....	2	....	1	3	....	1	9	381	46
47	....	....	....	1	....	2	....	1	26	....	159	3	....	7	....	....	6	3	2	....	1	1	1	2	....	1	1	1	....	2	1	256	47
48	....	....	....	....	....	....	....	....	16	....	321	....	....	....	....	....	2	....	....	....	....	....	....	1	....	....	....	....	....	....	....	346	48
49	....	....	....	....	....	....	....	....	8	....	147	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	158	49
50	....	....	1	3	....	....	....	....	50	....	358	....	....	....	....	....	5	....	....	....	1	1	2	....	....	....	....	....	....	1	1	435	50
51	....	....	....	....	....	....	....	....	4	....	147	5	....	1	....	....	3	....	....	....	....	....	....	....	1	....	....	....	....	3	4	174	51
52	....	....	....	....	....	....	....	....	....	....	....	75	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	76	52
53	....	....	....	....	....	....	....	....	1	....	2	34	....	....	....	....	2	....	3	....	....	....	....	....	2	....	....	....	....	....	....	45	53
54	....	6	....	....	1	....	....	....	....	....	1	....	29	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	38	54
55	1	2	....	3	....	....	....	....	4	....	33	....	....	24	....	....	4	....	....	....	1	2	....	....	....	....	3	....	....	....	1	99	55
56	....	2	....	....	....	....	....	....	1	....	4	6	1	170	....	1	6	....	....	4	2	....	1	....	2	....	8	....	....	2	4	246	56
57	2	....	....	2	....	1	....	....	1	....	6	....	....	118	....	....	19	....	....	1	....	....	2	....	2	1	5	2	....	....	4	178	57
58	....	....	1	....	....	....	....	....	2	....	1	....	....	299	....	....	4	....	....	....	1	....	....	....	....	....	3	....	....	1	....	317	58
59	....	....	....	....	....	....	....	....	....	2	5	....	....	....	117	....	....	....	....	....	....	3	....	....	....	1	....	....	....	5	1	136	59
60	....	....	....	....	5	....	....	....	....	1	....	....	....	....	....	118	....	....	....	....	....	....	....	....	....	33	....	....	....	....	6	184	60
61	2	1	....	....	....	....	....	....	26	....	10	....	....	4	....	....	117	3	....	....	....	....	....	....	2	....	....	....	....	....	3	183	61
62	2	3	1	4	....	3	....	....	42	....	30	31	....	23	1	6	299	2	6	1	3	5	10	1	4	3	23	2	....	10	6	595	62
63	....	....	....	....	....	....	....	....	15	....	3	1	....	....	....	....	104	....	....	....	....	....	....	....	....	....	1	....	....	2	1	131	63
64	2	2	4	8	1	5	....	1	25	....	13	33	1	6	....	1	238	....	2	....	4	5	11	....	6	9	2	12	....	....	12	449	64
65	2	....	....	1	....	....	....	....	12	....	14	4	....	8	....	....	48	....	4	....	1	....	....	....	2	1	....	....	....	2	3	119	65
66	....	1	....	....	....	....	....	....	....	....	1	....	....	13	....	....	177	....	....	....	....	....	....	....	....	....	....	....	....	....	....	194	66
67	....	....	....	....	....	....	....	....	2	....	....	3	....	....	....	....	....	....	125	....	....	....	....	....	....	....	....	....	....	....	1	131	67
68	....	1	....	....	....	1	....	....	1	....	3	....	....	....	....	1	....	....	....	26	....	....	....	....	....	....	....	....	....	....	2	40	68
69	2	....	12	1	....	1	....	....	2	....	4	1	....	....	8	....	....	....	1	....	78	19	....	....	5	....	2	....	....	....	1	174	69
70	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....	....	2	70
71	3	....	11	8	....	1	....	....	....	....	4	21	....	5	4	....	2	....	13	....	9	19	....	....	9	....	1	....	....	....	15	185	71
72	....	....	5	2	....	....	....	....	....	....	6	5	....	1	1	....	....	....	4	....	84	16	....	....	1	....	....	....	....	....	3	187	72
73	2	1	2	2	....	....	....	....	4	....	4	1	....	1	2	....	....	....	....	....	....	115	....	....	....	1	....	....	....	....	....	144	73
74	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	276	....	....	....	....	....	....	....	....	....	277	74
75	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	27	....	....	....	....	....	....	....	3	37	75
76	....	....	....	....	....	....	....	8	4	....	15	....	....	....	....	....	1	3	....	....	....	....	....	73	....	....	....	....	....	....	....	125	76
77	....	....	1	....	....	....	....	....	3	....	23	37	....	1	....	....	5	2	1	....	....	....	1	....	140	....	28	1	....	2	1	257	77
78	....	....	2	....	....	....	....	....	3	....	1	11	....	....	1	....	3	....	11	....	4	....	....	....	113	1	1	....	....	....	....	168	78
79	....	....	....	....	....	....	....	....	3	....	13	1	....	7	....	....	14	....	....	....	....	....	....	....	....	....	62	....	....	3	....	104	79
80	2	3	....	2	....	....	....	....	....	....	1	....	....	2	....	....	1	....	....	....	....	....	....	....	....	....	1	131	....	....	2	176	80
81	7	17	....	1	....	....	....	....	....	....	2	....	2	7	....	....	....	....	....	....	....	....	....	....	....	1	....	153	....	....	4	208	81
	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51		

NAME OF COLLEGE	Enrolled During 1922-23					
	1st year	2d year	3d year	4th year	5th year	Totals
University of Alabama School of Med.*	41	30	...	...	...	71
University of Arkansas Medical Dept.	31	30	10	...	...	71
College of Medical Evangelists	53	70	60	39	...	222
Stanford University School of Medicine	46	42	23	25	22	178
University of California Medical School	62	53	48	44	42	249
University of Colorado School of Medicine	42	32	17	24	...	115
Yale University School of Medicine	59	51	49	33	...	192
Georgetown University School of Medicine	57	67	33	36	...	193
George Washington University Med. Sch.	75	51	38	16	...	180
Howard University School of Medicine	53	89	47	29	...	218
Emory University School of Medicine	59	48	60	51	...	218
University of Georgia Medical Dept.	30	29	33	10	...	102
Chicago Medical School	32	40	21	39	...	132
General Medical College	37	39	30	28	...	134
Loyola University School of Medicine	80	72	55	29	28	264
Northwestern University Medical School	102	95	111	93	84	485
Rush Medical College (Univ. of Chicago)	105	125	144	178	131	683
University of Illinois College of Med.	104	99	98	88	47	436
Indiana University School of Medicine	108	90	71	58	...	327
State University of Iowa College of Med.	116	96	58	47	...	317
University of Kansas School of Medicine	35	18	20	22	...	95
University of Louisville Medical Dept.	67	54	49	29	...	199
Tulane Univ. of Louisiana Sch. of Med.	102	82	96	79	...	359
Johns Hopkins University Medical Dept.	79	79	86	94	...	338
University of Maryland School of Medicine and College of P. & S.	108	86	87	54	...	335
Boston University School of Medicine	60	49	50	24	...	183
College of Phys. and Surgs., Boston †	8	9	10	9	...	36
Harvard University Medical School	125	125	124	124	...	498
Tufts College Medical School	140	127	142	63	...	472
Middlesex College of Med. and Surg.—N.	13	34	26	30	...	103
University of Michigan Medical School	174	201	148	119	...	642
Detroit College of Medicine and Surgery	58	64	32	26	...	180
University of Minnesota Medical School	100	108	105	61	100	474
University of Mississippi School of Med.*	33	24	...	...	...	57
University of Missouri School of Med.*	43	36	...	...	...	79
Kansas City Col. of Med. & Surg.—N.†	18	9	10	23	...	60
Kansas City Univ. of Phys. & Surgs.—N.	15	8	3	32	...	58
St. Louis College of Phys. and Surgs.†	10	9	8	38	...	65
St. Louis University School of Medicine	134	90	92	83	...	399
Washington University School of Med.	67	63	75	55	...	2 0
Creighton University College of Medicine	43	40	37	35	...	155
University of Nebraska College of Med.	93	89	62	70	...	314
Dartmouth Medical School *	16	28	...	...	...	44
Albany Medical College	34	21	19	14	...	88
University of Buffalo Medical Dept.	72	50	65	50	...	237
Columbia Univ. College of Phys. & Surgs.	103	98	86	94	...	381
Cornell University Medical College	78	55	59	64	...	256
Long Island College Hospital	110	92	57	87	...	346
New York Homeopathic Medical College and Flower Hospital.—H.	70	35	35	18	...	158
University and Bellevue Hosp. Med. Coll.	135	109	108	83	...	435
Syracuse University College of Medicine	51	50	37	36	...	174
University of No. Carolina Sch. of Med.*	38	38	...	...	...	76
Wake Forest College School of Med.*	27	18	...	...	...	45
University of No. Dakota Sch. of Med.*	17	21	...	...	...	38
Eclectic Medical College, Cincinnati.—E.	29	24	30	16	...	99
University of Cincinnati College of Med.	61	57	67	61	...	246
Western Reserve University Sch. of Med.	58	47	43	30	...	178
Ohio State University College of Medicine	116	98	54	49	...	317
University of Oklahoma School of Med.	54	34	24	24	...	136
University of Oregon Medical School	62	53	40	29	...	184
Hahnemann Medical College and Hospital of Philadelphia.—H.	52	49	50	32	...	183
Jefferson Medical College of Philadelphia	161	132	150	152	...	595
Temple University School of Medicine	51	42	12	26	...	131
University of Pennsylvania Sch. of Med.	105	84	134	126	...	449
Woman's Medical College of Pennsylvania	27	38	33	21	...	119
University of Pittsburgh School of Med.	72	47	35	40	...	194
Medical Coll. of the State of So. Carolina	37	40	28	26	...	131
University of So. Dakota Coll. of Med.*	19	21	...	...	...	40
University of Tennessee College of Med.	51	52	49	22	...	174
University of W. Tennessee Med. Dept.	...	...	...	2	...	2
Meharry Medical College	45	28	48	64	...	185
Vanderbilt University School of Medicine	52	46	51	38	...	187
Baylor University College of Medicine	61	42	24	17	...	144
University of Texas School of Medicine	92	71	72	42	...	277
University of Utah School of Medicine*	17	20	...	...	...	37
University of Vermont College of Med.	25	43	35	22	...	125
Medical College of Virginia	81	58	75	43	...	257
University of Virginia Dept. of Medicine	55	55	31	27	...	168
West Virginia University School of Med.*	55	49	...	...	...	104
University of Wisconsin Medical School *	93	63	...	...	...	156
Marquette University School of Medicine	63	55	42	30	18	208
Totals for 1923	5162	4615	3861	3322	472	17432
Totals for 1922	5412	4219	3355	2649	505	16140
Totals for 1921	4825	3588	2637	2416	406	14872

E.—Eclectic; H.—Homeopathic; N.—Nondescript.

* Gives only the first two years of the medical course.

† Figures and distribution are approximate.

(Continued from page 553)

New York had the largest number. This year Illinois has 2,134, followed by New York with 2,075 and Pennsylvania with 1,671 and Massachusetts with 1,292. New York leads also in the number of graduates, having reported 444, followed by Pennsylvania with 386, Illinois with 360, Massachusetts with 242 and Missouri with 216.

QUALIFICATIONS OF STUDENTS AND GRADUATES

Table 12 shows the students and graduates of the last eleven years grouped according to their classification by the Council on Medical Education and Hospitals. Note that during this time the percentage of students enrolled in Class A colleges has increased from 65.4 to 94.0, and that since 1917 the total number of students in attendance at these schools has increased from 11,317 to 16,454. Note, on the other hand, that both the numbers and the percentages of students enrolled in Class B and Class C colleges have been reduced. The percentage of students in Class B colleges has been reduced from 24.4 to 3.2 and in Class C colleges from 10.2 to 2.8. Of graduates, also, the percentage in Class A colleges shows an increase, while in Class B and Class C colleges there has been a decrease. The reductions in the total numbers of students and graduates, therefore, have been largely at the expense of the lower grade colleges.

TABLE 11.—*Medical Colleges, Students and Graduates by States*

State	Colleges		Students		Graduates		Graduates with B.S. or A.B.
	Class A and B	Class C	Men	Women	Men	Women	
Alabama	1	..	71	...	...	..	...
Arkansas	1	..	71	...	...	..	...
California	3	..	540	89	81	14	78
Colorado	1	..	100	15	22	1	6
Connecticut	1	..	184	8	31	..	25
Dist. of Columbia	3	..	575	16	78	3	40
Georgia	2	..	319	1	61	..	28
Illinois	5	1	2,002	132	337	23	241
Indiana	1	..	313	14	55	3	55
Iowa	1	..	309	8	42	2	24
Kansas	1	..	91	4	18	1	13
Kentucky	1	..	194	5	28	1	8
Louisiana	1	..	345	14	73	4	36
Maryland	2	..	620	53	129	15	116
Massachusetts	3	2	1,229	63	231	11	123
Michigan	2	..	773	49	106	9	53
Minnesota	1	..	444	30	78	7	85
Mississippi	1	..	55	2	...	..	...
Missouri	3	3	883	38	203	13	107
Nebraska	2	..	452	17	89	4	80
New Hampshire	1	..	44	...	...	..	...
New York	8	..	1,911	164	404	40	221
North Carolina	2	..	120	1	...	..	...
North Dakota	1	..	38	...	...	..	...
Ohio	4	..	795	45	134	11	103
Oklahoma	1	..	134	2	24	..	22
Oregon	1	..	169	15	23	3	13
Pennsylvania	6	..	1,505	166	348	38	180
South Carolina	1	..	125	6	24	1	12
South Dakota	1	..	39	1	...	..	...
Tennessee	3	..	542	6	122	3	59
Texas	2	..	396	25	55	4	16
Utah	1	..	36	1	...	..	...
Vermont	1	..	122	3	23	..	9
Virginia	2	..	407	18	68	2	24
West Virginia	1	..	103	1	...	..	...
Wisconsin	2	..	346	18	19	1	19
Totals	74	6	16,402	1,030	2,906	214	1,787

HINTS TO PROSPECTIVE MEDICAL STUDENTS

The student who is contemplating the study of medicine should note with care the character and classification of the medical school in which he is planning to enroll.[4] The selection of the school in which he is to obtain his medical training is a matter of extreme importance and should be considered with special care. He should note the standards for admission, which will be found in the descriptive statements of the colleges appearing on pages 561 to 570. A careful review of the material published this week will be of great service to such students.

GRADUATE MEDICAL EDUCATION

The facilities for graduate medical instruction in the United States are set forth on the next few pages. Not only are the separate graduate medical schools given, but also the opportunities available in undergraduate medical schools. In the latter, the courses vary somewhat from year to year, but the outlines given indicate the variety and extent of such work. It is hoped that by the publication each year of these data opportunities in both graduate and undergraduate schools may be enlarged and a greater use be made of the abundance of clinical material in this country. This is now the greatest need in medical education. The majority of undergraduate medical schools are now on a par with those in other leading countries, but there should be developed increased opportunities where physicians can secure high grade instruction in graduate medical work.

Table 12.—*Students and Graduates According to Classification*

	Students						Graduates					
	Colleges Rated in Class						Colleges Rated in Class					
Year	A	%	B	%	C	%	A	%	B	%	C	%
1913	11,122	65.4	4,158	24.4	1,735	10.2	2,539	63.8	1,050	26.4	392	9.8
1914	12,336	74.7	2,838	17.2	1.328	8.1	2,626	73.1	686	19.1	282	7.8
1915	11,314	76.0	2,668	17.9	909	6.1	2,629	74.4	688	19.4	219	6.2
1916	11,162	79.6	2,087	14.9	773	5.5	2,630	74.7	695	19.8	193	5.5
1917	11.317	82.2	1,761	12.8	686	5.0	2,577	76.3	648	19.2	154	4.5
1918	11,522	84.5	1,488	10.9	620	4.5	2,024	75.8	399	14.9	247	9.2
1919	11,466	87.9	1,086	8.3	500	3.8	2,220	83.6	268	10.1	168	6.3
1920	12,610	89.6	680	4.8	798	5.6	2,690	88.4	152	5.0	205	6.6
1921	13,487	90.5	832	5.6	553	3.9	2,812	88.1	200	6.3	180	5.6
1922	14,625	90.6	852	5.3	663	4.1	2,204	87.1	143	5.7	182	7.2
1923	16,454	94.0	522	3.2	456	2.8	2,881	91.7	83	2.9	156	5.4

EXISTING AND EXTINCT MEDICAL COLLEGES

On pages 571 to 577 will be found a complete list of medical schools in the United States including those which are now extinct. Some of the institutions have gone under two or more titles during their existence. The tabulation shows the dates during which each institution existed under any particular title and gives references to the lines where any other titles will be found under which the same institution was known. All titles are given in alphabetical order so that reference to any institution can easily be made.

The tabulation shows, also, the particular years when each medical school had (or did not have) graduates; the dates when the school began to require, respectively, one year or two or more years of collegiate work for admission; the rating of each institution in Class A, B or C by the Council on Medical Education and Hospitals, and the years during which that particular classification was held. The last column gives the key number of the institution as given in the American Medical Directory. This list is of special importance to all those who are interested in the standing of medical schools from which physicians graduated.

The Combined Course in Liberal Arts and Medicine

There are sixty-three medical schools which announce that arrangements have been made whereby students can secure degrees in boths arts and medicine in six or seven years' time. Many have arranged for the B.S. and M.D. degrees in six years, or the A.B. and M.D. degrees in seven years. Eleven of these colleges give only the first two years of the medical course and, therefore, offer only the first four or five years of the combined course. These are indicated by the figures four and five in parentheses. The list of medical schools follows:

College	B.S. and M.D.	A.B. and M.D.
University of Alabama School of Medicine	6 (4)	..
University of Arkansas Medical Department	6	..
College of Medical Evangelists	6	7
Stanford University School of Medicine	..	8[1]
University of California Medical School	8[1]	8[1]
University of Colorado School of Medicine	..	7
Yale University School of Medicine	7	..
Georgetown University School of Medicine	6	..
George Washington University Medical School	6	7
Howard University School of Medicine	7	7
Emory University School of Medicine	7	..
University of Georgia Medical Department	6	..
General Medical College	6	..
Loyola University School of Medicine	7[1]	..
Northwestern University Medical School	7[1]	..
Rush Medical College	8[1]	..
University of Illinois College of Medicine	7[1]	8[1]
Indiana University School of Medicine	6	7
State University of Iowa College of Medicine	6	7
University of Kansas School of Medicine	6	7
University of Louisville Medical Department	6	..
Tulane University School of Medicine	6	..
Johns Hopkins University Medical Department	..	7
University of Maryland School of Medicine	..	7
Boston University School of Medicine	6	..
Tufts College Medical School	..	7
University of Michigan Medical School	6	7
University of Minnesota Medical School	7[1]	8[1]
University of Mississippi	6 (4)	..
St. Louis University School of Medicine	6	..
University of Missouri School of Medicine	..	6 (4)
Washington University School of Medicine	6	..
Creighton University College of Medicine	6	..
University of Nebraska College of Medicine	6	7
Dartmouth Medical School	7 (4)	..
Albany Medical College	7	..
Columbia University College of Phys. and Surgs.	..	7
Cornell University Medical College	..	7
Syracuse University College of Medicine	6	7
University and Bellevue Hospital Medical College	6	..
University of Buffalo Medical Department	6	7
University of North Carolina School of Medicine	7 (4)	..
Wake Forest College School of Medicine	6 (4)	..
University of North Dakota School of Medicine	6 (4)	7 (4)
Ohio State University College of Medicine	6	7
University of Cincinnati College of Medicine	6	7
Western Reserve University School of Medicine	7	7
University of Oklahoma School of Medicine	6	..
University of Oregon Medical School	..	7
Hahnemann Medical Coll. and Hosp., Philadelphia	6	..
University of Pennsylvania School of Medicine	..	7
University of Pittsburgh School of Medicine	7	..
University of South Dakota College of Medicine	6 (4)	7 (4)
University of Tennessee College of Medicine	6	7
Baylor University College of Medicine	..	6
University of Texas School of Medicine	6	7
University of Utah School of Medicine	6 (4)	..
University of Vermont College of Medicine	..	7
Medical College of Virginia	..	7
University of Virginia Department of Medicine	6	7
West Virginia University School of Medicine	6 (4)	..
Marquette University School of Medicine	..	8[1]
University of Wisconsin Medical School	6 (4)	7 (4)

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[4] For useful information regarding all medical schools, a pamphlet entitled "Choice of a Medical School" will be sent to any address on receipt of 8 cents.—Ed.

[1] Eight medical schools require a hospital internship for the M.D., making a total of 7 or 8 years for the combined course.

Scholarships in Medical Schools

As evidence that provision is being made for worthy students, regardless of their financial status, 534 scholarships are reported this year in the following forty-six medical schools:

University of Alabama School of Medicine, Tuscaloosa	67
Stanford University Medical School,* San Francisco	2
University of California Medical School,* San Francisco	6
University of Colorado School of Medicine,* Denver	1
Yale University School of Medicine,* New Haven	2
Georgetown University School of Medicine, Washington	2
Emory University Medical School,* Atlanta	11
Northwestern University School of Medicine,* Chicago	1
Rush Medical College, Chicago	7
University of Illinois College of Medicine, Chicago	84
Indiana University School of Medicine,* Bloomington and Indianapolis	12
State University of Iowa College of Medicine, Iowa City	1
University of Kansas School of Medicine,* Kansas City	1
Johns Hopkins University Medical Department, Baltimore	6
University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore	8
Boston University School of Medicine,* Boston	16
Medical School of Harvard University,* Boston	50
Detroit College of Medicine and Surgery, Detroit	8
University of Missouri School of Medicine,* Columbia	10
Washington University School of Medicine, St. Louis	2
University of Nebraska College of Medicine,* Omaha	6
Dartmouth Medical School,* Hanover, N. H	2
Albany Medical College, Albany, N. Y	11
University of Buffalo Department of Medicine,* Buffalo	1
Columbia University College of Physicians and Surgeons, New York	36
Cornell University Medical College,* New York	3
Syracuse University College of Medicine, Syracuse	1
University and Bellevue Hospital Medical College,* New York	1
University of North Carolina School of Medicine, Chapel Hill	1
University of Cincinnati College of Medicine,* Cincinnati	12
University of Oregon Department of Medicine,* Portland	5
Hahnemann Medical College and Hospital of Philadelphia*	12
Jefferson Medical College, Philadelphia	3
Temple University Department of Medicine, Philadelphia	3
University of Pennsylvania School of Medicine,* Philadelphia	4
University of Pittsburgh School of Medicine, Pittsburgh	3
Woman's Medical College of Pennsylvania,* Philadelphia	30
Medical College of the State of South Carolina, Charleston	8
University of Tennessee College of Medicine, Memphis	15
Vanderbilt University Medical Department, Nashville, Tenn	4
University of Texas Department of Medicine,* Galveston	2
University of Vermont Medical School*	55
Medical College of Virginia, Richmond	10
University of Virginia Department of Medicine,* Charlottesville	2
West Virginia University School of Medicine,* Morgantown	1
University of Wisconsin Medical School, Madison	6
Total in 46 medical schools	534

* Have loan funds also.

Loan Funds

Besides the twenty-four colleges marked by an asterisk (*) in the above list which have loan funds for deserving but needy students, such funds are available also at the five following medical schools:

College of Medical Evangelists, Loma Linda, Calif.
Tulane University of Louisiana School of Medicine, New Orleans.
University of Michigan Medical School, Ann Arbor.
Wake Forest College School of Medicine, Wake Forest, N. C.
University of North Dakota School of Medicine, University.

GRADUATE MEDICAL SCHOOLS

Principles Regarding Graduate Medical Schools Formulated by the Council on Medical Education and Hospitals

1. *Admission Requirements.*—The minimum admission requirement for those wishing to prepare themselves for the practice of a specialty should be graduation from an acceptable (Class A) medical college and completion of at least one year's internship in an approved hospital. In the case of reputable physicians who desire to improve themselves for general practice, lenient admission requirements are justified. Courses for *general practitioners* should be open to all physicians who have received the degree of Bachelor or Doctor of Medicine from medical colleges considered acceptable by this Council, or to reputable physicians who were licensed in certain states before graduation was required.

2. *Records.*—Records are just as essential in a graduate as in an undergraduate school. Graduate physicians, indeed, will vary more in their preliminary and professional qualifications than the present-day undergraduates, and a knowledge of these qualifications is essential to decide the character and grade of the work to which the graduate student should be assigned. Again, a knowledge of his proficiency in the work to which he is assigned is essential to know whether he is worthy of advancement, or whether he can be trusted with responsibility for the diagnosis and treatment of patients who may be assigned to his care. Especially are such records important for those preparing for the practice of a specialty.

Records should be kept by each institution, therefore, showing (*a*) the preliminary and professional entrance qualifications of every student, which should be verified by authentic or documentary evidence; (*b*) previous attendance at graduate courses and grades obtained; (*c*) the subjects for which he is enrolled; (*d*) evidence of his faithful attendance at his work; (*e*) evidence of the student's proficiency as demonstrated by his routine or research work, examinations or otherwise, and (*f*) whether an advanced degree or certificate was granted.

3. *Supervision.*—There should be careful and intelligent supervision of the entire school by a dean or other executive officer who holds, and has sufficient authority to carry out, fair ideals as determined by the present day needs of graduate medical education.

4. *Curriculum and Grading of Instruction Offered.*—The graduate school should have its various courses of instruction so graded that the student, if he desires, can obtain progressive work in a continuous course of *two or three years,* as may be necessary to prepare him satisfactorily for the practice of a chosen specialty. If it is found that at some previous time the student has satisfactorily completed certain portions of the work, he could be given advanced standing and thereby enabled to complete his preparation in a shorter time.

Where short courses are offered in any of the clinical specialties, these also should be *so graded that, in effect, they would be segments of and, in total, the time and educational equivalent of the longer courses.* These segments could be taken at different times, but would ultimately lead the student to the same objective. Excepting certain review courses for general practitioners, all short courses should fit in with a scheme, the ultimate aim of which would be a complete and satisfactory training in the specialty for which the graduate school provides instruction.

Any institution offering work in any specialty should provide (*a*) review courses in anatomy, pathology and the other basic preclinical sciences which apply to the respective specialties; (*b*) clinics in which students can have the opportunity personally to examine patients in hospital wards and outpatient departments and in which various therapeutic and operative procedures can be demonstrated; (*c*) courses of operative and laboratory technic; and (*d*)—to be assigned only when the student's previous training will warrant—assistantships in which, under the supervision of a physician already having recognized skill in the particular specialty, he can gradually assume responsibility in the diagnosis and therapeutic or operative treatment of the sick. Opportunity should be provided also for *research work* in the chosen specialty bearing on both the fundamental sciences and clinical fields. With courses so graded, no student should be admitted to any advanced short course unless, on careful investigation, he is found to possess the knowledge and skill, such as are obtainable in the other prerequisite courses.

5. *Teachers.*—The graduate medical school should be supplied with a corps of teachers well trained in and responsible for the work in all subjects in which opportunities for study are announced. This should include teachers for essential review or advanced work in the preclinical sciences, as well as those who have in charge work in clinical subjects. The teaching staff should be made up of graduates of or teachers in Class A medical colleges or other high grade educational institutions. The faculty should be organized under the various teaching departments in which work is offered, and a competent teacher should be at the head of each department.

6. *Laboratories.*—The school should possess well-equipped laboratories to provide proper review or advanced work in both laboratory and clinical subjects essential for the specialty or specialties in which opportunities are offered. There should also be an adequate supply of special apparatus, such as stereopticons, balopticons, photomicrographic outfits and roentgen-ray equipment.

7. *Library and Museum Facilities.*—The graduate school should have a medical library containing an ample supply of modern text and reference books, files of bound medical periodicals, and the essential indexes. It should also receive

regularly thirty or more standard medical periodicals, the latest numbers of which should be on tables or in racks where they are easily accessible to the graduate students.

The school should be supplied with adequate museum facilities, including anatomic and pathologic specimens.

8. *Hospitals and Dispensaries.*—The graduate medical school should have a teaching hospital with a daily average of 200 or more patients, and an outpatient clinic with an average of 100 or more patients each day; or, if teaching is limited to a single specialty, a hospital of not less than twenty-five patients daily, and an outpatient clinic of at least fifty patients daily. In brief, it should have sufficient clinical material to enable it to provide satisfactory clinical study in the specialty or specialties for which opportunities are offered. In connection with the courses for general practitioners, ample clinical material should be available so that the student may be given the opportunity personally to examine patients in hospital wards and in the outpatient department, and to make the essential laboratory examinations.

9. *Annual Announcements* — The graduate school should publish annually announcements, bulletins or catalogues giving detailed information in regard to its teachers, laboratories, dispensaries and hospitals; outlines of the various opportunities for study offered in both fundamental and clinical branches; a complete list of the students enrolled during the last preceding year, showing their medical schools and years of graduation and the subjects for which they registered, and a list of those to whom advanced degrees or diploma-like certificates were granted.

10. *Advanced Degrees, Diplomas, Certificates.*—No advanced degree of diploma-like certificate should be granted to any one who is not known to be proficient in the specialty pursued; nor to any one, under any circumstances, who has not completed at least one academic year in full-time study of a single special subject in the institution granting the certificate; and unless scholarship records of the student show that, throughout the period, he has faithfully attended to his work, and unless reasonable tests show that he has diligently and satisfactorily completed the work for which he was registered.

Approved Graduate Medical Schools

On the basis of three complete inspections the following graduate medical schools have been approved.

CALIFORNIA

University of California Courses for Graduates, Berkeley—San Francisco.—Opportunities for securing the degree of Ph.D. in various preclinical sciences, anatomy, physiology, chemistry, etc. Address, Dean of the Graduate Division.

ILLINOIS

University of Chicago, Rush Medical College, Wood and Harrison Streets, Chicago.—Besides courses leading to higher degrees, various courses for general practitioners and special internships in eye, ear, nose and throat are given. The acting dean is Dr. Ernest E. Irons.

University of Illinois College of Medicine, Honore and Congress Streets, Chicago.—Courses in the preclinical sciences leading to higher degrees are offered. The dean is Dr. Albert C. Eycleshymer.

LOUISIANA

Tulane University Graduate School of Medicine, 1551 Canal St., New Orleans.—Courses in the preclinical branches leading to higher degree are offered. Also general practice courses and courses in eye, ear, nose and throat. The dean is Dr. Charles L. Chassaignac.

MARYLAND

Johns Hopkins University Medical Department, Baltimore.—General practice courses are offered each year and residencies in the special departments of Johns Hopkins Hospital. The dean is Dr. J. Whitridge Williams.

MASSACHUSETTS

Harvard Medical School Courses for Graduates, Boston.—Basic review and general practice courses. Instruction given throughout the year. The dean is Dr. Samuel R. Meaker.

Massachusetts Charitable Eye and Ear Infirmary, 233 Charles Street, Boston.—Internships in eye, ear, nose and throat. A general internship and a knowledge of certain basic review courses are required for admission. The superintendent is Dr. Frederic A. Washburn.

MINNESOTA

University of Minnesota Graduate School of Medicine, Minneapolis.—Organized 1914. In 1915, the resources and facilities of the Mayo Foundation were added, with the staff, clinics, laboratories, library and records at Rochester, Minn. A nine months' course of advanced work is offered in the science departments giving the fundamental training essential in ophthalmology and otolaryngology, will begin Sept. 28, 1922. It includes anatomy, embryology and histology of the sense organs and of the head region; physiologic optics; physiology of the special senses and of speech; pathology and bacteriology as applied to the eye, ear, nose and throat. The course includes lectures, demonstrations, quizzes and clinical work in the outpatient department. The course is limited to ten students. There are also two teaching fellowships, each available in internal medicine, surgery, obstetrics, ophthalmology and otolaryngology, pediatrics, and mental and nervous diseases. Five others are available in the laboratory sciences, and eighty-six others are available under the Mayo Foundation. Courses in various specialties leading to higher degrees in medicine (M.A., M.S., Ph.D.). Instruction throughout the year. The dean is Guy Stanton Ford, Ph.D., Minneapolis.

NEW YORK

Columbia University College of Physicians and Surgeons, 437 W. 59th Street, New York City.—Courses for general practitioners and courses leading to higher degrees are offered. The dean is Dr. William Darrach.

Cornell University Medical College, 1st Avenue and 28th Street, New York City.—Courses for general practitioners and courses in the preclinical sciences leading to higher degrees are offered. The dean is Dr. Walter L. Niles.

Manhattan Eye, Ear, Nose and Throat Hospital School of Graduate Medical Instruction, 201 E. 64th Street, New York City.—Special internships in eye, ear, nose and throat. The superintendent is Mr. Ruben O'Brien.

New York Eye and Ear Infirmary School of Ophthalmology and Otology, 13th Street and 2d Avenue., New York City.—Special internships are offered in diseases of the eye and in diseases of the ear. The superintendent is Mr. Thomas K. Robertson.

New York Post Graduate Medical School, 2d Avenue and 20th Street, New York City.—Courses for general practitioners and internships in various specialties are offered. The dean is Dr. William D. Cutter.

University and Bellevue Hospital Medical College, 338 E. 26th Street, New York City.—A complete special course in surgery is offered for a limited number of physicians. The dean is Dr. Samuel A. Brown.

PENNSYLVANIA

Graduate School of Medicine of the University of Pennsylvania, Philadelphia. Organized in 1916 by a merger with the University of the Medico-Chirurgical College of Philadelphia. The Philadelphia Polyclinic was merged in 1918. The faculty includes about 230 teachers. Courses extending over from four to twelve months in medicine, pediatrics, neurology, dermatology, syphilology, roentgenology, surgery, gynecology, obstetrics, orthopedics, urology, proctology, ophthalmology, otolaryngology and the medical sciences. Fees: Four month courses, $200; eight months, $400; twelve months, $600. Special schedules (few only), special fees. The dean is Dr. George H. Meeker.

GRADUATE COURSES IN MEDICAL SCHOOLS

Special correspondence with medical schools shows that there are many opportunities for graduate study which physicians have not been able to take advantage of through the lack of knowledge in regard to them. The following list has been prepared to correct this deficiency. More complete information can be obtained by correspondence with the medical school concerned.

CALIFORNIA

Stanford University School of Medicine, San Francisco.—Graduate courses open to physicians: (a) Mid-day clinics, Wednesdays (medicine), Thursday (surgery) and Saturdays (obstetrics and gynecology), free of charge. (b) Clinical demonstrations at the San Francisco Hospital. On Thursdays beginning at 9 a. m., the work is in surgery; on Fridays, beginning 10 a. m., medicine and the medical specialties. These courses are free of charge. (c) During the summer months, from July 1 to October 1, while there is no routine teaching of undergraduate students, properly qualified graduates in medicine and medical students of this and other approved medical schools may participate in the medical and surgical work, including specialties, in the clinics, hospital and laboratories in the capacity of special workers. The work is purely practical, not didactic, and the number who can participate restricted. (d) Assistantships in clinics and laboratories. A physician may be assigned to some research problem or receive regular instruction from a member of the staff. For the latter an appropriate fee is charged and a nominal fee also for material used. During the last five years an average of 30 physicians each year has occupied these assistantships.

University of California Medical School.—Resident positions are open to properly qualified medical graduates as follows: In the University Hospital: A resident position in general medicine and four assistant residentships, one each in general medicine and dermatology; in neuropsychiatry and infirmary; in outpatient department; in medical research. Besides a residentship in surgery, there are five assistant residentships, one each in general surgery, urology, orthopedic surgery, ophthalmology, otorhinolaryngology, outpatient department and surgical pathology. There are a residentship and two assistant residentships each in pediatrics and in obstetrics and gynecology. There is one residentship each in pathology and in biochemistry and clinical laboratories. In the San Francisco Hospital there are two positions as house officers in medicine and tuberculosis; two in surgery; one in pediatrics and isolation and one in obstetrics and gynecology. Special courses to physicians and advanced students are open in the departments of anatomy (at Berkeley) neurosurgery, pathology and research medicine.

COLORADO

University of Colorado School of Medicine, Boulder-Denver.—During the present summer, courses for physicians were given in bacteriology, biochemistry, blood chemistry, anatomy, histology, embryology, clinical laboratory technic, advanced pathology and ophthalmology. The session extended from June 18 to August 31, divided into two terms. Physicians may register for either term or for the entire quarter.

ILLINOIS

Rush Medical College, Chicago.—The following courses are offered for physicians: (a) A course on tuberculosis. (b) Special course for three or four physicians who are willing to spend a full year in diseases of the ear, nose and throat. (c) Attendance at arena clinics for which a visitor's ticket for a week is issued—registration not limited. (d) Opportunities for a few physicians for investigative work in the sciences fundamental to medicine, including pathology. Fees: $25 for each major's work, or $75 for a full quarter.

University of Illinois College of Medicine, Chicago.—The summer quarter is devoted to graduate work and courses for physicians, and during the remainder of the year a large number of fellowships are available in courses leading to the degrees of Master of Science and Doctor of Philosophy. Special opportunities for individual research work in anatomy, biochemistry, pharmacology, and pathology and bacteriology were offered during the present summer quarter.

INDIANA

Indiana University School of Medicine, Indianapolis.—At any time during the year special arrangements will be made for the physicians of Indiana who make application to receive instruction with the medical students or alone. During the summer a well arranged course is offered in medicine, surgery, pathology (including immunology and bacteriology) and biochemistry.

IOWA

State University of Iowa College of Medicine, Iowa City.—Opportunities open for a limited number of those who desire to specialize, or to take work leading to a graduate degree. Courses are arranged on consulting head of the department in which work is to be taken. There are opportunities for physicians to act as clinical assistants, research workers, hospital chemists, etc.

MARYLAND

Johns Hopkins University Medical Department, Baltimore.—During the present summer a six weeks' course in medical diagnosis was offered, limited to thirty physicians. The course consisted of ward rounds, lectures, clinics, medical and physical diagnosis, laboratory work in clinical and gross pathology, microscopy, and group clinics in the special study of dermatology and syphilis. Opportunities for advanced work open to a certain number of qualified men. The work is arranged for after personal communication between the applicant and the heads of the departments concerned.

University of Maryland School of Medicine, Baltimore.—Courses are open for physicians in anatomy, pathology, bacteriology, clinical laboratory, operative surgery, obstetrics, genito-urinary diseases, roentgenology and pediatrics. Arrangements made by personal communication.

MICHIGAN

University of Michigan Medical School, Ann Arbor.—The regular laboratory and clinical courses in the school are open to qualified physicians. In addition special work is arranged along all clinical and laboratory branches to meet the special needs of the applicant. Such courses may lead to the degrees of Master of Science or Doctor of Philosophy.

MISSOURI

Washington University School of Medicine, St. Louis.—Washington University School of Medicine has established a series of postgraduate medical courses in all the various clinical branches. These courses make use of the laboratory, clinical and library facilities of the school and its allied hospitals. The courses are planned so as to run approximately four weeks once a year and to consist of subjects so grouped as to furnish the student a comprehensive training in the works he selects. This is accomplished by combining with the major subjects numerous fundamentally related subjects of lesser, though vital, importance. In addition to these combined courses, detached courses are offered, thus affording students a wide range of selection. The plan of instruction furthermore provides for one and two year courses in some of the specialties so as to furnish opportunities to men desiring to qualify as specialists. A descriptive pamphlet is available for all applicants who request it by addressing the Dean.

NEBRASKA

University of Nebraska College of Medicine, Omaha.—A special two weeks' course for practitioners is offered each June. Subjects stressed are physical diagnosis; general medical and surgical diagnosis; pediatrics, including infant feeding; syphilis and skin. Ward walks in the University Hospital are conducted twice daily. Evening illustrated lectures cover topics of general medical and surgical interest. The wards of the University Hospital and the outpatient department are utilized for clinical material.

NEW YORK

Long Island College Hospital, Brooklyn.—Courses open in anatomy, embryology, neuro-anatomy, histology, bacteriology, biochemistry, physiology, preventive medicine and hygiene. Also opportunities for research work in anatomy, biochemistry and physiology. Postgraduate courses in anatomy, physiology, genito-urinary, surgery, medicine, bacteriology, biochemistry, obstetrics and gynecology, otolaryngology, pediatrics and pathology are offered annually for six weeks from May 15. Arrangements made by personal communication.

OHIO

Western Reserve University School of Medicine, Cleveland.—Special review courses for physicians in medicine and surgery, including some of the specialties, during May and June of each year. Courses limited to 20 men. An effort is made to occupy the physician's entire time from 8 a. m. to 5 p. m. During the remainder of the year arrangements may be made with individual instructors for advanced research work in clinical and laboratory subjects. For information address the registrar.

PENNSYLVANIA

University of Pittsburgh School of Medicine.—A general course of instruction by lectures, clinics and demonstrations. Summer course, two weeks, beginning June 4. Special course in industrial medicine and surgery for three days, beginning May 31. This is open to those who register for the regular course. Fee, $50. Write to Edith S. Glenn, Secretary.

VIRGINIA

Medical College of Virginia, Richmond.—Opportunities open for a few physicians to take courses in the combined laboratories of the college of the state board of health and of the Richmond City Board of Health.

ONTARIO

University of Toronto, Faculty of Medicine, Toronto.—Graduate courses in clinical and laboratory work are available to physicians on application. They may register and attend by the month any of the undergraduate clinical courses of the final year. For information address the dean.

GRADUATE COURSES IN PUBLIC HEALTH

Graduate courses in public health have been established in connection with twelve medical schools, the first of which was at the University of Pennsylvania in 1909; the latest is that in connection with the medical department of Howard University, which began its course in 1922. Yale University established its course in public health in 1917. Two institutions, the University of Colorado and Tulane University, suspended their course in 1918. Seven of the schools have courses leading to the degree of Doctor of Public Health (Dr.P.H.) after a two year course and one (the Detroit College of Medicine and Surgery) offers it after a one year course. The University of California offers instead the degree of Graduate in Public Health (Gr.P.H.) after a two year course. After a one year course the degree of Certified Sanitarian (C.S.) is offered by the University of Pennsylvania and Howard University to graduates of colleges of arts and sciences. Six of the schools grant a certificate in public health (C.P.H.) after a one year course. The degree of Master of Public Health (M.P.H.) is offered after a one year course by the University of Wisconsin Medical School and Ohio State University College of Medicine. The Master in Arts in Public Health [M.A. (P.H.)] is offered by the University of California Medical School and Harvard School of Public Health, and the Master in Science in Public Health [M.S. (P.H.)] by the University of Michigan, Ohio State University College of Medicine and by Howard University. The courses offered by the twelve schools of public health are as follows:

The University of California: Courses began in 1915; three courses leading to degree of Gr.P.H.: (a) a four year course covering four years in the college of letters and science and two years in the graduate division; (b) a two year course in the graduate division for graduates of the College of Civil Engineering who have completed the work in sanitary engineering, and (c) a course of one and a half years in the graduate division for students who have completed three and a half years of the medical course. Completion of this third course gives the degrees of M.D. and Gr.P.H. The University of California also offers a one year course to persons holding a bachelor's degree based on a major in public health for the degree of Master in Arts in Public Health [M.A. (P.H.)]. A thesis is required for the degree.

Yale University Graduate Course in Public Health: The graduate course in public health at Yale University School of Medicine was first established in 1917, and during 1922-1923 there were thirteen instructors. A one year course leads to the certificate in public health (C.P.H), a three year course leads to the degree of Doctor of Philosophy (Ph.D.), and to medical graduates only, a two year course leads to the degree of Doctor of Public Health (Dr.P.H.). These are required in all cases. The fees are $200 per year. The course extends from October to June. During 1922-1923, 21 students were enrolled, and in June, 1923, 3 certificates and 7 degrees were granted.

Johns Hopkins University School of Hygiene and Public Health was opened in October, 1918. There are 17 professors and 32 lecturers, associates and instructors, a total of 49. Four courses are offered: (a) A two year course leading to the degree of Dr.P.H., requiring for admission a bachelor's degree and a degree in medicine.

The degree of M.D. and the degree of Dr. P.H. may be obtained in a combined course of five years. A thesis is required for graduation. (b) A three year course leading to the degree of Doctor of Science in Hygiene requiring for admission a bachelor's degree and adequate training in physics, chemistry, biology and the medical sciences, anatomy, physiology and pathology. A written and oral examination and a dissertation embodying the results of an independent investigation are required for graduation. (c) A two year course leading to the degree of Bachelor of Science in Hygiene, the course consisting of combined work in the medical school and the School of Hygiene and Public Health. For admission the applicant must have completed at least two years of work in an approved college and have studied courses in physics, biology, inorganic and organic chemistry. (d) A one year course leading to a certificate in public health is also offered to graduates of approved medical schools or graduates in arts or sciences who present evidence of satisfactory training in the physical and medical sciences. Intensive courses lasting six weeks or more for public health officers may be arranged during the second trimester. The fees charged are $250 per year. Courses for special students are $50 per trimester. Altogether 178 students were enrolled during 1922-1923, including 12 who were candidates for degrees and 15 for the certificate in public health. The course extends from October 2 to May 31.

HOWARD UNIVERSITY SCHOOL OF PUBLIC HEALTH AND HYGIENE will open at the beginning of the fall term, 1923. Five courses offered: (a) one year course to graduates in medicine leading to degrees of Certified Sanitarian (C.S.) or Bachelor of Science (B.S.) in Public Health. (b) Two years course to graduates in medicine leading to degree of Doctor of Public Health (Dr.P.H.). (c) Fifth year in medicine to Howard University medical students immediately following their graduation leading to the degree of Doctor of Public Health (Dr.P.H.). For graduates of recognized colleges and universities a one year course leading to the certificate in public health (C.P.H.) and a two year course leading to the degree of Master of Science (M.S.) is offered. For information write to Dr. Algernon B. Jackson, Director.

THE HARVARD SCHOOL OF PUBLIC HEALTH: This school first gave instruction to students in September, 1922. There are 44 officers of instruction. Courses are offered leading to the degrees of Bachelor of Public Health, Master of Public Health, Doctor of Public Health, and Doctor of Philosophy in Hygiene. Admission requirements for students entering as candidates for degrees are essentially those required for entrance to the Harvard Medical School, plus the first two years work in medicine. Properly qualified students will be admitted for one or more courses which may be taken in a concentrated period of time. During the past year 28 students attended the school, who specialized in the various fields of public health, including industrial hygiene, child hygiene, sanitary engineering, public health administration, vital statistics, mental hygiene, tropical medicine, epidemiology, immunology, and bacteriology. The academic year lasts from September 24, 1923, to June 19, 1924. The tuition fee is $300. A limited number of fellowships are offered to duly qualified students. For catalogues and further information apply to the Secretary, 55 Van Dyke Street, Boston, Mass.

DETROIT COLLEGE OF MEDICINE AND SURGERY: The course was first offered in 1913 with ten instructors. A two year course leading to the degree of Doctor of Public Health (Dr.P.H.) is offered to graduates of approved medical schools. The work is conducted at the college, the Detroit City Board of Health, and the Municipal Contagious Hospital. It includes diagnosis of contagious diseases, sanitary engineering, laboratory, and public health field work. Fees are $200 per year. A thesis is required of each candidate before he can receive the degree. One student enrolled during the past session. Dr. I. Werness, Registrar. The course extends from Oct. 1, 1923, to June 21, 1924.

THE UNIVERSITY OF MICHIGAN GRADUATE SCHOOL: The graduate courses in public health were established in the University of Michigan in 1913. The number of instructors is approximately 12. Two courses are offered—one to graduates in arts and sciences or medicine extending from one to two years, leading to the degree of Master of Science in Public Health; the other a course of from two to three years in length for graduates in arts or sciences and medicine, leading to the degree of Doctor of Public Health (Dr.P.H.). For residents of Michigan the fees consist of $10 matriculation and $85 for men students and $80 for women; for nonresidents of Michigan, matriculation $25 and an annual fee of $110 for men and $105 for wemon. A thesis is required for the degree of Dr.P.H. There is a summer session, but the regular session extends from September 25 to June 16. In 1922-1923, 3 students were enrolled. Dr. Alfred H. Lloyd, Dean.

ALBANY MEDICAL COLLEGE: Postgraduate courses in infectious diseases and public health were begun in 1919. Of the class of 1923, 11 physicians received the certificates, having completed the course. The total number of certificates issued since 1919 for the course is 139. Dr. Charles C. Duryee, Director of Course.

UNIVERSITY AND BELLEVUE HOSPITAL MEDICAL COLLEGE: The graduate course in public health began in 1916. Two courses are offered—a two year course leading to the degree of Doctor of Public Health for graduates of approved medical schools, and a course leading to a certificate of attendance. This consists of a correspondence course requiring a study of about 3,000 pages on public health subjects, especially adapted for health officers, together with a week of residence. The tuition for Dr.P.H. course is $200 for the first year and $25 for the second. The fee for the correspondence course is $30, including the matriculation fee. For the correspondence course the last week must be spent in residence. The courses begin in October. There were 16 health officers who took the correspondence course last year. Four are taking the Dr.P.H. course.

OHIO STATE UNIVERSITY: The curriculum in public health is in the Graduate School and began in 1915 with 7 instructors; 3 students registered the first year of whom 1 graduated in 1916. Since that year there have been from 1 to 2 graduates annually except during the two years of the war. There are now 4 instructors especially concerned with the curriculum and composing the personnel of the Department of Public Health in the College of Medicine in addition to the regular teaching personnel in related subjects in the Graduate School of the university. Important assistance and facilities are also offered by the State Department of Health and other state and local health agencies. Three courses are offered: (a) A one year course leading to the degree of "Master of Science in Public Health," requiring for admission a medical degree from a class A school or a Bachelor's Degree with previous specified training in physics, chemistry and the biologic sciences. A written and oral examination and a thesis, embodying the results of an individual investigation, are required for graduation. (b) Students in the Graduate School may also major in various subjects in public health for which they will be given the degree of "Master of Science" (only), on satisfactory completion of the work required, including a thesis. (c) In addition, the College of Medicine now offers a one year course leading to a "Certificate in Industrial Medicine." This course requires for admission the M.D. degree. Here half-time instruction is combined with time-opportunity for practical industrial experience while pursuing the course. No thesis is required. Fees charged for residents of Ohio are $15 for each quarter, three quarters constituting one year's work. While not a requirement, the student is advised to begin any one of the three courses with the autumn quarter. In 1921-1922 there were 7 students enrolled. For information write to Dr. E. R. Hayhurst, Head of the Department of Public Health, O. S. U., Columbus.

THE UNIVERSITY OF PENNSYLVANIA: The graduate courses in public hygiene began in 1906; there are 19 instructors; two courses are offered, —a two year course for graduates in medicine leading to the degree of Dr.P.H., and a one year course for graduates of arts or science leading to the degree of Certified Sanitarian. A thesis is required for graduation. The fees are $250 per year. There was one student registered in 1922-1923. The course extends from October to June.

THE UNIVERSITY OF WISCONSIN: Graduate courses in public health began in 1910. There are eight teachers. Two courses are offered—a one year course for graduates in medicine, leading to the degree of Master of Public Health (M.P.H.); the other a two year course for physicians, leading to the degree of Doctor of Public Health. Fees are $50 per year for residents of Wisconsin and $170 for nonresidents. A thesis is required for graduation. Address inquiries to Mr. K. McRae, Secretary, Medical School.

UNIVERSITY OF WESTERN ONTARIO, London: A course in public health for graduate physicians extending over 8 months of lectures, clinics and laboratory work and 2 months of field work leads to the diploma of public health (D.P.H.). The fee for the course, including the diploma, is $140. A course of length for graduate nurses leads to the certificate of public health nurse (C.P.H.N.). The fee is $50. During 1922-1923, 4 physicians were granted the D.P.H. and 10 nurses were granted the C.P.H.N. The dean of the faculty of public health is Dr. H. W. Hill.

DESCRIPTION OF MEDICAL COLLEGES

Below are given brief descriptions of the medical colleges in the United States and Canada that are legally chartered to teach medicine, several of which do not grant degrees. The name, address, year of organization, history and date when first class graduated are given in each instance. Unless otherwise stated, a class graduated each subsequent year. Where official reports have been received from the college, information regarding faculty, entrance requirements, length of term, fees, students (excluding specials and postgraduates), graduates, name of dean and next session is given without discrimination. In a few instances in which such reports were not received, the information published is from other reliable sources. Figures for graduates include all who graduated since July 1, 1922. Extract of rules and the membership of the Association of American Medical Colleges are shown following the list of colleges. Figures showing population of cities and states are taken from the United States Census Bureau's report for 1920. Statements have been added showing the preliminary requirements held by state licensing boards where those requirements include one or two years of collegiate work. Ten states, Alaska (Ter.), Delaware, Illinois, Iowa, Michigan, New Jersey, North Dakota, Pennsylvania, Rhode Island and Washington, require also a year's hospital internship as an essential qualification for a license.

ALABAMA

Alabama, population 2,348,174, has one medical college, the School of Medicine of the University of Alabama, located in Tuscaloosa, a city with a population of 11,996.

In order to secure licenses to practice medicine in Alabama, students must complete two years of work in an approved college of liberal arts, including courses in physics, chemistry, biology and a modern language, prior to entering on the study of medicine.

Tuscaloosa

UNIVERSITY OF ALABAMA SCHOOL OF MEDICINE, University Campus, Tuscaloosa.—Organized in 1859 at Mobile as the Medical College of

Alabama. Classes graduated in 1861 and subsequent years excepting 1862 to 1868, inclusive. Reorganized in 1897 as the medical department of the University of Alabama. Present title assumed in 1907, when all property was transferred to the University of Alabama. In 1920 clinical teaching was suspended and the medical school was removed to the university campus at Tuscaloosa. The course of study covers two years of thirty-four weeks each. The Dean is Dr. Clyde Brooks. Total registration for 1922-1923 was 71. The fifty-eighth session begins Sept. 12, 1923, and ends May 27, 1924.

ARKANSAS

Arkansas, population 1,752,204, has one medical college, the Medical Department of the University of Arkansas, located in Little Rock, a city of 65,142.

To secure licenses to practice medicine in Arkansas, students must complete two years of collegiate work, including college courses in physics, chemistry, biology and a modern language, before beginning the study of medicine.

Little Rock

University of Arkansas Medical Department, Markham and Center Streets.—Organized in 1879 as the Medical Department of Arkansas Industrial University. It assumed the present title in 1899. In 1911 the College of Physicians and Surgeons united with it and the new school was made an integral part of the University of Arkansas. The first class was graduated in 1880. Clinical teaching was temporarily suspended in 1918. The faculty consists of 20 professors and 22 lecturers and assistants, total 42. The curriculum embraces four years of thirty-four weeks each. Entrance requirements are two years of collegiate work in addition to a four-year high school course. The fees are $50 each year for resident, and $100 for nonresident students. The Dean is Dr. Morgan Smith. Total registration 1922-1923 was 71. The forty-fifth session begins Sept. 19, 1923, and ends June 6, 1924.

CALIFORNIA

California, population 3,426,861, has three medical colleges. Two are located in San Francisco, a city of 506,676 inhabitants. They are Stanford University School of Medicine and the College of Medicine of the University of California. The College of Medical Evangelists is located at Loma Linda and Los Angeles, the latter city having a population of 576,673.

To secure licenses to practice medicine in California under the "physician's and surgeon's" certificate, students must complete at least one year of recognized collegiate work including college courses in physics, chemistry, biology and a modern language before beginning the study of medicine.

Berkeley-San Francisco

University of California Medical School, University Campus, Berkeley; Second and Parnassus Avenues, San Francisco.—Organized in 1863 as the Toland Medical College. The first class graduated in 1864. In 1872 it became the Medical Department of the University of California. In 1909 the College of Medicine of the University of Southern California, at Los Angeles, by legislative enactment, became a clinical department. This Los Angeles portion was changed to a graduate school in 1914. In 1915 the Hahnemann Medical College of the Pacific was merged, and elective chairs in homeopathic materia medica and therapeutics were provided. Three years of collegiate work are required for admission. The work of the first year and a half is given at Berkeley and the work of the last two and a half years at San Francisco. The faculty is composed of 57 professors and 173 associates and assistants, a total of 230. The course covers five years of eight months each, the fifth year to consist of an internship or of special work in a department of the medical school. Fees for the four years, respectively, for residents of California or $290, $248, $235 and $225; nonresidents are charged $300 additional each year. Total registration for 1922-1923 was 249, graduates 38. The fifty-first session begins Aug. 17, 1923, and ends May 14, 1924.

Loma Linda-Los Angeles

College of Medical Evangelists.—Organized in 1909. The first class graduated in 1914. The laboratory departments are at Loma Linda; the clinical departments at Los Angeles on property bounded by Boyle, Michigan, Bailey and New Jersey streets. The faculty is composed of 51 professors and 83 associates, assistants and instructors, a total of 134. The course extends over five years of nine months each—the fifth year consisting of an internship or of special work in a department of the Medical School. The work of the first two years is given at Loma Linda and of the last two at Los Angeles. Two years of college work are required for admission. The total fees for the four years, respectively, are $236, $231, $221 and $226. The President is Dr. Newton Evans, Loma Linda, Calif., and the Dean of the Clinical Division is Dr. P. T. Magan, Los Angeles. The total registration for 1922-1923 was 222; graduates 35. The fifteenth session begins Sept. 5, 1923, and ends June 3, 1924.

San Francisco-Stanford University

Stanford University School of Medicine, Campus, Sacramento and Webster Streets, San Francisco.—Organized in 1908 when, by an agreement, the interests of Cooper Medical College were taken over. The first class was graduated in 1913. The faculty consists of 91 professors and 48 lecturers, assistants, etc., a total of 139. Three years of collegiate work are required for admission. The school has the quarter system and the completion of any three quarters constitutes a college year. The course covers five years of nine months each, including a year of practical or intern work. The total fees for each of the first four years are $261. The Dean is Dr. W. Ophüls, San Francisco. The total registration for 1922-1923 was 158; graduates 22. The fourteenth session begins Oct. 2, 1923, and ends June 18, 1924.

COLORADO

Colorado, with a population of 939,629, has one medical college, the University of Colorado School of Medicine. It is located in Denver, which has a population of 256,491.

The Colorado State Board of Medical Examiners will register without further examination graduates of medical colleges in good standing who present licenses issued after examination by any other licensing board. The law permits any one, graduate or nongraduate, to try the board's written examination.

Boulder-Denver

University of Colorado School of Medicine.—Organized in 1883. Classes were graduated in 1885 and in all subsequent years except 1898 and 1899. Denver and Gross College of Medicine was merged Jan. 1, 1911. The faculty embraces 32 professors and 24 lecturers, instructors and assistants, a total of 56. The work embraces a graded course of four years of nine months each. The entrance requirements are two years of college work counting toward a degree in arts in an accredited college or university. The fees for residents of Colorado, for each of the four years are, respectively, $144, $144, $130 and $135. Nonresidents pay $30 more each year. The Dean is Dr. Charles N. Meader. The total registration for 1922-1923 was 115; graduates, 23. The forty-second session begins Sept. 24, 1923, and ends June 9, 1924.

CONNECTICUT

Connecticut, with a population of 1,380,631, has one medical college, Yale University School of Medicine, located in New Haven, population 162,537.

Students who desire to practice medicine in Connecticut will not be eligible unless, prior to entering the study of medicine, they complete, in addition to an accredited four-year high school education, at least nine months of collegiate work including college courses in physics, chemistry and general biology.

New Haven

Yale University School of Medicine, 150 York Street and at corner Congress Avenue and Cedar Street.—Chartered in 1810 as the Medical Institution of Yale College. Organized in 1812; instruction began in 1813; first class graduated in 1814. A new charter in 1879 changed the name to the Medical Department of Yale College. In 1884, the Connecticut Medical Society surrendered such authority as had been granted by the first charter. In 1887, Yale College became Yale University. The faculty consists of 26 professors and 97 lecturers and assistants, a total of 123. The requirements for admission are three years of collegiate work plus evidence of satisfactory completion of courses in general physics, general inorganic chemistry, qualitative analysis, general biology, organic chemistry and physical chemistry or laboratory physics, all reasonably equivalent to the courses in these subjects in Yale University. The student also must have two years of French or German. The course covers four years of nine months each. The fees for the four years, respectively, are $305, $300, $300 and $320. The Dean is Dr. Milton C. Winternitz. The total registration for 1922-1923 was 192; graduates, 31. The one hundred and eleventh session begins Sept. 27, 1923, and ends June 11, 1924.

DISTRICT OF COLUMBIA

The District of Columbia, population 437,571, has three medical colleges: George Washington University Medical School, Georgetown University School of Medicine and Howard University School of Medicine.

Washington

George Washington University Medical School, 1335 H Street, N.-W.—Organized in 1825 as the Medical Department of Columbian College. Also authorized to use the name National Medical College. Classes were graduated in 1826 and in all subsequent years, except 1834 to 1838, and 1861 to 1863, inclusive. The original title was changed to Medical Department of Columbian University in 1873. In 1903 it absorbed the National University Medical Department. In 1904, by an act of Congress, the title of George Washington University was granted to the institution. The faculty is composed of 50 professors and 66 instructors, demonstrators and assistants, a total of 116. Two years of collegiate work are required for admission. The course covers four years of thirty-four weeks each. The fees for the four years, respectively, are $241, $238, $238 and $228. The Dean is Dr. William C. Borden. The total registration for 1922-1923 was 180; graduates, 20. The one hundredth session begins Sept. 26, 1923, and ends June 4, 1924.

Georgetown University School of Medicine, 920 H Street, N.-W.—Organized in 1851. The first class graduated in 1852. The faculty contains 59 professors, 39 instructors and assistants; total, 98. Two years of collegiate work are required for entrance. The course of study covers four terms of eight and one half months each. The fees for each of the four sessions, respectively, are $215, $200, $200 and $210. The Dean is Dr. George M. Kober. The registration for 1922-1923 was 193; graduates, 34. The seventy-third session begins Sept. 27, 1923, and ends June 11, 1924.

HOWARD UNIVERSITY SCHOOL OF MEDICINE, Fifth and W Streets, N.-W.—Chartered in 1867. Organized in 1869. The first class graduated in 1871. Colored students compose a majority of those in attendance. The faculty comprises 22 professors and 27 lecturers and assistants, 49 in all. The admission requirements are two years of collegiate work, including physics, chemistry, botany and zoology, English and two years of French or German. The course covers four years of thirty-three weeks each. The fees of each of the four sessions, respectively, are $168, $158, $158 and $165. The Dean is Dr. Edward A. Balloch. Registration for 1922-1923 was 218; graduates, 27. The fifty-sixth session begins Oct. 1, 1923, and ends June 6, 1924.

GEORGIA

Georgia, population 2,895,832, has two medical colleges, University of Georgia Medical Department, located in Augusta, population 52,548, and the Emory University School of Medicine in Atlanta, a city of 200,616.

In order to secure a license to practice medicine in Georgia, students must complete two years of work in an approved college of liberal arts and sciences, including courses in physics, chemistry and biology, prior to entering on the study of medicine.

Atlanta

EMORY UNIVERSITY SCHOOL OF MEDICINE, 98 N. Butler Street.—Organized in 1854. Classes graduated 1855 to 1861, when it suspended. Reorganized in 1865. A class graduated in 1865 and each subsequent year except 1874. In 1898 it merged with the Southern Medical College (organized in 1878), taking the name of Atlanta College of Physicians and Surgeons. In 1913 it merged with the Atlanta School of Medicine (organized in 1905), reassuming the name of Atlanta Medical College. Became the Medical Department of Emory University in 1915; assumed present title in 1917. Two years of collegiate work are required for admission. The faculty has 17 professors and 96 associates and assistants, a total of 113. The course of study is four years of thirty-four weeks each. The fees for each of the four years, respectively, are $238, $238, $225 and $250. The Dean is Dr. W. S. Elkin. Total registration for 1922-1923 was 218; graduates, 51. The next session begins Oct. 26, 1923, and ends June 3, 1924.

Augusta

UNIVERSITY OF GEORGIA MEDICAL DEPARTMENT, University Place.—Organized in 1828 as the Medical Academy of Georgia, the name being changed to the Medical College of Georgia in 1829. Since 1873 it has been known as the Medical Department of the University of Georgia. Entire property transferred to the university in 1911. Classes were graduated in 1833 and in all subsequent years except 1862 and 1863. The faculty includes 13 professors and 37 assistants, 50 in all. Two years of collegiate work are required for entrance. The course is four years of thirty-four weeks each. Fees are $5 for matriculation and $60 each year for residents of Georgia and $150 each year for nonresidents. The Dean is Dr. Harry Goodrich. The total registration for 1922-1923 was 102; graduates, 10. The ninety-second session begins Sept. 19, 1923, and ends June 2 ,1924.

ILLINOIS

Illinois, population 6,485,280, has six medical colleges, one of which gives instruction at night, all located in Chicago, a city of 2,701,705 inhabitants. They are as follows: Rush Medical College, Northwestern University Medical School, University of Illinois College of Medicine, Loyola University School of Medicine, General Medical College and the Chicago Medical School.

To be eligible for license to practice medicine in Illinois, students must complete two years of collegiate work including courses in physics, chemistry, biology and a modern language before entering on the study of medicine. In addition to their four year course in medicine they must complete also a year's internship in a hospital.

Chicago

RUSH MEDICAL COLLEGE.—Founded in 1837; organized in 1843; was the medical department of Lake Forest University from 1887 until 1898, when it became affiliated with the University of Chicago. The first class graduated in 1844. The faculty is composed of 117 professors, 177 associates, instructors, etc., a total of 294. The requirements for admission are three years of college work, including courses in college chemistry, physics and biology, and a reading knowledge of German or French. Classes are limited to 100 students in each of the freshman and sophomore classes, and to 130 students in each of the clinical years. No application for admission is accepted after September 1. The school operates under the "quarter system" in which the year is divided into four quarters of twelve weeks each; the completion of the work of three of these quarters gives credit for a college year. The course covers four years of eight and a half months each, and a fifth year, consisting of a hospital internship or of a fellowship in one of the departments. All freshman and sophomore studies are given at the University of Chicago. The clinical years are given in the building at the corner of Wood and Harrison Streets. The tuition fees for each of the four years, respectively, are $250, $240, $240 and $260. The Acting Dean is Dr. Ernest E. Irons. Total registration for 1922-1923 was 473; graduates, 138. The eightieth session begins Oct. 1, 1923, and ends June 14, 1923.

NORTHWESTERN UNIVERSITY MEDICAL SCHOOL, 2421 South Dearborn Street.—Organized in 1859 as the Medical Department of Lind University. First class graduated in 1860. In 1864 it became independent as the Chicago Medical College. It united with Northwestern University in 1869, but retained the name of Chicago Medical College until 1891, when the present name was taken. Became an integral part of Northwestern University in 1905. The faculty comprises 63 professors and 102 lecturers and assistants, a total of 165. The requirements for admission are such as will admit to the College of Liberal Arts of Northwestern University, plus two years of college work, including courses in physics, chemistry, biology and a modern language. The course covers four years of eight months each. The fees for the four years, respectively, are $220, $220, $216 and $210. The Dean is Dr. Arthur I. Kendall. The total registration for 1922-1923 was 485; graduates, 84. The sixty-fourth session begins Oct. 2, 1923, and ends June 14, 1923.

UNIVERSITY OF ILLINOIS COLLEGE OF MEDICINE, 508 S. Honore Street.—Organized in 1882 as the College of Physicians and Surgeons. The first class graduated in 1883. It became the Medical Department of the University of Illinois by affiliation in 1897 and an integral part in 1910. The relationship with the university was canceled in June, 1912, but restored in March, 1913, when the present title was assumed. Two years of collegiate work are required for admission. The curriculum covers four years of thirty-three weeks each, and a year's internship in an approved hospital. The faculty is composed of 68 professors, 133 assistants and instructors, a total of 201. The matriculation fee is $20 and the tuition fees are $165 each year for resident students and $35 more for nonresidents. The Dean is Dr. Albert C. Eycleshymer. The total registration for 1922-1923 was 436; graduates, 47. The forty-second session begins Oct. 1, 1923, and ends June 7, 1924.

LOYOLA UNIVERSITY SCHOOL OF MEDICINE, 706 S. Lincoln St., Chicago.—Organized in 1868 as the Bennett College of Eclectic Medicine and Surgery. Eclecticism dropped and title of Bennett Medical College assumed in 1909. First class graduated in 1870, and a class graduated each subsequent year. Absorbed the Illinois Medical College in 1910 and the Reliance Medical College in 1911. In 1910 it became by affiliation the School of Medicine of Loyola University; the university assumed full control in 1915. Took over by purchase the Chicago College of Medicine and Surgery in 1917. Two years of college work are required for admission. The faculty is composed of 82 professors, 38 assistants and instructors, a total of 120. The total fees for the four years are, respectively, $275, $275, $250 and $275. The Dean is Dr. Louis D. Moorhead. The total enrolment for 1922-1923 was 264; graduates, 28. The next session begins Oct. 1, 1923, and ends June 14, 1924.

MEDICAL COLLEGE OF THE GENERAL MEDICAL FOUNDATION OF CHICAGO, 2811 Cottage Grove Avenue.—Organized in 1859, as Hahnemann Medical College, homeopathic. Reorganized under present name in 1922 (non-sectarian). The first class was graduated in 1861. Absorbed the Chicago Homeopathic Medical College in 1904. The Faculty includes 51 professors and 60 instructors, assistants, etc., a total of 111. Two years of college work are required for admission. The course extends over four years of 35 weeks each, together with a year's hospital internship of 12 months. The tuition is $250 for each of the first four years. The Dean is John Charles Blake, Ph.D. The total registration for 1922-1923 was 134; graduates, 24. The sixty-fourth session begins Oct. 1, 1923, and ends June 10, 1924.

CHICAGO MEDICAL SCHOOL, an afternoon and night school, located at 3832 Rhodes Avenue.—Organized in 1911 as the Chicago Hospital College of Medicine; chartered in 1912. In December, 1917, the classes of the Jenner Medical College were transferred to it. Total registration for 1922-1923 was 132; graduates, 28. *Official reports state that the diplomas from this college are not recognized by the licensing boards of forty-six states.*

INDIANA

Indiana, population 2,930,390, has one medical college, the Indiana University School of Medicine, located at Indianapolis, a city of 314,194 people, except that the work of the first year is offered also at Bloomington, the seat of the University.

Students who intend to practice medicine in Indiana must complete two years of collegiate work, in addition to an accredited four-year high school course, prior to beginning the study of medicine.

Bloomington and Indianapolis

INDIANA UNIVERSITY SCHOOL OF MEDICINE.—Organized in 1903, but did not give all of the work of the first two years of the medical course until 1905. In 1907, by union with the State College of Physicians and Surgeons, the complete course in medicine was offered. In 1908 the Indiana Medical College, which was formed in 1905 by the merger of the Medical College of Indiana (organized in 1878), the Central College of Physicians and Surgeons (organized in 1879), and the Fort Wayne College of Medicine (organized in 1879), merged into it. The first class was graduated in 1908. The faculty consists of 65 professors and 100 lecturers, associates and assistants, a total of 165. Two years of collegiate work are required for admission. The work of the first year is emphasized only at Bloomington. The work of the other three years is all at Indianapolis. The fees for the four years, respectively, are $125, $125, $150 and $150. Matriculation fee, $5; microscope fee, $5 to $7.50 per semester. A fifth optional intern year leading to the "M.D. cum laude" has been added. The Assistant Dean at Bloomington is Dr. B. D. Myers; the Dean is Dr. Charles P. Emerson, Indianapolis. The total registration for 1922-1923 was 327; graduates, 58. The next session begins Sept. 17, 1923, and ends June 11, 1924.

IOWA

Iowa, population 2,404,021, has one medical college, the College of Medicine of the State University of Iowa, located in Iowa City, population 11,267.

Students who desire to practice medicine in Iowa must complete two years of work in an approved college of liberal arts prior to beginning the study of medicine, this preliminary college work to have included courses in physics, chemistry, biology and a foreign language. Hereafter, also, they must have completed a year's internship in an approved hospital.

Iowa City

State University of Iowa College of Medicine, University Campus.—Organized in 1869. First session began in 1870. First class graduated in 1871. Absorbed Drake University College of Medicine in 1913. The faculty is made up of 34 professors, 45 lecturers, demonstrators and assistants, a total of 79. Two years of college work, including courses in physics, chemistry, biology, French or German and English, are required for admission. The course of study covers four years of thirty-four weeks each. The tuition fee for residents of Iowa for the four years, respectively, are, $175, $150, $150 and $160, plus a matriculation fee of $10 and a graduation fee of $10. Nonresidents pay an additional 200 each year. The Dean is Dr. Lee Wallace Dean, Iowa City. Total registration for 1922-1923 was 317; graduates, 44. The fifty-fourth session begins Sept. 24, 1923, and ends June 3, 1924.

KANSAS

Kansas, population 1,769,257, has one medical college. The School of Medicine of the University of Kansas gives its first two years in Lawrence, population 12,456, and the last two years in Rosedale, a suburb of Kansas City, which with Kansas City, Mo., have a combined population of 433,261.

Students who desire to practice medicine in Kansas must complete at least two years of collegiate work including college courses in physics, chemistry and biology in addition to an accredited four-year high school course.

Lawrence and Rosedale

University of Kansas School of Medicine.—Organized in 1880. It offered only the first two years of the medical course until in 1905, when it merged with the Kansas City (Mo.) Medical College, founded in 1869, the College of Physicians and Surgeons, founded in 1894, and the Medico-Chirurgical College, founded in 1897. First class graduated in 1906. The clinical courses are given at Rosedale. Absorbed Kansas Medical College in 1913. The faculty, including lecturers and clinical assistants, numbers 62. The requirements for admission are two years of collegiate work. The course covers four years of nine months each. The total fees for residents of the state for each of the four years are, respectively, $131, $131, $133 and $133. For nonresidents the fees of the first two years are $141 each year. The Associate Dean is Dr. M. D. Sudler. The total registration for 1922-1923 was 95; graduates, 19. The forty-fourth session begins Sept. 17, 1923, and ends June 5, 1924.

KENTUCKY

Kentucky, population 2,416,630, has one medical college, the University of Louisville Medical Department, situated in Louisville, a city of 234,891 inhabitants.

To be eligible for license to practice medicine in Kentucky, students must complete two years of college work, including courses in physics, chemistry, biology and a modern language prior to beginning the study of medicine.

Louisville

University of Louisville School of Medicine, First and Chestnut Streets.—Organized in 1837 as Louisville Medical Institute. The first class graduated in 1838, and a class graduated in each subsequent year except in 1863. In 1846 name changed to University of Louisville Medical Department. In 1907 it absorbed the Kentucky University Medical Department; in 1908 the Louisville Medical College, the Hospital College of Medicine and the Kentucky School of Medicine. In the fall of 1922 it became more closely correlated in the University of Louisville and changed its name to the University of Louisville School of Medicine. About the same time it assumed complete control of the professional side of the Louisville City Hospital on a twelve months' basis, under an agreement with the City Administration, the Dean becoming Chairman of the Hospital Staff Executive Committee and the Professor of Medicine the Hospital Staff Executive, with the Hospital Superintendent as business manager and secretary. Two years of college work required for admission. It has a faculty of twenty-five professors, eighteen associate and assistant professors, three lecturers, forty instructors and twenty-three assistants. Students limited after 1922 to 75 Freshmen, 65 Sophomores, 60 Juniors and 60 Seniors. Course covers four years of thirty-two weeks each exclusive of vacations and examinations. Fees for four years are, respectively, $260, $260, $270 and $290. The Dean is Dr. Stuart Graves. Total registration for 1922-1923 was 199. Next session begins Sept. 3, 1923, and ends June 5, 1924.

LOUISIANA

Louisiana, having a population of 1,798,509, contains one medical college, the School of Medicine of the Tulane University of Louisiana, situated in New Orleans, a city of 387,219.

Students who desire to practice medicine in Louisiana must complete, at an approved college or university, two years of college work, including biology, physics, chemistry and a modern language, before entering on the study of medicine.

New Orleans

Tulane University of Louisiana School of Medicine, University Campus and 1551 Canal Street.—Organized in 1834 as the Medical College of Louisiana. Classes were graduated in 1835 and in all subsequent years except 1863-1865, inclusive. It was transferred to the Medical Department of the University of Louisiana in 1847 and became the Medical Department of the Tulane University of Louisiana in 1884. Present name in 1913, when it became the School of Medicine of the College of Medicine of the Tulane University of Louisiana. The faculty has 35 professors and 107 assistant professors, instructors, demonstrators, etc., a total of 142. The course covers four years of thirty-two weeks each. Two years of collegiate work are required for admission. Total fees for each of the four years, respectively, are $225, $225, $215 and $245. The Dean is Dr. Charles C. Bass. The total registration for 1922-1923 was 359; graduates, 77. The eighty-ninth session begins Sept. 27, 1923, and ends June 11, 1924.

MARYLAND

Maryland, with a population of 1,449,661, contains two medical colleges, located in Baltimore, a city with 733,826 inhabitants. They are as follows: Johns Hopkins University Medical Department, and the University of Maryland School of Medicine and College of Physicians and Surgeons.

To be eligible to practice medicine in Maryland, students, in addition to a four-year high school education, must complete at least two years of college work including courses in physics, chemistry, biology and French or German, prior to beginning the study of medicine.

Baltimore

Johns Hopkins University Medical Department, Washington and Monument Streets.—Organized in 1893. The first class graduated in 1897. The faculty consists of 55 professors and 164 clinical professors, etc., a total of 219. The requirements for admission demand that the applicant either has (*a*) completed the chemical-biologic course which leads to the A.B. degree in the university, or (*b*) graduated at an approved college or scientific school and has a knowledge of French and German (two years each of college instruction), physics and biology, such as may be obtained from a year's course, and a three years' course in chemistry. The course extends over four years of eight and one-half months each. The total fees for each of the four years are, respectively, $318, $317, $317 and $317. The Dean is Dr. J. Whitridge Williams. Total registration for 1922-1923 was 338; graduates, 93. The thirty-first session begins Oct. 1, 1923 ,and ends June 10, 1924.

University of Maryland School of Medicine and the College of Physicians and Surgeons, Lombard and Greene Streets.—Organized in 1807 as the College of Medicine of Maryland. The first class graduated in 1810. In 1812 it became the University of Maryland School of Medicine. Baltimore Medical College was merged into it in 1913. In 1915 the College of Physicians and Surgeons was merged and the present name assumed. The faculty consists of 87 professors and 103 instructors and assistants, a total of 190. Two years of college work are required for admission. The course covers four years of eight months each. The total fees are $265 each year for residents of the state; $315 each year for nonresidents. The Dean is Dr. J. M. H. Rowland. Total registration for 1922-1923 was 335; graduates, 51. The one hundred and seventeenth session begins Oct. 1, 1923, and ends June 7, 1924.

MASSACHUSETTS

Massachusetts, population 3,852,356, has five medical colleges: Medical School of Harvard University, Boston University School of Medicine, Tufts College Medical School, College of Physicians and Surgeons and the Middlesex College of Medicine and Surgery. They are all situated in Boston, a city of 748,060, except the last named, which is in Cambridge, a city of 109,694.

Boston

Medical School of Harvard University, 240 Longwood Avenue.—Organized in 1782. The first class graduated in 1788. It has a faculty of 84 professors and 191 instructors and assistants, a total of 275. Candidates for admission must present a college degree or two years of work leading to such a degree with standing in the upper third of the class. The college work must include a year of physics, biology, general chemistry, a half year of organic chemistry, and a reading knowledge of French or German. The total fee for each of the four years is $300 plus $5 the first year for matriculation. The Dean is Dr. David L.

Edsall. The total registration for 1922-1923 was 498; graduates, 103. The one hundred and forty-first session begins Sept. 24, 1923, and ends June 19, 1924.

BOSTON UNIVERSITY SCHOOL OF MEDICINE, 80 East Concord Street.—Organized in 1873. In 1874 the New England Female Medical College, founded in 1848, was merged into it. The first class graduated in 1874. Became nonsectarian in 1918. Two years of collegiate work are required for admission. The faculty includes 22 professors, 74 associates, etc., making a total of 96. The course covers four years of thirty-five weeks each. Total fees for each of the four years, respectively, are $281, $281, $256 and $266. The Dean is Dr. Alexander S. Begg. Total registration for 1922-1923 was 183; graduates, 24. The fifty-first session begins Sept. 27, 1923, and ends June 16, 1924.

TUFTS COLLEGE MEDICAL SCHOOL, 416 Huntington Avenue.—Organized in 1893 as the Medical Department of Tufts College. The first class graduated in 1894. It has a faculty of 48 professors and 97 assistants, lecturers, etc., a total of 145. Two years of collegiate work are required for admission. The course covers four years of eight months each. The total fees for each of the four years are $260, $245, $235 and $240. The Dean is Dr. Stephen Rushmore. Total registration for 1922-1923 was 472; graduates, 64. The twenty-eighth session begins Sept. 24, 1923, and ends May 29, 1924.

COLLEGE OF PHYSICIANS AND SURGEONS, 517 Shawmut Avenue.—Organized in 1880. The first class graduated in 1882. Total attendance of medical students, 1922-1923, was about 36. There were 9 graduates. *This college has been reported not recognized by the Massachusetts Medical Society and by the licensing boards of forty-five states.*

Cambridge

MIDDLESEX COLLEGE OF MEDICINE AND SURGERY, Cambridge.—Organized in 1914 under the charter of the Worcester Medical College, which became extinct in 1859. A class was graduated in 1915 and each subsequent year. Was closely related in its interests with an osteopathic college and granted a liberal advanced standing for work done in that and other osteopathic colleges. The Dean is Dr. Roger S. York. During 1922-1923 the total enrolment was 103; graduates, 19. The next session begins Sept. 17, 1923, and ends June 14, 1924. *This college has been reported as not recognized by the licensing boards of forty-six states.*

MICHIGAN

Michigan, population 3,668,412, has two medical colleges; the University of Michigan Medical School, located at Ann Arbor, a city of 19,516 people, and the Detroit College of Medicine and Surgery, located at Detroit, a city of 993,678 inhabitants.

Students who desire to practice medicine in Michigan, in addition to an accredited four-year high school education, must complete two years of work in an approved college of liberal arts, including college courses in physics, chemistry, biology and French or German, prior to beginning the study of medicine. Candidates must also have completed an internship in a hospital.

Ann Arbor

UNIVERSITY OF MICHIGAN MEDICAL SCHOOL.—Organized in 1850 as the University of Michigan Department of Medicine and Surgery. The first class graduated in 1851. Present title assumed in 1915. It has a faculty composed of 40 professors and 98 associates, instructors, etc., a total of 138. The entrance requirements are two years of college work, including courses in chemistry, physics and biology, with laboratory work, and a reading knowledge of one modern language. The curriculum embraces four years of nine months each. The total fees for Michigan students are for men, $180 per year, and for women $175 per year; for nonresidents, men $260 and women $255 per year. The matriculation fee for residents is $10; for nonresidents, $25. The Dean is Dr. Hugh Cabot. The total registration for 1922-1923 was 642; graduates, 114. The seventy-fourth session begins Sept. 25, 1923, and ends June 16, 1924.

Detroit

DETROIT COLLEGE OF MEDICINE AND SURGERY, 1516 St. Antoine St.—Organized as the Detroit College of Medicine in 1885 by consolidation of Detroit Medical College, organized in 1868, and the Michigan College of Medicine, organized in 1880. Reorganized with present title in 1913. The first class graduated in 1886. In 1918 it became a municipal institution under the control of the Detroit Board of Education. Entrance requirements are two years of college work. The faculty embraces 21 professors, 98 lecturers, etc., a total of 119. The course covers five years of nine months each (including the hospital intern year). The total fees each year are for residents of Detroit $145; for nonresidents, $200. The Dean is Dr. W. H. MacCraken. The total registration for 1922-1923 was 192; graduates, 1. The thirty-ninth session begins Oct. 1, 1923, and ends June 21, 1924.

MINNESOTA

Minnesota, population 2,387,125, contains one medical school, the University of Minnesota Medical School, situated in Minneapolis, a city of 380,582 inhabitants.

Students intending to practice medicine in Minnesota, in addition to an accredited four-year high school education, must complete two years of college work the equivalent of that done in the liberal arts department of the University of Minnesota, including courses in physics, chemistry and biology, prior to beginning the study of medicine.

Minneapolis

UNIVERSITY OF MINNESOTA MEDICAL SCHOOL.—Organized in 1883 as the University of Minnesota College of Medicine and Surgery, reorganized in 1888 by absorption of St. Paul Medical College and Minnesota Hospital College. The first class graduated in 1889. In 1908 the Minneapolis College of Physicians and Surgeons, organized in 1883, was merged. In 1909 the Homeopathic College of Medicine and Surgery was merged. Present title in 1913. The faculty includes 125 professors and 135 instructors and assistants, a total of 260. The curriculum covers four years of nine months each, and a year's internship in an approved hospital. The school is operated on the four-quarter plan. The entrance requirements are two years of university work, which must include six semester credits of rhetoric, eight semester credits of physics; thirteen credits of general chemistry, qualitative analysis and organic chemistry; eight credits of zoology, and a reading and qualitative knowledge of French or German. Students are required to secure a degree of B.S. or A.B. before receiving the degree of Bachelor of Medicine (M.B.) which is granted at the end of the four-year course. The M.D. is conferred after a year of intern work or of advanced laboratory work has been completed. Classes are graduated twice a year, in June and in December. Total fees are $199 for residents and $229 for nonresidents, each year of three quarters. The Dean is Dr. E. P. Lyon. The total registration for 1922-1923 was 474; graduates, 85. The thirty-fifth session begins Sept. 26, 1923, and ends June 18, 1924. The summer quarter began June 24.

MISSISSIPPI

Mississippi, population 1,790,618, has one medical college, the Department of Medicine of the University of Mississippi, which is located at Oxford, a city of 2,150 inhabitants.

Students desiring to practice medicine in Mississippi, in addition to a standard four-year high school education, must complete two years of work in an approved college or university, including courses in physics, chemistry, biology and a modern language, before entering on the study of medicine.

Oxford

UNIVERSITY OF MISSISSIPPI SCHOOL OF MEDICINE.—Organized in 1903. Gives only the first two years of the medical course. In 1908 a clinical department was established at Vicksburg, but was discontinued in 1910 after graduating one class. The session extends over eight and a half months. Entrance requirements are two years of collegiate work. The total fees each year are $155.50. The faculty numbers 19. The Dean is Dr. W. S. Leathers. The total registration for 1922-1923 was 57. The twenty-first session begins Sept. 19, 1923, and ends June 3, 1924.

MISSOURI

Missouri, population 3,404,055, has six medical colleges. St. Louis, population 772,897, contains three of these, viz., the School of Medicine of St. Louis University, Washington University Medical School, and the St. Louis College of Physicians and Surgeons. Kansas City, which, with Kansas City, Kansas, has a population of 433,261, has two colleges, the Kansas City College of Medicine and Surgery and the Kansas City University of Physicians and Surgeons, neither of which is reported as approved or reputable by the Missouri State Board of Health. The School of Medicine of the University of Missouri is at Columbia, a town of 10,392 people.

Columbia

UNIVERSITY OF MISSOURI SCHOOL OF MEDICINE.—Organized at St. Louis in 1845; was discontinued in 1855, but was reorganized at Columbia in 1872. Teaching of the clinical years was suspended in 1909. The faculty includes 12 professors and 15 assistant professors, lecturers, etc., a total of 27. The course covers two years of thirty-six weeks each. The entrance requirements are two years of college work including French or German, 8 hours; general zoology, 8 hours; physics, 8 hours; inorganic chemistry, 8 hours; organic chemistry, 5 hours, and general bacteriology, 3 hours. Total fees are $100 for each year. Nonresidents of the state pay $10 per term extra. The Dean is Dr. Guy L. Noyes. Total registration for 1922-1923 was 79. The next session begins Sept. 11, 1923, and ends June 4, 1924.

Kansas City

KANSAS CITY COLLEGE OF MEDICINE AND SURGERY, Twenty-Third and Holmes Streets.—Organized in 1915 as an offshoot of the Eclectic Medical University, a Class C medical school, now extinct. It claims to be an eclectic college, but is reported not recognized as such by the National Eclectic Medical Association. Total registration for 1922-1923 was about 60; graduates, 23. Since this school is an offshoot of a Class C medical college and is *reported not recognized by the Missouri State Board of Health and by the licensing boards of forty-two other states*, no higher rating can be granted to it, pending an inspection, which it has refused.

KANSAS CITY UNIVERSITY OF PHYSICIANS AND SURGEONS, 729 Troost Street.—Originally chartered in 1903 as the Central College of Osteopathy; charter amended in 1917, by which it obtained the right to grant degrees in medicine, and the name was changed to the Central College Medical Department. Present title in 1918. Very liberal advanced standing allowed for work done in osteopathic colleges; reported as still having osteopathic classes. Total enrolment in 1922-1923 was 58; graduates, 26. The Dean is Dr. A. M. Wilson. The next session begins Sept. 10, 1923, and ends May 29, 1924. Rated in Class C by the Council on Medical Education and Hospitals. *Reported not recognized by the licensing boards of Missouri and of forty-seven other states.*

St. Louis

Washington University School of Medicine, Kingshighway and Euclid Avenue.—Organized in 1842 as the Medical Department of St. Louis University. In 1835 it was chartered as an independent institution under the name of St. Louis Medical College. The first class graduated in 1843. In 1891 it became the Medical Department of Washington University. In 1899 it absorbed the Missouri Medical College. The faculty comprises 40 professors and 118 lecturers, instructors, etc., a total of 158. Two years of college work are required for admission, including courses in English, physics, chemistry and biology, and a reading knowledge of German or French. The course is four years of eight months each. The total fees for the four years are, respectively, $315, $310, $310 and $315. The Dean is Dr. Nathaniel Allison. The total registration for 1922-1923 was 260; graduates, 52. The next session begins Sept. 27, 1923, and ends June 12, 1924.

St. Louis University School of Medicine, 1402 South Grand Avenue.—Organized in 1901 as the Marion-Sims-Beaumont Medical College by union of Marion Sims Medical College, organized in 1890, and Beaumont Hospital Medical College, organized in 1886. First class graduated in 1902. It became the Medical Department of St. Louis University in 1903. The faculty is composed of 72 professors and 107 lecturers and assistants, a total of 179. Two years of collegiate work are required for admission. The curriculum covers four years of thirty-two weeks each. The summer season is optional. The total fees are $300 each year. The Dean is Dr. Hanau W. Loeb. The total registration for 1922-1923 was 399; graduates, 77. The next session begins Oct. 1, 1923, and ends May 31, 1924.

St. Louis College of Physicians and Surgeons, Jefferson and Gamble Streets.—Organized in 1869. Classes graduated in 1870 and each subsequent year until 1873, when it suspended. Reorganized in 1879. Classes graduated in 1880 and subsequent years until 1915, when it merged with the Medical Department of the National University of Arts and Sciences. Reestablished in 1916. Registration during 1922-1923 was approximately 65; graduates, 38. *This college is reported as not recognized by the licensing boards of Missouri and forty-six other states.*

NEBRASKA

Nebraska, population 1,296,372, has two medical colleges, the University of Nebraska College of Medicine and the Creighton University College of Medicine, both in Omaha, population 191,601.

Omaha

Creighton University College of Medicine, Fourteenth and Davenport Streets.—Organized in 1892 as the John A. Creighton Medical College. Present title in 1921. The first class graduated in 1893. It has a faculty of 30 professors and 40 instructors, lecturers and assistants, a total of 70. Two years of collegiate work are required for admission. The course of study embraces four years of eight months each. The total fees each year for the four years are, respectively, $195, $190, $190 and $200. The Dean is Dr. Hermann von W. Schulte. Total registration for 1922-1923 was 155; graduates, 35. The forty-second session begins Sept. 21, 1923, and ends May 31, 1924.

University of Nebraska College of Medicine, Forty-Second Street and Dewey Avenue.—Organized in 1881 as the Omaha Medical College. The first class graduated in 1882. It became the Medical Department of Omaha University in 1891. In 1902 it affiliated with the University of Nebraska, with the present title. The first two years were given at Lincoln and the last two in Omaha until 1913, when all four years were transferred to Omaha. The faculty is composed of 42 professors and 53 lecturers and instructors, total 95. Two years of collegiate work are required for admission, including courses in physics, chemistry and zoology. The fees for each of the four years, respectively, are $165, $160, $150 and $150. The Dean is Dr. Irving S. Cutter. Total registration for 1922-1923 was 314; graduates, 58. The next session begins Sept. 24, 1923, and ends June 7, 1924.

NEW HAMPSHIRE

New Hampshire, population 443,083, has one medical college, located at Hanover, population 1,551.

Students desiring to practice medicine in New Hampshire, in addition to a four-year high school education, must complete at least two years of work in an approved college of liberal arts, prior to beginning the study of medicine.

Dartmouth Medical School.—Organized as New Hampshire Medical Institute in 1797. The first class graduated in 1798. It is under the control of the trustees of Dartmouth College. Clinical teaching was discontinued in 1914. The faculty is made up of 11 professors and 2 instructors, a total of 13. Three years of collegiate work are required for admission. The course covers nine calendar months in each year, or eight months of actual teaching. Candidates for the A.B. or B.S. degree in Dartmouth College may substitute the work of the first year in medicine for that of the senior year in the academic department. The fees for each year are $250. Dean, Dr. John M. Gile; Secretary, Colin C. Stewart. The total registration for 1922-1923 was 44. The next session opens Sept. 20, 1923, and ends June 18, 1924.

NEW YORK

New York State, population 10,384,829, has eight medical colleges. Five of these, College of Physicians and Surgeons (Columbia University), Cornell University Medical College, the University and Bellevue Hospital Medical College, Long Island College Hospital and the New York Homeopathic Medical College and Flower Hospital, are located in New York City, population 5,620,048. Albany Medical College is located in Albany, a city of 113,344 people. The University of Buffalo Medical Department is situated in Buffalo, population 506,775. The College of Medicine, Syracuse University, is in Syracuse, a city of 171,717 inhabitants.

Students who desire to practice in New York must complete two years of college work before entering on the study of medicine.

Albany

Albany Medical College, 58-64 Eagle Street.—Organized in 1838. The first class graduated in 1839. It became the Medical Department of Union University in 1873. In 1915 Union University assumed educational control. The faculty is composed of 25 professors and 82 instructors, assistants, etc., a total of 107. Two years of collegiate work, including college courses in physics, chemistry (including organic and analytics), biology, English, and a modern foreign language, are required for admission. The curriculum covers four years of eight months each. The total fees for the four years, respectively, are $270, $255, $255 and $255. The Dean is Dr. Thomas Ordway. The total registration for 1922-1923 was 88; graduates, 14. The nintey-third session begins Sept. 24, 1923, and ends June 10, 1924.

Buffalo

University of Buffalo Medical Department, High Street, near Main.—Organized in 1846. The first class graduated in 1847. It absorbed the Medical Department of Niagara University in 1898. The faculty is composed of 50 professors and 84 lecturers, assistants, etc., a total of 134. Two years of collegiate work, including college courses in physics, chemistry, biology, English and French or German are required for admission. The course covers four years of eight months each. The total fees for each of the four years are $317; matriculation fee, $5. The Dean is Dr. C. Sumner Jones. Total registration for 1922-1923 was 237; graduates, 49. The seventy-eighth session begins Sept. 24, 1923, and ends June 11, 1924.

New York

Columbia University College of Physicians and Surgeons, 437 West Fifty-Ninth Street.—Organized in 1807 by the regents of the University of the State of New York as their medical department. The first class graduated in 1811. In 1860 it became, by affiliation, the Medical Department of Columbia College. It was made a permanent part of Columbia College by legislative enactment in 1891. That institution became Columbia University in 1896. The faculty is composed of 107 professors and 245 instructors, demonstrators, etc., a total of 352. Two years of collegiate work of 72 points, including courses in physics, chemistry, biology, English and either French or German, are required for admission. The work covers four years of eight months each. The Dean is Dr. William Darrach. The total fees for the four years, respectively, are $332, $332, $332 and $352. Total registration for 1922-1923 was 381; graduates, 95. The one hundred and sixteenth session begins Sept. 26, 1923, and ends June 4, 1924.

Cornell University Medical College, First Avenue and Twenty-Eighth Street, New York City, and Ithaca.—Organized in 1898. The first class was graduated in 1899. The work of the first year may be taken either in Ithaca or in New York. The faculty is composed of 63 professors and 110 assistants, lecturers, instructors, etc., a total of 173. All candidates for admission must be graduates of approved colleges or scientific schools or seniors of approved colleges which will permit them to substitute the first year of this medical school for the fourth year of their college course and will confer on them the Bachelor degree on the completion of the year's work. The candidate must also have such knowledge of physics, inorganic chemistry and biology as may be obtained in college by a year's course in these subjects when accompanied by laboratory work. The fees for each of the four years are, respectively, $345, $335, $335 and $350. The Dean is Dr. Walter L. Niles. Total registration for 1922-1923 was 256; graduates, 63. The twenty-sixth session begins Sept. 24, 1923, and ends June 12, 1924.

Long Island College Hospital, 350 Henry Street, Brooklyn.—Organized in 1858. The first class graduated in 1860. It has a faculty of 47 professors and 87 assistants, instructors, etc., a total of 134. Two years of collegiate work, including college courses in physics, chemistry and biology, are required for admission. The course covers four years of eight months each. The fees for the four years, respectively, are $356, $350, $350 and $380. The Dean is Prof. Adam M. Miller. Total registration for 1922-1923 was 346; graduates, 85. The sixty-sixth session begins Sept. 24, 1923, and ends May 29, 1924.

New York Homeopathic Medical College and Flower Hospital, Eastern Boulevard, between Sixty-Third and Sixty-Fourth Streets.—Organized in 1858. Incorporated in 1860 as the Homeopathic Medical College of the State of New York. The title New York Homeopathic Medical College was assumed in 1869. Present title assumed in 1908. The first class graduated in 1861. The course covers four years of eight months each. It has a faculty of 31 professors and 55 lecturers and assistants, a total of 86. The total fees for the four years are, respectively, $350, $300, $300 and $330. The Dean is Israel S. Kleiner, Ph.D. Total registration for 1922-1923 was 158; graduates, 18. The sixty-fourth session begins Sept. 21, 1923, and ends June 5, 1924.

University and Bellevue Hospital Medical College, 338 East Twenty-Sixth Street.—Organized in 1898 by the union of the New York University Medical College, organized in 1841, and the Bellevue Hospital Medical College, organized in 1861. It is the Medical Department of New York University. First class graduated in 1899. The faculty is composed of 84 professors and 153 lecturers, instructors, etc., in all, 237. The course covers four years of eight months each. Entrance requirements are two years of collegiate work, in addition to a standard four-year high school course, including college courses in physics, chemistry and biology. The fees for each of the four years are $350. The Dean is Dr. Samuel A. Brown. Total registration for 1922-1923 was 435; graduates, 83. The next session begins Sept. 19, 1923, and ends June 11, 1924.

Syracuse

Syracuse University College of Medicine, 307-311 Orange Street.—Organized in 1872, when the Geneva Medical College, chartered in 1834, was removed to Syracuse, under the title "The College of Physicians and Surgeons of Syracuse University." Present title assumed in 1875, when compulsory three-year graded course was established. The first class graduated in 1873 and a class graduated each subsequent year. In 1889 the amalgamation with the university was made complete. Course extended to four years in 1896. Two years of a recognized college ourse are required for admission. The course covers four years of thirty-four weeks each. The fees for each of the four years are, respectively, $324, $324, $324 and $334. The faculty is composed of 32 professors and 85 associate and assistant professors, lecturers and nstructors, a total of 117. The Dean is Dr. Herman G. Weiskotten. The total enrolment for 1922-1923 was 174; graduates, 35. The fifty-hird session begins Sept. 19, 1923, and ends June 14, 1924.

NORTH CAROLINA

North Carolina, population 2,559,123, has two medical chools, each of which gives only the first two years of the nedical course. The School of Medicine of the University of North Carolina is located at Chapel Hill, population 1,483. Wake Forest College School of Medicine is at Wake Forest, opulation 1,425.

Students intending to practice medicine in North Carolina nust complete two years of college work including courses in hysics, chemistry and biology in addition to 14 units of high chool work before beginning the study of medicine.

Chapel Hill

University of North Carolina School of Medicine.—Organized in 890. Until 1902 this school gave only the work of the first two years, when the course was extended to four years by the establishment of a epartment at Raleigh. The first class graduated in 1903. A class was raduated each subsequent year, including 1910, when the clinical epartment at Raleigh was discontinued. Two years of collegiate work re required for admission. The faculty is composed of 14 professors nd 11 lecturers, assistants, etc., a total of 25. The fees for each year re $195. The Dean is Dr. I. H. Manning. The total registration for 922-1923 was 76. The thirty-eighth session begins Sept. 20, 1923, and nds June 6, 1924.

Wake Forest

Wake Forest College School of Medicine.—This school was organed in 1902. The faculty, including the professors of chemistry, physics nd biology, numbers 10 professors and 5 assistants. Only the first two ears of the medical course are offered. After the completion of freshan and sophomore college work and two years of medicine, a certifiate will be given. The B.S. degree in medicine will be given only fter completion of three years of college work and two years of medine. Each annual course extends over nine months. The fees for ach year aggregate $200. The Dean is Dr. Thurman D. Kitchen. The otal registration for 1922-1923 was 45. The twenty-second session egins Sept. 25, 1923, and ends June 13, 1924.

NORTH DAKOTA

North Dakota, population 645,680, has one medical college, ne School of Medicine of the University of North Dakota, hich is situated at University, a suburb of Grand Forks, city of 14,010 people. It gives only the first two years of the edical course.

Students intending to practice medicine in North Dakota, in ddition to a four-year high school education, must complete vo years of work in an approved college of liberal arts cluding courses in Latin, physics, chemistry, botany and ology, prior to beginning the study of medicine, and must ow evidence of having spent at least one year as an intern a hospital.

University

University of North Dakota School of Medicine.—Organized in 05. Offers only the first two years of the medical course. Two years' ork in a college of liberal arts is required for admission. The fees e about $50 each year. The faculty consists of 9 professors and 9 structors, a total of 18. The Dean is Dr. Harley E. French. The al registration for 1922-1923 was 38. The eighteenth session begins pt. 22, 1923, and ends June 11, 1924.

OHIO

Ohio, population 5,759,394, has four medical colleges. Two of these, the Medical College of the University of Cincinnati and the Eclectic Medical College, are located in Cincinnati, a city of 401,247 inhabitants. Cleveland, population 796,841, contains one medical school, Western Reserve University School of Medicine. Columbus, population 237,031, contains the Ohio State University College of Medicine.

Cincinnati

University of Cincinnati College of Medicine, Eden Avenue, Cincinnati General Hospital.—Organized in 1909 by the union of the Medical College of Ohio (founded in 1819) with the Miami Medical College (founded in 1852). The Medical College of Ohio became the Medical Department of the University of Cincinnati in 1896. Under a similar agreement, March 2, 1909, the Miami Medical College also merged into the University, when the title of Ohio-Miami Medical College of the University of Cincinnati was taken. Present title assumed in 1915. Two years of college work are required for admission. The faculty consists of 76 professors and 40 associates, assistants, etc., a total of 116. The course covers four years of eight months each. The fees for each of the four years, respectively, are $320, $320, $270 and $215. The Dean is Dr. Henry Page. The total registration for 1922-1923 was 246; graduates, 59. The next session begins Sept. 21, 1923, and ends June 14, 1924.

Eclectic Medical College, 630 West Sixth Street.—Organized in 1833 at Worthington as the Worthington Medical College. Removed to Cincinnati in 1843. In 1845 it was chartered as the Eclectic Medical Institute. In 1857 the American Medical College, organized in 1839, was merged into it, and in 1859 the Eclectic College of Medicine and Surgery, organized in 1856, was merged into it. In 1910 it assumed its present title. Classes were graduated in 1833 and in all subsequent years except 1839 to 1843, inclusive. It has a faculty of 32 professors and 14 lecturers and assistants, a total of 46. Two years of college work are required for admission. The course covers four years of eight months each. The total fees for the four years, respectively, are $170, $160, $160 and $160. The Secretary is Dr. John K. Scudder. Total registration for 1922-1923 was 99; graduates, 16. The next session begins Sept. 14, 1923, and ends May 14, 1924.

Cleveland

Western Reserve University School of Medicine, 1353 East Ninth Street.—Organized in 1843 as the Cleveland Medical College. The first class graduated in 1844. It assumed the present title in 1881. In 1910 the Cleveland College of Physicians and Surgeons was merged. The faculty includes 18 professors and 145 lecturers, assistants, etc., a total of 163. The curriculum embraces three years of eight and one-half months each and one year of eleven months. Three years of college work are required for admission. The total fees for each of the four years are, respectively, $275, $265, $250 and $260. The Dean is Dr. C. A. Hamann. The total registration for 1922-1923 was 178; graduates, 30. The eighty-first session begins Sept. 27, 1923, and ends June 12, 1924.

Columbus

Ohio State University College of Medicine, 710 North Park Street.—Organized in 1907 as the Starling-Ohio Medical College by the union of Starling Medical College (organized 1847) with the Ohio Medical University (organized 1890). In 1914 it became an integral part of the Ohio State University with its present title. The faculty consists of 42 professors and 65 lecturers, demonstrators, etc., a total of 107. Two years of collegiate work are required for admission. The course covers four years of 33 weeks each. Tuition fees are $153 each year for residents of Ohio; for nonresidents, the fees are $300. The Dean is Dr. Eugene F. McCampbell. The total registration for 1922-1923 was 317; graduates, 40. The next session begins Oct. 1, 1923, and ends June 6, 1924.

OKLAHOMA

Oklahoma, population 2,028,283, has one medical college, the School of Medicine of the University of Oklahoma. The work of the first and second years is given on the academic campus at Norman, a city of about 5,004 inhabitants. The work of the third and fourth years is given in Oklahoma City, which has a population of 91,295 and which is eighteen miles north of Norman.

Students intending to practice medicine in Oklahoma, in addition to a four-year high school education, must complete two years of work in an approved college of liberal arts, including courses in physics, chemistry, biology and a modern language prior to beginning the study of medicine.

Norman and Oklahoma City

University of Oklahoma School of Medicine.—Organized in 1900. Gave only the first two years of the medical course at Norman until 1910, when a clinical department was established at Oklahoma City. The first class graduated in 1911. It has a faculty of 37 professors and associate professors, 16 assistant professors and 20 instructors, a total of 73. Two years of college work are required for admission. The course is four years of nine months each. An optional course of six years is offered for the degrees of B.S. and M.D. The total fees for the four years are, respectively, $62, $70, $50 and $50. The Dean is Dr. LeRoy Long, School of Medicine Building, Third and Stiles Street, Oklahoma City, Okla. The total registration for 1922-1923 was 136; graduates, 24. The twenty-fourth session begins September 17, 1923, and ends June 4, 1924.

OREGON

Oregon, population 783,389, has one medical college, the University of Oregon Medical School, located in Portland, a city of 258,288 population.

Portland

University of Oregon Medical School, Marquam Hill.—Organized in 1887. The first class graduated in 1888. A class graduated each subsequent year except 1898. Became an integral part of the University of Oregon in 1910. The Willamette University Medical Department was merged in 1913. It has a faculty of 50 professors and 67 lecturers, assistants, etc., a total of 117. Entrance requirements are two years of college work or its equivalent. Beginning with July 1, 1924, entrance requirements will be three years of college work. The course is four years of eight months each. The total fees for the four years are, respectively, $185, $180, $180 and $180 for residents of Oregon and $60 per year additional for nonresidents. The Dean is Dr. Richard B. Dillehunt. The total registration for 1922-1923 was 184; graduates, 26. The thirty-seventh session begins Oct. 2, 1923, and ends June 14, 1924.

PENNSYLVANIA

Pennsylvania, population 8,720,017, has six medical colleges. Of these, Philadelphia, having a population of 1,823,779, contains five, as follows: University of Pennsylvania School of Medicine, Jefferson Medical College, Hahnemann Medical College and Hospital, Woman's Medical College of Pennsylvania and Temple University Department of Medicine. The other school, the School of Medicine of the University of Pittsburgh, is situated in Pittsburgh, a city of 588,343.

Students intending to practice medicine in Pennsylvania, in addition to a four-year high school education, must complete a year's work in an approved college of liberal arts, including college courses in physics, chemistry and biology, before beginning the study of medicine. They must also have completed an internship of at least one year in an approved hospital.

Philadelphia

University of Pennsylvania School of Medicine, Thirty-Sixth Street and Hamilton Walk.—Organized in 1765. Classes were graduated in 1768 and in all subsequent years except 1772-1779, inclusive. The original title was the Department of Medicine, College of Philadelphia. The present title, School of Medicine of the University of Pennsylvania, was adopted in 1909. It granted the first medical diploma issued in America. In 1916 it took over the Medico-Chirurgical College of Philadelphia to develop it as a graduate school. The faculty consists of 62 professors, associate and assistant professors, and 154 lecturers, associates, instructors, etc., a total of 216. All candidates for admission must be graduates of approved colleges or scientific schools or seniors of approved colleges which will permit them to substitute the first year of this medical school for the fourth year of their college course and will confer on them the Bachelor degree on the completion of the year's work. The candidate must also present evidence that a sufficient amount of work has been completed in physics, biology or zoology, chemistry, including general inorganic, organic and qualitative analysis, English and French or German. The first and second year classes are limited to 100 students; third and fourth to 130 each. The course embraces four years of study of thirty-three weeks each. The total fees for each of the four years are, respectively, $333, $325, $325 and $329 for men and $15 less per year for women students. The Dean is Dr. William Pepper. Total registration for 1922-1923 was 449; graduates, 123. The one hundred and fifty-eighth session begins Sept. 28, 1923, and ends June 18, 1924.

Jefferson Medical College, Tenth and Walnut Streets.—Organized in 1825 with its present title as the Medical Department of Jefferson College, Cannonsburg, Pa. Classes have been graduated annually since 1826. In 1838 a separate university charter was granted without change of title, since which time it has continued under the direction of its own board of trustees. It has a faculty of 46 professors, associate and assistant professors, and 131 associates, lecturers, demonstrators and instructors, a total of 177. Entrance requirements are a completed standard four-year high school or college preparatory course, or the equivalent, and in addition two years of work leading to a degree in an approved college of arts and science amounting to at least 60 semester hours, including specified courses in physics, general and organic chemistry and biology, with laboratory work in each subject. The course of study covers four years of eight and a half months each. The fees are about $325 each year, with a matriculation fee of $5 paid on admission. The Dean is Dr. Ross V. Patterson. The total registration for 1922-1923 was 595; graduates, 147. The ninety-ninth session begins Sept. 25, 1923, and ends June 6, 1924.

Woman's Medical College of Pennsylvania, Twenty-First and N. College Avenue.—Organized in 1850. Classes were graduated in 1852 and in all subsequent years except 1862. It has a faculty of 20 professors and 60 assistants, lecturers, etc., in all 80. Entrance requirements are a completed course in a standard secondary school, and in addition two years of collegiate work, including courses in physics, chemistry, biology and French or German. The curriculum covers four years of eight months each. Fees for each of the four years are, respectively, $275, $279, $277 and $269. The Dean is Dr. Martha Tracy. The total registration for 1922-1923 was 119; graduates, 21. The seventy-fourth session begins Sept. 26, 1923, and ends June 11, 1924.

Hahnemann Medical College and Hospital of Philadelphia, 220-24 North Broad Street.—Organized in 1848 as the Homeopathic Medical College of Pennsylvania. In 1869 it united with the Hahnemann Medical College of Philadelphia, taking the latter title. Assumed present title in 1885. The first class graduated in 1849. Entrance requirements are a completed course in a standard secondary school and in addition two years devoted to a college course, including English and either French, German or Spanish, physics, chemistry and biology. It has a faculty of 51 professors and 65 lecturers, instructors, etc., in all 116. The work covers four years of eight and a half months each. Total fees are $260 each year. The Dean is Dr. William A. Pearson. The total registration for the college year 1922-1923 was 183; graduates, 31. The seventy-sixth session begins Oct. 1, 1923, and ends June 5, 1924.

The Temple University School of Medicine, Eighteenth and Buttonwood Streets.—Organized in 1901. The first class graduated in 1904. The faculty numbers 131. Two years of college work are required for admission. The fees for each of the four years, respectively, are $230, $225, $215 and $215. The Dean is Dr. Frank C. Hammond. The total registration for 1922-1923 was 131; graduates, 25. The twenty-third session begins Sept. 24, 1923, and ends June 13, 1924.

Pittsburgh

University of Pittsburgh School of Medicine, Bigelow Boulevard.—Organized in 1886, as the Western Pennsylvania Medical College and in 1908 became an integral part of the University of Pittsburgh, removing to the university campus in 1910. The first class graduated in 1887. The faculty is composed of 17 professors and 128 associates, assistants, etc., 145 in all. Entrance requirements are two years of college work, including English, chemistry (inorganic and organic), physics, biology and a reading knowledge of French or German, Italian or Spanish. The course of study is four years of eight and a half months each. The total fees for the four years, respectively, are $327.50, $312.50, $312.50 and $322.50. The Dean is Dr. Raleigh R. Huggins. The total registration for 1922-1923 was 194; graduates, 39. The thirty-eighth session begins Sept. 24, 1923, and ends June 11, 1924.

SOUTH CAROLINA

South Carolina, population 1,683,724, has one medical college, situated in Charleston, a city of 67,957 people.

Students intending to practice medicine in South Carolina must complete, in addition to 14 units of high school work, two years in an approved college, including courses in English, physics, chemistry and biology.

Charleston

The Medical College of the State of South Carolina, 16 Lucas Street.—Organized in 1823 as the Medical College of South Carolina The first class graduated in 1825. In 1832 a medical college bearing th present title was chartered and the two schools continued as separat institutions until they were merged in 1838. Classes were graduated i all years except 1862 to 1865, inclusive. In 1913, by legislative enact ment, it became a state institution. It has a faculty of 32 professor and 33 lecturers, instructors, etc., a total of 65. The course covers fou years of eight months each. Two years of collegiate work includin courses in physics, chemistry, biology and a modern foreign languag are required for admission, in addition to a standard high school prepa ration. The total fees are $165 annually. The Dean is Dr. Rober Wilson, Jr. Total enrolment for 1922-1923 was 131; graduates, 25. Th ninety-fifth session begins Sept. 27, 1923, and ends June 5, 1924.

SOUTH DAKOTA

South Dakota, population 636,547, has one medical college the University of South Dakota College of Medicine, locate at Vermilion, a town of 2,590 people.

Students intending to practice medicine in South Dakot must show that they matriculated in and graduated fro medical colleges which required at least two years of collegiat work for admission, including courses in physics, chemistr biology and a modern language.

Vermilion

University of South Dakota College of Medicine.—Organized i 1907. Offers only the first two years of the medical course. Two year work in a college of liberal arts are required for admission. The fees ar $60 each year. The faculty numbers 11. The Dean is Christian I Lommen, B.S. The total registration for 1922-1923 was 40. Th seventeenth session begins Sept. 17, 1923, and ends June 14, 1924.

TENNESSEE

Tennesse, population 2,337,885, has three medical college Of these, Vanderbilt University School of Medicine an Meharry Medical College are situated in Nashville, a cit with a population of 118,342. The College of Medicine o the University of Tennessee is located in Memphis, popula tion 162,351.

Students intending to practice medicine in Tennessee mu complete two years of collegiate work, including courses i physics, chemistry, biology and a modern language, in add ion to a four-year high school course, before entering on the tudy of medicine.

Memphis

University of Tennessee College of Medicine, three buildings, 879 adison Avenue.—Organized in 1876 at Nashville as Nashville Medcal College. First class graduated 1877, and a class graduated each ubsequent year. Became Medical Department of University of Tenessee in 1879. In 1909 it united with the Medical Department of the niversity of Nashville to form the joint Medical Department of the niversities of Nashville and Tennessee. This union was dissolved in 911. The trustees of the University of Nashville by formal action of hat board named the University of Tennessee College of Medicine as s legal successor. In 1911 it moved to Memphis, where it united ith the College of Physicians and Surgeons. The Memphis Hospital edical College was merged in 1913. Lincoln Memorial University edical Department was merged in 1914. The faculty includes 53 rofessors and 91 assistants, instructors, etc., a total of 144. Entrance equirements are a high school education plus two years of collegiate ork. Students taking the two-year premedical course in Knoxville may ecure the B.S. and M.D. degrees. The total fees for the four years, espectively, are $107, $102, $102 and $127 for residents of the state, nd $100 more each year for nonresidents. The Acting Dean is Dr. ames B. McElroy. Total registration for 1922-1923 was 174; gradates, 22. The next session begins Oct. 1, 1923, and ends June 9, 1924.

Nashville

Vanderbilt University School of Medicine.—This school was ounded in 1874. The first class graduated in 1875. The faculty consists of 40 professors and 55 lecturers, a total of 95. Two years of ollegiate work is required for admission. The course covers four years f nearly nine months each. The total fees for the four years, respecvely, are $200, $200, $200 and $225. The Acting Dean is Dr. Lucius . Burch. The total registration for 1922-1923 was 187, graduates, 38. he fiftieth session begins Sept. 26, 1923, and ends June 11, 1924.

Meharry Medical College. Colored. 1118 First Avenue, South. -This school was organized in 1876 as the Medical Department of entral Tennessee College, which became Walden University in 1900. irst class graduated in 1877. Obtained new charter independent of alden University in 1916. The faculty is made up of 18 professors d 46 instructors, demonstrators, lecturers, etc., 64 in all. The work nbraces four years of thirty-one weeks each. The total fees for the ur years, respectively, are $162, $152, $152 and $172. The President Dr. John J. Mullowney. Total registration for 1922-1923 was 185; aduates, 63. The forty-eighth session begins Oct. 2, 1923, and ends ay 22, 1924.

TEXAS

Texas, population 4,663,228, has two medical colleges. The niversity of Texas School of Medicine is located at Galveson, a city of 44,255 inhabitants. The Baylor University Colge of Medicine is located in Dallas, population 158,976.

Students intending to practice medicine in Texas must comete at least a year of collegiate work, including courses in ysics, chemistry, biology and modern language, in addition a standard four-year high school course, before entering on e study of medicine.

Dallas

Baylor University College of Medicine, 720 College Avenue.—rganized in 1900 as the University of Dallas Medical Department. 1903 it took its present name and became the Medical Department Baylor University. It acquired the charter of Dallas Medical College 1904. The first class graduated in 1901. The faculty consists of 42 ofessors and 51 instructors and assistants, a total of 93. Entrance quirements are two years of college work in addition to a four-year h school education. The course is four years of eight months each. e fees for each of the four years, respectively, are $208, $198, $188 d $188. The Dean is Dr. Walter H. Moursund. Total registration 1922-1923 was 144; graduates, 17. The twenty-fourth session begins t. 1, 1923, and ends May 31, 1924.

Galveston

University of Texas School of Medicine, Avenue B, between nth and Tenth Streets.—Organized in 1891. The first class graduated 1892. It has a faculty of 11 professors and 40 lecturers and instrucs, a total of 51. The curriculum embraces four years of eight months h. The entrance requirement is two years of collegiate work in addin to a four year high school education. The total fees for the four rs, respectively, are $108, $73, $45 and $33 for residents of the te, and $150 additional each year for nonresidents. The Acting an is Dr. W. Keiller. Total registration for 1922-1923 was 277; duates, 42. The thirty-third session begins Sept. 30, 1922, and ends y 31, 1923.

UTAH

Utah, population 449,396, has one medical college, the hool of Medicine of the University of Utah, situated at lt Lake City, which has 118,110 people.

Students intending to practice medicine in Utah, in addition a four-year high school education, must complete at least year of collegiate work, including courses in physics, mistry and biology, prior to beginning the study of medne.

Salt Lake City

University of Utah School of Medicine.—Organized in 1906. Gives only first two years of medical course. Each course covers thirty-six weeks. Two years of collegiate work are required for admission. Beginning in 1924 three years of college work will be required for admission. The medical faculty consists of 11 professors and 15 lecturers and assistants, a total of 26. The fees are $150 each year. The Dean is Dr. Ralph O. Porter. Total registration for 1922-1923 was 37. The seventeenth session begins Sept. 27, 1923, and ends June 10, 1924.

VERMONT

Vermont, population 352,428, has one medical school, located at Burlington, a town of 22,779 people.

Students who desire to practice medicine in Vermont, in addition to a standard four-year high school education, must complete two years of collegiate work, including college courses in physics, chemistry and biology, before entering on the study of medicine.

Burlington

University of Vermont College of Medicine, Pearl Street, College Park.—Organized with complete course in 1822. Classes graduated in 1823 to 1836, inclusive, when the school was suspended. It was reorganized in 1853 and classes were graduated in 1854 and in all subsequent years. The faculty numbers 44. Two years of college work in addition to a four-year high school education are required for admission. The course of study covers four years of nine months each. For residents of Vermont the total fees for each of the first three years are $200 and $225 for the fourth year. Nonresidents are charged an additional $100 each year. The Dean is Dr. H. C. Tinkham. The total registration for 1922-1923 was 125; graduates, 23. The next session begins Sept. 19, 1923, and ends June 20, 1924.

VIRGINIA

Virginia, population 2,309,187, has two medical colleges, one, the Department of Medicine of the University of Virginia, situated in Charlottesville, population 10,688, and the Medical College of Virginia at Richmond, population 171,667.

Students desiring to practice in Virginia must be graduates of medical colleges which require that all students admitted shall have completed two years of collegiate work, including courses in physics, chemistry, biology and a modern language, preferably German, in addition to a four-year high school education.

Charlottesville

University of Virginia Department of Medicine.—Organized in 1827. Classes were graduated in 1828 and in all subsequent years except 1865. It has a faculty of 19 professors and 27 lecturers, instructors, assistants, etc., a total of 46. The requirements for admission are the completion of a four-year high school course, or its equivalent, and two years of college work devoted to English, mathematics, chemistry, physics and biology. Total fees for the four years, respectively, are $235, $235, $185 and $175. The Dean is Dr. Theodore Hough. The total registration for 1922-1923 was 168; graduates, 27. The ninety-fifth session begins Sept. 13, 1923, and ends June 10, 1924.

Richmond

Medical College of Virginia, Twelfth and Clay Streets.—Organized in 1838 as the Medical Department of Hampden Sydney College. Present title was taken in 1854. In 1913 the University College of Medicine was merged. In 1914 the North Carolina Medical College was merged. Classes were graduated in 1840 and in all subsequent years. It has a faculty of 45 professors and 80 lecturers, instructors, etc., a total of 125. The requirement for admission is a four-year high school education and in addition two years of collegiate work, including courses in physics, chemistry, biology and English. The course embraces four years of eight months each. Total fees for the four years, respectively, are $230, $230, $220 and $250. The Dean is Dr. Manfred Call. The total registration for 1922-1923 was 257; graduates, 43. The eighty-fifth session begins Sept. 12, 1923, and ends June 3, 1924.

WEST VIRGINIA

West Virginia, population 1,463,701, has one medical college, the School of Medicine of West Virginia University, which offers the first two years of the medical course. It is located at Morgantown, a city of 12,127 population.

Students who desire to practice medicine in West Virginia must complete, in addition to a high school education, two years of collegiate work, including courses in physics, chemistry and biology, before entering on the study of medicine.

Morgantown

West Virginia University School of Medicine.—Organized in 1902, and gives only the first two years of the medical course. Two years of college work are required for admission and the Bachelor's degree will be granted to those who finish the two years in medicine. Session extends through nine months. The faculty numbers 15. Fees: For residents of the state, $90 each year; for nonresidents, $240. Cadets pay laboratory fees only. The Dean is Dr. John N. Simpson. The total registration for 1922-1923 was 104. The next session begins Sept. 17, 1923, and ends June 10, 1924.

WISCONSIN

Wisconsin, population 2,632,067, has two medical colleges, the Medical School of the University of Wisconsin, which teaches the first two years of the medical course, and is located at Madison, a city of 38,378 people, and the Marquette University School of Medicine, located at Milwaukee, a city of 457,147 people.

Students intending to practice medicine in Wisconsin, prior to entering a medical school, must complete, besides a four-year high school course, two years of collegiate work, including courses in physics, chemistry, biology and a modern language.

Madison

University of Wisconsin Medical School.—Organized in 1907. Gives only the first two years of the medical course. For matriculation at least two years in a college of arts and science or an equivalent training are required, including two years of Latin, a reading knowledge of French or German, and at least a year's work in physics, chemistry and biology. It has a faculty of 19 professors and 47 lecturers, instructors, etc., a total of 66. Tuition fees: for residents of the state, $115 for first year and $95 for second year; for nonresidents, $210 for first year and $185 for second year. The Dean is Dr. Charles R. Bardeen. The registration for 1922-1923 was 156. The sixteenth session begins Sept. 26, 1923, and ends June 23, 1924.

Milwaukee

Marquette University School of Medicine, Fourth Street and Reservoir Avenue.—Organized in December, 1912, by the merger of the Milwaukee Medical College and the Wisconsin College of Physicians and Surgeons. It has a faculty of 98. The entrance requirements are two years of college work, including courses in physics, chemistry, biology and a modern language. The curriculum covers four years of eight and a half months each. The fees for the four years, respectively, are $305, $295, $295 and $275. The Dean is Dr. Louis F. Jermain; the Dean of students is Dr. Eben J. Carey. The registration for 1922-1923 was 208; graduates, 20. The twelfth session begins Oct. 1, 1923, and ends June 11, 1924.

PHILIPPINE ISLANDS

The Philippine Archipelago, with a population of 10,607,872, has two medical colleges, the University of the Philippines College of Medicine and Surgery and the University of St. Thomas College of Medicine and Surgery. They are located in the city of Manila, which in 1914 had a population of 283,613.

Manila

University of the Philippines College of Medicine and Surgery, Manila.—Organized in 1907 as the Philippine Medical School, under the support of the government of the Philippine Islands. Present title in 1910. The faculty includes 35 professors and 39 lecturers, assistants, etc., a total of 74. A two-year collegiate course leading to the degree of bachelor of arts is required for admission, including courses in English, physics, chemistry, biology and either French or German. The course extends over five years. In the fifth year the students are assigned as clinical clerks in the Philippine General Hospital. The fees for the four years, respectively, are $78, $84, $64 and $56. The Dean is Dr. Fernando Calderon. The total registration for 1922-1923 was 130; graduates, 17. The seventeenth session began July 1, 1923, and ends April 4, 1924.

University of St. Thomas College of Medicine and Surgery, Manila.—Organized in 1907. The faculty includes 16 professors and 8 assistants, instructors, etc., a total of 24. The course extends over five years. The Dean is Jose L. de Castro. The total registration for 1921-1922 was 403; graduates, 45. The next session begins July 2, 1923, and ends March 31, 1924.

CANADA

The Dominion of Canada has nine medical colleges, all of which require a six-year course, including courses in physics, chemistry and biology. This course is practically equal to that in the colleges of the United States which require two years of college work for admission, including the science courses named.

Alberta

University of Alberta, Faculty of Medicine, Edmonton.—Organized in 1913. Offers the first five years of the six-year medical course. The faculty numbers 62. Fees for the first year are $130; for the second, third, fourth and fifth years, each $180. The Registrar is Cecil E. Race, M.A. The registration for 1922-1923 was 102. The eleventh session begins Sept. 24, 1923, and ends May 16, 1924.

Manitoba

University of Manitoba Faculty of Medicine, Winnipeg.—Organized in 1883 as Manitoba Medical College; first class graduated in 1886, and a class graduated each subsequent year. The college transferred all its property to the University of Manitoba in 1919 and assumed the present title. The faculty numbers 114. The total fees for the five years, respectively, are $180, $175, $185, $185 and $175. Matriculation requirements include two years of college work in the Faculty of Arts and Science of a recognized university subsequent to the complete high school course required for entrance to the latter. The course extends over five years of eight months each. The Dean is Dr. S. Willis Prowse. Total registration for 1922-1923 was 263; graduates, 22. The next session begins Sept. 18, 1923, and ends May 18, 1924.

Nova Scotia

Dalhousie University, Faculty of Medicine, Halifax, N. S.—Organized in 1867. Incorporated as the Halifax Medical College in 1875. Reorganized as an examining faculty, separate from the Halifax Medical College, in 1855. In 1911, in accordance with an agreement between the Governors of Dalhousie University and the Corporation of the Halifax Medical College, the work of the latter institution was discontinued and a full teaching faculty was established by the University. By an arrangement between Dalhousie University and the Provincial Medical Board of Nova Scotia, the final professional examinations are conducted conjointly by the university and the board, and candidates may qualify at the same time for their academic degrees and the provincial license. First class graduated in 1872. It has a faculty of 23 professors and 29 lecturers and demonstrators, a total of 52. Requires matriculation, examination and a graded course of six years, including premedical courses in physics, chemistry and biology. The fees are $200 each year. The total registration for 1922-1923 was 149; graduates, 20. The Dean is Dr. John Stewart. The next session begins Sept. 10, 1923, and ends May 13, 1924.

Ontario

University of Toronto, Faculty of Medicine, Toronto.—Organized in 1843 as the Medical Faculty of King's College. Abolished in 1853 Reestablisbed in 1887. In 1902 it absorbed Victoria University, Medica Department, and in 1903 absorbed Trinity Medical College. The course of study covers six years of eight months each, the first two being devoted largely to physics, chemistry, biology and cultural courses in history, science and English. It has a faculty of 52 professors and 120 lecturers, associates, etc., a total of 178. The fees are $163 for the first four years and $191 for the fifth year. The Dean is Dr. Alexander Primrose. The total registration for 1922-1923 was 977; graduates, 197 The next session begins Sept. 25, 1923, and ends May 31, 1924.

Queen's University Faculty of Medicine, Kingston.—Organized 1854, first class graduated in 1855, and a class graduated each subsequent year. The faculty was originally a department of the university but a separation took place in 1866, when the school was conducted under the charter of the Royal College of Physicians and Surgeons at Kingston. In 1892 the school again became an integral part of Queen's University. The faculty includes 23 professors and 27 assistants instructors, etc., a total of 50. The fees for the six years are, respectively, $141, $146, $141, $155, $155 and $145; fee for M.D., C.M degrees, $30. The course covers six years of thirty-two teaching week each, the first year including courses in physics, chemistry, biology English and French or German. The total registration in 1922-1923 was 260; graduates, 36. The Dean is Dr. J. C. Connell. The next session begins Sept. 26, 1923, and ends May 28, 1924.

University of Western Ontario Medical School, London.—Organized in 1881 as the Western University, Faculty of Medicine first class graduated in 1883, and a class graduated each subsequen year. Present title in 1923. The medical school has been under th control of the Board of Governors of the University of Western Ontario since 1913. The faculty numbers 59. Two years of premedical colleg work are required for admission, including courses in physics, chemistry and biology. The medical course covers four years of eight month each. The total fees for the four years, respectively, are $155, $163 $163 and $183. The Dean is Dr. Paul S. McKibben. Total registration for 1922-1923 was 119; graduates, 24. The next session begins Oct. 1 1923, and ends May 30, 1924.

Montreal

McGill University, Faculty of Medicine.—Founded 1824 as Montreal Medical Institution; became the Medical Faculty of McGill Un versity in 1829; first class graduated under the university auspices i 1833. No session between 1836-1839 owing to political troubles. In 190 it absorbed the Faculty of Medicine of the University of Bishop Co lege. The course extends over six years of eight months each, including one preliminary year. The faculty numbers 150. The total fee each of the first five years are $222; for the sixth year, $252. Th total registration for 1922-1923 was 721; graduates, 126. The Dean i Dr. C. F. Martin. The next session begins Sept. 24, 1923, and end June 1, 1924.

University of Montreal Medical Faculty, Montreal.—Organize in 1843, incorporated in 1845 as the Montreal School of Medicine an Surgery. In 1891, by act of parliament, the Medical Faculty of Lava University (organized in 1878) was absorbed. Present name, by act o Parliament, in 1920. A class was graduated in 1843 and in each subsequent year. The faculty numbers 81. The course extends over six year including premedical courses in physics, chemistry and biology. Th total fees each of the five years, respectively, are $207, $200, $242, $21 and $207. The Dean is Louis de Lotbieniere Harwood. The tota registration for 1922-1923 was 300; graduates, 59. The next session begins Sept. 15, 1923, and ends June 15, 1924.

Quebec

Laval University Faculty of Medicine, Quebec.—The Quebec School of Medicine, organized in 1848, became in 1852 the Medic Department of Laval University; first class graduated in 1855, and class graduated each subsequent year. The faculty numbers 37. Th fees are $135 each year. The course extends over five years, the first yea including courses in physics, chemistry and biology. The Secretary Dr. Arthur Vallée, Quebec. Total registration for 1922-1923 was 170 graduates, 9.

EXISTING AND EXTINCT MEDICAL COLLEGES

Names of existing colleges are in heavy faced type

Number	Name and Address	Organized or Name Assumed	First Class Graduated	Years[1] when No Classes Graduated	Closed or Changed Title	For Subsequent or Previous Title see Line	Admission Requirements		Classification by the Council on Medical Education	Key No. in American Medical Directory	Number
							One Year College	Two Years College			
1.	Alabama, Medical College of, Mobile	1859	1860	1862-68[1]	1907	2	....	....	....	Ala.2	1
2.	**Alabama, University of, School of Med.,** Tuscaloosa[2].	1907	1908	1921-	....	1	1914	1915	A,'07-'24	Ala.2	2
3.	**Albany Medical College,** Albany, N. Y.	1838	1839	....	....	....	1914	1918	A,'07-'24	N.Y.3	3
4.	American Coll. of Med. and Surg., Electic,[3] Chicago	1901	1903	....	1907	43	....	....	B,'07	Ill.22	4
5.	American Coll. of Med. in Pennsylvania, Philadelphia[4]	1853	....	....	1880	302	....	....	....	Pa.14	5
6.	American Medical College, Eclectic, St. Louis[5]	1873	1874	....	1912	266	....	....	C,'07-'12	Mo.10	6
7.	American Medical College, Eclectic, Cincinnati	1839	....	....	1857	....	....	....	....	Ohio 30	7
8.	American Medical Missionary College, Chicago	1895	1899	....	1910	....	....	....	B,'07-'10	Ill.19	8
9.	Arkansas Industrial Univ., Med. Dept., Little Rock	1879	1880	....	1899	10	....	....	....	Ark.1	9
10.	**Arkansas, University of, Medical Dept.,** Little Rock	1899	1900	....	....	9	1915	1918	B,'07-'18; A,'19-'24	Ark.1	10
11.	Atlanta College of Physicians and Surgeons, Atlanta[6]	1898	1899	....	1913	12	....	....	A,'07-'09; B,'10-'13	Ga.11	11
12.	Atlanta Medical College, Atlanta	1854	1855	1862-64	1898	11	....	....	....	Ga.5	12
	Atlanta Medical College, reestablished	1913	1914	....	1917	119	1914	1918	A,'14-'17	Ga.5	
13.	Atlanta School of Medicine, Atlanta[6]	1905	1906	....	1913	12	....	....	A,'07-'09; B,'10-'13	Ga.12	13
14.	Atlantic Medical College, Baltimore	1907	1908	....	1910	325	....	....	C,'09-'10	Md.8	14
15.	Baltimore Medical College, Baltimore	1881	1882	....	1913	....	....	....	A,'07-'13	Md.4	15
16.	Baltimore University School of Medicine, Baltimore	1884	1885	....	1907	....	....	....	C,'07	Md.6	16
17.	Barnes Medical College, St. Louis	1892	1893	....	1911	266	....	....	B,'07-'11	Mo.28	17
18.	**Baylor University School of Medicine,** Dallas, Tex.	1903	1903	....	....	372	1913	1918	B,'07-'15; A,'16-'20	Tex.4	18
19.	Beach Medical Institute, Indianapolis	1884	1885	....	1886	....	....	....	....	Ind.15	19
20.	Beaumont Hospital Medical College, St. Louis	1886	1887	....	1901	214	....	....	....	Mo.24	20
21.	Bell Medical College, Dallas, Tex.	1903	1904	....	1905	82	....	....	....	Tex.8	21
22.	Bellevue Hospital Medical College, New York City	1861	1862	....	1898	363	....	....	....	N.Y.10	22
23.	Bennett College of Eclectic Med. and Surg., Chicago	1868	1870	....	1908	24-214	....	....	B,'07-'08	Ill.8	23
24.	Bennett Medical College, Chicago	1908	1909	....	1915	23-214	1915	....	B,'09-'15	Ill.8	24
25.	Berkshire Medical College, Pittsfield, Mass.	1823	1824	....	1867	....	....	....	....	Mass.2	25
26.	Birmingham Medical College, Birmingham, Ala.	1894	1895	....	1915	....	....	....	A,'07-'09; B,'10-'15	Ala.4	26
27.	**Boston University School of Medicine,** Boston[7]	1873	1874	....	....	....	1914	1916	A,'07-'24	Mass.5	27
28.	Bowdoin Medical School, Portland, Me.	1915	1915	....	1921	234	1912	1916	A,'15-'21	Me.1	28
29.	Brown University, Medical Dept., Providence, R. I.	1811	1814	....	1827	....	....	....	....	R.I.1	29
30.	**Buffalo, University of, Dept. of Med.,** Buffalo, N. Y.	1846	1847	....	....	....	1914	1918	A,'07-'24	N.Y.6	30
31.	California Eclectic Medical College, Los Angeles	1907	1908	....	1915	32	....	....	C,'07-'15	Cal.4	31
32.	California Medical College, San Francisco[8]	1879	1880	....	1906	31	....	....	....	Cal.4	32
33.	**California, University of, Med. School,** San Francisco	1872	1873	....	....	357	....	1905	A,'07-'24	Cal.2	33
34.	Castleton Medical Academy, Castleton, Vt.	1818	....	....	1821	415-35	....	....	....	Vt.1	34
35.	Castleton Medical College, Castleton, Vt.	1841	....	....	1861	34-416	....	....	....	Vt.1	35
36.	Central College of Phys. and Surgs., Indianapolis	1879	1880	....	1905	168	....	....	....	Ind.9	36
37.	Central Medical College of St. Joseph (Mo.)	1894	1895	....	1905	120	....	....	....	Mo.29	37
38.	Chaddock School of Medicine, Quincy, Ill.	1888	1888	....	1890	310	....	....	....	Ill.12	38
39.	Charity Hospital Medical College, Cleveland	1864	1865	....	1869	412	....	....	....	Ohio 11	39
40.	Charity Hospital Medical College, New Orleans	1873	....	....	1877	....	....	....	....	La.3	40
41.	Chattanooga Medical College, Chattanooga, Tenn.[9]	1889	1890	....	1910	....	....	....	B,'07-'08; C,'09-'10	Tenn.9	41
42.	Chattanooga National Medical College, Tenn. (colored)	1899	....	[1901-02]	1908	....	....	....	C,'07-'08	Tenn.18	42
43.	Chicago College of Medicine and Surgery, Chicago	1907	1908	....	1917	4-212	1915	1918	B,'07-'17	Ill.22	43
44.	Chicago Homeopathic Medical College, Chicago	1876	1877	....	1904	....	....	....	....	Ill.10	44
45.	Chicago Hospital College of Medicine, Chicago	1911	1915	....	1919	47	....	....	C,'11-'19	Ill.42	45
46.	Chicago Medical College, Chicago	1864	1865	....	1891	204-286	....	....	....	Ill.6	46
47.	**Chicago Medical School,** Chicago[10]	1919	1920	....	....	45	....	....	C,'19-'24	Ill.42	47
48.	Chicago Physio-Medical College, Chicago	1891	1892	....	1899	49-63	....	....	....	Ill.5	48
49.	Chicago Physio-Medical Institute, Chicago	1885	1886	....	1891	48-63	....	....	....	Ill.5	49
50.	Cincinnati College of Med. and Surg., Cincinnati	1849	1852	....	1902	....	....	...	....	Ohio 8	50
51.	Cincinnati Medical College, Cincinnati	1834	....	....	1846	226	....	....	....	Ohio 27	51
52.	**Cincinnati, University of, College of Medicine**	1911	1912	....	....	226-291	1910	1913	A.'12-'24	Ohio 41	52
53.	Cleveland College of Phys. and Surg., Cleveland[11]	1896	1896	....	1913	412-426	....	....	A,'07-'13	Ohio 12	53
54.	Cleveland Homeopathic Medical College	1898	1899	....	1910	56-57	....	....	B,'07-'10	Ohio 26	54
55.	Cleveland Medical College, Cleveland[12]	1843	1844	....	1881	426	....	....	....	Ohio 6	55
56.	Cleveland Medical College, Homeopathic	1890	1891	....	1898	54	....	....	....	Ohio 23	56
57.	Cleveland-Pulte Medical College, Cleveland	1910	1911	....	1914	54-309	....	....	B,'10-'11; C,'12-'14	Ohio 26	57
58.	Cleveland Univ. of Med. and Surg., Cleveland.—H.	1894	1895	....	1898	54-151-422	....	....	....	Ohio 7	58
59.	Clinical School of Medicine, Woodstock, Vt.	1827	....	....	1835	414	....	....	....	Vt.3	59
60.	College of American Med. and Surg., Macon, Ga.	1874	1875	1877-81	1884	312-323	....	....	....	Ga.8	60
61.	Coll. of Homeo. M. & S. of Kansas City Univ., (Mo.)	1896	1897	....	1900	145	....	....	....	Mo.31	61
62.	**College of Medical Evangelists,** Loma Linda, Calif.	1909	1914	....	....	....	1914	1915	C,'10-'17; B,'18-'22; A,'22-'24	Cal.12	62
63.	College of Med. and Surg., Physio-Medical, Chicago	1899	1900	....	1911	48-49	....	....	C,'07-'11	Ill.5	63
64.	College of Medicine of Maryland, Baltimore	1807	1810	....	1812	379	....	....	....	Md.1	64
65.	College of Philadelphia, Department of Medicine (Pa.)	1765	1768	1772-79	1791	301	....	....	....	Pa.1	65

NOTES AND REFERENCES

The above colleges are known to have had a bona fide existence in accordance with the dates shown. Information regarding other institutions to which there is some question or which were reported as fraudulent or not in good standing in the states in which they existed may be obtained in the American Medical Directory.

The purpose of this list is to give the dates when each institution existed under the name given; the years when there were no graduates; the years when the institutions required for admission, respectively, one year and two years of collegiate work, and the rating of the college by the Council on Medical Education. Full information in regard to each institution under its various names may be found in the American Medical Directory, key number of which is given in the last column.

1. Dates separated by a hyphen indicate that the intervening years are included among the years when there were no graduates; not so if separated by a comma. Figures in brackets indicate the only years for which the records show there were graduates.

2. Discontinued clinical teaching in 1920 when the school was moved from Mobile to Tuscaloosa.

3. Eclecticism dropped in 1905. In 1907 changed its name to the Chicago College of Medicine and Surgery and became by affiliation the medical department of Valparaiso (Ind.) University.

4. Was organized under this title and was also known as the Eclectic Medical College of Philadelphia. Former title dropped in 1856. Name changed in 1865 to the Philadelphia University of Medicine and Surgery. Under this title, according to report, it became a fraudulent institution during the last few years of its existence. Extinct in 1880.

5. Two classes graduated each year 1874 to 1883 inclusive; since then one class each year.

6. In 1913 the Atlanta College of Physicians and Surgeons merged with the Atlanta School of Medicine and reassumed the name of Atlanta Medical College.

7. This was a homeopathic medical school until 1918 when it became nonsectarian.

8. Was located in Oakland, California, 1879 to 1887.

9. Was the medical department of Grant University, which in 1908 changed its name to the University of Chattanooga.

10. Has advertised under the title "Fort Dearborn Hospital Medical School" and in 1919 changed its name to the "Chicago Medical School."

11. This was the medical department of the Ohio Wesleyan University.

12. Sometimes referred to as the Hudson Medical College.

Number	Name and Address	Organized or Name Assumed	First Class Graduated	Years[1] when No Classes Graduated	Closed or Changed Title	For Subsequent or Previous Title see Line	Admission Requirements: One Year College	Admission Requirements: Two Years College	Classification by the Council on Medical Education	Key No. in American Medical Directory	Number
66.	College of Physicians and Surgeons, Little Rock, Ark.	1906	1907	....	1911	....	....	....	B,'07-'11	Ark.2	66
67.	College of Physicians and Surgeons, Los Angeles[13]...	1903	1905	....	1920	401	1914	1916	B,'07-'20	Cal.9	67
68.	College of Physicians and Surgeons, San Francisco..	1896	1897	....	1921	....	....	....	B,'07; C,'08-'21	Cal.7	68
69.	College of Physicians and Surgeons, Chicago	1882	1883	....	1911	374	....	....	A,'07-'11	Ill.11	69
70.	College of Physicians and Surgeons of the Upper Mississippi, Rock Island, Ill....................	1848	1849	....	1849	72	....	....	....	Ill.24	70
71.	College of Phys. and Surgs. of Indiana, Indianapolis.	1873	1874	....	1878	223	....	....	....	Ind.6	71
72.	College of Physicians and Surgeons, Keokuk, Ia.[14]...	1849	1850	....	1899	70-375	....	....	....	Ia.1	72
73.	Coll. of Physicians and Surgeons, Kansas City, Kan.	1894	1895	....	1905	376	....	....	....	Kan.4	73
74.	Coll. of Physicians and Surgeons of Baltimore (Md.)	1872	1873	....	1915	379	1914	....	A,'07-'15	Md.3	74
75.	**College of Physicians and Surgeons**, Boston..........	1880	1882	....	....	....	....	....	C,'07-'24	Mass.6	75
76.	College of Phys. and Surgs. of Kansas City (Mo.)..	1869	1870	....	1880	185	....	....	....	Mo.8	76
77.	Coll. of Physicians and Surgeons of St. Joseph (Mo.)	1878	1879	....	1882	333	....	....	....	Mo.15	77
78.	College of Physicians and Surgeons of St. Louis....	1869	1870	1874-79	1879	335	....	....	....	Mo.7	78
79.	College of Phys. and Surgs. in the City of New York	1807	1811	....	1896	86-87-196	....	....	....	N.Y.1	79
80.	College of Physicians and Surgeons of the Western District of New York, Fairfield, N. Y............	1812	1816	....	1840	....	....	....	....	N.Y.2	80
81.	College of Phys. and Surgs., Homeopathic, Buffalo[15]..	1879	1880	....	1884	....	....	....	....	N.Y.17	81
82.	College of Physicians and Surgeons, Memphis, Tenn..	1906	1907	....	1911	....	....	....	B,'07-'11	Tenn.8	82
83.	College of Physicians and Surgeons, Dallas, Tex.....	1905	1905	....	1910	21	....	....	C,'07-'10	Tex.8	83
84.	Colorado School of Medicine, Boulder...............	1883	1885	1899	1907	85	....	....	A,'07	Colo.2	84
85.	**Colorado, University of, School of Medicine**, Denver..	1907	1908	....	....	84	....	1910	A,'07-'24	Colo.2	85
86.	Columbia College, Medical Faculty, New York City..	1792	1793	1798-1801, 1808,'09, '11,'14	1814	79-196	....	....	....	N.Y.1	86
87.	**Columbia Univ. Coll. of Phys. and Surgs.**, N. Y. City	1896	1897	....	....	79-86-196	....	1910	A,'07-'24	N.Y.1	87
88.	Columbian College, Med. Dept., Washington, D. C....	1825	1826	1834,'38, '61-'63	1873	90-132	....	....	....	D.C.1	88
89.	Columbian Medical College, Kansas City, Mo.........	1898	1899	....	1901	....	....	....	....	Mo.41	89
90.	Columbian University Med. Dept., Washington, D. C.	1873	1874	....	1904	88-132	....	....	....	D.C.1	90
91.	Columbus Medical College, Columbus, Ohio..........	1875	1876	....	1892	343	....	....	....	Ohio 14	91
92.	Cooper Medical College, San Francisco...............	1882	1883	....	1912	405-228	....	....	A,'07-'12	Cal.1	92
93.	**Cornell University Medical College**, New York City...	1898	1899	....	....	....	....	1908	A,'07-'24	N.Y.20	93
94.	**Creighton (John A.) Medical College**, Omaha, Neb...	1892	1893	....	....	177	1914	1918	A, 07-'11; B,'12-'16; A,'17-'24	Neb.6	94
95.	Curtis Physio-Medical Inst., Marion-Indianapolis, Ind.	1881	1882	....	1900	....	....	....	....	Ind.12	95
96.	Dallas Medical College, Dallas, Tex.................	1900	1901	....	1904	18	....	....	....	Tex.10	96
97.	**Dartmouth Medical School**, Hanover, N. H.*[16]........	1797	1798	1915	....	....	....	1910	A,'07-'24	N.H.1	97
98.	Dayton Medical University, Dayton, Ohio............	1886	1887	....	1889	....	....	....	....	Ohio 37	98
99.	Dearborn Medical College, Chicago...................	1903	1904	....	1907	....	....	....	C,'07	Ill.23	99
100.	Denver and Gross College of Medicine, Denver.......	1902	1903	....	1911	85	....	....	A,'07-'11	Colo.5	100
101.	Denver College of Medicine, Denver..................	1881	1882	....	1902	100	....	....	....	Colo.1	101
102.	Denver College of Physicians and Surgeons, Denver..	1908	1909	....	1909	103-427	....	....	C,'08-'09	Colo.4	102
103.	Denver Homeopathic College, Denver................	1894	1895	....	1907	102-427	....	....	C,'07	Colo.4	103
104.	Detroit College of Medicine, Detroit................	1885	1886	....	1913	105	....	....	A,'07-'11; B,'12-'13	Mich.7	104
105.	**Detroit College of Medicine and Surgery**, Detroit....	1913	1914	....	....	104	1914	1918	A,'13-'24	Mich.7	105
106.	Detroit Homeopathic College, Detroit................	1899	1900	....	1912	....	....	....	C,'07-'12	Mich.11	106
107.	Detroit Homeopathic Medical College, Detroit........	1871	....	....	1876	....	....	....	....	Mich.3	107
108.	Detroit Medical College, Detroit....................	1868	1869	....	1885	104	....	....	....	Mich.2	108
109.	Drake University, College of Med., Des Moines, Iowa	1903	1904	....	1913	172-173	....	....	A,'07-'13	Ia.6	109
110.	Dunham Medical College, Chicago....................	1895	1896	....	1902	150	....	....	....	Ill.18	110
111.	Eclectic College of Medicine and Surgery, Cincinnati	1856	1857	....	1859	116	....	....	....	Ohio 31	111
112.	Eclectic College of Phys. and Surgs., Indianapolis...	1890	1891	....	1894	....	....	....	....	Ind.16	112
113.	Eclectic Medical College of Indiana, Indianapolis.....	1900	1903	....	1908	....	....	....	C,'07-'08	Ind.17	113
114.	**Eclectic Medical College**, Cincinnati..................	1910	1910	....	....	116	1915	1918	B,'10-'24	Ohio 2	114
115.	Eclectic Medical College of the City of New York....	1866	1867	....	1913	....	....	....	C,'07-'13	N.Y.13	115
116.	Eclectic Medical Institute, Cincinnati...............	1845	1846	....	1910	114-441	....	....	B,'07-'10	Ohio 2	116
117.	Eclectic Medical University, Kansas City, Kan........	1907	1907	....	1908	118-422	....	....	C,'07-'08	Kan.7	117
118.	Eclectic Medical University, Kansas City, Mo.†[17].....	1898	1900	1907-09	1918	117-422	....	....	C,'09-'18	Mo.33	118
119.	**Emory University School of Medicine**, Atlanta, Ga....	1917	1918	....	....	12	1914	1918	A,'17-'24	Ga.5	119
120.	Ensworth-Central Medical College, St. Joseph, Mo....	1905	1905	....	1907	121	....	....	B,'07	Mo.22	120
121.	Ensworth Medical College, St. Joseph, Mo.[18].........	1888	1889	1892	1905	120					
	Reestablished	1907	1908	....	1914	120	....	....	B,'07-'09; C,'10-'14	Mo.22	121
122.	Epworth College of Medicine, Oklahoma City.........	1904	1907	....	1910	393	....	....	C,'07-'10	Okla.2	122
123.	Flint Medical College of New Orleans University.....	1901	1902	1911	1911	274	....	....	B,'07-'08; C,'09-'11	La.4	123
124.	Fordham University School of Med., New York City..	1907	1909	....	1921	....	1911	1918	B,'08-'09; A,'10-'12; B,'13; A,'14-'21	N.Y.43	124
125.	Fort Wayne College of Medicine, Fort Wayne, Ind....	1879	1880	1899	1905	168	....	....	....	Ind.10	125
126.	Fort Worth School of Medicine, Fort Worth, Tex.[19]...	1894	1895	....	1918	....	1916	....	A,'07-'09; B,'10-'11; C,'12-'13; B,'14-'18	Tex.3	126
127.	Franklin Medical College, Philadelphia..............	1847	....	....	1852	....	....	....	....	Pa.5	127
128.	Galveston Medical College, Galveston, Tex............	1864	....	....	1873	355	....	....	....	Tex.1	128
129.	Gate City Medical College, Texarkana, Tex.†........	1902	1904	1909-10	1911	....	....	....	C,'07-'11	Tex.7	129
130.	**General Medical College, Chicago**, Chicago[20]..........	1922	1923	....	....	142	....	1922	[20]	Ill.4	130
131.	Geneva Medical College, Geneva, N. Y...............	1861	1862	....	1872	231	....	....	....	N.Y.4	131
132.	**George Washington Univ. Med. Sch.**, Washington, D. C.	1904	1905	....	....	88-90	1914	1918	A,'07-'24	D.C.1	132
133.	**Georgetown Univ. School of Med.**, Washington, D. C..	1851	1852	....	....	....	....	1912	A,'07-'11; B,'12; A,'13-'24	D.C.2	133
134.	Georgia Coll. of Eclectic Med. and Surgery, Atlanta..	1886	1887	....	1916	135	....	....	C,'07-'16	Ga.9	134
135.	Georgia Eclectic Medical College, Atlanta............	1877	1878	....	1886	134	....	....	....	Ga.9	135
136.	**Georgia, University of, Medical Department**, Augusta	1873	1874	....	....	222	1914	1918	A,'07-'09; B,'10-'12; A,'14-'24	Ga.1	136
137.	Graffenburg Institute, Dadeville, Ala.................	1852	1856	....	1862	....	....	....	....	Ala.1	137
138.	Grand Rapids Medical College, Grand Rapids, Mich...	1897	1898	....	1907	....	....	....	B,'07	Mich.10	138
139.	Gross Medical College, Denver.......................	1887	1888	....	1902	100	....	....	....	Colo.3	139
140.	Hahnemann Hospital College of San Francisco.......	1888	1889	....	1902	141-146	....	....	....	Cal.5	140
141.	Hahnemann Medical College, San Francisco..........	1881	1884	....	1888	140-146	....	....	....	Cal.5	141
142.	Hahnemann Medical College and Hospital, Chicago....	1859	1861	....	1922	130	1914	1916	A,'07-'11; B,'12-'22	Ill.4	142

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* Offers only the first two years of the medical course.

† Reported fraudulent or not in good standing in the state in which the college is located.

[13] In 1909, became the Medical Department of the University of Southern California. Suspended in 1920.

[14] Went under the name "Medical Department of the University of Iowa" from 1854 to 1870 inclusive.

[15] For the first year (1879-80) this college bore the title: "Homeopathic College of Physicians and Surgeons."

[16] Graduated its last class in 1914 when clinical teaching was abandoned.

[17] Removed to Kansas City, Kansas, in 1907, changed its name in 1908 to the Western Eclectic College of Medicine and Surgery; returned to Kansas City, Mo., in 1909 and resumed its former title. Was reported not recognized by the Missouri State Board of Health. Extinct 1918.

[18] This school in 1905 was merged with the Central Medical College, St. Joseph, Mo., taking the name of the Ensworth-Central Medical College. In 1907, however, the college reassumed the name of the Ensworth Medical College. It became extinct in 1914.

[19] This was the medical department of the Fort Worth University 1894 to 1911; of the Texas Christian University 1911 to 1918.

[20] The General Medical College succeeded the Hahnemann Medical College of Chicago. It is at present unclassified.

Number	Name and Address	Organized or Name Assumed	First Class Graduated	Years[1] when No Classes Graduated	Closed or Changed Title	For Subsequent or Previous Title see Line	Admission Requirements		Classification by the Council on Medical Education	Key No. in American Medical Directory	Number
							One Year College	Two Years College			
143.	**Hahnemann Medical Coll. and Hosp. of Philadelphia**..	1885	1886	....	....	144–153	1914	1917	A,'07-'24	Pa.9	143
144.	Hahnemann Medical College of Philadelphia..........	1869	1870	....	1885	143–153	....	....	....	Pa.9,18	144
145.	Hahnemann Med. Coll. of the Kansas City Univ. (Mo.)	1900	1901	....	1902	61–183	....	....	....	Mo.31	145
146.	Hahnemann Med. Coll. of the Pacific, San Francisco.	1902	1903	....	1918	141–140	1915	....	A,'07-'09; B,'10-'18	Cal.6	146
147.	Hampden Sydney College Med. Dept., Richmond, Va..	1838	1839	....	1854	230	....	....	....	Va.4	147
148.	**Harvard University, Medical School of**, Boston.......	1782	1788	....	....	....	....	1900	A,'07-'24	Mass.1	148
149.	Harvey Medical College, Chicago....................	1891	1895	....	1905	....	....	....	....	Ill.13	149
150.	Hering Medical College, Chicago....................	1892	1893	....	1913	....	....	....	C,'07-'13	Ill.15	150
151.	Homeopathic Hospital College, Cleveland............	1870	1871	....	1894	58–421–423	....	....	....	Ohio 7	151
152.	Homeopathic Medical College of Missouri, St. Louis..	1859	1860	1862-64	1909	....	....	....	C,'07-'09	Mo.5	152
153.	Homeopathic Med. Coll. of Pennsylvania, Philadelphia	1848	1849	....	1869	144–143	....	....	....	Pa.9	153
154.	Homeo. Med. Coll. of the State of New York, N. Y. City	1858	1861	....	1869	276	....	....	....	N.Y.9	154
155.	Homeopathic Medical College for Women, Cleveland..	1868	....	....	1870	151	....	....	....	Ohio 33	155
156.	Hospital College of Medicine, Louisville............	1874	1875	....	1907	....	....	....	B,'07	Ky.5	156
157.	Hospital Medical College, Eclectic, Atlanta..........	1908	1909	....	1911	....	....	....	C,'08-'11	Ga.18	157
158.	Hospital Medical College of Evansville (Ind.)........	1882	1883	....	1886	....	....	....	....	Ind.13	158
159.	**Howard University School of Med.**, Washington, D. C.	1869	1871	....	....	....	1910	1914	B,'07-'09; A,'10-'24	D.C.3	159
160.	Humboldt Medical College, St. Louis[21]...............	1859	....	....	1869	334	....	....	....	Mo.4	160
161.	Hygeia Medical College, Cincinnati†.................	1893	1895	1897	1899	....	....	....	....	Ohio 39	161
162.	Illinois College Medical Department, Jacksonville....	1843	....	....	1848	....	....	....	....	Ill.2	162
163.	Illinois Medical College, Chicago....................	1894	1895	....	1910	....	....	....	B,'07; C,'08-'10	Ill.17	163
164.	**Illinois, University of, College of Medicine**, Chicago..	1911	1912	....	....	74	1913	1914	A,'07-'24	Ill.11	164
165.	Indiana Electic Medical College, Indianapolis........	1880	1881	....	1890	....	....	....	....	Ind.11	165
166.	Indiana Medical College, Indianapolis...............	1869	1870	....	1878	223	....	....	....	Ind.4	166
167.	Indiana Medical College, La Porte, Ind.[22]............	1844	....	....	1849	....	....	....	....	Ind.1	167
168.	Ind. Med. Coll., S. of M. of Purdue Univ., Indianapolis	1905	1906	1908	1908	169	....	....	A,'07-'08	Ind.18	168
169.	**Indiana University School of Medicine**, Indianapolis..	1903	1908	....	....	....	1909	1910	A,'07-'24	Ind.20	169
170.	International Medical Missionary College, Atlanta...	1904	1906	....	1908	....	....	....	C,'07-'08	Ga.17	170
171.	Iowa Coll. of Physicians and Surgeons, Des Moines[23]	1882	1883	....	1903	109-172	....	....	....	Ia.6	171
172.	Iowa Medical College, Eclectic, Des Moines..........	1881	1882	....	1887	171	....	....	....	Ia.6	172
173.	Iowa, State Univ. of, Coll. of Homeo. Med., Iowa City	1877	1878	1914	1919	....	....	1910	A,'07-'19	Ia.4	173
174.	**Iowa, State University of, Coll. of Medicine**, Iowa City	1869	1871	....	....	....	....	1909	A,'07-'24	Ia.3	174
175.	**Jefferson Medical College of Philadelphia**............	1825	1826	....	....	....	1914	1917	A,'07-'24	Pa.2	175
176.	Jenner Medical College, Chicago.....................	1892	1896	....	1918	....	....	....	C,'07-'18	Ill.16	176
177.	John A. Creighton Medical College, Omaha, Neb.....	1892	1893	....	1922	94	1914	1918	A,'07-'11; B,'12-'16; A,'17-'22	Nebr.6	177
178.	**Johns Hopkins University Medical Dept.**, Baltimore...	1887	1897	....	....	....	....	1893	A,'07-'24	Md.7	178
179.	Joplin College of Physicians and Surgeons, Joplin, Mo.	1880	1881	....	1884	....	....	....	....	Mo.17	179
180.	Kansas City College of Medicine and Surgery (Kan.)	1897	1898	....	1898	236	....	....	....	Kan.6	180
181.	**Kansas City Coll. of Medicine and Surgery** (Mo.)†[24].	1915	1916	....	....	....	....	....	........[24]........	Mo.43	181
182.	Kansas City Hahnemann Medical College (Mo.)......	1902	1903	....	1915	329	....	....	C,'07-'09; B,'10-'11; C,'12-'15	Mo.35	182
183.	Kansas City Homeopathic Medical College (Mo.).....	1888	1889	....	1902	182	....	....	....	Mo.26	183
184.	Kansas City Hospital College of Medicine (Mo.)....	1882	1883	....	1888	....	....	....	....	Mo.21	184
185.	Kansas City Medical College (Mo.).................	1880	1881	....	1905	76	....	....	....	Mo.8	185
186.	**Kansas City (Mo.) University of Phys. and Surgs.**[25].	1903	1919	....	....	....	....	....	C,'18-'24	Mo.44	186
187.	Kansas Medical College, Independence..............	1872	1874	....	1875	....	....	....	....	Kan.1	187
188.	Kansas Medical College, Topeka[26]...................	1890	1892	1901	1913	....	....	....	B,'07-'13	Kan.3	188
189.	**Kansas, University of, School of Medicine**, Lawrence..	1880	1906	....	....	....	....	1909	A,'07-'11; B,'12; A,'13-'24	Kan.2	189
190.	Kemper College Medical Department, St. Louis......	1840	1841	....	1845	385	....	....	....	Mo.1	190
191.	Kentucky School of Medicine, Louisville.............	1850	1851	....	1908	359	....	....	B,'07-'08	Ky.1	191
192.	Kentucky University Medical Department, Louisville..	1898	1899	1907	1907	378	....	....	B,'07	Ky.9	192
193.	Keokuk Medical College, Keokuk, Iowa..............	1890	1891	....	1899	194	....	....	....	Ia.9	193
194.	Keokuk Med. Coll., Coll. of P. & S., Keokuk, Iowa..	1899	1900	....	1908	193	....	....	B,'07-'08	Ia.10	194
195.	King Eclectic Medical College, Des Moines...........	1883	1884	....	1889	....	....	....	....	Ia.7	195
196.	King's College Medical Faculty, New York City.....	1767	1769	1770	1774	79–86–87	....	....	....	N.Y.1	196
197.	Knoxville Coll. Med. Dept. (colored), Knoxville, Tenn	1895	....	....	1900	198	....	....	....	Tenn.12	197
198.	Knoxville Medical College (colored), Knoxville, Tenn.	1900	1900	1906,'07	1910	197	....	....	C,'07-'10	Tenn.13	198
199.	Laura Memorial Woman's Medical College, Cincinnati	1895	1896	....	1903	308	....	....	....	Ohio 21	199
200.	Leland Stanford Jr. Univ. Sch. of Med., San Francisco	1908	1913	....	1922	92–342	....	1909	A,'08-'22	Cal.11	200
201.	Leonard Medical College, Raleigh, N. C.[27]...........	1882	1886	1887, 1915-'18	1918	....	....	1914	C,'07-'09; B,'10-'11; C,'12-'13; B,'14-'18	N.C.3	201
202.	Lincoln Medical College, Eclectic, Lincoln, Neb.[28]....	1890	1891	....	1918	....	....	....	C,'07-'18	Nebr.4	202
203.	Lincoln Memorial Univ. Med. Dept., Knoxville, Tenn.	1909	1910	....	1917	353	....	....	B,'07-'09; C,'10-'14; B,'15-'17	Tenn.10	203
204.	Lind University, Medical Department of, Chicago	1859	1860	....	1864	46–286	....	....	....	Ill.6	204
205.	**Long Island College Hospital**, Brooklyn.............	1858	1860	....	....	....	1914	1918	A,'07-'11; B,'12-'14; A,'15-'24	N.Y.8	205
206.	Louisiana, Medical College of, New Orleans..........	1834	1835	....	1847	207–361	....	....	....	La.1	206
207.	Louisiana, University of, Medical Dept., New Orleans	1847	1848	1863-65	1884	206–361	....	....	....	La.1	207
208.	Louisville and Hospital Medical College, Louisville...	1907	1908	....	1908	....	....	....	B,'07-'08	Ky.11	208
209.	Louisville Medical College, Louisville...............	1869	1870	....	1907	208	....	....	B,'07	Ky.4	209
210.	Louisville Medical Institute, Louisville..............	1837	1838	....	1846	212–378	....	....	....	Ky.2	210
211.	Louisville National Medical College, Louisville.......	1888	1889	....	1912	....	....	....	B,'07-'08; C,'09-'12	Ky.7	211
212.	**Louisville, University of, Medical Dept.**, Louisville..	1846	1847	1863	....	210	1914	1918	B,'07-'09; A,'10-'24	Ky.2	212
213.	**Loyola University School of Medicine**, Chicago......	1915	1916	....	....	23–24–43	1915	1918	B,'15-'19; A,'24	Ill.43	213
214.	Marion Sims-Beaumont Medical College, St. Louis...	1901	1902	....	1903	20–215–339	....	....	....	Mo.34	214
215.	Marion Sims College of Medicine, St. Louis.........	1890	1891	....	1901	214	....	....	....	Mo.27	215
216.	**Marquette University School of Medicine**, Milwaukee.	1912	1913	....	....	247	1913	1915	B,'13-'14; A,'15-'24	Wis.6	216

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* Offers only the first two years of the medical course.

† Reported fraudulent or not in good standing in the state in which the college is located.

[21] Was known as St. Louis College of Medical and Natural Sciences from 1855 to 1859; as Humboldt Institute from 1859 to 1866, and as Humboldt Medical College 1866 to 1869.

[22] From 1844 to 1845 was known as the medical department of La Porte University.

[23] In 1887 this college became the medical department of Drake University with the title the Iowa Medical College, Eclectic—also known as the Iowa Eclectic Medical College. Name changed to Drake University College of Medicine in 1903.

[24] Kansas City College of Medicine and Surgery claims to be an eclectic medical college, but is reported not recognized as such by the National Eclectic Medical Association. It is an offshoot of the Eclectic Medical University, an institution which during its existence was rated in Class C. The new college has refused inspections and is reported not recognized by the licensing boards of forty-one states. There is nothing to indicate that a rating higher than Class C is deserved.

[25] Chartered 1903 as the Central College of Osteopahy; charter amended in 1917, by which it obtained the right to grant degrees in medicine, and name was changed to the Central College Medical Department. Present title in 1918. Very liberal advanced standing allowed for work done in osteopathic colleges.

[26] This became the Medical Department of Washburn College in 1903.

[27] This was the medical department of Shaw University. The last class graduated in 1914 when it discontinued clinical teaching. It was closed in 1918.

[28] This was the medical department of Cotner University from 1911 to 1915 when the relationship was cancelled. Extinct in 1918.

Number	Name and Address	Organized or Name Assumed	First Class Graduated	Years[1] when No Classes Graduated	Closed or Changed Title	For Subsequent or Previous Title see Line	Admission Requirements		Classification by the Council on Medical Education	Key No. in American Medical Directory	Number
							One Year College	Two Years College			
217.	Maryland Medical College, Baltimore	1898	1899	....	1913	....	....	....	B,'07-'08; C,'09-'13	Md 9	217
218.	**Maryland, Univ. of, Sch. of Med. and Coll. of P. & S.**	1812	1813	....	....	....	1914	1918	A,'07-'11; B,'12; A,'13-'24	Md.1	218
219.	Medical College of Alabama, Mobile	1859	1860	1862-68	1907	2-366	....	....	A,'07	Ala.2	219
220.	Medical College of Evansville (Ind.)	1849	1850	1854-71	1884	....	....	....	....	Ind.2	220
221.	Medical College of Fort Wayne (Ind.)	1876	1877	....	1883	....	....	....	....	Ind.7	221
222.	Medical College of Georgia, Agusta	1829	1833	1862-63	1873	136-372	....	....	....	Ga.1	222
223.	Medical College of Indiana, Indianapolis[29]	1878	1879	....	1905	168-166	....	....	....	Ind.8	223
224.	Medical College of Kansas City (Mo.)	1869	1870	....	1873	....	....	....	....	Mo.11	224
225.	Medical College of Louisiana, New Orleans	1834	1835	....	1847	207-361	....	....	....	La.1	225
226.	Medical College of Ohio, Cincinnati[30]	1819	1821	....	1909	52	....	....	A,'07-'09	Ohio 1	226
227.	Medical College of South Carolina, Charleston	1823	1825	....	1838	229	....	....	....	S.C.1	227
228.	Medical College of the Pacific, San Francisco	1873	1874	....	1882	92-405	....	....	....	Cal.1	228
229.	**Med. Coll. of the State of South Carolina,** Charleston[31]	1832	1833	1862-65	....	227	1914	1916	A,'07-'09; B,'10-'11; C,'12; B,'13-'15; A,'16-'24	S.C.1	229
230.	**Medical College of Virginia,** Richmond	1854	1855	....	....	147-364	1914	1915	A,'07-'24	Va.4	230
231.	Medical Institution of Geneva, Geneva, N. Y.	1834	1835	1854	1861	131	....	....	....	N.Y.4	231
232.	Medical Institution of Yale College, New Haven, Conn.	1812	1814	....	1879	442	....	....	....	Conn.1	232
233.	**Medical School of Harvard University,** Boston	1782	1788	....	....	....	....	1900	A,'07-'24	Mass.1	233
234.	Medical School of Maine, Brunswick-Portland	1820	1821	....	1915	28	....	....	A,'07-'15	Me.1	234
235.	Medical School of the Valley of Virginia, Winchester.	1826	....	....	1861	....	....	....	....	Va.3	235
236.	Medico-Chirurgical College of Kansas City (Mo.)	1898	1899	....	1905	180	....	....	....	Mo.32	236
237.	Medico-Chirurgical College of Philadelphia	1881	1882	....	1916	....	1914	....	A,'07-'16	Pa.11	237
238.	**Meharry Medical College** (colored), Nashville[32]	1876	1877	....	....	....	1915	1918	B,'07-'09; A,'10-'13; B,'13-'22; A,'23-'24	Tenn.7	238
239.	Memphis Hospital Medical College	1880	1881	....	1913	....	....	....	B,'07-'13	Tenn.8	239
240.	Memphis Medical College	1854	...	1861-68	1873	....	....	....	....	Tenn.2	240
241.	Miami Medical College, Cincinnati	185	1853	1858-65	1909	52	....	....	A,'07-'09	Ohio 9	241
242.	Michigan College of Medicine, Detroit	1880	1881	....	1885	104	....	....	....	Mich.6	242
243.	Michigan College of Medicine and Surgery, Detroit	1888	1889	....	1907	....	....	....	C,'07	Mich.8	243
244.	**Michigan, University of, Medical School,** Ann Arbor	1850	1851	....	....	....	....	1909	A,'07-'24	Mich.1	244
245.	Michigan, Univ. of, Homeo. Med. School, Ann Arbor	1875	1877	....	1922	....	1912	1916	A,'07-'22	Mich.5	245
246.	**Middlesex Coll. of Med. and Surg.,** Cambridge, Mass.[33]	1914	1915	....	....	....	....	....	C,'15-'24	Mass.15	246
247.	Milwaukee Medical College, Milwaukee	1894	1895	....	1913	216	....	....	B,'07-'11; C,'12-'13	Wis.3	247
248.	Minneapolis College of Physicians and Surgeons[34]	1883	1884	....	1911	....	....	....	B,'07-'11	Minn.5	248
249.	Minnesota College Hospital, Minneapolis	1881	1882	....	1885	250	....	....	....	Minn.3	249
250.	Minnesota Hospital College, Minneapolis	1885	1886	....	1888	249-252	....	....	....	Minn.3	250
251.	Minnesota University of, Coll. of Homeo. Medicine	1888	1889	....	1909	252	....	....	A,'07-'09	Minn.6	251
252.	**Minnesota, University of, Med. School,** Minneapolis[35]	1883	1889	....	....	....	....	1907	A,'07-'24	Minn.4	252
253.	Mississippi Medical College, Meridian	1906	1907	....	1912	....	....	....	C,'07-'12	Miss.2	253
254.	**Mississippi, University of, Sch. of Med.,** University*[36]	1903	1910	[1910]	....	....	1914	1918	A,'07-'24	Miss.1	254
255.	Missouri Medical College, St. Louis[37]	1855	1856	1862-65	1899	190-420	....	....	....	Mo.1	255
256.	**Missouri, University of, School of Medicine,** Columbia	1845	1846	[38]	....	....	1906	1910	A,'07-'24	Mo.3	256
257.	Montezuma University Medical College, Bessemer, Ala.	1896	1897	....	1898	....	....	....	....	Ala.5	257
258.	Nashville Medical College	1876	1877	....	1879	354	....	....	....	Tenn.6	258
259.	Nashville, University of, Medical Department[39]	1850	1852	....	1911	354	....	....	B,'07-'11	Tenn.1	259
260.	National Homeopathic Med. College, Washington, D. C.	1893	1894	....	1896	419	....	....	....	D.C.5	260
261.	National Homeopathic Medical College, Chicago	1891	1892	....	1895	262	....	....	....	Ill.14	261
262.	National Medical College, Chicago	1895	1896	....	1900	261-263	....	....	....	Ill.14	262
263.	National Medical University, Chicago	1900	1901	....	1909	261-262	....	....	C,'07-'09	Ill.14	263
264.	National Normal Univ., Coll. of Med., Lebanon, Ohio	1889	1889	....	1896	....	....	....	....	Ohio 22	264
265.	National University Medical Dept., Washington, D. C.	1884	1885	....	1903	90	....	....	....	D.C.4	265
266.	Natl. Univ. of Arts and Sciences, Med. Dept., St. Louis	1912	1913	....	1918	6	....	....	C,'12-'18	Mo.10	266
267.	Nebraska College of Medicine, Lincoln	1907	1907	....	1909	....	....	....	C,'07-'09	Nebr.7	267
268.	Nebraska, Univ. of, Coll. of Med., Eclectic, Lincoln	1883	1884	....	1885	....	....	....	....	Nebr.2	268
269.	Nebraska, Univ. of, Coll. of Med., Homeo., Lincoln	1883	1884	....	1887	....	....	....	....	Nebr.3	269
270.	**Nebraska, University of, College of Medicine,** Omaha	1902	1903	....	....	296	1908	1909	A,'07-'24	Nebr.5	270
271.	Nebraska, Univ. of, Coll. of Med., Regular, Lincoln	1883	1884	....	1887	....	....	....	....	Nebr.1	271
272.	New England Female Med. Coll., Homeopathic, Boston	1848	1849	....	1874	27	....	....	....	Mass.3	272
273.	New Orleans School of Medicine, New Orleans	1856	....	....	1870	....	....	....	....	La.2	273
274.	New Orleans University Medical College, New Orleans	1889	1892	1896	1901	123	....	....	....	La.4	274
275.	New York Free Med. Coll. for Women, New York City	1871	1873	[1873-75]	1876	....	....	....	....	N.Y.35	275
276.	**New York Homeo. Med. Coll and Flower Hospital**	1869	1870	....	....	154	1915	1919	A,'07-'14; B,'15-'24	N.Y.9	276
277.	New York Medical College, New York City	1850	1851	....	1864	....	....	....	....	N.Y.7	277
278.	New York Medical College and Hosp. for Women	1863	1864	....	1918	....	1916	1918	B,'07-'11; C,'12-'18	N.Y.11	278
279.	New York University Medical College, New York City	1896	1897	....	1898	363	....	....	....	N.Y.5	279
280.	Niagara University Medical Department, Buffalo	1883	1886	....	1898	30	....	....	....	N.Y.18	280
281.	North Carolina Medical College, Charlotte	1893	1893	....	1918	....	....	....	B,'07; C,'08-'14; B,'15-'18	N.C.4	281
282.	**North Carolina, Univ. of, School of Med.,** Chapel Hill*	1879	1903	[1903-1909]	....	....	1910	1917	A,'07-'24	N.C.1	282

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* Offers only the first two years of the medical course.

29. This was the medical department of Butler University from 1879-1883 and of the University of Indianapolis from 1895 to 1905.

30. Became the medical department of the University of Cincinnati in 1896 but retained its former name till 1909 when it merged with the Miami Medical College to form the Ohio-Miami Medical College of the University of Cincinnati.

31. This institution and the Medical College of South Carolina were conducted as separate institutions from 1832 to 1838 when they were merged.

32. This was the medical department of Central Tennessee College which in 1900 became Walden University. The relationship was canceled in 1916.

33. The Middlesex College of Medicine and Surgery is a nondescript institution which for several years has occupied the same building with the Massachusetts College of Osteopathy and, on inspection, the two were found to be almost indistinguishable. It has granted liberal advanced standing for courses taken in osteopathic institutions. It secured the old uncanceled charter of the Worcester Medical College of Boston, otherwise, it could hardly have obtained a charter under the strict laws now regulating the chartering of educational institutions in Massachusetts. Its predecessor was an eclectic, botanico-medical affair chartered in 1848 which had a rather precarious existence. It underwent a reorganization in 1852; moved to Boston in 1857; returned to Worcester in 1858, and became extinct in 1859. The new medical school has affiliated itself with schools of dentistry, pharmacy, chiropody, optometry, etc., under the high sounding title of the "University of Massachusetts." According to report, the latter has not secured authority from the state to grant degrees in arts or sciences and its name has not been found on the list of colleges or universities approved by any recognized standardizing agency. The medical school is rated in Class C, and is reported as not recognized by the medical licensing boards of thirty-six states.

34. Degrees from 1884 to 1887 inclusive were granted by the University of Minnesota. It was the medical department of Hamline University from 1895 to 1911. It ceased to conduct classes in 1908 and the three remaining classes completed their instruction in the University of Minnesota Medical School with which it was merged, but Hamline University granted the degrees.

35. Was an examining body only until 1888 when it absorbed the consolidation of the Saint Paul Medical College and the Minneapolis Hospital College.

36. Offers only first two years of the medical course. Taught clinical courses at Vicksburg during the session of 1909-10 and in 1910 graduated its one class. Clinical teaching was then abandoned.

37. Sometimes known as the McDowell Medical College.

38. No classes were graduated in 1857, 1858, 1860 to 1873 inclusive, 1887 to 1890 inclusive, 1892 and 1902. From 1845 to 1855 was located in St. Louis. Reorganized at Columbia in 1872. Last class was graduated in 1909 when clinical teaching was discontinued.

39. The University of Nashville Medical Department and Vanderbilt University Medical Department united in 1874, each school granting degrees each year to a portion of the class. Relationship dissolved in 1895. Similar union with the University of Tennessee Medical Department 1909 to 1911.

Number	Name and Address	Organized or Name Assumed	First Class Graduated	Years[1] when No Classes Graduated	Closed or Changed Title	For Subsequent or Previous Title see Line	Admission Requirements		Classification by the Council on Medical Education	Key No. in American Medical Directory	Number
							One Year College	Two Years College			
283.	**North Dakota, Univ. of, School of Med.**, University*	1905	....	....	....	....	....	1907	A,'07-'24	N.D.1	283
284.	Northwestern Medical College, St. Joseph, Mo	1879	1881	....	1894	....	....	....	....	Mo.18	284
285.	Northwestern Ohio Medical College, Toledo	1883	1884	....	1891	....	....	....	....	Ohio 18	285
286.	**Northwestern University Medical School**, Chicago	1891	1891	....	....	46–204	1908	1911	A,'07-'24	Ill.6	286
287.	Northwestern Univ. Woman's Med. School, Chicago	1892	1893	....	1902	433–434	....	....	....	Ill.9	287
288.	Oakland College of Med. and Surg., Oakland, Calif	1900	1906	....	1920	....	1915	....	A,'07-'09; B,'10-'17; C,'18-'20	Cal.8	288
289.	Oglethorpe Medical College, Savannah, Ga	1856	....	....	1861	....	....	....	....	Ga.6	289
290.	Ohio Medical University, Columbus	1890	1893	....	1907	344	....	....	A,'07	Ohio 25	290
291.	Ohio-Miami Medical College, Cincinnati	1909	1910	....	1911	52	....	....	A,'09-'11	Ohio 41	291
292.	Ohio State Univ. Coll. of Homeo. Med., Columbus	1914	1915	....	1922	57–293	1915	1916	C,'14-'16; B,'17-'22	Ohio 42	292
293.	**Ohio State University College of Medicine**, Columbus	1914	1915	....	....	344	1914	1915	A,'14-'24	Ohio 40	293
294.	Oklahoma Medical College, Oklahoma City	1907	....	....	1909	....	....	....	C,'07-'09	Okla.4	294
295.	**Oklahoma, Univ. of, School of Med.**, Oklahoma City[40]	1900	1911	....	....	....	1914	1917	A,'07-'11; B,'12-'19; A,'24	Okla.1	295
296.	Omaha Medical College, Omaha, Neb.[41]	1881	1882	....	1902	270	....	....	....	Nebr.5	296
297.	**Oregon, University of, Medical School**, Portland	1887	1888	1898	....	....	1910	1915	A,'07-'24	Ore.2	297
298.	Penn. Medical University, Philadelphia	1855	....	1867–74	1881	....	....	....	....	Pa.8	298
299.	Pennsylvania Medical College, Philadelphia	1839	....	....	1861	....	....	....	....	Pa.3	299
300.	**Pennsylvania, Univ. of, School of Med.**, Philadelphia	1791	1792	....	....	65	1909	1910	A,'07-'24	Pa.1	300
301.	Philadelphia College of Medicine and Surgery	1846	....	....	1859	299	....	....	....	Pa.4	301
302.	Philadelphia University of Medicine and Surgery[42]	1865	....	....	1880	5	....	....	....	Pa.14	302
303.	Physio-Medical College, Cincinnati	1836	1837	....	1880	....	....	....	....	Ohio 4	303
304.	Physio-Medical College of Indiana, Indianapolis	1873	1874	....	1909	....	....	....	C,'07-'09	Ind.5	304
305.	Physio-Medical College of Texas, Dallas	1902	1902	....	1908	....	....	....	C,'07-'08	Tex.5	305
306.	Physio-Medical Institute, Cincinnati	1859	....	....	1885	....	....	....	....	Ohio 10	306
307.	**Pittsburgh, University of, School of Medicine**	1908	1909	....	....	425	1911	1913	B,'07-'09; A,'10-'24	Va.12	307
308.	Presbyterian Hosp. and Woman's M. Coll., Cincinnati	1891	1892	....	1895	199	....	....	....	Ohio 24	308
309.	Pulte Medical College, Cincinnati	1872	1873	....	1910	57	....	....	B,'07-'09; C,'10	Ohio 13	309
310.	Quincy College of Medicine, Quincy, Ill	1882	1883	....	1888	38	....	....	....	Ill.12	310
311.	Randolph Macon College Medical Department, Prince Edward Court House, Va	1840	....	....	1855	....	....	....	....	Va.5	311
312.	Reform Medical College of Georgia, Macon	1854	1855	1861–67	1874	60–323	....	....	....	Ga.2	312
313.	Reliance Medical College, Chicago	1907	1909	....	1911	....	....	....	C,'07-'11	Ill.39	313
314.	**Rush Medical College**, Chicago	1843	1844	....	....	....	1902	1904	A,'07-'24	Ill.1	314
315.	Saginaw Valley Medical College, Saginaw, Mich	1896	1897	....	1903	243	....	....	....	Mich.9	315
316.	Savannah Medical College, Savannah, Ga	1853	1854	1862–66, 1876–80	1880	....	....	....	....	Ga.4	316
317.	Sewanee Medical College, Sewanee, Tenn	1892	1893	....	1909	406	....	....	C,'07-'09	Tenn.11	317
318.	Shelby Medical College, Nashville	1858	....	....	1862	....	....	....	....	Tenn.4	318
319.	Sioux City College of Medicine, Sioux City, Iowa	1890	1893	....	1909	....	....	....	B,'07-'08; C,'09	Ia.8	319
320.	**South Carolina, Med. Coll. of the State of**, Charlestn[31]	1832	1833	1862–65	....	226–228	1914	1916	A,'07-'09; B,'10-'11; C,'12; B,'13-'15; A,'16-'24	S.C.1	320
321.	South Carolina, University of, Med., Dept., Charleston	1866	....	....	1876	....	....	....	....	S.C.2	321
322.	**South Dakota, Univ. of, Coll. of Med.**, Vermilion*	1907	....	....	....	....	1908	1909	A,'07-'24	S.D.1	322
323.	Southern Botanico-Medical College, Macon, Ga	1839	1841	....	1854	312–60	....	....	....	Ga.2	323
324.	Southern College of Medicine and Surgery, Atlanta[43].	1911	1912	....	1914	....	....	....	C,'11-'14	Ga.19	324
325.	Southern Homeopathic Medical College, Baltimore	1890	1892	....	1907	14	....	....	B,'07	Md.8	325
326.	Southern Medical College, Atlanta	1878	1880	....	1898	11	....	....	....	Ga.10	326
327.	Southern Methodist Univ. Med. Dept., Dallas, Tex	1911	1912	....	1915	331	1914	....	B,'11; C,'12-'13; B,'14-'15	Tex.6	327
328.	Southern University Medical Depart., Greensboro, Ala.	1872	....	....	1880	....	....	....	....	Ala.3	328
329.	Southwest Sch. of Med. and Hosp., Kansas City, Mo.	1915	1916	....	1916	182	....	....	C,'15-'16	Mo.35	329
330.	Southwestern Homeo. Med. Coll. and Hosp., Louisville	1892	1894	....	1910	....	....	....	C,'07-'10	Ky.8	330
331.	Southwestern University Medical College, Dallas, Tex.,	1903	1904	....	1911	327	....	....	B,'07-'11	Tex.6	331
332.	St. Joseph Hospital Medical College, St. Joseph, Mo	1876	1878	....	1882	333	....	....	....	Mo.14	332
333.	St. Joseph Medical College, St. Joseph, Mo	1882	1883	....	1888	121	....	....	....	Mo.22	333
334.	St. Louis Coll. of Med. and Natural Sciences, St. Louis	1855	....	....	1859	160	....	....	....	Mo.4	334
335.	**St. Louis Coll. of Physicians and Surgeons**, St. Louis	1879	1880	1916	....	78	....	....	B,'07-'08; C,'09-'24	Mo.7	335
336.	St. Louis Hahnemann Medical College, St. Louis[44]	1873	1874	....	1874	....	....	....	....	Mo.12	336
337.	St. Louis Medical College, St. Louis[45]	1855	1856	....	1891	338–420	....	....	....	Mo.2	337
338.	St. Louis University Medical Department, St. Louis	1842	1843	....	1855	337	....	....	....	Mo.2	338
339.	**St. Louis University School of Medicine**, St. Louis	1903	1904	....	....	214	1910	1918	A,'07-'24	Mo.34	339
340.	St. Louis Woman's Medical College, St. Louis	1894	1895	....	1896	....	....	....	....	Mo.37	340
341.	St. Paul Medical College, St. Paul[46]	1885	1886	....	1888	383	....	....	....	Minn.2	341
342.	**Stanford University School of Medicine**, San Francisco	1908	1913	....	....	92–200	....	1909	A,'08-'24	Cal.11	342
343.	Starling Medical College, Columbus, Ohio	1847	1847	....	1907	344	....	....	A,'07	Ohio 3	343
344.	Starling-Ohio Medical College, Columbus, Ohio	1907	1908	....	1914	293	....	....	A,'07-'14	Ohio 40	344
345.	State Coll. of Physicians and Surgeons, Indianapolis[47]	1906	1907	....	1907	169	....	....	A.'07	Ind.21	345
346.	State Univ. of Iowa Coll. of Homeo. Med., Iowa City.	1877	1878	1914	1919	....	....	1910	A,'07-'19	Ia.4	346
347.	**State University of Iowa College of Med.**, Iowa City.	1869	1871	....	....	....	1909	1910	A,'07-'24	Ia.3	347
348.	State University Medical Dept. (colored), Louisville	1899	....	....	1903	211	....	....	....	Ky.10	348
349.	**Syracuse University College of Med.**, Syracuse, N. Y.	1875	1876	....	....	350	1909	1910	A,'07-'24	N.Y.15	349
350.	Syracuse Univ. Coll of P. and S., Syracuse, N. Y	1872	1873	....	1875	131–347	....	....	....	N.Y.15	350
351.	Tallahassee Coll. of Med. and Surg., Jacksonville, Fla.	1883	1884	[1884]	1886	....	....	....	....	Fla.1	351
352.	**Temple University Department of Med.**, Philadelphia	1901	1904	....	....	....	1914	1918	C,'07-'09; B,'10-'24	Pa.13	352
353.	Tennessee Medical College, Knoxville	1889	1890	....	1909	203	....	....	B,'07-'09	Tenn.10	353
354.	**Tennessee, University of, College of Med.**, Memphis	1879	1880	....	....	258	1914	1918	B,'07-'11; C,'12; B,'13; A,'14-'24	Tenn.6	354
355.	Texas Medical College and Hospital, Galveston	1873	1874	[1874–81, '90, '91]	1891	128	....	....	....	Tex.1	355
356.	**Texas, University of, Department of Med.**, Galveston	1891	1892	....	....	....	1910	1917	A,'07-'24	Tex.2	356
357.	Toland Medical College, San Francisco	1863	1864	....	1872	33–369	....	....	....	Cal.2	357
358.	Toledo Medical College, Toledo, Ohio	1883	1883	....	1914	....	....	....	B,'07-'11; C,'12-'14	Ohio 19	358
359.	Transylvania University Med. Dept., Lexington, Ky	1817	1817	....	1850	191	....	....	....	Ky.1	359

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* Offers only the first two years of the medical course.

[40] Taught only the subjects of the first two years of the medical course from 1910 when the clinical department was established.

[41] From 1891 to 1902 this was the medical department of Omaha University.

[42] In the last few years of its existence this college is reported to have been fraudulent.

[43] The charter of this institution passed into the hands of individuals who sold, or offered for sale, its diplomas for a year or two after the college had ceased to exist. Most of such diplomas which were discovered were dated as of 1914.

[44] Graduated one class of four students.

[45] Known sometimes as "Pope's Medical College."

[46] Was conducted as a preparatory school from 1871 to 1879.

[47] Taught work of third and fourth years of the medical course supplementary to the two year course given by the Indiana University School of Medicine with which it was affiliated.

Number	Name and Address	Organized or Name Assumed	First Class Graduated	Years[1] when No Classes Graduated	Closed or Changed Title	For Subsequent or Previous Title see Line	Admission Requirements		Classification by the Council on Medical Education	Key No. in American Medical Directory	Number
							One Year College	Two Years College			
360.	**Tufts College Medical School**, Boston	1893	1894	....	....	....	1914	1918	A,’07-’24	Mass.7	360
361.	**Tulane Univ. of Louisiana Sch. of Med.**, New Orleans	1884	1885	....	....	206-207	1910	1918	A,’07-’24	La.1	361
362.	United States Medical College, New York City	1878	1881	[1881-82]	1884	....	....	....	....	N.Y.16	362
363.	University and Bellevue Hosp. Med. Coll., N. Y. City	1898	1899	....	....	22-279	1912	1918	A,’07-’20	N.Y.19	363
364.	University College of Medicine, Richmond, Va.[48]	1893	1894	....	1913	230	....	....	A,’07-’13	Va.6	364
365.	University Medical College, Kansas City, Mo.	1888	1889	....	1913	377	1910	....	A,’07-’13	Mo.20	365
366.	**University of Alabama School of Medicine**, Mobile	1907	1908	....	....	219	1914	1915	A,’07-’24	Ala.2	366
367.	**University of Arkansas Medical Dept.**, Little Rock	1899	1900	....	....	9	1915	1918	B,’07-’18; A,’24	Ark.1	367
368.	**University of Buffalo Dept. of Medicine**, Buffalo, N. Y.	1846	1847	....	....	....	1914	1918	A,’07-’24	N.Y.6	368
369.	**University of California Med. School**, San Francisco	1872	1873	....	....	357	....	1905	A,’07-’24	Cal.2	369
370.	**University of Cincinnati College of Med.**, Cincinnati	1911	1912	....	....	226-291	1910	1913	A,’11-’24	Ohio 41	370
371.	**University of Colorado School of Medicine**, Denver	1907	1908	....	....	84	....	1910	A,’07-’24	Colo.2	371
372.	University of Dallas Medical Department, Dallas, Tex.	1900	1901	....	1903	18	....	....	....	Tex.4	372
373.	**University of Georgia Medical Department**, Augusta	1873	1874	....	....	222	1914	1918	A,’07-’09; B,’10-’12; A,’13-’24	Ga.1	373
374.	**University of Illinois College of Medicine**, Chicago	1911	1912	....	....	69	1913	1914	A,’11-’24	Ill.11	374
375.	University (State) of Iowa Medical Dept., Keokuk	1854	1855	....	1870	72-347	....	....	....	Ia.1	375
376.	**University of Kansas School of Medicine**, Lawrence	1880	1906	....	....	....	....	1909	A,’07-’11; B,’12; A,’13-’24	Kan.2	376
377.	University of Kansas City Medical Dept. (Mo.)	1881	1882	....	1888	365	....	....	....	Mo.20	377
378.	**University of Louisville Medical Dept.**, Louisville	1846	1847	1863	....	210	1914	1918	B,’07-’09; A,’10-’24	Ky.2	378
379.	**Univ. of Maryland Sch. of Med. & Coll. of P. & S.**	1812	1813	....	....	64	1914	1918	A,’07-’11; B,’12; A,’13-’24	Md.1	379
380.	University of Michigan Homeo. Med. Sch., Ann Arbor	1875	1877	....	1922	....	1912	1916	A,’07-’22	Mich.5	380
381.	**University of Michigan Medical School**, Ann Arbor	1850	1851	....	....	....	....	1909	A,’07-’24	Mich.1	381
382.	Univ. of Minnesota Coll. of Homeo. Med., Minneapolis	1888	1889	....	1909	252	....	....	A,’07-’09	Minn.6	382
383.	**University of Minnseota Med. School, Minneapolis**[35]	1883	1889	....	....	....	....	1907	A,’07-’24	Minn.4	383
384.	**University of Mississippi School of Med.**, University*[36]	1903	1910	[1910]	....	....	1914	1918	A,’07-’24	Miss.1	384
385.	**University of Missouri School of Medicine**, Columbia*	1845	1846	[38]	....	....	1906	1910	A,’07-’24	Mo.3	385
386.	University of Nashville Med. Dept., Nashville, Tenn.[39]	1850	1852	....	1911	354	....	....	B,’07-’11	Tenn.1	386
387.	**University of Nebraska College of Medicine**, Omaha	1902	1903	....	....	296	1908	1909	A,’07-’24	Nebr.5	387
388.	Univ. of Neb. Coll of Med., Eclectic Dept., Lincoln	1883	1884	....	1885	....	....	....	....	Nebr.2	388
389.	Univ. of Neb. Coll of Med., Homeo. Dept., Lincoln	1883	1884	....	1887	....	....	....	....	Nebr.3	389
390.	Univ. of Neb. Coll. of Med., Regular Dept., Lincoln	1870	1884	....	1887	....	....	....	....	Nebr.1	390
391.	**Univ. of North Carolina School of Med.**, Chapel Hill*	1879	1903	[1903-09]	....	....	1910	1917	A,’07-’24	N.C.1	391
392.	**Univ. of North Dakota School of Medicine**, University*	1905	....	....	....	....	....	1907	A,’07-’24	N.D.1	392
393.	**Univ. of Oklahoma School of Med.**, Oklahoma City[10]	1900	1911	....	....	....	1914	1917	A,’07-’11; B,’12-’19; A,’20-’24	Okla.1	393
394.	**University of Oregon Medical School**, Portland	1887	1888	1898	....	....	1910	1915	A,’07-’24	Ore.2	394
395.	**University of Penn. School of Med.**, Philadelphia	1791	1792	....	....	65	1909	1910	A,’07-’24	Pa.1	395
396.	**University of Pittsburgh School of Medicine**	1908	1909	....	....	425	1911	1913	B,’07-’09; A,’10-’24	Pa.12	396
397.	**University of Rochester School of Medicine**	1923	....	....	....	....	....	1923	....	N.Y.45	397
398.	University of South Carolina Med. Dept., Charleston.	1866	....	....	1876	....	....	....	....	S.C.2	398
399.	**University of South Dakota Coll. of Med.**, Vermilion*	1907	....	....	....	....	1908	1909	A,’07-’24	S.D.1	399
400.	University of So. Calif. Coll. of Med., Los Angeles	1885	1888	....	1909	33	....	....	A,’07-’09	Cal.6	400
401.	Univ. of So. Calif. Coll. of P. & S., Los Angeles[12]	1903	1905	....	1920	67	1914	1916	B,’07-’20	Cal.9	401
402.	**University of Tennessee College of Med.**, Memphis[39]	1879	1880	....	....	258	1914	1918	B,’07-’11; C,’12; B,’13; A,’14-’24	Tenn.6	402
403.	**University of Texas Department of Med.**, Galveston	1891	1892	....	....	....	1910	1917	A,’07-’24	Tex.2	403
404.	University of the City of New York Medical Dept.	1841	1842	....	1896	279	....	....	....	N.Y.5	404
405.	University of the Pacific Med. Dept., San Francisco	1858	1860	1865-69	1873	228	....	....	....	Cal.1	405
406.	University of the South Med. Dept., Sewanee, Tenn.	1892	1893	....	1909	317	....	....	C,’07-’09	Tenn.11	406
407.	**University of Utah School of Med.**, Salt Lake City*	1906	....	....	....	....	1909	1910	A,’07-’24	Utah 1	407
408.	**University of Vermont College of Medicine**, Burlington	1822	1823	1836-53	....	....	1912	1918	A,’07-’24	Vt.2	408
409.	**University of Virginia Dept. of Med.**, Charlottesville.	1827	1828	1865	....	....	1910	1917	A,’07-’24	Va.1	409
410.	Univ. of West Tenn. Coll. of Med. and Surg., Memphis	1900	1904	....	1923	....	....	....	C,’07-’23	Tenn.14	410
411.	**University of Wisconsin Medical School**, Madison*	1907	....	....	....	....	....	1907	A,’07-’24	Wis.5	411
412.	University of Wooster Medical Department, Cleveland.	1869	1869	....	1896	39-426	....	....	....	O.11,12	412
413.	Valparaiso University Med. Dept., Valparaiso, Ind.*[49]	1907	....	....	1918	....	1915	....	B,’09-’18	Ill.22	413
414.	**Vanderbilt University Medical Department**, Nashville	1874	1875	....	....	....	1914	1918	A,’07-’24	Tenn.5	414
415.	Vermont Medical College, Woodstock	1835	....	....	1856	59	....	....	....	Vt.3	415
416.	Vermont Academy of Medicine, Castleton, Vt.	1821	....	....	1838	34-35	....	....	....	Vt.1	416
417.	**Wake Forest Coll. School of Med.**, Wake Forest, N. C.*	1902	....	....	....	....	....	1908	A,’07-’24	N.C.5	417
418.	Washington College Medical Department, Baltimore	1827	1828	....	1840	421	....	....	....	Md.2	418
419.	Washington Homeo. Med. Coll., Washington, D. C.	1896	1896	....	1896	260	....	....	....	D.C.5	419
420.	**Washington University Medical School**, St. Louis	1891	1892	....	....	338-337	1910	1912	A,’07-’24	Mo.2	420
421.	Washington University School of Medicine, Baltimore	1840	1841	1851-1867	1877	418	....	....	....	Md.2	421
422.	Western College of Homeopathic Medicine, Cleveland.	1849	1851	....	1857	423-151-58	....	....	....	Ohio 7	422
423.	Western Eclectic Coll. of M. & S., Kansas City, Kan.	1908	1908	....	1909	117-118	....	....	C,’08-’09	Kan.7	423
424.	Western Homeopathic College, Cleveland	1857	1858	....	1870	421-151-58	....	....	....	Ohio 7	424
425.	Western Pennsylvania Medical College, Pittsburgh	1886	1887	....	1908	396	....	....	B,’07-’08	Pa.12	425
426.	**Western Reserve University School of Med.**, Cleveland	1881	1882	....	....	40-412	....	1901	A,’07-’24	Ohio 6	426
427.	Westminster University College of Medicine, Denver	1907	1908	....	1908	102-103	....	....	C,’07-’08	Colo.4	427
428.	**West Virginia University School of Med.**, Morgantown*	1902	....	....	....	....	1911	1917	A,’07-’11; B,’12-’16; A,’17-’24	W.Va.1	428
429.	Willamette University Med. Dept., Salem, Ore.	1865	1867	1896	1913	....	....	....	B,’07-’08; C,’09-’13	Ore.1	429
430.	Willoughby University Med. Dept., Willoughby, Ohio	1835	....	....	1847	....	....	....	....	Ohio 28	430
431.	Wisconsin College of Phys. and Surgs., Milwaukee	1893	1894	....	1913	216	....	....	B,’07-’11; C,’12-’13	Wis.2	431
432.	**Wisconsin, University of, Medical School**, Madison*	1907	....	....	....	....	....	1907	A,’07-’24	Wis.5	432
433.	Woman's Hospital Medical College, Chicago	1870	1871	1872	1879	434-287	....	....	....	Ill.9	433
434.	Woman's Medical College, Chicago	1879	1880	....	1892	433-287	....	....	....	Ill.9	434
435.	Woman's Medical College of Baltimore	1882	1883	1898	1910	....	....	....	B,’07-’10	Md.5	435
436.	Woman's Medical College of Cincinnati	1887	1888	....	1895	199	....	....	....	Ohio 20	436
437.	Woman's Medical College, Kansas City, Mo.	1895	1896	....	1903	....	....	....	....	Mo.30	437
438.	**Woman's Medical Coll. of Pennsylvania**, Philadelphia	1850	1852	1862	....	....	1914	1915	A,’07-’24	Pa.7	438
439.	Woman's Medical College of the New York Infirmary for Women and Children, New York City	1868	1870	....	1899	....	....	....	....	N.Y.14	439
440.	Woman's Med. Coll. of Northwestern Univ., Chicago	1892	1893	....	1902	433-434	....	....	....	Ill.9	440
441.	Worthington Med. Coll., Eclectic, Worthington, Ohio	1833	1833	1839-43	1845	116-114	....	....	....	Ohio 2	441
442.	Yale College, Med. Institution of, New Haven, Conn.	1812	1814	....	1879	443	....	....	....	Conn.1	442
443.	**Yale University School of Med.**, New Haven, Conn.	1879	1880	....	....	442	....	1909	A,’07-’24	Conn.1	443

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* Offers only the first two years of the medical course.

48. This school was organized as the College of Physicians and Surgeons but before a year had passed assumed the title, University College of Medicine.

49. Taught only the first two years of the medical course operating under the charter of the Chicago College of Medicine and Surgery.

Special Article

CAN THE POOR BOY SECURE A MEDICAL EDUCATION?

N. P. COLWELL, M.D.
Secretary of the Council on Medical Education and Hospitals of the American Medical Association
CHICAGO

In order to obtain the facts regarding the opportunities for students of limited means to obtain a medical education, correspondence has been conducted with the presidents of fifty prominent universities. The inquiry included the possibilities of obtaining the essential premedical college work as well as the work in the medical school.

PREMEDICAL COLLEGE WORK

The replies in regard to securing the premedical college training showed that the opportunities were even more numerous than was anticipated. From the universities which had kept fair records in regard to students' self help, we learn that from 50 to 65 per cent. of the student body are working for at least a part of their expenses, and that between 15 and 20 per cent. are making their entire way through college. Some of these were granted scholarships which covered all or part of their tuition fees, but in no instance covered other essential expenses. The president of a midwestern university says that "thousands of students are still successfully working their way through college." Another writes, "One thousand applications for work have been filed in this office, and an equal number have found employment without coming here."

The director of student appointments in a prominent Eastern university says that "any properly prepared student of the right type, character and personality can work his way to a collegiate degree, in spite of any financial handicaps with which he may be encumbered. There are many cases every year of men who make splendid records here after having worked their way wholly, and a very large proportion of our students, 35 to 40 per cent., are self-supporting to at least some substantial degree." In the university just referred to, during 1922, about 1,200 students who worked for all or part of their expenses earned altogether during the year more than $170,000.

MEDICAL COLLEGE WORK

When it comes to the medical training, the situation is more difficult. A student attending a first class medical school today has less time for outside work because the medical curriculum requires most of the time and energy at his command. Unless the student can secure work directly related to his medical instruction, it might interfere seriously with his medical training. It is advisable, therefore, for medical students who can arrange to do so to borrow sufficient money to enable them to meet at least half of their expenses, and to devote as much time as possible to medical work. It would be better to have financial indebtedness on graduation than to have lost the one best opportunity, during the medical course, of securing a larger amount of experience and skill.

The dean of a large medical school writes: "The energetic young man of good intelligence and moderate means can make his way through the medical school provided he can secure $400 to $500 a year, but those who are entirely destitute must naturally expect great difficulty in finishing their work satisfactorily." Some medical schools will accept a student's note for the last one or two years of the medical course, if he has shown unusual ability in his earlier years.

Even today, however, many students, and especially those of exceptional skill in certain lines, are earning all or most of their way through medical school. Some extend their studies over an additional year in order to allow sufficient time for outside work.

MEANS OF SUPPORT

The opportunities whereby students of limited means can secure employment both in college and in medical school are of an endless variety. Universities are organizing the various services to the entire student body in such manner that those services are rendered by the students who are earning their way. Such services, for example, are student laundry work; suit pressing; newspaper bureaus; transfer agencies; travel bureaus; tutoring; typewriting; student publications; university printing, and picture agencies. Many students wait on table, wash dishes, take care of furnaces, clean walks, cut grass, wash windows, work in stores or factories, work at stenography, bookkeeping, carpentering, nursing, ditch-digging and farming, act as caretakers of clubs, as magazine agents, as chauffeurs, as fillers at gasoline stations, and do other odd jobs.

The dean of an Eastern medical school writes that many students earn considerable money during the summer months; that one student made $1,800 as a Chautauqua lecturer; a third works during the summer as a union carpenter, and "makes enough money to support himself throughout the year." These students paid all their expenses and did not ask for scholarships. Another student worked as head waiter in a summer hotel; another, as an assistant in the department of chemistry; another did bacteriologic and serologic work after school hours in a hospital laboratory. Several others earned about $200 apiece as counselors, or as medical assistants in summer camps for boys or girls. Others work as clerks in drug stores, groceries and post offices. A large number of students play in orchestras during the summer months, and on Saturday and Sunday nights during the winter. Most of the girl students teach in summer, and do tutoring in their spare time during the winter. One student obtained his board and lodging by acting as an ambulance attendant at night in a nearby hospital. One student acted as a grocery clerk, and also earned considerable money by mimeographing lectures given in the medical school for distribution to other students. Another student was superintendent of a floating hospital during the summer; another worked twenty-two hours a week in a drug store during his freshman year, but in the following years cut the time in half on account of the greater severity of his studies.

Indeed, the range of activities in which self-helping students are engaged is wide. While the majority do not make enough to pay all their board, lodging and incidentals, they obtain enough, with the financial help that they receive from home, to enable them to make their way. The summer earnings of the students in one of the large medical schools range, on the average, from $200 to $300, although a few make $400 to $500, and a very few even more than this. A student who has a neat personal appearance, an intelligent bearing, a spirit of perseverance, and a pleasing personality will seldom have difficulty in securing opportunities for self help.

GREATER VALUE RECEIVED

It is true that the modern training in medicine requires a longer period of study beyond the high school than was considered necessary twenty years ago. All medical schools now require two or more years of college work for admission; but an increasing number of students prefer to secure a baccalaureate degree before entering on the study of medicine, and many are working to pay their expenses while doing so. In this connection, the chancellor of a prominent Southern university says: "A poor boy can still get a medical education, provided he is willing to work for it. He will have to work in the summer and may have to borrow, but society is now spending more on the boy being trained for a physician than it has ever spent on any class of students in the history of the world. If the students are compelled to give more, they are getting more than any one ever before received."

One university president issued a warning against certain employments, and states that the results for those who have worked as ushers or check boys in theaters, dance halls and hotels "were almost invariably unhappy." He says also that the student "must be warned against undertaking too much for fear that he will not get out of his college work sufficient return to warrant the great sacrifice he is making."

THE STANDING OF SELF-SUPPORTING STUDENTS

The letters received were almost unanimous in regard to the importance of providing opportunities for deserving students of limited means. One letter states: "I am a very strong believer in the value to the community and to the educational institutions of self-supporting students. Such students often set the pace, and experience has conclusively indicated the value to civilization of investments in men and women of such caliber."

The student who is working to make his way seldom has to forego social activities or cultural advantages in his college life. In fact, such students are found among those of higher grade; among the officers of college organizations, and they frequently secure membership in scholarship fraternities. Almost invariably they are looked on with respect by their fellow students.

ADVANTAGE TO STUDENTS

Students who work their way through educational institutions have certain advantages over those whose entire way is paid. The ambition indicated by their efforts to help themselves attracts the attention of officials and teachers of the institution so that, after a student has once shown what he can do, he will frequently be directed to opportunities for self-support. The fact also that students are self-supporting gives them an advantage after graduation, because their ability in various lines has already been demonstrated. It is stated that employers seeking members of graduating classes for business positions offering large opportunities frequently show a marked preference to men who have earned at least an essential part of their expenses and who have, therefore, secured valuable practical business experience along with their training.

SCHOLARSHIPS

Along with the many improvements in medical schools which have greatly increased the cost of furnishing a medical education, there has also been established a greatly increased number of scholarships for deserving students of limited means. There are now about 550 such scholarships in forty-six of the leading medical schools, the number in each institution ranging from one to eighty-four. In most instances they cover only the cost of tuition.

STATEMENTS BY INDIVIDUAL STUDENTS

The attitude of the students themselves, from a score of whom statements have been received, is one which should be encouraging to other students who must work their way if they are to obtain the desired education. Excerpts from the letters of several students are as follows:

A: "It can be done **if a** fellow really wants to see it through."

B: "If a healthy young man really desires to study medicine and possesses an average amount of intelligence, he can accomplish this by foregoing certain semiessentials, an extended social life, good clothes and expensive food."

C: "Perhaps the greatest stimulus to a fellow who is working his way is the democratic spirit and sympathetic attitude of other students."

D: "The most important point is that the problem grows easier each year, the strain grows less, and worrying does not come so readily."

E: "I graduated. It was a grand day in my life. It marked the close of four years of struggle. However, I have never had a single regret that I worked my way through school."

In the face of the unanimous testimony contained in the letters received from colleges and universities, the complaint commonly heard that "there is no longer an opportunity for the poor boy who wants to secure a medical education" is entirely without foundation. The fact that from 50 to 65 per cent. of the students enrolled in many of our universities are working for a part or all of their expenses shows, not only that there are abundant opportunities, but also that there are many ambitious, energetic students who are now obtaining an education and paying for it as they go. No student, therefore, who is physically and mentally sound should fail to secure the advantage of a university education simply because of limited means.

From Infection to Illness.—From infection to first illness, lung tuberculosis is a slowly creeping and insidious thing; between the two incidents the interval is probably more often years than weeks or months.—Allen K. Krause.

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SATURDAY, AUGUST 18, 1923

MEDICAL EDUCATION—PROGRESS OF TWENTY-THREE YEARS

This week, for the twenty-third consecutive year, HE JOURNAL publishes statistics regarding medical lucation in the United States. During these years, edical education in this country has undergone tensive improvement, and educational standards have en brought to a reasonably high plane.

BEGINNING OF THE CAMPAIGN

In 1901, when THE JOURNAL first published its atistics regarding medical colleges, students and grad-ates, many of the 159 medical colleges listed in the rst Educational Number were known to be stock rporations conducted largely for the profit of their wners. Little or no attention was then paid to entrance quirements, even by some of the progressive colleges. regard to the number and qualifications of teachers, e number and equipment of laboratories, the amount d use made of clinical material, or the methods of aching employed, no definite information was avail-ole. No one, in fact, knew just how serious conditions the medical schools actually were. Sectarian medi-ne was at its zenith, with twenty-two homeopathic and n eclectic colleges. The enrolments in all medical hools had reached the enormous total of 26,417 udents, and of these 5,444 graduated.

The campaign began, therefore, with the first publi-ation of data by THE JOURNAL in 1901. The formation published showed the need of improvement, d this led to the creation in 1904 of a permanent mmittee of the American Medical Association—the ouncil on Medical Education—to centralize its efforts this particular work.

PROGRESS FROM 1906 TO 1910

As a part of its function, the Council, in 1906, took ver the work of collecting and tabulating statistics lating to medical education. A permanent secretary as employed, files were established for the informa-on, and a careful and extensive study of medical lucation was begun. Inquiry in regard to medical education in other countries brought out the fact that, outside the United States, there were only 154 medical schools,[1] while in the United States there were 160—clearly a large oversupply. Except in a few medical schools, also, educational standards in this country were much lower than those abroad.[2] The Council, therefore, followed two lines of procedure: First, two educational standards were suggested,[3] one for immediate adoption by the medical schools, and another, termed "the ideal standard," for later adoption. Second, mergers of medical schools were urged in cities or states in which two or more existed by which, in each instance, one stronger and better institution resulted. Through an annual conference which has been held each year since 1905, uniformity of action by the several organizations interested in medical education was secured. At these conferences, also, after extensive discussion, higher entrance requirements and improved methods of teaching were adopted.

In 1906, the Council made its first inspection of all medical schools, and in 1907 the first classification was prepared. This was read at the annual conference and at the meeting of the House of Delegates of the American Medical Association in that year, and each college was notified of its position in the classification. In 1910, the Council completed its second tour of inspection and prepared another classification of medical colleges, which was published.[4] By this time, the number of medical colleges had been reduced, largely by mergers, from 162 to 131; the number of graduates was reduced from 5,747 to 5,440, and the number of students from 28,142 to 21,526. Although the total number of medical colleges had been reduced, the number which had adopted one or more years of college work as a minimum entrance requirement had been increased from four to thirty-five, and eight state licensing boards were requiring an equal standard of preliminary education.

Following the first inspection of the medical schools, at the urging of the Council, the Carnegie Foundation for the Advancement of Teaching consented to make a survey of the medical schools. During 1909-1910, therefore, the second tour of inspection was made jointly by representatives of the Council and the Foundation. In its report, published in 1910, the Carnegie Foundation made no classification and suggested no standards, but it did secure a wide lay publicity to its report, which was of great service in the later development of medical education.

PROGRESS FROM 1910 TO 1916

During the four years 1906 to 1909 inclusive, the Council collected sufficiently complete information regarding all existing and extinct medical colleges to permit the publication of a reliable chart,[5] which showed

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1. List in J. A. M. A. **49**: 596 (Aug. 17) 1907.
2. See chart in J. A. M. A. **55**: 680 (Aug. 10) 1910.
3. J. A. M. A. **45**: 270 (July 22) 1905.
4. J. A. M. A. **54**: 2061 (June 1) 1910.
5. J. A. M. A. **61**: 578 (Aug. 23) 1913.

the number of medical colleges existing in the United States in each year since 1765, when the Department of Medicine of the College of Philadelphia—now the University of Pennsylvania—was organized. In 1910, also, the Medical Students' Register was established, through which a better record has been kept of the personal and educational histories of medical students, as well as the facts regarding their promotion from class to class. In the establishing of this register the majority of medical schools have given a most hearty and gratifying cooperation.

During the second period (1910-1916), two other inspections of medical colleges were made, and revised classifications published. During this period also, the total number of medical colleges was further reduced from 131 to ninety-five; the number of medical students from 21,526 to 14,022, and the number of graduates from 4,440 to 3,518. The number of medical colleges requiring one or more years of college work for admission was further increased from thirty-five to eighty-four, and the number of licensing boards holding to these higher requirements was increased from eight to thirty-three. The majority of medical colleges also adopted more strict and reliable methods in admitting students, and, through the reports for the students' register, the strictness with which the entrance requirements were administered was known with fair accuracy, and any faulty methods or "paper standards" were promptly noted. The constant agitation for better conditions, aided materially by the report of the Carnegie Foundation, so appealed to philanthropists that endowments for medical education were greatly increased, and large gifts for medical buildings, new laboratories, scholarships, endowed chairs and teaching hospitals became of frequent occurrence.

In 1914, a year of college work, including courses in physics, chemistry and biology, as a requirement for admission to medical schools was made an essential for the Council's Class A rating. Thus, the "ideal" standard suggested in 1905 became the essential standard in 1914. In 1916, the entrance requirement for Class A medical schools was further extended to two years of college work, to be effective, Jan. 1, 1918. This was not a drastic ruling, since forty-six medical colleges and seventeen state licensing boards had already adopted that standard.

PROGRESS OF THE LAST SIX YEARS

By 1917, when the United States entered the World War, the total number of medical schools had been reduced to ninety-five, but the number with reasonably high entrance requirements had been increased from four to eighty-six. For several years, also, the majority of graduates had received a much better training as a result of the greatly improved conditions in medical schools. It was these recent graduates who in large proportions entered the government medical services and had in charge the medical welfare of America's soldiers and sailors. The campaign for improvement, which had made such rapid headway since 1901, was, therefore, of great benefit to the nation during the war.

The first complete inspection of all graduate and postgraduate medical schools was made in 1916, and a second inspection in 1919. At the annual conference in March, 1921, reports were presented giving suggestions in regard to the training that should be required to prepare physicians to practice the various specialties. During the college year of 1922-1923, a third tour of inspection was completed and a list was prepared of graduate medical schools which were deemed worthy of approval. At the conference this year in March, a report was presented setting forth a schedule of principles or essentials which should govern graduate medical schools. In June, a revision of these principles was included in the annual report to the House of Delegates and was adopted by that body.[6]

SUMMARY OF PROGRESS MADE

During the twenty-three years, medical education has been greatly improved, and educational standards are now on a par with those of other leading nations. A large oversupply of medical schools, including many low type institutions, has given way to a more normal supply, of which it is definitely known that all but six[7] require for admission two or more years of college work. But many other improvements have been made: Endowments have been increased; new and larger medical buildings have been erected, and, in a score or more, entirely new teaching plants constructed; more and better equipped laboratories have been established; better hospital relations have been secured—several colleges having built hospitals of their own—and better teaching methods have been adopted. The number of students was reduced from 28,142 to 13,052[8] in 1919; the proportion of medical students in well equipped medical colleges was increased from 3.9 per cent. to 87.9 per cent. Since 1919, the number of students has increased to 17,432, of whom 94 per cent. are in Class A colleges. Of medical graduates, likewise, although the total has been reduced by 40 per cent., the number coming from high grade, well equipped medical colleges has been increased from 5.6 per cent. to 92 per cent. The number of graduates this year shows an increase of 591 over last year, when the smallest number graduated. Indications are that the next few years will show a steady increase, and that a still larger percentage will be from Class A medical schools.

The progress made in the improvement of medical education has been much more rapid, and fewer difficulties have been experienced than were anticipated at the beginning of the campaign. This was due largely to the cordial and ready cooperation received from the officers of medical colleges and state licensing boards, both individually and in their national organizations. The publicity secured by the report of the Carnegie Foundation for the Advancement of Teaching was a great help in the campaign, particularly in calling the attention of philanthropists to the financial needs of medical schools. The end sought has been attained, and medical education in the United States is now equal to, if it does not surpass, that in any other country.

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[6] These principles and the list of approved graduate medical schools are published this week on pages 558 and 559.

[7] These are the six medical colleges rated in Class C, as shown in Table 1 on pages 550 and 551.

[8] The lowest number was 13,052 in 1919; as will be noted in the statistics, enrolments are again on the increase.

THE CHLORIN ANTISEPTICS

During the Great War, when hypochlorite solutions came into wide use, their composition varied, owing chiefly to the lack of chemical control, and to the fact that formulas were changed a number of times. Finally, two or three years after their introduction, a standardized preparation—surgical solution of chlorinated soda [1]—was evolved. The essential attributes of this solution have been found to be (1) a definite alkalinity, mild in character (p_H 8 to 10); (2) hypertonicity, and (3) presence of the correct amount of sodium hypochlorite (from 0.4 to 0.5 per cent.). The success of treatment with this solution was dependent chiefly on good surgical technic coupled with rigorous laboratory control.

Because the hypochlorite preparations in use were so unstable and existed only in solution, Dakin and his co-workers continued their researches, endeavoring to obtain other chlorin-bearing antiseptics which would not possess these two major disadvantages. The first one introduced was chloramin-T (sodium paratoluenesulphochloramid); soon afterward followed the closely allied dichloramin-T and the water sterilizing agent halazone.[2] Both chloramin-T and dichloramin-T were favorably received as worth while additions to materia medica. The products have now been on the market for more than five years. Because they do contain the chlorin atom in its less stable modification, the composition and purity of the "chloramin" preparations have been watched carefully by the Chemical Laboratory of the American Medical Association. A recent report [3] from the laboratory deals with the examination of market specimens of the brands described in New and Nonofficial Remedies. Out of eight specimens of chloramin-T powder examined, one was considerably substandard, two were slightly substandard, and five were satisfactory. The chloramin-T tablets, chloramin-T pastes and an aromatic powder containing chloramin-T and sodium bicarbonate were satisfactory. Two out of four specimens of a surgical powder containing chloramin-T and zinc and sodium stearates were found to be quite decomposed. All of the market specimens of Council-accepted dichloramin-T complied with the standards. An investigation was also made of specimens which had been analyzed five years previously. The results showed that chloramin-T and halazone were sufficiently stable to be kept in solid form over a period of five years, whereas dichloramin-T decomposed slowly.

In comparing hypochlorite solutions (such as surgical solution of chlorinated soda-Carrel-Dakin) and the "chloramins," Dr. P. N. Leech, who made the examinations, points out that they have a common characteristic, namely, a positively charged chlorin atom; this relatively unstable atom (Cl^+) has a tendency to go over to the relatively more stable chlorid (Cl^-). Hence, the chloramins as well as the hypochlorites are active oxidizing agents. On this oxidation factor, Dr. Leech believes, depends the antiseptic or germicidal action of these preparations. Assuming this premise, the question arose as to what effect the reaction of the solution would have on the oxidizing power. Measurements of the oxidation potentials showed that the oxidizing power of chloramin-T was much greater in neutral than in even slightly alkaline solutions, and the power decreased with relatively small increase in alkalinity. Thus the statement is advanced that "it would not be surprising to find that the hydrogen ion concentration (C_H), the oxidation potential and the bactericidal coefficient would be in direct ratio." Therefore, one strength of a solution of pure chloramin-T might be active as a germicide in certain conditions, while a solution of the same strength containing sodium bicarbonate might be inadequate. As is suggested in the report, there is need for bacteriologic work to determine this factor.

RESUSCITATION FROM GAS POISONING

The question of resuscitation after carbon monoxid asphyxia, such as follows illuminating gas poisoning, poisoning in mines and from automobile exhaust gases, has been the subject of investigation by a commission [1] on resuscitation since November, 1921. In its final report,[2] just issued, after reviewing previous investigations on this subject, the commission announces the results of inquiries made along three lines: First, studies were made to determine whether or not the exuberant use of positive pressure ventilation—as with the lung motor or pulmotor—might not cause immediate cardiac or circulatory failure in seriously gassed patients. Investigations on animals indicated that such a belief was not well founded, and that lung rupture did not occur even when extreme pressures were used.

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[1] For the methods of preparation and the assay, see New and Nonofficial Remedies, 1923, p. 142.

[2] Chloramin-T, dichloramin-T and halazone are described in New and Nonofficial Remedies, 1923, pp. 143-147.

[3] Leech, P. N.: Synthetic Drugs, IV, Examination of American-Made Chloramin-T, Dichloramin-T and Halazone, J. Am. Pharm. A. **12**: 592-602 (July) 1923.

[1] The Commission is composed of Cecil K. Drinker, M.D., associate professor of applied physiology, Medical School of Harvard University, chairman; Walter B. Cannon, M.D., professor of physiology, Medical School of Harvard University; David L. Edsall, M.D., dean of the Medical School of Harvard University and professor of clinical medicine; Howard W. Haggard, M.D., instructor in applied physiology, Yale University; Lawrence J. Henderson, M.D., professor of biologic chemistry, Medical School of Harvard University; Yandell Henderson, Ph.D., professor of applied physiology, Yale University; Francis W. Peabody, M.D., professor of medicine, Medical School of Harvard University; Royd R. Sayers, M.D., chief surgeon, United States Bureau of Mines, Washington, D. C., and Charles B. Scott of the Bureau of Safety, American Gas Association.

[2] Final Report of the Commission on Resuscitation from Carbon Monoxide Asphyxia: the Treatment of Carbon Monoxide Asphyxia, J. Indust. Hyg. **5**: 125 (Aug.) 1923.

Next, the question whether or not the positive pressure apparatus might disseminate infection throughout the tissues was studied, and it was found that such apparatus does cause an increase in the amount of tracheal material that reaches the lung. The third point concerned the actual ventilating efficiency of the apparatus. The tests made indicated that an experienced physiologist can regulate the volume of air properly, but that with the simple directions which can be given nonmedical life savers, it is not probable that the machines can be operated with the success that is attributed to them on comparison. The conclusion was reached that the Schäfer prone pressure method of artificial respiration is even more efficient than has been supposed.

The final report also calls attention specifically to the use of a method devised by Drs. Yandell Henderson and H. W. Haggard for treating patients who have been gassed by carbon monoxid with inhalations of 5 per cent. carbon dioxid and oxygen. This method of treatment has been thoroughly tested in New York City [3] and elsewhere, and the commission believes that it is a valuable one and recommends its use. Since the method demands the presence of special apparatus, it is also recommended that provision be made for supplying such inhalation apparatus in districts or occupations in which carbon monoxid poisoning is fairly common.[4]

Current Comment

THE HOSPITAL INTERNSHIP

Without an internship in a modern hospital, a medical student's training is incomplete. This internship now constitutes a year of advanced clinical instruction, and is spent in the personal examination and treatment of patients. The student, while still under supervision, learns to apply the knowledge he has previously obtained in the clinical years of the medical course. Any errors he may make either in diagnosis or in suggested treatment are corrected and actually aid in his training, whereas in individual practice they might be repeated indefinitely, to the detriment of his patients. In the one or two years of intern training, also, the student has obtained more practical knowledge, perhaps, than he would obtain in the first five years of individual practice. Following such a training he enters practice after his skill in diagnosis and treatment has been demonstrated—a matter of obvious importance to the public. Meanwhile, during his intern service, patients in the hospital have received more well supervised care than would be possible in a hospital without interns. As medical education has been improved and as students have been better trained in medicine, the value of their services as interns in hospitals has been greatly enhanced. This has led to a larger demand, which has been further increased by many new hospitals. This demand cannot be met by the number of students graduating each year because, although the numbers of graduates are increasing, so also is the demand for interns. There is a further important development in connection with intern training, however, that may help to solve the problem. The practice of some hospitals in requiring recent graduates to enter at once on an intern service in a single surgical or other special department of the hospital, rather than in a general rotating service, is now recognized as faulty. This is one of several influences which are precipitating young physicians into specialization in fields for which they may not be best adapted, and for which the training obtained is too brief to develop the essential knowledge and skill. It would be better to require all young physicians to complete a rotating internship in a general hospital which will qualify them for general practice. Then those who desire to specialize will have a better idea as to which specialty to select. Again, the heads of special departments can select from among the interns those best qualified to act as special interns or residents, each one to serve as long as is necessary to complete the essential training in his chosen specialty. A broader plan is being followed in some hospitals whereby essential review courses in the fundamental sciences and certain advance courses in physical diagnosis and in technic are being required for admission to the special internship or combined with it, thus providing a more complete training in each specialty. This arrangement is particularly adaptable in hospitals connected with medical schools where the facilities for the additional review courses are available. The arrangement for such advanced special internships by many well conducted general and special hospitals not only will help to relieve the present shortage of interns, but also will provide more opportunities for the complete and efficient training of those who are to enter the various specialties, and, better still, will further improve the routine care of patients in those hospitals.

IODIN AS A PROPHYLACTIC FOR GOITER

Typical of the careful progress of scientific medicine is the gradual development of the prophylactic administration of iodin for goiter, since Marine and Kimball published their first results several years ago. As pointed out by them in their first report on the experiment in Akron, Ohio, the administration of iodin for prophylaxis is based on sound experimental data including work in various laboratories for ten years previously. In 1917, they presented the problem and concluded that the risk of inducing manifestations of exophthalmic goiter from the use of iodin in physiologic doses is exceedingly small, even in those cases in which there are large hyperplastic thyroid glands. They suggested the administration of sodium iodid daily for two weeks as a prophylactic agent. The progress of their work and its gradual spread through goiter districts has been recounted in The Journal both editorially and in the original contributions. These fundamental articles have recently been collected under one cover by the Western Reserve University in its monthly bulletin for July. The *Bulletin* concludes with a brief summary by Dr. O. P. Kimball, giving the progress of the work to the present time. In Zurich, in 1918, the prophylactic administration was begun. It was found that almost every child in some of the Swiss schools was goitrous, so that the treatment was given to both boys and girls of all school grades, a few milligrams of iodin being given weekly throughout the year. The results are reported as being even more striking in Switzerland than in this country. For instance, in one canton, the incidence of goiter in all school children in January, 1919, was 87.6; in January, 1922, 13.1. On account of the extraordinary results obtained during the last three years, the goiter commission of Switzerland has recommended that this method be instituted as a public health measure throughout the republic. In this country the schools of Akron, Kent and Revana counties, in Ohio, have been using the method as a routine. It has been employed in Berea and Warren, Ohio, and extensively administered in some of the large factories in Cleveland. This year, according to Dr. Kimball, the schools in East Cleveland, Shaker Heights, Warren, Niles and Findlay, Ohio, Grand Rapids, Mich., and Hammond, Ind., are using tablets, each containing 10 mg. of an organic iodid, and each girl takes one tablet a week throughout the year. The possibility of harm from the dosage of iodin is said to be absolutely negligible. There has been only one rash in a thousand cases, and not in a single instance has an exophthalmic goiter been produced. It is recommended that in endemic goiter districts every woman keep the thyroid saturated with iodin by this method during pregnancy, and that every girl keep the thyroid saturated with iodin during the ages from 11 to 16 years.

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[3] Henderson, Yandell; and Haggard, H. W.: The Treatment of Carbon Monoxid Asphyxia by Means of Oxygen + CO_2 Inhalation, J. A. M. A. **79**: 1137 (Sept. 30) 1922.

[4] The commission has prepared a booklet giving directions for treatment, which may be obtained from Mr. Oscar H. Fogg, Secretary-Manager of the American Gas Association, New York City.

SCHOLARSHIPS FOR MEDICAL STUDENTS

Reports from a large number of medical schools show that the proportion of students who are working for all or part of their way range from 25 to 50 per cent., and that the opportunities for such help are no less abundant or varied than those in colleges of arts and sciences. It has long been recognized also that students of this type usually stand among the highest in their classes from the standpoint of both scholarship and leadership in medical school activities. In recent years, the difficulties under which such students are working have been increased in two respects. First, the increased cost of furnishing a medical training has led, but to a lesser extent, to increased fees for tuition. This has added to the students' financial burden. Next, the wide range of the present-day medical curriculum with its varied schedule of lectures, laboratory and clinical courses requires a much larger portion of the students' time than in former years. The student, therefore, cannot earn much money toward his expenses without neglecting to an equal extent his medical school work. In order to offset these two difficulties, about thirty progressive medical schools have established loan funds and about forty have established from one to eighty-four free scholarships each, or a total of about 550 scholarships, for medical students during their four year medical course. There are less than 140 scholarships available, therefore, for the 4,000 or 5,000 medical students who each year begin the study of medicine. To provide for the twenty-five or larger percentage who will need financial assistance, many more scholarships are essential; and these should provide something in addition to tuition charges. Those having funds to give could find no project of greater value to civilization than in providing scholarships whereby many worthy and ambitious men and women can make their way through medical school without necessarily neglecting any of the real essentials of their medical training. At the same time, these scholarships should be awarded only to those whose scholarship and tenacity of purpose have been demonstrated.

RELATION OF MEDICAL EDUCATION TO THE MEDICAL PLANT

Two letters, published under "Correspondence" this week, deal with two main problems concerned in the relation of education to the medical plant. The limitation of enrolments by medical schools is a safeguard against the admission of more students than can be furnished with a modern medical education with the space and facilities available. Such restrictions are encouraging, as compared with conditions formerly prevailing when certain medical schools were crowded almost to standing room capacity. Under such crowded conditions neither adequate supervision nor anything like a satisfactory medical training was possible. The limitations fixed by medical schools usually have been higher than the average number per class admitted during the previous several year period. For example, since 1916 the average enrolment in each class in Vanderbilt University was only thirty-six, although in one or two years the numbers in the first year classes slightly exceeded the limit (fifty). The average yearly enrolment in all four classes since 1916 has been only 187, and in only one year did it exceed the maximum enrolment of 200 students. Under the limitations that have been fixed at present by Class A medical schools there is still room for larger numbers of students than have been enrolled during the last twelve years. While many students may not have succeeded in entering the school of their first choice, we have yet to hear of a single well qualified student who has failed to secure admission to some Class A institution. The second problem relates to the cost of maintaining the modern medical school. This cost is four or five times larger than the amount obtained from students' fees, and properly so, since the institution is something more than a teaching plant. It is a research plant which is constantly adding new facts to the knowledge of medicine, and most of the time of the full-time staff is devoted to such work. The hospital, although a part of the teaching plant, is rendering a service to the public more valuable than its cost of maintenance amounts to. Meanwhile, the research work as well as the hospital service to the patients is enhanced by the fact that active teaching is being carried on, and likewise the teaching furnished to medical students is usually more valuable and up to date because, through research, both teachers and students are informed in regard to the latest and best methods of diagnosis and treatment. The number of modernly equipped institutions, such as Vanderbilt, is rapidly on the increase, and because of their safeguards against overcrowding they are sure to turn out in the future better physicians and in larger numbers than could possibly be done under conditions formerly prevailing.

THE CAUSE OF SCARLET FEVER

In 1921, an Italian investigator, Professor G. di Cristina, director of the Institute for Clinical Pediatrics of the University at Palermo, isolated a small anaerobic diplococcus from patients with scarlet fever. Now, Professor G. Caronia and Dr. M. B. Sindoni[1] of a similar clinical institute at Rome have confirmed the work of Dr. Di Cristina and assert with conviction that this organism bears a causative relationship to the disease. Their report appears in detail in the Italian periodical *Pediatria,* and it is supported by five color plates showing the diplococcus as it appears on the special culture mediums used for its cultivation, the material being derived from the bone-marrow, blood, cerebrospinal fluid or throat. The diplococci are few in number, but the extreme turbidity of the culture mediums suggests the presence of some ultramicroscopic form in addition. As evidence for their claims, the Italian investigators cite the constant positive bacteriologic findings, the reproduction in young rabbits of a constant clinical picture (in some, closely resembling human scarlet fever) ; agglutination, complement fixation, and opsonic index tests all positive and absolutely specific; the passive immunity conferred on the infected rabbits by injection of serum from children convalescing from scarlet fever, and the active immunization of children vaccinated with killed cultures and afterward exposed to scarlet fever. In fact, so certain were they of their results that they attempted vaccination of four healthy children with the cultures; no sickness resulted. Presuming that the organism had lost much of its virulence by cultivation, they then vaccinated five children who were presumably in a more receptive condition, since they were convalescing from measles. All of these children developed what is asserted to be an attenuated form of scarlet fever after inoculation with the cultures. The biologic tests made on these children were constantly positive, as also in the four healthy ones inoculated who did not show any signs of the disease. In order to test the effects of the inoculations, the children were submitted to contact with other patients with scarlet fever, but did not contract the disease. As is well known, other investigators have, from time to time, claimed the discovery of organisms presumed to bear a causal relation to scarlet fever, but thus far without acceptance. In the case of the Italian observations, the evidence is more extensive than any yet heretofore offered. Nevertheless, the reports concern so few experiments, and the pitfalls of diagnosis in scarlet fever are so obvious, that considerably more investigation and experience will be required before these claims can be accepted. Certainly the observations are of interest. We assume that the conditions under which these investigations were carried on were such as to preclude possible injury to the children.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Personal.—Dr. Floyd L. Abernethy, health officer of Barbour County, has resigned to accept a position as field director with the state board of health.

Garbage Tax a Health Measure.—The health department of Florence has asked the Chamber of Commerce to indorse an ordinance whereby every person in the city would be compelled to pay a garbage tax, the city undertaking to collect all garbage. The tax would be approximately $4 a year and the control of the garbage collection department would be solely in the hands of the public health service. The present system was stated by the health department to be a menace to public health. This taxation plan, which was put into operation at Gadsden, has been successful.

CALIFORNIA

Physicians Exempt from Speed Laws.—California has recently exempted vehicles operated by physicians on emergency calls from speed regulations. Speedtraps have also been eliminated and traffic officers are now required to patrol the highways in uniform under the California Motor Vehicle Law.

Personal.—Dr. Cuthbert M. Fleissner, Santa Rosa, has been appointed chairman of the advisory health board of the city to succeed the late Dr. Jackson Temple.——Dr. Ernest H. Pape has resigned as health officer of Berkeley. Dr. Frank L. Kelley, lecturer in preventive medicine and hygiene, and director of the state hygiene laboratory at the University of California, has been appointed to suceed Dr. Pape.

Hospital News.—Additions to St. Vincent's Hospital, Los Angeles, to cost $1,250,000, will be started in September, one unit of which will accommodate 350 beds. There will be a complete department for children, and a maternity division.——Plans have been completed by Dr. Newton T. Enloe for a new hospital at Chico. There will be seventy-five rooms and about 100 beds.——The St. Joseph Hospital, San Diego, will erect modern hospital buildings at a cost of $400,000 on property owned by the institution in Fleischer's addition.——The Chinese of San Francisco have raised $120,000 to erect a hospital for Chinese in that city.

CONNECTICUT

Gift to Yale University.—The sum of $2,000 has been pledged by the Laura Spelman Rockefeller Memorial Foundation to Yale University, New Haven, for the Yale Psycho-Clinic. This clinic, which is directed by Dr. Arnold Gesell, professor of child hygiene, has been making studies of children of preschool age, and has cooperated extensively with the public school system and the charitable agencies of Connecticut.

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[1] Caronia, G., and Sindoni, M. B.: Etiology of Scarlet Fever, Pediatria **31**: 745 (July 15) 1923.

GEORGIA

Statistics on Medical Attendants.—According to a report issued by the state bureau of statistics, July 31, nearly 5,000 people died in Georgia last year without a medical attendant. On 671 of these records the cause of death was stated as due to accidents, suicides or homicides, but 4,301 were stated as dying from disease. In 1920, the Georgia cities, with more than 10,000 population, had one physician to 425 people, while the smaller cities and country districts had one for each 1,148. The decrease in the number of physicians and centralization in the larger cities with the economic conditions are the reasons given why one death in every seven in 1922 occurred without medical attention.

University News. — The following changes have been announced in the faculty of Emory University School of Medicine, Atlanta: Hubert Sheppard, Ph.D., professor of gross and applied anatomy, has resigned to accept a position at Rush Medical College, Chicago; Dr. R. Henry Baldwin, assistant professor of physiology, has resigned to join the staff of the St. Louis Hospital; Dr. Ernest B. Sare, professor of pathology and bacteriology has resigned to become pathologist and bacteriologist to the Georgia State Insane Asylum, Milledgeville, and Dr. John Funke has resigned as professor of pathology to resume private practice in Atlanta.——Governor Walker has appointed Dr. John F. Lunsford, Preston; Dr. Elton S. Osborne, Savannah, and Dr. Henry W. Shaw, Augusta, as members of the board of trustees of the University of Georgia Medical Department, Augusta.

ILLINOIS

Public Health News.—According to reports reaching the state department of public health, a mild epidemic of typhoid fever has appeared in Peoria. To date sixteen cases have been reported with four or five suspect cases under observation. The local health officer reported that the outbreak is apparently milk borne. A state epidemiologist is conducting an investigation.——During the first half of this year fifty-one well baby conferences were held under the direction of the state department of public health and fifty more are scheduled. Announcement was made that a number of requests for professional assistance at baby conferences has been turned down because the schedule of the medical staff available is completely filled.——Announcement has been made that seven physicians have been appointed as district health superintendents on the field staff of the state department of public health. The newly appointed men are among those dropped from the department medical staff, July 1, because of a cut in the appropriation. Civil service ratings and efficient public health service records were the determining factors which governed the appointments, according to Dr. I. D. Rawlings, state director of public health.——The board of education in East St. Louis has appropriated $5,000 for the establishment of medical inspection of pupils in the public schools during the coming season. According to reports the personnel for doing the work has not yet been chosen.

Chicago

Barbers Practicing as Physicians.—Harry F. Shepard and S. J. Pole, according to reports, were arrested, August 8, for practicing medicine without licenses. Shepard and Pole are barbers during the day but in the evening are "doctors" with offices at 3108 Madison Street.

Memorial Hospital Dedicated. — Nearly 15,000 persons attended the dedication ceremonies of the Lutheran Memorial Hospital, Chicago, August 12. The hospital is a memorial, erected at a cost of $700,000, to Lutheran soldiers who died in the World War. A tablet containing 100 names was unveiled. Dr. George H. Schroeder, Chicago, has been named chief of staff at the hospital.

Personal.—Senior Surgeon Otis B. Mallow, U. S. Public Health Service, Washington, D. C., has been appointed officer in charge of the U. S. Veterans' Hospital No. 30-A, Chicago. ——Dr. Joseph Springer, who recently resigned as coroner's physician, has been reappointed physician in charge of murder investigations.——Dr. Hertha Kraus, commissioner of public welfare, Cologne, Germany, is visiting in Chicago to study welfare conditions here.

INDIANA

Hospital News.—Adams County's new hospital, Decatur, built at a cost of $125,000, was formally dedicated, July 29, to those who from that county served in the World War. The institution has thirty-one rooms for patients and three sun parlors.——The Putnam County Hospital, Greencastle, was opened to the public, July 29. The hospital site of 3 acres was donated by William Kreigh and A. G. Brown of Greencastle.

School Houses Condemned.—The state board of health has condemned the following Hancock County district school houses: Center township, Washington and Benevolence school houses; Jackson township, Cleveland school house, and Sugar Creek, Brier school house. This means that these schools cannot be used for the fall term and some means will have to be taken to procure suitable housing facilities for the pupils this winter.

MAINE

Public Health News.—At a meeting of the Penobscot County Public Health Association at Bangor, July 27, it was decided to affiliate that society with the Maine Public Health Association. Dr. Byron G. Croxford, Newport, president of the county association, was elected as the member from Penobscot County on the board of directors.

Medical Meeting.—At the annual meeting of the Somerset County Medical Society at Lakewood, August 2, Dr. Henry E. Marston, North Anson, was elected president; Dr. Ray C. Brown, Pittsfield, vice president, and Dr. C. Earl Richardson, Skowhegan, secretary-treasurer. Dr. Charles A. Moulton, Hartland, president of the Maine State Medical Association, spoke on the work of the state association. Dr. Edwin T. Wyman, Boston, delivered an address on "Artificial Feeding of Infants."

MARYLAND

More Diphtheria Clinics.—The commissioner of health of Baltimore, Dr. C. Hampson Jones, has established additional diphtheria clinics in order to be able to test every child before the schools open in the fall. Clinics have been established at the following points: Health Department Building, public school No. 83, basement of Calvary Church, public school No. 5, public school No. 13, St. Andrew's Parochial School and public school No. 94.

MICHIGAN

Physician Amnesia Victim.—According to reports, Dr. James H. Anderson, Detroit, who disappeared last November, has returned home with his memory completely restored. Dr. Anderson states that he regained possession of his faculties while working as an orderly in a Chicago hospital.

Causes of Death Among Preschool Children.—During 1922, 2,276 deaths occurred among children under 1 year of age. Between the ages of 1 and 6 years there were 1,020 deaths, which represents about 9.2 per cent. of the total, a larger percentage than is represented by any other 5-year age group. The principal causes of death among children under 6 years of age during 1922 were bronchitis and pneumonia (648), enteritis (448), and measles (171).

MISSOURI

Help for Crippled Children.—In April, 1922, the St. Louis Medical Society offered free treatment to crippled children at a series of clinics. The society found, on investigation, that these children were handicapped by lack of educational facilities. Fifty-eight crippled children were found unable to attend school because of their condition, while more than 200 in attendance were backward, and were unable to climb stairs or move from one classroom to another. The board of education was informed of these conditions. At its session, July 10, it decided to open a temporary school for crippled children at the coming term, and $40,000 was voted for equipment. Plans will be made for a permanent building, based on experience with the temporary school.

NEW JERSEY

Illegal Practitioner Fined.—Salvator Spinelli, Rahway, was arrested in March, 1923, on a second charge of practicing medicine without a license, and when the case came to trial, June 26, pleaded guilty and paid the penalty. Spinelli had been found guilty of a similar charge in December, 1920.

Playground Showers.—The superintendent of recreation, Patterson, has designed a shower device for children for hot days which yields a spray over a half circle 60 feet in diameter, and which has been set up at the fire stations and playgrounds of that city. It may be attached either to a fire hydrant or to any length of hose, and its volume is regulated by an operator in the "dry zone."

NEW YORK

Hampton Clinical Society Meets.—This newly formed medical society recently held its first meeting at the Southampton Club, Southampton, L. I. A dinner followed the meeting. Among those who presented papers were Drs. Allen G. Terrell, Horace Hallock, George H. Schenck, William Cunningham, Irvine J. Russell, William St. Lawrance, John H. Nugent and Joseph S. Wheelwright.

New York City

Poliomyelitis.—There have been 109 cases of poliomyelitis reported for June and July this year, as compared with twelve for last year, and forty-six for 1921. There have been five deaths. The sections of the city in which the majority of cases have appeared are in order of importance: Borough of the Bronx, Corona and Flushing districts of Queens, the lower East Side of Manhattan, Borough of Brooklyn. This slight increase in poliomyelitis is not sufficient to justify apprehension.

Scholarship Fund for Physicians.—The American Child Health Association has announced the establishment of a $10,000 scholarship fund, to be awarded to physicians now engaged in child health work for study in medical centers, travel and observation of child hygiene work. This is the third endowment of the kind which this organization has created within the last six months. The purpose of the last appropriation is to meet the demand for more and better trained physicians in the field of child hygiene.

The Insulin Committee.—The Insulin Committee, recently organized to provide free insulin treatment for diabetics of the city unable to pay for treatment, has announced the receipt of $2,500 from the New York Foundation; $2,500 each from the Hofheimer Foundation and Felix M. Warburg; $1,000 each from Marshall Field III, J. J. Wyle and Mrs. J. J. Wyle; $500 each from Frederick Strauss and Mrs. Jacob H. Schiff, and $250 each from Ellen C. Auchmuty, Jules S. Bache, Norman Goldman, John L. Wilkie and E. F. Albee. The treatment at present approximates $1.20 per day for each patient.

Harlem Health Center Experiment Reports.—This experiment, which is being conducted for a period of three years through the joint efforts of twenty-two organizations sponsored by the New York Chapter of the American Red Cross, announces an increase of 81 per cent. in the service of health agencies to 112,000 people, with an increase of only 9 per cent. in cost. The East Harlem Health Center has evidently demonstrated that various agencies can cooperate successfully and that a community will enter into health work under the leadership of an active health center. It is believed by the officers of the center that so-called health education by means of exhibits and literature is not the most effective method of educating the people. The workers have gone to the homes of 20,000 families and have interested them through friendly visits, advice and practical help. With the funds available, the center is conducting a demonstration within the area to determine what might be considered adequate service and how the work can best be done. The experiment is being conducted in two of the eight sanitary districts of the area. The annual budget is $65,000, half being contributed by four cooperating agencies and half by the Rockefeller Foundation.

NORTH CAROLINA

Typhoid Epidemic.—Sixty-two cases of typhoid fever have been reported to the city health department of Greensboro since the beginning of the outbreak during the latter part of June. Fifteen new cases were reported for the week ending July 23, as compared with twenty new cases during the previous week. Certain milk supplies which had not been pasteurized are thought by the city health officer to be the source of the epidemic.

Dr. McBrayer to Remain.—The special committee appointed by the legislature to investigate charges that the State Sanatorium for Tuberculosis, Asheville, was mismanaged found that the charges were "not sufficient to warrant their recommending the removal of Dr. Lewis B. McBrayer from the position of superintendent of the institution," but that "Dr. McBrayer and his son, Louis, have violated Section 4390 of the consolidated statutes of North Carolina of 1919, technically, in trading with business enterprises in which they have a pecuniary interest." Another charge brought against Dr. McBrayer and sustained by the committee was that he "had used at different intervals portions of the maintenance funds of the institution for the purchase and maintenance of automobiles used in connection with the institution, which transaction was neither authorized or sanctioned by the state board of health." Dr. McBrayer's work in improving conditions at the sanatorium was commended. Complaint was made, however, that in addition to being superintendent, Dr. McBrayer was postmaster at the sanatorium, secretary of the state medical association and director of the North Carolina Tuberculosis Association.

OHIO

Chiropractor Arrested for the Third Time.—According to reports, J. M. Cramblet, chiropractor of Newark, has been arrested for the third time for practicing medicine without a license. Cramblet served forty-two days in jail following his first arrest.

Dissolution of District Hospital.—The first steps in the dissolution of the district tuberculosis hospital, Urbana, operated jointly by Clark, Madison, Green and Champaign counties were taken in July in appraisement of the property. The Clark County commissioners will present a bond issue at the November election to permit that county to purchase the shares of the other counties.

OKLAHOMA

Personal.—Dr. Charles E. Barker has been reappointed city physician of Okahoma City.——Col. Hugh Scott, Muskogee, was recently elected president of the Association of Reserve Officers, U. S. Public Health Service, at the meeting in Washington, D. C.——Dr. George M. Clifton, Norman, has resigned from the board of regents of the University of Oklahoma Medical School.

PENNSYLVANIA

Poliomyelitis in Wyoming Valley.—The development of three cases of infantile paralysis on the west side, together with nine cases in Wilkesbarre and Hanover Township within the last few weeks, is an indication that the disease is spreading locally, despite warnings sent out by the city physician. Three patients have died. Parents are urged to exercise every precaution possible to avoid a repetition of the epidemic of 1916.

State Health Board Appointments.—Governor Pinchot has selected five of the six members of the state health advisory board. Two of the members of the former board, Dr. A. A. Cairns, Philadelphia, and Dr. E. A. Green, Easton, have been reappointed. Lee Masterson, Johnstown, the engineer of the board, has been succeeded by C. F. Mebus, Glenside, and the two new members named are H. C. France, Huntingdon, and L. H. Taylor, Wilkesbarre.

Physicians Named for State Work.—State Secretary of Health Miner has appointed the following county physicians as official deputies to revaccinate, free of charge, school children who have undergone two or more unsuccessful attempts at vaccination against smallpox: Morris J. Van Horn, Town Hill; Peter H. Jamison, Nescopeck; Charles W. Tressler, Shickshinny; Dewees A. W. Huebner, Fern Glen; Albert C. Snyder, White Haven; R. Emerson Buckley, Hazleton; Albert A. Redelin, Freeland, and John C. Fleming, Dallas.

Philadelphia

Health Director Appointed.—Mayor Moore, August 7, appointed Dr. Blair Spencer, assistant director of public welfare, to be director of public health of Philadelphia, succeeding the late Dr. C. Lincoln Furbush. The appointment was confirmed by the council.

Dinner for Dr. Lewis.—A farewell dinner was recently tendered to Dr. Paul A. Lewis, for thirteen years director of the laboratory of the Henry Phipps Institute of the University of Pennsylvania, by the staff. Dr. Lewis resigned to accept a position at the Rockefeller Institute, Princeton, N. J.

VIRGINIA

Personal.—Dr. Lawrence T. Royster, Norfolk, has been elected professor of pediatrics at the University of Virginia.

Hospital News.—Work has been started on the new McIntire wing of the University of Virginia Hospital. This wing will house the orthopedic and obstetric departments, taking care of 260 additional patients.——The cornerstone of the Northampton-Accommac Memorial Hospital, Lynchburg, was laid, July 4. Construction work has been started, and it is expected that the building will be ready for occupancy in a few months.

WEST VIRGINIA

President of Health Board Named.—At a meeting of the state board of health, July 25, at Charleston, Dr. Walter M. Babb, Keyser, was elected president of the board.

WISCONSIN

Personal.—Dr. Cornelius A. Harper, Madison, has been reappointed a member of the state board of health, it was announced by the governor, June 29.

Hospital News.—The new wing at St. Elizabeth's Hospital, Appleton, was dedicated, July 3.——The cornerstone for the new building of the Wisconsin Deaconess Hospital, Green Bay, was laid recently.——A site of 10 acres has been deeded to the Sisters of the Holy Cross of Switzerland for a hospital, training school and mother house at Merrill. The hospital will be erected at a cost of $30,000.——The Wisconsin General Hospital, Madison, when completed will have a capacity for 325 patients. The main building is expected to be ready for occupancy by September, 1924. The cost, including equipment, is estimated at $1,350,000.

WYOMING

Personal. — Dr. Richard M. Leake, Laramie, has been appointed health officer of Albany County by the state board of health.

CANADA

Canadian Medical Association.—At the annual meeting of the association in Montreal, June 12-14, Dr. John F. Kidd, Ottawa, was elected president to succeed Dr. David H. Arnott, London. Dr. Alfred T. Bazin, Montreal, was elected treasurer, and Dr. Thomas C. Routley, Toronto, secretary. The vice presidents of the society are the presidents of affiliated provincial associations. The next annual meeting will be held in Ottawa in 1924.

Ontario Medical Association. — At the forty-third annual meeting of the Ontario Medical Association in Windsor, Ont., May 29-June 1, the following officers were elected for the ensuing year: president, Dr. John F. Argue, Ottawa; vice presidents, Drs. George S. Young. Toronto, and John A. Macgregor, London; treasurer, Dr. G. Stewart Cameron, Peterborough, and secretary, Dr. Thomas C. Routley, Toronto. The next annual meeting will be held in 1924 in Ottawa on invitation of the Ottawa Medico-Chirurgical Society.

GENERAL

Roentgenologists Elect.—At the recent annual meeting of the New England Roentgen Ray Society the following officers were elected: president, Dr. Patrick F. Butler, Boston; vice president, Dr. William A. LaField, Bridgeport, Conn., and secretary-treasurer, Dr. Alexander S. MacMillan, Boston.

American Public Health Association's Secretary.—Mr. Homer N. Calver has been elected executive secretary of the American Public Health Association to fill the vacancy caused by the resignation of Mr. A. W. Hedrich. Mr. Calver has had experience in health work in South Carolina, New York City and in France during the World War. He is a graduate in sanitary engineering from the Massachusetts Institute of Technology.

National Safety Council.—The twelfth annual congress of the National Safety Council at Buffalo, October 1-5, will comprise sixty sessions. The American Association of Industrial Physicians and Surgeons and the New York State Department of Labor are also planning annual meetings in conjunction with the safety congress; joint sessions have been arranged. Dr. Clyde E. Ford, New York City, president of the Association of Industrial Physicians and Surgeons, and John B. Madden, chairman of the industrial safety division of the Buffalo Chamber of Commerce, will preside at the session. G. Howard Ferguson, premier of Ontario, Canada, will open the first general session. Three new sections of the National Safety Council will be formed at this congress. They are ice and refrigeration, marine, and an employees benefit association.

New Prohibition Regulations.—A change in the regulations of the prohibition law which has been tentatively decided by the advisory committee will provide that permits for certain classes of operations when once granted may continue in effect until revoked or suspended for cause or surrendered by the permittee. Permits to manufacture, sell or transport will continue as at present to require annual renewal if they are to remain operative, but the basic permits for other classes or operations will, after new regulations go into effect, not require such annual renewal. Another change tentatively agreed on was the fixing of standards for flavoring extracts and other preparations; stating more clearly and specifically the requirements as to records and reports to the office by persons operating under permit. The date when the new regulations will go into effect has not been announced.

Dental Schools Classified.—Following a survey and classification of dental schools recently completed, it was announced by the Dental Educational Council of America, August 3, that the course of study for a degree in dentistry in the United States will be lengthened from four to five years, with the purpose of bringing all dental schools to a higher standard of efficiency, epecially in medicodental subjects. Closer cooperation between the physician and the dentist in the preservation of the health of the patient will be fostered. According to standard, the dental schools were classed "A," "B" and "C." Schools placed in Class "C" are believed to need such thorough reorganization that the council will recommend to the various state dental examining boards that their graduates be barred from registration pending action by the officials of the schools so classified to bring their institutions up to the minimum standard set by the educational council.

Bequests and Donations.—The following bequests and donations have recently been announced:

Rhode Island Hospital, Providence, R. I., $500,000, by the will of Mrs. J. E. Potter, providing that $200,000 be used for the erection of a children's department.

Sherman Hospital, Sherman, Texas, $127,000 for the erection of a hospital for charity patients, by the will of Wilson N. Jones.

Williamsport Hospital, Williamsport, Pa., $50,000, and the Home of the Friendless, $25,000, by the will of Rosetta Ulman of Williamsport.

Long Beach Community Hospital, Long Beach, Calif., $50,000, by Fillmore Condit, ex-mayor of Long Beach.

For the erection of an Orgain Memorial Hospital at Bastrop, Texas, $10,000, by Mrs. S. J. Orgain.

Howard University Medical School, Washingon, D. C., $10,000, by Mr. and Mrs. Aaron E. Malone.

Chester County Hospital, Embreeville, Pa., $10,000, by the will of John P. Wallace.

Society for the Improvement of the Condition of the Blind, New York, $5,000; Mount Vernon (N. Y.) Hospital, for the purpose of endowing the Gertrude I. Duncan bed, $5,000; Visiting Nurses' Association of Mount Vernon, $3,000, and the Home of St. Giles, the Cripple, Brooklyn, $2,000, by the will of Gertrude I. Duncan of Mount Vernon.

Alice Home Hospital, Lake Forest, Ill., $5,000, by the will of Clyde M. Carr of Chicago.

Germantown Hospital and Dispensary, Philadelphia, $5,000, by the will of Mary H. Kremer.

Masonic Home for the Aged and Infirm, near Philadelphia, $5,000, and the Connellsville Chapter of the American Red Cross, $1,000, by the will of Dr. George W. Newcomer of Connellsville.

Mount Sinai Hospital, New York, $1,000, and St. Mary's Hospital, Passaic, N. J., $500, by the will of William S. Friedlander of Passaic.

Society for the Relief of Destitute Blind in the Bronx, N. Y., $1,000, by the will of Simon R. Weil. On the death of Mrs. Weil one fourth of the estate will be divided among the following institutions: Mount Sinai Hospital, Presbyterian Hospital, Children's Aid Society, Society for the Relief of Ruptured Cripples, Skin and Cancer Hospital, St. John's Guild and the Federation of Jewish Philanthropic societies of New York.

Blackford County Hospital, Hartford City, Ind., $1,000 for the equipment of a laboratory, by David May of Los Angeles, Calif.

Montefiore Hospital for Chronic Diseases, New York, $500 to the department of metabolism, by Mr. I. Miller.

Charity Hospital, New Orleans, $205, the result of a charity ball.

LATIN AMERICA

Health Centers in Mexico.—Five dispensaries will be established in Mexico City by the federal department of health in connection with its campaign against tuberculosis. Agents and visiting nurses are taking a census of tuberculous residents that they may be properly treated, and further spread of the disease arrested.

No Smallpox in Rio de Janeiro.—The *Folha Medica* of Rio states that the few cases of smallpox taken to the contagious hospital from arriving ships have been dismissed, and the city is free from the disease. A body of sixty medical students have been conducting a house-to-house vaccination campaign, the public health authorities having repeatedly enforced intensive vaccination since 1920. The results are manifest in the present freedom of the city from the disease.

Election of Officers.—The Sociedad Médico-Quirúrgica of Guayaquil has elected for 1923-1924 the following officers: Drs. J. F. Heinert, president; J. V. Payeze G., vice president, and T. Maldonado C., treasurer, all reelected; J. F. Rubio, librarian; A. J. Hidalgo N., recording secretary; F. Barbotó, corresponding secretary, and J. Dario Moral and L. Izquieta Pérez. The monthly *Anales* is published by a committee of five, including Drs. Rubio and Moral, and three other professors of the medical faculty, Drs. Miguel H. Alcivar, rector of the university; J. M. Carbo-Noboa, and J. M. Estrada Coello.

FOREIGN

Soy Bean Milk.—The *Deutsche medizinische Wochenschrift* relates that the German public health authorities have called attention to soy beans as a source of a substitute milk to use in cooking, not for infant feeding. It is said to contain large proportions of fat, protein and vitamin B, but not A.

American Ophthalmologists in Austria.—About forty American ophthalmologists and laryngologists arrived in Vienna, August 4, with Professor Mackenzie of the University of Pennsylvania, Philadelphia, to follow special courses of lectures to be given for them at the University of Vienna.

Swiss Society for Natural Sciences.—The one hundred and fourth annual meeting of the society will be held at Zermatt, August 30-September 2. The meeting will be divided into fifteen sections, which include physics, chemistry, zoology, medical sciences, history of medicine and the natural sciences, veterinary medicine and pharmacy.

Vaccine Therapy in Urology.—The *Policlinico* announces that Prof. E. Pirondini is asking for data to be sent him to aid in preparing the address on "Vaccine Therapy in Urology, Exclusive of the Gonococcus," to be presented at the Second International Urology Congress to meet at Rome in April, 1924. His address is via Quintino Sella 20, Rome.

Irish Practitioners Protest Medical Legislation.—At a meeting of medical practitioners of Cork, the following resolutions were passed:

1. That the committee of Cork medical profession protest against the government introducing any medical legislation without consulting the elected representatives of the Irish medical profession.
2. That we strongly support the Irish medical committee in any action they may take in this matter.

Burma's Lunatic Asylums.—To relieve congestion in the two asylums in Burma a third will be erected. Alcohol and cannabis indica are said to cause much of the insanity in Burma; general paralysis is comparatively rare. During the recent outbreak of plague in Rangoon, immunization inoculations were given all the patients. No cases of plague occurred in the asylums.

Guy's Hospital Medical School Rebuilt.—The Prince of Wales visited the medical school of Guy's Hospital, July 2, for the purpose of opening the new anatomy, biology and physics departments, a ceremony which signalized the completion of the rebuilding of the whole school during the last twenty-six years. The total cost of rebuilding has been upwards of £100,000.

Spanish Physicians to Visit America. — Drs. Fernández Besones, inspector for Salamanca Province; Ortiz de Landazuri, of the central sanitary brigade, and Fuegó, bacteriologist of the public health department, Vigo, have been appointed by the public health service of Spain to the fellowships offered by the Rockefeller Foundation, for a visit of inspection and study in the United States.

Royal College of Surgeons of England.—At a meeting of the college in London, July 12, Sir John Bland-Sutton was elected president to succeed Sir Anthony Bowlby, who had held that office three years. Sir Berkeley Moynihan, professor of clinical surgery, University of Leeds, and Mr. H. J. Waring, surgeon to St. Batholomew's Hospital and vice chancellor of the University of London, were elected vice presidents.

Mental Hygienists Hold First Session.—The first meeting of the National Council of Mental Hygiene of Great Britain, since it became a legally constituted body, was held in London, July 12, with Sir Courtauld Thomson in the chair. Mr. Clifford Beers, founder of the National Committee for Mental Hygiene in the United States, gave an account of the work in America. An international congress of mental hygienists will be held in the United States in 1925.

Urology Congresses.—The *Medicina Ibera* states that at the Sixth Congress of the Spanish Asociación de Urología, to convene at Madrid, October 17, the two topics for discussion will be "Hypogastric Cystoscopy," to be presented by Camiña, Bilbao, and "Indications for Operative Treatment of Calculi in Kidneys and Ureter," the discussion to be opened by Miraved, Madrid. The twenty-third French Urology Congress meets at Paris, October 10, with André presiding.

Japanese Committee to Investigate Birth Control Problem.—The *Japan Medical World* states that a committee was appointed at a recent meeting of physicians graduated from Tokyo Imperial University to investigate the advisability of practicing birth control. The meeting was the outgrowth of investigations made since the visit to Japan of Mrs. Margaret Sanger, an American birth control advocate. The minister of education and the vice minister of home affairs attended the meeting.

French Medical Congress.—October is the month for the principal medical meetings of the year in France. The Seventeenth Medical Congress is to meet at Bordeaux this year, October 27, and excursions are planned to the health resorts in the vicinity and in the Pyrenees. The subjects to be discussed are "Remote Consequences of Malaria"; "Relations Between the Sympathetic and the Endocrine Systems," and "Meningococcus Affections." The secretary's address is Dr. R. Cruchet, 12 rue Ferrère, Bordeaux.

Control of German Drugs.—Arrangements for the examination of new drugs produced by chemical manufacturers have been made by the German Association for Internal Medicine together with the Association of Sick Clubs for which the clubs have provided funds. A commission has been appointed to test the value and cost of new drugs, with Professor Klemperer, chairman. The drugs recommended by the commission will be registered. The register will be published regularly, special mention being made of drugs suitably priced for use in sick-club practice.

Commemoration of Luciani.—June 24, the fourth anniversary of his death, the body of Luigi Luciani was transported from Rome to the place of his birth, Ascoli Piceno, accompanied by members of his family and representatives of various scientific and civic organizations. A memorial stone was placed at the house where he was born, and a memorial tablet of marble with a bronze medallion was placed at the house in which he spent his youth. Professor Baglioni delivered the address at the public meeting in the theater. Luciani was rector of the University of Rome and senator, and his research on the heart and brain carried his name afar.

British Medical Association.—At the annual meeting of the British Medical Association at Portsmouth, England, July 20-28, the following officers were elected for the ensuing year: president, Mr. C. P. Childe, Portsmouth; president-elect, Mr. J. Basil Hall, Bradford; vice president, Sir Daniel Drummond; overseas vice presidents, Drs. George Adlington Syme (Melbourne, Australia), Robert H. Todd (Sydney, Australia), Harry E. Gibb (Wellington, New Zealand), Wilfred W. Pitchford (Johannesburg, South Africa) and Dugald Campbell Watt (Petermaritzburg, South Africa). The association now has 25,454 members, 2,000 new members having joined since January of this year. The next meeting will be held in Bradford in 1925.

Mission to Lepers.—At the recent annual meeting of the Mission to Lepers in London, it was stated that the mission cares for 7,735 leper inmates in its own and aided institutions and also for more than 600 untainted children, who are educated and trained in separate homes. The superintendent of the Fusan Leper Asylum, Korea, stated that, before the use of chaulmoogra oil in that settlement, the death rate was 25 per cent. In the first year after that treatment was used the death rate was reduced to 15 per cent. Since then the percentage in successive years came down to 9, 6, 6, 5, 4, and for the last year it was 2.5 per cent; but as half the deaths in the last year resulted from an epidemic of typhoid fever the death rate from leprosy was estimated at 1.25 per cent. Dr. E. Muir, leprosy research worker in the School of Tropical Medicine, Calcutta, stated that the most hopeful feature in connection with the disease in India is the increasing interest being taken by the medical profession and the public.

Deaths in Other Countries

Dr. **Donald Murray**, formerly a member of parliament; in London, July 6, aged 60.——Dr. **George J. Muriel**, J.P., Whitehaven, England, aged 81.——Dr. **Ettie Sayer**, London, fellow of the Royal Society of Medicine.——Dr. **Walter L. Pethybridge**, Plymouth, England; died, June 27, aged 54. Dr. Pethybridge, was for twenty years pathologist to the South Devon and Cornwall Hospital and other Plymouth hospitals.——Dr. **R. Widersheim**, professor emeritus of anatomy at Freiburg, aged 75. His "Manual on the Comparative Anatomy of Vertebrates" is in its fourth edition.——Dr. **G. Meyer**, Berlin, secretary of the German Cancer Research Society, aged 63.——Dr. **G. Moyne**, Naples, who devised an ophthalmometer much used in Italy, aged 87.——Dr. **A. O. Todaro**, formerly professor of chemistry, Naples.——Dr. **S. Auerbach**, Frankfurt, author of works on neurology and surgery, aged 57.——Dr. **E. B. Casey**, Buenos Aires.——Dr. **Vital Noquet**, Lille, president of the Société de médecine du Nord and formerly president of the French Société d'otologie et de laryngologie, aged 77.

Foreign Letters

LONDON

(From Our Regular Correspondent)

July 28, 1923.

Annual Meeting of the British Medical Association

The annual meeting of the British Medical Association was eld at Portsmouth. At the meeting of representatives, the nportant question of the relation between the association nd the Society of Medical Officers of Health, which had een under discussion since the 1920 meeting and had given ise to negotiations, came up. At present the constitution of ie association makes no provision for insuring that the pinions of health officers shall be made known directly to ie association. A conference took place between represenitives of the two bodies, and an agreement was reached. mong other things, the conference decided that preventive nd curative medicine cannot be separated on any sound rinciple, and that any public scheme of medical services iust be brought within the sphere of the general physician, hose work should embrace communal as well as individual edicine. Physicians should have access to centers and linics established by the local authorities in order that they iay gain such experience as is afforded. Clinics should be r those who are unable, for any reason, to obtain treatent from a private physician. The report of the committee as adopted, and by a majority it was decided to alter the onstitution of the association so as to allow direct represenation of the Society of Medical Officers of Health, while the ociety left medicopolitical action for its policy in the hands f the association. A minimum scale of salaries for health fficers was adopted, beginning with $4,000 for populations nder 35,000, and rising to $9,000 for populations of 600,000 nd over, annual increments to be at the rate of 5 per cent., ising to 40 per cent. above these base rates.

DIABETES

Sir Thomas Horder, who presided over the Section of ledicine, opened a discussion on diabetes. The subject was hosen, he said, because of the introduction of insulin. It iight be that the successful preparation of this internal ecretion would prove to be as great an asset to medical cience by assisting the interpretation of phenomena hitherto bscure as in the provision of a therapeutic agent for diabetes. 'he essence of the problem of diabetes had been the fact that nder that name we had been dealing not with one biochemal disturbance but with several. It seemed probable that ie use of insulin would not only further establish that fact, ut would also serve to mark off more clearly certain very ifferent types of cases encountered in practice. One result f this segregation we were already observing: certain cases f diabetes were benefited much less than others, even when e made due allowance for all those collateral points in the ietetic part of the treatment which were so important. Ceriin cases would doubtless be found not to be benefited at all. we did not make this position quite clear, we should see iany patients suffer the bitter disappointment after enterining false hopes for which we may unwittingly have been esponsible.

Dr. F. G. Banting of Toronto said that it would be several ears before the limits of the effectiveness of insulin were nown. As to patients giving themselves insulin, he menoned the case of an American commercial traveler who irried his own insulin and a syringe, and described the aily injection as no more difficult than the morning shave. fter a warning against this practice, he gave an outline of ie experiments which led to the discovery of insulin. But ie discovery threw no light on the causation of diabetes.

THE ETIOLOGY AND TREATMENT OF HEART DISEASE IN EARLY LIFE

Dr. Reginald Miller, who opened the discussion, said that in the etiology, one disease, "that great and essentially British infective disease" acute rheumatism, was dominant. But this disease was diminishing. Bacteriologists often spoke as if there were no disease "rheumatism," but we had only to see the infection at work in case after case to deny this. What was the link connecting rheumatism with poverty? Shortly before the war he started an inquiry which showed great uniformity as to dampness of houses; many cases came from basements with wet walls, mildew under the oilcloth, lack of concrete foundations, etc. In treatment we were hampered by the fact that we did not get hold of the rheumatic child as early as possible, perhaps from the ignorance of the public, which still existed, that rheumatism did not occur in childhood.

THE DECREASE IN INFANT MORTALITY

In the Section of Public Health, Dr. James Wheatley discussed the factors contributing to the recent decrease in infant mortality. He submitted this instructive table:

ENGLAND AND WALES: BIRTH RATES, DEATH RATES, AND INFANT MORTALITY RATES

Years	Birth Rate	Death Rate	Infant Mortality	Inc. or Dec.	—
1841-1850	32.6	21.6	153		
1851-1860	34.1	21.2	154 ..	+ 0.6	
1861-1870	35.2	21.3	154 ..	0.0	Education Act, 1870
1871-1880	35.4	20.3	149 ..	— 3.2	Public Health Act, 1875
1881-1885	33.5	18.7	139 ..	— 6.7	
1886-1890	31.4	18.5	145 ..	+ 4.1	
1891-1895	30.5	18.5	151 ..	+ 3.9	Housing of the Working Classes Act, 1890
1896-1900	29.3	17.6	156 ..	+ 3.2	
1901-1905	28.2	16.0	138 ..	— 11.5	Midwives Act, 1902
1906-1910	26.3	14.4	117 ..	— 15.2	Education Act, 1907; Notification of Births Act, 1907; Children Act, 1908
1911-1915	23.6	13.8	110 ..	— 5.9	National Insurance Act and Tuberculosis Order, 1911; Notification of Births (Extension) Act, 1915
1916-1920	20.1	13.7	90 ..	— 18.1	V. D. Regulations, 1916; Maternity and Child Welfare Act, 1918
1921	22.4	12.1	83 } 80	— 11.0	
1922	20.6	12.9	77 }		

Thus there was no fall in the long period 1841-1900. But since 1900 the fall had been large and continuous. The fall in the birth rate began twenty years before the fall in the infant death rate, and during this period it amounted to 17 per cent. The general death rate had been falling for sixty years before the infant death rate began to fall. It fell in that time 19 per cent. It thus appeared that though the birth and death rates fell before 1900, the causes producing that fall (presumably in the case of the death rate better sanitation) either did not influence the infant death rate or were prevented from doing so by other factors. Dr. Wheatley held that the decrease of infant mortality was due to general increase of intelligence in parents. The beginning corresponded in time with general improvement in education. But a low mortality was quite possible with ignorance and poverty, under good conditions of sun and weather and more primitive living, particularly natural feeding. The latter part of the fall of infant mortality was probably due not only to improvement in general education but also to the special education of antituberculosis and medical inspection schemes, establishment of district nurses, and similar work. There were probably many minor factors—diminishing birth rate, cleaner milk, better medical nursing and midwifery services, diminished horse traffic, tarred roads and improved sanitation. But it was to education and the creation of a sense of responsibility, and not to material conditions, that so much improvement was due. Everything pointed to the improvement being permanent and progressive. The decrease affected every type of district and every part of the country.

THE VALUE OF WATERCRESS AS A FOOD

Dr. Scurfield pointed out that watercress as a green food had stood the test of thousands of years. Tradition had given it a reputation in the treatment of all sorts of diseases—consumption, gout, rheumatism, anemia, eczema and constipation. The Greeks thought it good for the mind. He believed that it contained all three vitamins. It was a cheap vegetable which, like lettuce, was eaten unspoiled by cooking, but, unlike lettuce, was obtainable all the year round.

ANESTHESIA FOR CHILDREN

In the Section of Anesthetics, Dr. Harold Sington read the opening paper on "Anesthetics for Children." He said that at the Hospital for Sick Children, Great Ormond Street, they had reached the conclusion that for children ether, preceded by a hypodermic injection of atropin, will always be the anesthetic of choice. The comparative safety of ether administration over that of chloroform was enormous. But in some cases gas and oxygen was the most advantageous.

FATALITIES FROM ANESTHETICS

Dr. A. L. Flemming expressed the view that the practice of inducing anesthesia with chloroform was too dangerous for routine work. Ether was not intolerable for this purpose when given slowly, and ethyl chlorid and nitrous oxid were available. The number of deaths from anesthetics had remained stationary during many years in spite of the great increase in the number and severity of operations—a fact that said much for the care and skill of anesthetists.

THE NERVOUS CHILD

In the Section of Neurology, Dr. Hector C. Cameron opened a discussion on the nervous child. The posture of the nervous child was characteristic. It stood exactly as drill sergeants prevented recruits from standing. It leaned against any support which offered itself. The facial muscles were in overplay, but exhaustion might produce a still face. The child was often restless, and showed what might be called "muscular vices." Pallor, constant or intermittent, was also a constant symptom. The study of the nervous child was to a great extent the study of its parents and of the powerful influences for good or evil which proceeded from them. The young child was open to suggestion of all sorts, and saw himself only with the eyes of his elders. Whatever was thought of him, said of him, even feared for him, that he rapidly became. The only child became unduly timid because he was watched with so much care. The almost insane tendency to oppose him played a great part in the development of the symptoms of unrest. Treatment called for a relaxation of discipline. The parents and nurses must pass more into the background and allow the child free play.

THE OPERATIVE TREATMENT OF CANCER

In the Section of Surgery, Mr. Herbert Paterson read a paper entitled: "Are the Results of the Operative Treatment of Cancer Better Than Twenty Years Ago?" He had looked in vain for any convincing evidence that the proportion of ultimate successes was greater today. Since 1900 there had been an increase of nearly 30 per cent. in the cancer death rate. Even granting that cancer was on the increase and that death certification was more accurate, it was not easy to understand this proportional increase if modern operations had effected the cures claimed. A comparison of operative statistics seemed to point to the same conclusion. He questioned the value of the very radical operations now frequently performed. Might not the free removal of lymphatic glands be depriving the patient of his first and main line of defense? Possibly these glands destroyed some of the cancer cells.

THE TREATMENT OF TUBERCULOSIS BY ARTIFICIAL LIGHT

In the Section of Tuberculosis, a discussion was opened by Prof. Axel Reyn, medical superintendent of the Finsen Institute, Copenhagen. By light treatment at the institute, ninety-six out of 114 patients suffering from lupus were cured, and the proportion of permanent cures was 90 per cent. Remarkable results had also been obtained in other forms of tuberculosis. He considered that active agents were the ultraviolet rays, but the mode of action remained in doubt. The carbon arc lamp was much superior to the mercury lamp.

THE ESTIMATION OF PHYSICAL EFFICIENCY

In the Section of Naval and Military Hygiene, Capt. M. W. Flack, Royal Air Force, described the system for testing physical fitness during the war. At one time they had to recruit flying officers at the rate of 300 a day. In the tests, respiratory conditions took an important part, and were largely responsible for rejections. A man was no use for flying who could not breathe at high altitudes. General nervous stability was also important, as it played a great part in bodily endurance. A man was useless for flying who lacked the judgment and muscular control to fly efficiently, or who had not sufficient moral and physical stamina to cross the enemy's lines. The report of the war office committee on shell shock showed that the strain of modern warfare could be endured only by the disciplined and physically fit, and that the preservation of physical fitness with the prevention of fatigue played a great part in the maintenance of morale and the avoidance of war neurosis. Many men were now drawing pensions because they were admitted for duty in a state of physical unfitness to endure the strain of active service.

PARIS

(From Our Regular Correspondent)

July 20, 1923.

Fifth National Tuberculosis Congress

The fifth National Tuberculosis Congress was organized by the National Committee of Defense Against Tuberculosis and was held at Strasbourg under the chairmanship of Dr. Holtzman, president of the Antituberculosis Association of Alsace and Lorraine. Its program consisted of biologic, clinical and social problems:

SECONDARY INFECTIONS IN RELATION TO VACCINOTHERAPY

Prof. F. Bezançon and Dr. M. Chevalley of Paris endeavored to show that the rôle of secondary infections, as evidenced by the sputum of tuberculous persons, has been distorted by errors in technic. During the course of expectoration, the sputum takes up bronchial mucus and saliva, both contaminated, and to this is added the multiplication that takes place in the sputum cup. Examination of sputum is valueless unless it is fresh (not more than four hours old) and has been thoroughly rinsed with physiologic sodium chlorid solution. Direct examination of stained smears is more exact than the preparation of a culture, for culture allows the undue growth of vigorous organisms even when originally present in small numbers. Secondary infections play no part in the ordinary processes of pulmonary tuberculosis. In acute episodes in the course of pulmonary tuberculosis, they may possibly release or complicate the attack. The slight importance of secondary infections in pulmonary tuberculosis justifies but rarely the systematic use of vaccinotherapy.

In recent years, there has been in France a scandalous abuse of vaccinotherapy in the secondary infections of tuberculosis. A certain manufacturer of pharmaceutic preparations has put on the market a mixed streptococcus, pneumococcus, enterococcus and staphylococcus vaccine. As the initial letters of these four micro-organisms form the Latin word *spes* (hope), the manufacturer was so bold as to give his vaccine this alluring name. Advertisements of this preparation have appeared in great profusion in most of the medical journals. Dr. Rist, physician to the hospitals of Paris, voiced an energetic protest before the congress against such charlatanism. It is depressing, he said, to see so many physicians use, without critical investigation, this so-called remedy. Assume that the injection of this vaccine is harmless—which is doubtful—in dealing with tuberculosis, a useless remedy does harm for the one reason, if no other, that it causes the patient to lose valuable time, lulls him into a sense of false security, prevents him from deciding to make the sacrifices of money and convenience necessary for effective results. It is disheartening to note that this charlatanism, which some day the minister of hygiene, the natural protector of the nation's health, will doubtless feel called on to investigate, is encouraged, consciously or unconsciously, by the majority of our medical periodicals, under the pretext, which is certainly inadmissible, that publicity is harmless.

UNDERNUTRITION IN RELATION TO TUBERCULOSIS

The part that undernutrition plays in the development of tuberculosis has been studied by G. Mouriquand of Lyons, on the basis of material from Russia and the central empires, and by Breton and Ducamp of Lille, with reference to the population of the invaded regions of France.

In Russia, Sternberg has called in question the influence of the famine on the development of tuberculosis. Kogan, Lifchitz and Cheinisse have pointed out the erroneous conclusions of Sternberg (THE JOURNAL, May 19, 1923, p. 1457). If, for the time being, there has been an apparent diminution of tuberculosis, it is because the tuberculous were the first victims of the numerous epidemics of typhus, cholera and smallpox that have raged in Russia.

For Germany and Austria we are in possession of more exact documentary evidence. In these two countries, during the war, the incidence of tuberculosis was almost doubled. The increase in mortality (just contrary of the experience before the war) affected more particularly the female population. In view of the assumption that the male and the female groups of the population received presumably the same diet, the greater increase among the female group must doubtless be attributed to the overstrain to which women were subjected, owing to the dearth of men to perform common labor. All age groups seems to have been equally affected by the increase, with the exception of children under 1 year, either breast-fed or receiving a fairly adequate supply of milk. The majority of writers emphasize the frequency of progressive forms of tuberculosis.

Since the armistice, the mortality curves of tuberculosis in Germany have been dropping, as food conditions in that country have improved, and there is a tendency toward a restoration of the prewar figures. In Austria, on the other hand, the undernutrition still continues and the mortality curve of tuberculosis does not fall, which furnishes further evidence of the relationship existing between undernutrition and tuberculosis.

In France, in the invaded regions, the mortality from tuberculosis has more than doubled, in both the cities and the rural sections, and morbidity from tuberculosis has affected more than a third of the population of these regions. In the opinion of Breton and Ducamp, there can be no doubt that the factors causing this increased mortality lie, in part, in undernutrition and, in part, in the moral degradation. The rôle of undernutrition seems paramount, especially the lack of proteins and mineral salts. As for avitaminosis, it does not appear that this is an especially serious factor in producing the gravity and the contagiousness of tuberculous infection; nor does it seem to predispose.

CLOSED AND OPEN TUBERCULOSIS

In their paper, Rist and Ameuille (of Paris) recalled the fact that, six months after the startling announcement of Koch, we find from the pens of Balmer and Fraentzel the two assertions that: (1) when we find tubercle bacilli in the expectoration, pulmonary tuberculosis is present; (2) if no tubercle bacilli are found, after repeated and careful search has been made, pulmonary tuberculosis is not present. Grancher vigorously opposed this opinion, and helped to create the conception of the existence of "closed" tuberculosis. Today this conception is beginning to lose ground, and even those who still accept the reality of closed tuberculosis admit that it is not particularly common.

F. Bezançon, although in agreement with the authors on the paramount importance of the search for tubercle bacilli, considers it nevertheless dangerous to assume that it is indispensable to discover tubercle bacilli before pronouncing the diagnosis "tuberculosis." The fact is, he says, that the type of the disease spoken of as "open tuberculosis" is often preceded by a stage in which no expectoration can occur, or, if there be such, no bacilli will be found in the sputum.

Bard of Strasbourg emphasized the need of distinguishing the theoretical side (the question of the existence of closed tuberculosis) from the practical side, or the problem of what rules should be adopted for the diagnosis of tuberculous diseases. For the use of the public services, the recognition for diagnostic purposes of a definite limit, marked by a precise criterion, presents unquestionable advantages. Even though the question as to whether the sputum contains tubercle bacilli or not may establish a standard limit that is theoretically inexact, from a practical standpoint, as an administrative measure, subject to certain exceptions, it is entirely justifiable. In considering military pensions, public sanatoriums, antituberculosis prophylaxis or social insurance, we cannot, without running into practical impossibilities, place the problem on an absolute basis. From 90 to 95 per cent. of normal persons, if not more, are infected, but are not ill.

According to Sergent of Paris, it would be dangerous to make too much of closed tuberculosis just at this time when so many persons have an interest in being classed in the army of those "injured by tuberculosis." Let us not offer them the means of deriving a profit from errors in diagnosis that can be avoided.

THE CAMPAIGN AGAINST TUBERCULOSIS

Among the social questions connected with tuberculosis, the congress considered the rôle of social insurance, the housing problem, and the rôle and the professional training of visiting nurses.

A certain feeling of dissatisfaction was manifested among members of the medical profession over the subject of extension that is being planned, in the campaign against tuberculosis, of the rôle of the visiting nurse, which, it is feared, will result in the practical neglect of the collaboration of the general practitioner. This state of feeling has found expression in the *Médecin syndicaliste*, the official organ of the Union des syndicats médicaux de France, which carries an article entitled, "A Campaign Against Tuberculosis with the Physicians Left Out."

The Thirty-Second French Congress of Surgery

The thirty-second French Congress of Surgery will be held in Paris, Oct. 8-13, 1923, under the chairmanship of Dr. Témoin of Bourges. The following topics are on the program: (1) Transfusion of Blood, with papers by Prof. E. Jeanbrau of Montpellier and Dr. V. Pauchet of Paris; (2) Critical Study of Treatment of Genital Prolapse, with papers by Professor Bégouin of Bordeaux and Dr. Savariaud of Paris, and (3) Treatment of Noncalculous Biliary Obstruction, with papers by Mathieu of Paris and Villard of Lyons.

PRAGUE

(From Our Regular Correspondent)

July 6, 1923.

Hospital Facilities in Czechoslovakia

The state secretary, Dr. J. Semerád, announced, at a meeting of the hospital section of the central organization of the Czechoslovak physicians, the results of the hospital survey carried out by the ministry of health, and the program for the erection of new hospitals in the Czechoslovak republic. Heretofore, the establishment of public hospitals was usually the result of local initiative, and it might happen that a small town with some active public body succeeded in erecting a large hospital while a larger town suffered from scarcity of hospital beds on account of neglect by public authorities. It has been the policy of the ministry of health, since its creation, to nationalize the charitable institutions, including hospitals, and to direct development and foundation from a broader view. The financial situation after the war did not permit the realization of this plan. Only the most important hospitals in industrial regions and poorer districts were nationalized; most of the hospitals remained in the hands of local, district, county and provincial authorities. There are 26,000 hospital beds in the Czechoslovak republic now. The beds are not equally distributed through the provinces. Bohemia, which is the most advanced province in the republic, has 14,899 hospital beds, or one bed for each 460 inhabitants. Moravia and Silesia have 5,386 hospital beds, or one bed for each 550 inhabitants. Slovakia has 4,463 beds, or one hospital bed for each 770 inhabitants. Carpathian Russia, which is the most backward province, shows, on the contrary, a very favorable proportion of hospital beds. There are 1,252 hospital beds in this territory, or one bed to each 420 inhabitants. This favorable condition in Carpathian Russia reflects the intensive effort of the Czechoslovak government directed against the spread of infectious and social diseases in this neglected territory. There are 26,000 hospital beds (one to each 560 inhabitants) in the Czechoslovak republic as a whole.

The program of the ministry of health provides for large hospitals in each of the twenty-one counties of the republic, each properly equipped in all branches of medicine. The ministry is developing these hospitals from those now in existence. The hospitals are not all located at the county seat, but each county will have one institution. This hospital will serve approximately 600,000 inhabitants. In addition, there will be smaller hospitals, called Type 2, which will be run largely as surgical hospitals. Hospitals of Type 3 will be quite small and will serve for the isolation of infectious diseases, and for the treatment of chronic diseases, especially advanced tuberculosis. The last type of hospital would serve a population of from 40,000 to 50,000 inhabitants. On the basis of this survey, the ministry of health will so direct the further development of the hospital system in the republic that large hospitals will be erected where they are needed, and those already in existence will be transformed into institutions conforming with the plans of the ministry.

New Home for the Council of Social Hygiene

The meeting of the delegates to the National Council of Social Hygiene, which was held July 4, in Prague, approved the plans for the creation of a common building for the national organizations which are associated in the council. The building is to be erected on a site given for the purpose by the Czechoslovak Red Cross. The grounds are located in the center of the city near the Wilson Station, and are situated on the slope of a hill which is covered with a large park. The plans, which were worked out by a special committee, provide for four buildings. One building will house the offices of the council, and provide reading rooms and a library for all the organizations, a museum, conference rooms and a large lecture hall that is intended also for the annual meetings of the delegates from the different associations. Several rooms will be reserved for the housing of delegates and foreign guests. The general secretary of the council will also have his apartment in this building. A building will be reserved for the Masaryk League Against Tuberculosis, and another for the Czechoslovak Red Cross. The fourth building is to be a first aid station with a few hospital beds, and will also house the smaller national private associations, such as the child welfare associations, the Association for Combating Venereal Diseases, and the Abstinence League. Financing of the project is almost provided, and the actual construction of buildings will be started in the fall. The organizations will be able to move into the new quarters in the course of the next year. It is anticipated that the realization of this project will be a further and important step toward the concentration and coordination of private health and social activities.

Abuse in Pharmaceutic Specialties

The medical press is discussing the so-called pharmaceutic specialties, which are usually compound remedies prepared in large factories. They cannot be compared with the American "patent medicines" because it is necessary for the composition of the remedy to be indicated on the cover. Under the law, these pharmaceutic specialties must be approved by the ministry of health before they are admitted into the drug stores. Yet, in spite of this, many specialties, especially those that are imported, are placed on the market without waiting for the decision of the ministry of health. In recent years, German and French pharmaceutic specialties have flooded the drug stores to such an extent that pharmacists and local manufacturers of pharmaceutic specialties are obliged to defend themselves. Pharmacists claim that the continued increase in the prescription of these specialties by physicians will ruin their profession, and local producers point out that most foreign specialties are illegal because they have not been approved by the ministry of health. In a recent proclamation, the Central Association of Pharmacists in Czechoslovakia appeals to its members to take the steps necessary for the elimination of most imported pharmaceutic specialties, and requests the cooperation of physicians who prescribe them for their patients.

BERLIN

(From Our Regular Correspondent)

July 14, 1923.

The New Prussian Law Pertaining to Tuberculosis

The bill establishing regulations with regard to the campaign against tuberculosis in Prussia, to which I referred in a recent letter, has just been passed by the Prussian parliament. It was desired by some that tuberculous affections of the lungs and the larynx be made notifiable, but parliament refused to approve this idea, urging as an objection that such general notification would harm the patient from an economic standpoint. However, deaths from such affections are made notifiable. Change of residence of patients suffering from pulmonary or laryngeal tuberculosis must be reported to the authorities. Notification of infections and deaths from contagious pulmonary and laryngeal tuberculosis must be made by physicians without charge; however, the duty of reporting a change of residence rests on the head of the household. In institutions, notification must be made by the superintendent or by some one delegated to perform the task. Notices are not sent to the police station but to the Prussian council of public health. In new cases, notices must be sent within a week; deaths must be reported within twenty-four hours, and information of change of residence must be given at once, both the old and new address being stated. Notices may be made orally or in writing. On demand, the authorities will furnish gratis notification cards. Postal charges are borne by the state. When a case of contagious tuberculous infection has been reported, the tuberculosis welfare center comes into action. The state medical bacteriologic laboratories must make a microscopic examination of specimens of sputum sent to them, and must report their findings to the physician; if the findings are positive, they must be reported also to the welfare center having jurisdiction over the case. The local police authorities may disinfect the dwelling of a tuberculous patient, at public expense, if a health officer, the attending physician, or welfare center having jurisdiction make such demand.

The Law in Regard to the Campaign Against Venereal Disease

The bill pertaining to the campaign against venereal disease, which I mentioned recently, has been enacted into law by the reichstag. The *Reichsrat* (council of the empire), which corresponds to the *Bundesrat* (federal council) under the imperial form of government, has, however, in accordance with its constitutional right, taken exception to the law; the principal reason is that the reichstag had modified unfavorably Section 6 of the law. Whereas, according to the original bill, the treatment of venereal disease was permitted only to graduate physicians, the law as modified provides that permission to administer treatment shall be accorded also to persons who are acting under the guidance of responsible physicians. Unfortunately, it is to be feared that the reichstag, which must now reconsider the law, will not recede from its position, and that thus the way will be left open for quacks to treat venereal patients.

Manufacture of Insulin in Germany

Insulin, the pancreatic hormone discovered in America, is to be given a clinical test in Germany. For this purpose, the University of Toronto has appointed a committee consisting of German authorities on metabolism: Krehl of Heidelberg; F. Müller, Munich; von Noorden, Frankfort-on-the Main; Minkowski, Breslau, and Strauss, Umber and Fuld, Berlin, with Minkowski as chairman, to bring about the preparation of insulin in Germany. Until this can be done, the preparation made elsewhere can be put on the market. As a member of the committee suggests in the *Deutsche medizinische Wochenschrift*, conservatism by medical practitioners is necessary until sufficient clinical experience with insulin has been gained, for the use of the remedy is by no means without danger.

Training of Deaf Mutes

Principal Neuert of Heidelberg has of late been investigating the subject of the training of deaf mutes and their choice of a calling or profession. His researches pertain mainly to Baden. His findings may be summed up as follows: 1. By ar the greater number of male deaf mutes in Baden take up some handicraft. They are, in the main, shoemakers, tailors, carpenters, goldsmiths, glass painters, printers, lithographers, bookbinders, saddlers and paper hangers. About 25 per cent. of the male deaf mutes are employed in agriculture and gardening. 2. Female deaf mutes make a living, for the most part, as seamstresses and dressmakers. 3. Twenty-five per ent. of the male deaf mutes are married, and about 40 per ent. of those married are independent. A larger percentage of the tailors and shoemakers are married and independent han was found in other crafts. 4. The majority of those married reside in the larger towns. 5. On account of better opportunities for employment, many of the male deaf mutes born in the rural districts gravitate later toward towns of more than 10,000 inhabitants. 6. Since dismissal from the institution for the deaf and dumb, 70 per cent. of the males and 96 per cent. of the females have received no further school training. 7. Of the deaf mutes who received training in some handicraft, 72 per cent. have never passed the test that would admit them as journeymen. 8. Only 4 per cent. of the males have been admitted as "masters." From these findings, which, in view of the comparatively small area covered by the research, cannot be held to apply to the whole country, Neuert draws several conclusions; among others, the following: 1. All deaf mutes, irrespective of the place of birth, after dismissal from the institution for the deaf and dumb should receive further industrial training in proper continuation schools conducted by the state. 2. Such continuation schools, in planning the courses of study, should not only consider the needs of those intending to follow some handicraft but should also provide for the training of the large number of future agriculturists and gardeners, unless for the latter attendance at special agricultural schools should prove feasible. 3. The continuation schools must, as far as location and equipment permit, afford abundant opportunity for contact with the affairs of public and private life. In order to make such contact easier, the occupational training should not be confined to an institution, but many of the pupils should receive practical training in the shops of masters in the craft or trade they are studying. 4. The period of apprenticeship in the various crafts and trades must be at least as long as that required of persons who can hear. 5. The training of each pupil while working in outside shops must be controlled by the teachers of the continuation school. 6. Every deaf mute who has been thus trained in a craft or trade must, after finishing the theoretical and practical course, take the test required for admission as journeyman. 7. Pupils should be encouraged to pass the master's test by giving them, while in the continuation schools, the preparatory courses needed. 8. Especially gifted pupils who take up trades requiring some knowledge of art should be afforded the opportunity to attend a technical school (architecture, industrial art, goldsmithery, carving, etc.). 9. Gifted persons who desire to secure a higher education should be placed in the proper private institutions and if they are lacking in means, they should receive state aid. 10. At every institution for the deaf and dumb, a vocational guidance committee should be appointed to aid pupils and their parents practically in the choice of a trade or occupation.

Marriages

Arthur E. Myrick, Stanford, Mont., to Miss Katherine Rood of Chicago, at Great Falls, Mont., July 27.

Millard Bridgman Savage, Norfolk, Va., to Mrs. Esther Lenore Gregory of Washington, D. C., July 9.

Samuel P. McDaniel, Mountain Iron, Minn., to Miss Golda Rader of Manhattan, Kan., in July.

Robert Louis Gilman, Madison, Wis., to Miss Marie Victoria Detzell of Erie, Pa., July 31.

Florence Mae Fowler, Chicago, to Mr. Emmanuel H. Kuttner of Lombard, Ill., August 4.

Paul Jean Peniston, Makawelia, Hawaii, to Miss Wandee Cheek of Berkeley, Calif., June 26.

Herbert Payne Miller, Rock Island, Ill., to Miss Glea M. Gray of Portage, Wis., June 30.

Thaddeus Perce Sears to Miss Mary Genevieve Fitton, both of Denver, June 21.

James Gerard Kramer, Akron, Ohio, to Miss Ellen Devitt of Cleveland, June 9.

Andrew Daniel Schick to Miss Lemma Horne, both of Chicago, July 18.

Helen F. Craig to Mr. James J. Sullivan, both of Denver, June 10.

Deaths

John Wesley Murphy ⊕ Cincinnati; Miami Medical College, Cincinnati, 1891; emeritus professor of otology, University of Cincinnati College of Medicine; member of the American Laryngological, Rhinological and Otological Society and the American Bronchoscopic Society; past president of the American Academy of Ophthalmology and Oto-Laryngology and the Cincinnati Academy of Medicine; on the staff of the Cincinnati General Hospital; aged 67; died suddenly, August 3, of cerebral hemorrage, at his summer home in Pickerel Lake.

John Wallace Scane, Montreal, Que., Canada; McGill University Faculty of Medicine, Montreal, 1893; for eight years secretary of the Canadian Medical Association; for many years a practitioner in Vermont; formerly professor of physiology and microscopic anatomy, University of Vermont College of Medicine, Burlington; at one time registrar, and assistant professor of pharmacy, and at the time of his death, May 20, aged 54, assistant dean at his alma mater.

Paul Waterman ⊕ Hartford, Conn.; Cornell University Medical College, New York, 1902; member of the New York Neurological Society, the American Psychiatric Association and the New England Society of Psychiatry; served in the M. C., U. S. Army, in France, during the World War; formerly on the staff of the Bellevue Hospital, New York; aged 46; died suddenly, July 31, of heart disease.

Edward Gerald Griffin, Albany, N. Y.; Albany Medical College, 1901; formerly instructor in surgery at his alma mater; served in the M. C., U. S. Army, during the World War; on the staff of St. Peter's Hospital, where he died, July 23, aged 45, following a long illness.

Pearl Myer Wright, Columbus, Ohio; Ohio Medical University, Columbus, 1906; also a pharmacist; formerly instructor of materia medica, Ohio State University College of Medicine, Columbus; member of the board of health; aged 50; died, July 27.

Glen Edsel Mowery ⊕ Salina, Kan.; University of Kansas School of Medicine, Rosedale, 1920; served in the M. C., U. S. Army, during the World War; county coroner; aged 31; was instantly killed, July 22, in an automobile accident, at Wichita.

Charles Spiller, Willis, Texas; University of Texas Department of Medicine, Galveston, 1904; member of the State Medical Association of Texas; aged 47; was found dead, July 20, as a result of an automobile accident.

Sampson Aloysius Callanan, Boston; Medical School of Harvard University, Boston, 1886; member of the Massachusetts Medical Society; aged 59; died, July 20, at his summer home in Orleans, Mass., of cerebral hemorrhage.

Arthur Cole Dougherty, Newark, N. J.; Medical Department of Columbia College, New York, 1882; formerly on the staff of the City Hospital; aged 66; died, July 19, at his summer home at Greenwood Lake.

O. B. Tucker, Columbus, Ga.; University of the South Medical Department, Sewanee, Tenn., 1899; member of the Medical Association of Georgia; aged 46; died, July 19, of heart disease.

Sarah Elizabeth Coker, Gladwyne, Pa.; Woman's Medical College of Pennsylvania, Philadelphia, 1908; aged 42; died, July 28, from the effects of poison, presumably self-administered.

Charles Carroll Britt, Philadelphia; Jefferson Medical College of Philadelphia, 1902; for more than eighteen years served as police surgeon; aged 45; died, July 21, of pneumonia.

William F. Silverwood, St. Louis; University of Michigan Medical School, Ann Arbor, 1871; Civil War veteran; aged 85; died, July 26, at the Missouri Baptist Sanitarium, of senility.

Frank Robinson, Lowell, N. C.; Louisville (Ky.) Medical College, 1878; member of the Medical Society of the State of North Carolina; aged 71; died, June 14, of cerebral hemorrhage.

Samuel D. Sledd, Fort Wayne, Ind.; Medical College of Fort Wayne, 1878; member of the Indiana State Medical Association; aged 67; died, July 27, of cerebral hemorrhage.

Herman L. Bartlett ⊕ Norway, Me.; University of Vermont College of Medicine, Burlington, 1891; formerly member of the school board; aged 56; died, July 21, of heart disease.

De Ette Brownell, Potsdam, N. Y.; New York Medical College and Hospital for Women, New York, 1893; aged 62; died suddenly, July 24, of cerebral hemorrhage.

Rose Putiata Kerschbaumer, Los Angeles; University of Berne, Switzerland, 1886; member of the Medical Society of the State of California; aged 63; died, July 27.

William Lawton Allen, Greenwich, Conn.; Medical Department of the University of the City of New York, 1884; aged 63; died, July 22, at the Greenwich Hospital.

John McLurg ⊕ Bay City, Mich.; Trinity Medical College, Toronto, Ont., 1886; M.R.C.S., London, England, 1887; aged 66; died, July 28, following a long illness.

J. R. Dent, Wrightsville, Ga.; Atlanta (Ga.) Medical College, 1895; member of the Medical Association of Georgia; aged 48; died, July 18, of typhoid fever.

Henry Clark Jefferds ⊕ Portland, Ore.; Hahnemann Medical College and Hospital of Philadelphia, 1885; aged 63; died, July 22, of cerebral hemorrhage.

Clifford Elroy Higgins, Wilton, N. H.; Dartmouth Medical School, Hanover, 1884; member of the New Hampshire Medical Society; aged 66; died, July 17.

Alexander H. Miller, Culbertson, Neb.; St. Louis (Mo.) Medical College, 1878; member of the Nebraska State Medical Association; aged 73; died, June 20.

John W. Smith, Hemphill, Texas (licensed, years of practice); aged 78; member of the State Medical Association of Texas; died recently, of senility.

George Evans Means, Wellford, S. C.; Tulane University of Louisiana, New Orleans, 1889; Spanish-American War veteran; aged 57; died, July 16.

Joseph C. Mosshart, Winter Haven, Fla.; College of Physicians and Surgeons, Keokuk, Iowa, 1881; aged 73; died in July, of cerebral hemorrhage.

John Liston Lank, Monongahela, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1870; aged 86; died, July 24, of senility.

Walter Channing Gale, Newton, N. H.; Medical School of Harvard University, Boston, 1872; aged 76; died, July 20, following a long illness.

Ruth M. Wood, Los Angeles; University of Wooster Medical Department, Cleveland, 1880; formerly a practitioner in Nebraska; died in June.

Hamilton Meade, Portland, Ore.; Hahnemann Medical College and Hospital, Chicago, 1883; aged 71; died recently, following a long illness.

William E. McDivitt, Shawnee, Okla. (licensed, years of practice); Civil War veteran; aged 87; died, July 11, of cerebral hemorrhage.

Frances Morris Morris, Boston; Boston University School of Medicine, 1885; aged 72; died, July 15, at the Newton (Mass.) Hospital.

Oliver A. Parfitt ⊕ Nanticoke, Pa.; Jefferson Medical College of Philadelphia, 1915; aged 43; died, July 24, of pernicious anemia.

Herman Pink, Indianapolis; University of Königsberg, Germany, 1874; aged 73; died, July 23, following an operation for gallstones.

Jacob Rutter, Marion, Ohio; Starling Medical College, Columbus, 1882; Civil War veteran; aged 80; died, July 20, of senility.

William Redding Staten, Flint, Ala. (licensed, years of practice); aged 70; was instantly killed, June 5, when struck by a train.

William Henry Fritts ⊕ Philadelphia; Bennett College of Eclectic Medicine and Surgery, Chicago, 1881; aged 64; died, July 22.

Samuel Brumbaugh, Dayton, Ohio; Miami Medical College, Cincinnati, 1881; aged 68; died, July 27, following a long illness.

Samuel J. Ferrill, De Soto, Miss. (licensed, Mississippi, 1887); aged 60; died, July 18, of carcinoma of the pancreas.

William Hunter Steele, Rockingham, N. C.; Bellevue Hospital Medical College, New York, 1874; aged 72; died, July 24.

Orien A. Fischer, Belleville, Mich.; Detroit College of Medicine and Surgery, 1906; aged 46; died, July 25.

Joseph Gaffney Thomas ⊕ Adamstown, Md.; Baltimore Medical College, 1905; aged 42; died, July 23.

John W. Powell, Crawfordsville, Ore.; Louisville (Ky.) Medical College, 1875; aged 73; died, July 19.

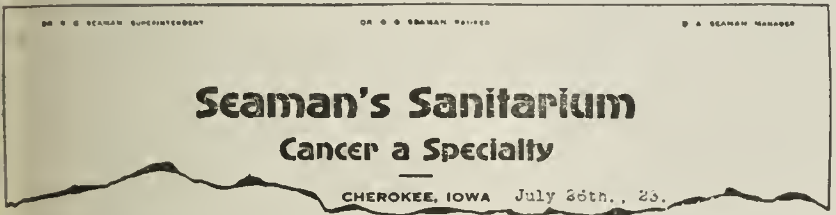
The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other General Material of an Informative Nature

SEAMAN'S CHEROKEE SANITARIUM

Court Action Throws an Interesting Light on the Methods of Advertising "Cancer Curers"

In Cherokee, Iowa, one R. C. Seaman conducts a so-called sanitarium devoted to the alleged cure of cancer. The institution is known variously as "Cherokee Sanitarium" and "Seaman's Sanitarium." R. C. Seaman, according to our records, was born in 1878 and was graduated in 1906 by Bennett Medical College, Chicago, receiving his Iowa license the same year. Needless to say, the man is not a member of his local medical society nor, of course, a Fellow of the A. M. A. Connected with R. C. Seaman in the business are "Dr. C. O. Seaman" who is described as "Retired" and "D. A. Seaman, Manager."



Seaman's Sanitarium
Cancer a Specialty
CHEROKEE, IOWA July 26th., 23.

Letterhead used by R. C. Seaman in writing to prospective victims. The "Dr. C. O. Seaman, Retired," whose name appears in the center of the letterhead, is not and never was a physician so far as our records show.

The concern sends out the usual advertising paraphernalia common to the "cancer cure" trade. There is a thirty-two page booklet with a saffron-colored cover bearing the inscription "Cancer Can Be Cured." The cover is reproduced in miniature with this article. Its title page reads: "Liquid Escharotic With Combinations—For the Proper Treatment of Cancers, Tumors, Ulcers, Lupus and Abnormal Growths Without Chloroform or Ether. By Dr. R. C. Seaman." In the introduction, Seaman states that his father was "a cancer doctor for over forty years." So far as our records show, the elder Seaman was not a physician. R. C. Seaman states further that after he had graduated in medicine he took a one-half interest in the "sanitarium" with his father and later assumed complete control of the business.

From material in the Propaganda files, C. O. Seaman seems to have quacked it in the "cancer cure" business for many years. For a time he, apparently, conducted his business from Des Moines, Iowa, and, it would seem, traveled over the country "treating" cancer and, apparently, evading the law by working in connection with a man who had a medical license.

The greater part of the present booklet is given over to the testimonials usual to such publications with pictures of victims before and after "treatment." Some of the pictures show evidence of having been manipulated before the half-tone cuts were made. Besides the booklet Seaman sends out a postcard bearing a picture of the "sanitarium" an old two story frame building and in the foreground a handsome house of the bungalow type described as the "residence of Dr. R. C. Seaman."

SEAMAN GOES TO COURT

So much for the background. Seaman and his business have recently figured in the courts, due to the death of a victim, a Mr. Thomas B. Lee of Deer Park, Wis., from whom Seaman had extracted a promissory note for $1,750. The executor of Mr. Lee's estate objected to allowing the claim and Seaman filed a claim against the estate. The case was heard before a court and jury in the Circuit Court, St. Croix County, Wis. This court, after hearing the evidence, gave judgment in favor of the estate and against Seaman. Thereupon Seaman carried the matter to the Supreme Court of Wisconsin. This body, in a divided opinion, reversed the opinion of the lower court on a technicality and granted a new trial.

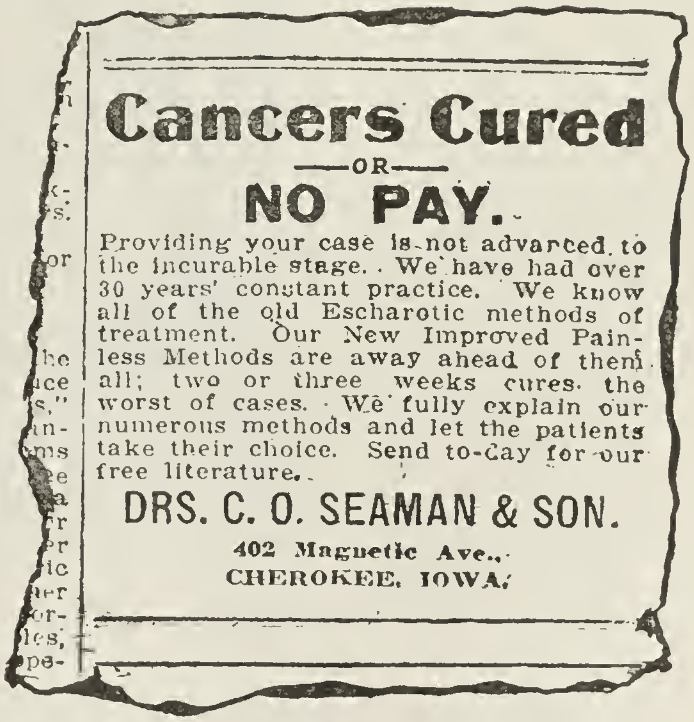
This is but an outline of the matter. The facts, as brought out in the case, seem to be that Mr. Lee, who was suffering from cancer, went to the Mayo Clinic, where on July 5, 1920, he was told that his case was hopeless. On the day following, he went to Cherokee, Iowa, where he saw R. C. Seaman.

CONTRACT MADE WITH HOPELESSLY ILL CANCER PATIENT

Thereupon Lee entered into a treatment contract with Seaman to whom he gave his note for $1,750. The contract itself read as follows:

> "Cherokee, Iowa, July 6, 1920.
>
> "This article of agreement, made and entered into this above date between Dr. R. C. Seaman, resident of Cherokee, Cherokee county, Iowa, party of the first part, and Mr. Thomas B. Lee, resident of Deer Park, county of St. Croix, state of Wisconsin, party of the second part witnesseth:
>
> "First party [R. C. Seaman], by these presents, agrees to treat cancerous growth in submaxilla gland and lower lip of Thomas B. Lee, and try his very best to effect a permanent cure of same by this first treatment. If party under treatment ever needs retreatment, first party will retreat same as many times as necessary for this one price, providing party under treatment will return to the sanitarium as soon as they know it is necessary. Party under treatment by these presents agrees to comply to directions and rules of first party's treatment and sanitarium.
>
> "Second party [Mr. Lee] promises to pay first party ($2,000) two thousand dollars cash for the above-mentioned treatment as follows, to wit: ($250) two hundred fifty dollars in advance, the receipt being hereby acknowledged, and ($1,750) seventeen hundred fifty dollars on or before leaving sanitarium, cash or note, and going price for room and board while at the sanitarium and $5.00 for every four bottles of blood purifier used by him after leaving the sanitarium. Dr. R. C. Seaman, First Party. Thos. B. Lee, Second Party."

This contract, as will be noted, was made July 6, 1920. At the time Mr. Lee entered into the contract he paid Seaman $250. When Seaman brought suit he filed a claim for the remainder of the note. When Mr. Lee made this contract there was no witness present in his behalf; R. C. Seaman, however, called in his advertising manager, D. A. Seaman, as a witness. When D. A. Seaman went on the stand, he declared that no verbal representations or promises regarding the case were made by Dr. Seaman other than those contained in the contract.



Cancers Cured
—OR—
NO PAY.

Providing your case is not advanced to the incurable stage. We have had over 30 years' constant practice. We know all of the old Escharotic methods of treatment. Our New Improved Painless Methods are away ahead of them all; two or three weeks cures the worst of cases. We fully explain our numerous methods and let the patients take their choice. Send to-day for our free literature.

DRS. C. O. SEAMAN & SON.
402 Magnetic Ave.,
CHEROKEE, IOWA.

One of the old time advertisements of the Seaman "cancer cure" outfit.

No better summing up of this case can be given than that made by Mr. Justice Crownhart who with Messrs. Justices Jones and Eschweiler dissented from the majority decision of the court. We give Judge Crownhart's dissenting opinion in full:

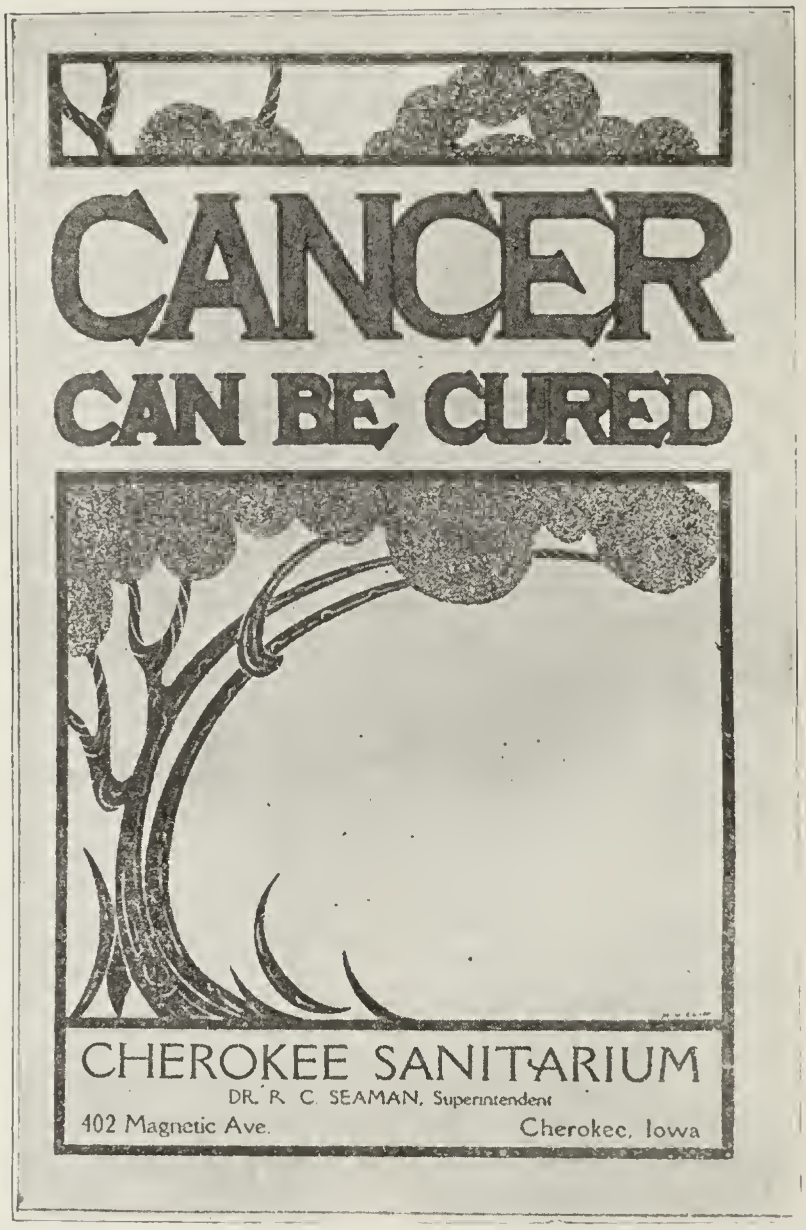
"I agree with Mr. Justice Jones that the judgment of the circuit court should be affirmed. Let us briefly state the facts: The plaintiff [Dr. R. C. Seaman] filed a claim against the estate of Thomas B. Lee, deceased, consisting of a note of said Lee to plaintiff for $1,750, balance for board $3, and

$1.50 for three shaves, total $1,754.50, whereupon defendant filed objections to said claim setting up in substance: That said Lee died at Cherokee, Iowa, on the 2d day of September, 1920, from the effects of a cancer; that on the 5th of July, 1920, he consulted the Mayo Clinic at Rochester, Minn., and was advised that there was no hope of recovery; that on the next day he went to Cherokee, where he met the plaintiff, who represented to said Lee that he could cure him of the cancer; that thereupon the plaintiff signed a treatment contract and the note in question; that the plaintiff failed to perform his contract in accordance with its terms; and that Lee paid the plaintiff $250 in cash at the time he entered into the contract. The defendant thereupon asked that the claim be disallowed.

"I STAND FOR JUDGMENT; ANSWER: SHALL I HAVE IT?"

"The case came to trial in the circuit court before a court and a jury, upon the claim and the objections thereto. The plaintiff introduced in evidence the note in question, computed the interest thereon, and rested his case. The defendant thereupon moved for a nonsuit, and the plaintiff asked leave to reopen his case, which was granted. The plaintiff was called as a witness, and testified to the effect that he was the owner of the note, and that it had been in his possession since the signing, and to further prove his case he introduced the deposition of one D. A. Seaman, who was 'getting out literature for Dr. Seaman' at the time, showing that he was present at the execution of the note and treatment contract, and saw them signed, the treatment contract being identified as Exhibit A, and the note as Exhibit B. Exhibit A, the treatment contract, was first signed, and then Exhibit B, the note, was signed by Lee. No one was present but the plaintiff, Dr. Seaman, and the witness D. A. Seaman. The defendant then read from the deposition of D. A. Seaman to the effect that the treatment contract was signed; then the note was signed immediately following the contract, and thereupon defendant offered in evidence Exhibit A, being the treatment contract, which was received without objection.

"Then both parties rested and moved the court for a directed verdict. The jury was discharged and the court made its findings of fact and conclusions of law, dismissed the case, and entered judgment for the defendant. The plaintiff appealed.



Reproduction (greatly reduced) of the cover of the advertising booklet sent out by R. C. Seaman in drumming up trade. It is a lurid affair printed in two colors on saffron-colored paper.

"This court now holds that the decision of the lower court was correct and without error, on the case as made before it, but reverses the case and sends it back for a new trial pursuant to section 2405m. Stats., which provides that this court may, when 'it is probable that justice has for any reason miscarried,' or if it 'shall be deemed necessary to accomplish the ends of justice,' grant a new trial in its discretion, even though there are no errors in the record, and the judgment should be otherwise affirmed. The statute lays down a rule of equity to soften the rigors of the law.

AN "UNCONSCIONABLE AND EXTORTIONATE" CONTRACT

"Now we come to the question whether or not from a fair consideration of the facts in the case 'it is probable that justice has for any reason miscarried' or a new trial should be 'deemed necessary to accomplish the ends of justice.' I cannot bring myself to believe that this is a case where the conscience of this court should be moved to favor the plaintiff by granting a new trial. I can see no inadvertence of the plaintiff in the trial, but, on the contrary, it is perfectly plain to me that the plaintiff deliberately chose his ground for his contest in the court below. He sought to prove his case by the introduction of the note alone, and to rest upon the presumption of consideration. He stood upon his bond. He was a 'stony adversary.' He craved the law. He pleaded not, for equity or justice. He endeavored to disregard the treatment contract as immaterial, and it would seem for good reason. The treatment contract on its face shows that it is unconscionable and extortionate. It is such a contract as no reputable physician would be likely to make under the circumstances. It is set forth in full in the opinion of the court.

"Here is a man sick unto death, who applies to a doctor for treatment, probably as a result of the work of D. A. Seaman in 'getting out literature for Dr. Seaman.' On the face of the contract it appears that the sick man had a cancerous growth of the lower lip reaching into the submaxillary gland, and the plaintiff was to do 'his very best to effect a permanent cure of same by this first treatment.' Here is a fairly implied representation that the plaintiff would probably cure the deceased man by a single treatment. However, it is represented to him that, if he needs re-treatment, he may have it as many times as necessary for the one price ($2,000), providing the party will return to the sanitarium and comply with all the rules, including paying the going price per week, weekly in advance, for board and room, which price is not given in the contract, and that the patient shall pay '$5.00 for every four bottles of blood purifier used by him after leaving the sanitarium.' In the absence of any testimony of the doctor showing what treatment he gave this man, the doctor being present at the trial, it may fairly be presumed from the contract that he treated him with his 'blood purifier.' The note which he took from his patient bears interest at 8 per cent., and provides that, in case of proceedings for collection, attorneys' fees shall be allowed.

DISHONORING A NOBLE PROFESSION

"A hard contract, indeed! What happened? The sinking man, grasping at straws, signed the note and contract, stayed on at the sanitarium less than two months, and died. It seems to me too plain to admit of controversy that the plaintiff took advantage of his patient's unfortunate condition to make an unconscionable and overreaching contract. A doctor stands in a fiduciary or confidential relation to his patient, and this court need exercise no undue sympathy with one who dishonors a noble profession by oppression and extortion.

"It seems to me to be a perversion of the statute to grant a new trial in this case on the ground stated in the statute that 'it is probable that justice has for any reason miscarried,' or 'to accomplish the ends of justice.' It gives the plaintiff who comes into the court with unclean hands another chance to mulct the estate of his victim. The statute was not intended for any such purpose. It was intended to reach those cases which appeal to the conscience of this court as being cases where justice has not been done, and hence requires a new trial in equity and good conscience.

"It must be noted that one party to this contract is dead. His mouth is closed. He may not disclose on the trial what happened at the making of this extraordinary contract. Only the two Seamans are witnesses to testify. Further, I think it sufficiently appears that the deceased had a manifestly incurable disease at the time he came to Dr. Seaman. I think the contract carries with it a clear implication that the deceased, for a consideration of $2,000, would be cured. Such a contract is against the public policy of our laws, and should not be enforced in our courts. Section 1436f, Stats.

"For the above reasons, I respectfully dissent from the decision of the court."

Under the majority decision of the Supreme Court of Wisconsin, R. C. Seaman has the opportunity once more to file claim against the estate of Mr. Lee. It will be necessary, however, for Seaman to offer proof of performance of the contract into which he entered with the poor fellow who was dying of cancer. Will he do it?

Correspondence

"THE RELATION OF MEDICAL EDUCATION TO THE MEDICAL PLANT"

To the Editor:—The description of the new combined medical school and hospital of the Vanderbilt University, and the drawings accompanying the article by Dr. Robinson (The Journal, July 28) are interesting. They have raised certain questions and reflections in my mind which I am asking you to be good enough to publish.

Dr. Robinson describes and illustrates in most interesting fashion the new buildings of the Vanderbilt University Medical Department, which are to combine the medical school, laboratory, library and hospital. The new buildings are to be located on the main campus, although this means "abandonment of valuable buildings and land now occupied by the Vanderbilt Medical School." Moreover, he tells us that the hospital will accommodate approximately 170 beds, a number which he states is small for educational purposes; but, he adds, "It constitutes a hospital as large as can well be maintained by the funds available for this purpose." The hospital wards are so constructed that additional stories can be constructed, one for pediatrics above the medical ward and one for obstetrics over the surgical ward. "Ground for further extension of both hospital and laboratories toward the west is available, so that a plant three times the size of the one now planned can be accommodated."

The buildings are planned to accommodate fifty students in each class, and the facilities of the school have been planned accordingly. Dr. Robinson considers it fortunate that a limit is placed on the number of students by a definite physical limitation, for, he says, "It is essential to have a comparatively small number in order to carry out many present-day American educational ideas." And then he concludes his whole article with these significant words: "Whether these ideals are true or false perhaps the future will show."

I recently visited the Vanderbilt University and was informed by a reliable medical man of that city that the limitation of the number of the entering class of the University of Nashville to fifty will mean that something like 150 well qualified young men will be denied by the Vanderbilt University an opportunity to pursue their medical education within the walls of that institution. And so I am wondering where these hundred and fifty young men will go. Perhaps a few of them will enter other Grade A schools, and others will enter Grade B schools. Doubtless some will abandon the idea of studying medicine. It may be that a few misguided youths may enter the chiropractor schools. But whether the number of men who will be refused admission to the Vanderbilt medical school be larger or smaller than the number I have given, I am wondering what Dr. Robinson will say to the well qualified young men who are denied admission to the university. I believe his answer to this question would interest many of the readers of The Journal.

These splendid new buildings and their endowment are provided by a gift of $8,000,000 from the General Education Board and the Carnegie Foundation. The interest on $8,000,000 at 5 per cent. is $400,000 a year. If this is divided among 200 students, it will be seen the cost of educating these students is $2,000 a year provided by the school itself. But I assume that the student will be called on to pay some fees, so the cost of educating each of these 200 students would be considerably in excess of $2,000 each—this to carry out "our present-day American educational ideas," which Dr. Robinson admits the future must reveal as to whether they are true or false.

But if they are true, then the medical school of the Vanderbilt University is setting a standard of what must be expected in other medical schools of America; then all our medical schools must be endowed like the Vanderbilt University if they are to provide medical education which shall not fall below the requirements of the day. The situation is a peculiar and puzzling one which I myself am totally unable to solve, even to my own satisfaction. Further, the expense of the present plan of the Vanderbilt University is, we are advised, such that the hospital is smaller than it should be because of lack of funds. This means that already the Vanderbilt University, with its splendid endowment, needs more money and is cramped because of lack of funds.

Theodore Diller, M.D., Pittsburgh.

[The letter was referred to Dr. Robinson, who replies:]

To the Editor:—The letter of Dr. Theodore Diller calls attention to two problems of medical education which are among the most serious that have to be faced at this time. They are the numerical limitation of students and the high cost of medical education.

The limitation of the number of students is a problem now being faced by many of the Grade A schools. As a matter of fact, Vanderbilt University does not at present admit nearly all the properly qualified students that apply for entrance to the medical school, and has not done so for several years. The university acts on the principle, as do the medical schools of the United States generally, that it admits only the number of students which it can properly teach and train. This problem is not local, nor is it a condition arising from the fact that Vanderbilt University is to have a new medical plant. The number of qualified students that any one school refuses to admit, however, does not correctly indicate the number of students unable to obtain a good medical education, as it is a well known fact that today many qualified students make application for admission to several schools, so that they may be admitted to one if refused admission to others.

The question of providing adequate facilities for all students qualified to study medicine is a large one, the discussion of which would carry us far afield. The fact remains, however, that at present many medical schools are refusing admission to qualified students, because they are unwilling to exceed their educational facilities. Vanderbilt University has adopted this principle. The best qualified students are admitted, as far as this selection can be made. This procedure is one factor in elevating our American standards of medical education, and puts a premium on meritorious achievement during the premedical course.

The high cost of medical education is also not a local problem with Vanderbilt University. In regard to the cost per student, Vanderbilt University is not "setting a standard of what must be expected in other medical schools of America." The standard is already set, and many schools, with their affiliated or owned hospitals, have resources represented by plant, equipment and interest-bearing funds far in excess of Vanderbilt University. Of the $8,000,000 available for medical education, Vanderbilt University will have to withdraw at least $2,000,000 for building purposes. There will remain $6,000,000, which, at 5 per cent. interest, will yield $300,000 a year. It is considered that $100,000 will be required as a minimum for the conduct of a thorough modern teaching hospital, and that $200,000 plus student fees can be devoted to the medical school proper. It is to be expected that the hospital will confer benefits on its patients, and so not all costs should be charged up against the medical students, as Dr. Diller has done.

The study of budgets of teaching hospitals and medical schools in this country will convince any one that Vanderbilt University must make a rather modest beginning, even with so large a sum of money at its disposal, and attempt to build a medical school on well considered lines, which may lay the foundation for expansion and development in the future. An increase in the number of students that may be admitted to the medical school in the future is one of the problems that have been considered in planning the buildings.

Economy of construction and of operation is another problem that has been borne in mind in planning to bring the hospital and laboratories together. This idea has also influenced the authorities of the University of Colorado, in working out their new plans simultaneously with us, and of the University of Rochester, who have adopted similar plans.

The medical profession may look askance at the present-day cost of medical education, but I am sure that this problem has not been so sharply and painfully borne in on them as it has on those actually engaged in the administration of funds devoted to this purpose.

Dr. Diller has apparently misunderstood the meaning of the last sentence of my paper, which reads: "Whether these ideals are true or false perhaps the future will show." This statement refers only to carrying out present-day American ideas of teaching, which are in definite contrast to the methods of Europe, where many more students (over two thousand at Edinburgh, for instance) are taught in a single school, and where individual training is not so thoroughly attempted. This contrast was sharply brought out by a study of teaching methods that I made during the past year in Denmark, Germany, Holland, England and Scotland. I am convinced of the superiority of our American methods, which would suffer immeasurably if we should attempt to teach the large numbers at one time as is done in many of the European schools.

G. Canby Robinson, M.D., Baltimore.

TREATMENT OF POISON IVY DERMATITIS

To the Editor:—A perusal of Dr. Tieken's article in *Hygeia* on poison ivy and its treatment causes me to give my experience with the poisonous sumacs and their treatment. I have found melted wax to afford instant relief from pain, burning and itching in young and old, even with severe involvement of the rectal and vaginal mucosa. The course of the dermatitis is much shortened. A simple and easy method is to use a small swab with cotton and paint the parts with the melted wax. There is no danger, of course, from burning. With closed eyes the whole face may be painted. The least entrance of air beneath the mask or cast of wax necessitates sealing in the weakened part. I know from personal experience the instant relief from pain, burning and itching and the return of sleep which is so grateful to the patient, to say nothing of the lessened loss of valuable time and money.

Don P. Flagg, M.D., Los Angeles.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

HYSTERICAL TYPE—LEVEL OF NERVOUS SYSTEM

To the Editor:—1. What manifestations characterize the hysterical type of personality? 2. What is the psychologic conception of the term "level"? Please define the terms psychologic, sociological, physiologic-anatomic level and the level of the central nervous system, and give the type of reaction or the "instrument" used at each of these levels. Are the various levels epochal or arbitrary in their delimitation? Any other information you can give to assist in a clear understanding of the rather complex nature of "levels" will be gladly received.

Albert Anderson, M.D., Raleigh, N. C.
Superintendent, State Hospital, Dix Hill.

Answer.—1. Briefly stated, the chief characteristics of the hysterical personality are: self centering of interest, exaggerated suggestibility and lability of affect. Detailed descriptions and discussion can be found in books on psychoneuroses, such as those of Dejerine and Gauckler, and Donald E. Core, or in recent textbooks on nervous diseases.

2. Hughlings Jackson subdivided the activities of the nervous system into levels, using the terms lowest, middle and highest to describe three levels represented by the peripheral nerves and their centers, the corticospinal paths, and the cerebral association (or psychic) pathways, respectively. These levels correspond to different stages in evolution. In recent years, psychiatrists, notably Jelliffe and White, have used the term level in much the same sense. These authors (Diseases of the Nervous System, Philadelphia, Lea & Febiger, 1923) formulate three levels: Vegetative or physicochemical, in which the effective tool (or reaction mechanism) is of the type of a hormone. The controlling nervous mechanism is the autonomic system including sympathetic and vagus groups; sensorimotor or reflex, the tool being the reflex; and psychic or symbolic, the tool being the symbol (e. g., words). A very similar grouping has been made by Adolf Meyer (Interrelations in the Domain of Neuropsychiatry, *Arch. Neurol. & Psychiat.* **8**:111 [Aug.] 1922). The sociological level is the higher stage in the psychic level in which the reactions concern not only the individual organism but also the modifications brought about by its relations with other individuals in the social group. Presumably our correspondent's terms "physiologic-anatomic" correspond with the vegetative level. Under certain circumstances a man may react with primitive anger (at the reflex and vegetative levels), or he may go to law to secure punishment of a rival (reaction at symbolic and sociological levels).

SODIUM IODID FOR GOITER

To the Editor:—With regard to the administration of sodium iodid in drinking water for prevention of adolescent goiter, will you please explain more fully. How do you administer the 3 grams, all at once or in a certain amount of drinking water to be taken during the day? Will you suggest a prescription whereby I could give a patient enough for one week to take at home, returning for the other week's treatment, of course. I have to carry most of my own drugs, but could get a good pharmacist in the next town to compound the prescription for me. There is a lot of goiter in this vicinity.

M. B. Stirling, M.D., Burton, Neb.

Answer.—Marine and Kimball (*Arch. Int. Med.* **25**:661 [June] 1920) employed 2 gm. of sodium iodid given in 0.2 gm. doses daily for ten consecutive school days. This was repeated twice yearly. It could be prescribed in solution, a dose to a teaspoonful of some flavoring vehicle, for example:

	Gm. or C.c.
℞ Sodium iodid	2
Aqueous elixir of glycyrrhiza (N. F.)	50

M. Label: Teaspoonful in milk once daily.

For administration in powders, potassium iodid is preferred to sodium iodid, as the latter is deliquescent. Marine and Kimball (The Journal, Oct. 1, 1921) admit, however, that this amount of iodid is excessive, and that 1 gm. distributed over a longer period would be better.

In Switzerland, where goiter prophylaxis is a national problem, certain cantons arrange for the addition of 0.5 gm. of potassium iodid to 100 kg. of cooking salt. This mixture is sold at the same price as ordinary salt. The quantity of iodid consumed in this manner is about 0.1 mg. daily. Some such plan is probably the most practical method of goiter prophylaxis. If the patient is furnished with a small quantity of potassium iodid—say, 1 gm.—and advised to mix it thoroughly with 1 kg. of ordinary table salt for occasional seasoning of his food at the table, he will get all the iodid necessary for prophylactic purposes and in an entirely unobjectionable manner. A more elaborate method for the administration of iodin with food has been outlined by Arthur D. Hirschfelder, "A Simple Method for Administration of Iodids in the Food in Goitrous Regions" (The Journal A. M. A., Oct. 21, 1922). See Current Comment, this issue.

TREATMENT OF EXCESSIVE PERSPIRATION

To the Editor:—Please discuss the causation and suggest treatment for excessive sweating of the shoulders and back. There is no history of any tuberculosis or syphilis. The patient is a girl, aged 16, with enlarged tonsils. She will start sweating after arising in the morning, and the sweat is so profuse that it drips off her back as if some one had thrown a bucket of water on her. There is not any sweating while sleeping.

G. C. R., M.D., Henryetta, Okla.

Answer.—Instances of localized hyperhidrosis are not rare. The usual sites are the palms, soles, axillae, face and back, but the condition may occur anywhere. It may be either congenital or acquired. In some cases the disturbance is due to lesions of the central nervous system, as brain tumor or injury to the cord. In others, injury to peripheral nerves produces hyperhidrosis directly or reflexly, and a functional sensory disturbance, as neuralgia, may be accompanied by hyperhidrosis of the area supplied by the affected nerve. In most cases there seems to be purely a neurotic base for the condition, attacks of sweating being induced by peculiar tastes or odors, fright, worry or excitement, and Marie has described a case in which the sweating was under control of the patient's will.

The diagnosis of the condition is simple, as the affected area shows no other change than occasional slight redness or a sodden appearance. With a hand lens, the sweat can be seen as it is secreted through the sweat ducts. The prognosis is variable, although the condition can usually be relieved considerably.

From the standpoint of treatment it is essential that the patient's general condition be investigated and any defects corrected, if possible. Alcoholic liquors, tea, coffee and other things that increase sweating should be avoided. The environment and habits should be arranged to avoid mental stress as far as possible. Direct treatment may be carried out by the use of one of the drugs commonly used to suppress sweating. The one most generally used is a 10 to 25 per cent. solution of aluminum chlorid, and care should be taken that it is not used to the point of producing dermatitis. The method offering the greatest possibility of cure is undoubtedly roentgen-ray treatment. This should be employed in subintensive or fractional doses, and the production of an erythema avoided.

TREATMENT OF GROUND ITCH

To the Editor:—What is the most up-to-date treatment for grand itch—one that will probably destroy the parasite?

E. M. Thomas, M.D., Prattville, Ala.

Answer.—We do not know what our correspondent means by grand itch, and presume that he means either grain itch or ground itch. But the name itch, with some qualification, such as Philippine or Cuban or elephant, is so common that in this we may be mistaken.

The dermatitis resulting from infestation with *Pediculus ventricosus*—the organism of grain itch—usually responds readily to the application of soothing powders or lotions, although Schamberg found ointments containing sulphur and balsam of Peru in percentages less than those used in scabies useful. The clothing should be sterilized by steam, dry heat or sulphur fumes, and if a straw mattress is the source of infection, it should be destroyed. The literature does not show any recent changes in the methods of treatment.

The local treatment of ground itch (hookworm itch) is essentially that of an acute dermatitis from any cause, with especial attention to the prevention of secondary infection, or to treatment of the latter if it occurs. If seen early, the condition is usually relieved promptly if the parts are painted with turpentine or treated with wet dressings of a 1:8,000 solution of mercuric chlorid. In later lesions, the vesicles and pustules should be opened and cleaned with a 1 per cent. to 4 per cent. phenol (carbolic acid) lotion, and the whole area dressed with 1:8,000 mercuric chlorid solution.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Alaska: Juneau, September 4. Sec., Dr. Harry C. De Vighne, Juneau.

Massachusetts: Boston, September 11-13. Sec., Dr. Charles E. Prior, Room 144, State House, Boston.

New Hampshire: Concord, September 13-14. Sec., Dr. Charles Duncan, Concord.

New York: Albany, September 24. Sec., Dr. William D. Cutter, Albany.

BRIDGING THE CHASM BETWEEN THE FUNDAMENTAL AND THE CLINICAL BRANCHES IN MEDICAL SCHOOLS *

J. A. MYERS, PH.D., M.D.
Minneapolis

At the present time a great deal is being said about medical school curriculums; it is stated, particularly, that changes should be made in the nature of elimination of certain phases of the work in the fundamental subjects. Such changes would bring the clinical subjects nearer the freshman year; in fact, many argue that such subjects should be introduced in the freshman year. To eliminate any material part of the fundamental subjects for the purpose of starting clinical branches earlier should be likened to the building of the house on the sands. Likewise, in the clinical years there is little excuse for omitting much work now being given. It is true that both the fundamental and the clinical teaching in many medical schools could be modified considerably with great profit to all concerned.

Upper classmen in our medical schools exhibit an astounding lack of knowledge as regards fundamental subjects. This has led often to a statement by clinical men that the fundamental subjects are not well taught. If the same clinical men will test the knowledge of their students from three to five years after they themselves have taught certain subjects, they will find that their students have not retained all that they were taught.

It has been argued that no one who does not hold a medical degree should be allowed to teach in a medical school. I should like to ask whether there is any more justification in requiring teachers of anatomy and physiology to hold medical degrees than the teachers of such premedical subjects as physics and organic chemistry. It is quite probable that the time is far distant when the latter group of subjects will be taught by medical men. It is probable also that the time is not near when anatomy and physiology will be taught entirely by men holding medical degrees. I have encountered many excellent teachers among the men who do not hold medical degrees. On the whole, anatomy and physiology are well taught in our medical schools. I am firmly convinced, therefore, that the vital question is not who shall teach the medical student the fundamental subjects but how he can be given more practical knowledge of these subjects before graduation. The answer to this question is: by teaching more anatomy and physiology in our medical schools.

In many schools, the student takes most of his anatomy during the freshman year. Any further courses are taken of his own free will. In some schools there are advanced courses in anatomy, such as special dissection, applied anatomy and topographic anatomy, and the student may elect them if he sees fit. Unfortunately, in the first place, the importance of the fundamental subjects is not sufficiently impressed on the student. He often comes to look on them as something to be gotten out of the way, and, as soon as a passing mark is received, he draws a sigh of relief and sometimes even boasts that he can now drop these "things" from his mind and take on something "practical." In the second place, the curriculum is often so crowded with required courses that the student does not have time for elective courses which require as much preparation as those in anatomy and physiology.

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* From the Department of Internal Medicine and the Department of Preventive Medicine and Public Health, University of Minnesota Medical School.

The student who is familiar with the fundamental subjects usually finds little difficulty in the clinical subjects. With him it is largely a matter of technic, learning of symptoms, and elicitation of signs. However, many of the students who enter the clinical years know so little of the practical application of the fundamentals that conscientious clinical instructors find it necessary to devote much time to teaching them normal findings. The clinical instructor who is not conscientious proceeds with the findings in disease, and the student finds himself in an almost hopeless tangle, trying to differentiate between the normal and the abnormal. When one considers the attitude of the freshman student toward the fundamental subjects, together with the time that often elapses between these subjects and the clinical studies, one is not surprised at the lack of knowledge on the part of upper classmen. Therefore, I do not believe that the blame in any part can be placed on our present teachers in the fundamental branches.

Before the seventeenth annual meeting of the National Tuberculosis Association, Bushnell pointed out that during the period of the World War, when many physicians were being trained for special work in diseases of the chest, there was exhibited a tremendous lack of knowledge of the normal chest, and before he could use these physicians advantageously he was compelled to train them in the findings of the normal living chest. These remarks were confirmed by other prominent physicians. Speaking before the ninth session of the Mississippi Valley Conference on Tuberculosis, held in Columbus, Ohio, Dr. Haven Emerson, as medical adviser of the United States Veterans' Bureau, stated that some men, posing as specialists in diseases of the lungs, do not know even the usual number of lobes in each lung. At the same meeting, Dr. Henry Page, dean of the University of Cincinnati Medical School, spoke at some length on the necessity of knowing the normal chest.

So uniform is the feeling among chest specialists of this country that a knowledge of anatomy is of tremendous importance to the clinician, that the National Tuberculosis Association recently granted Dr. William Snow Miller of the University of Wisconsin a considerable sum to be used for the express purpose of investigating the anatomy of the lungs.

It is logical to assume that the lack of knowledge of practical application of the fundamental subjects is not peculiar to the chest specialists, but that it exists in most groups of specialists. If this is true of specialists, how much more true it must be of the men in the general practice of medicine.

Certainly, it is agreed that every prospective practitioner of medicine should have a course involving considerable detail in the dissection of the human body; he should be taught histology in considerable detail; he should have a course in human embryology that gives him knowledge, not only of the normal development of organs and systems, but also of the development of anomalies which later may be of considerable clinical significance. A course in the embryology of the chick will not suffice; he should be taught physiology and physiologic chemistry in considerable detail; he should be given thorough training in pathology.

In addition to the detailed courses in anatomy and physiology, offered in the freshman and sophomore years, short courses in clinical anatomy and clinical physiology should be required of the upper classmen. In fact, the fundamental subjects are so important that I am convinced that no school year should pass without the student being examined carefully over these subjects one or more times.

Bevan's recent investigation showed that there is at present only favorable criticism of the methods of teaching bacteriology and pathology.

Too frequently, clinical teaching is poorly done. Not a small percentage of the individuals offering clinical subjects in many medical schools are teachers neither by birth nor by training; they appear before their classes with little or no preparation, and they hold their positions primarily for the prestige they derive for their private practice. On the other hand, there are some excellent clinical teachers in every first class medical school.

In the clinical years, it is often argued that beneficial changes could be made in the apportionment of time to various subjects and diseases. For example, one group of students argued that it is wrong for them to be compelled to spend a long time in the study of a disease that exists ordinarily only in foreign countries, and have a disease that causes the death of one in every eight or ten persons throughout the world dismissed with two or three lectures. In fact, one group of recent graduates stated that they did not receive a single lecture on the subject of tuberculosis. In general, it might be said that less emphasis should be placed on rare conditions, and an attempt made to make the student thoroughly familiar with such common conditions as cardiac disease, tuberculosis and cancer, with the technic of the common surgical operations and obstetrics, and with the methods of protecting the public against disease.

Admitting that there are certain minor alterations desirable in the teaching of both the fundamental and the clinical branches, I am convinced thoroughly that the great mistake in medical school curriculums lies in the fact that we have not bridged well the chasm that exists between the fundamental and the clinical subjects. The first courses in anatomy and physiology are taught as pure sciences, and rightly so. When these courses are completed, the students have much information covering the structure and function of the various parts of the human body, but they have not been taught how to examine these normal structures from the surface. From the surface, information concerning an organ is elicited with much more difficulty than when one is able actually to hold and dissect the organ.

The same students next find themselves in dispensaries and hospitals examining organs to detect disease. They are told that certain sounds heard over the apex of a lung are very suggestive of minimal tuberculosis; that certain sounds over a basal pulmonary lobe indicate beginning pneumonia; that a certain sound over the heart is indicative of mitral insufficiency; that certain things felt in the abdomen and studied by means of the roentgen ray indicate certain abnormal abdominal conditions. All of this and more the student is told, but he has little or no knowledge of how these sounds heard and the structure felt differ from those normally elicited over the same areas. In other words, he has had no normal standards set up for comparison. The result is that many of the seeds sown by clinical teachers never germinate. It is not uncommon to hear recent graduates of medical schools state that they rarely feel sure of their physical findings over certain organs. They admit that they have been given ample opportunity to learn, but, with no normal comparative standards, have been unable to grasp and retain the points their instructors tried to teach them.

This tremendous loss of energy can be avoided in great part by teaching the student physical and roentgen-ray findings of the living normal human body at the time, or just before, he has finished his training in the fundamental branches. He should be taught the technic of making a physical examination and should be made thoroughly familiar with inspection, palpation, percussion, auscultation and roentgen-ray findings of the normal chest. The same should be true of the normal abdomen and pelvis, the extremities, and the head and neck. I would advocate strongly that no student be permitted to enter the clinical branches until he could demonstrate on practical examination a satisfactory knowledge of the physical and roentgen-ray findings of all important parts of the normal living body.

This method has been in practice in part for the last two years in the University of Minnesota Medical School. Although it has been described in considerable detail elsewhere,[1] it consists essentially of permitting sophomores to elect a course in physical and roentgen-ray findings of the normal chest. Since this course was introduced, it has been offered for four quarters, and the number of students electing it has increased from six during the first quarter to thirty the fourth quarter. This course has been made prerequisite to an elective course on the diagnosis and treatment of diseases of the lungs, and actual observation has proved that the students who have had the work on the normal chest are able to acquire fully twice as much clinical knowledge in a given length of time as those who have not studied the normal chest.

From these observations, I am convinced that bridging the chasm between the funamental and clinical branches will solve many of the difficulties now encountered in medical school curriculums, and will be productive of a more efficient group of general practitioners of medicine.

THE ASSOCIATION OF AMERICAN MEDICAL COLLEGES

The requirements for admission to and graduation from colleges holding membership in this association are 15 units of high school work and two years (60 semester hours) of college work.

Curriculum: The entire course of four years shall consist of not less than 3,600 hours, and shall be grouped in divisions and subdivided into subjects, each division to be allotted approximately the time, on a percentage basis, as shown in the following schedule:

1. Anatomy, including embryology and histology	14 –18½%
2. Physiology	4½– 6 %
3. Biochemistry	3½– 4½%
4. Pathology, bacteriology and immunology	10 –13 %
5. Pharmacology	4 – 5 %
6. Hygiene and sanitation	3 – 4 %
7. General medicine (neurology and psychiatry, pediatrics, dermatology and syphilis)	20 –26½%
8. General surgery (orthopedic surgery, urology, ophthalmology, otolaryngology, roentgenology)	13 –17½%
9. Obstetrics and gynecology	4 – 5 %
	76 – 100%
Electives	24 – 0 %

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Western Reserve University School of Medicine.
University of Oklahoma School of Medicine.
Hahnemann Medical College and Hospital.
Jefferson Medical College.
University of Pennsylvania School of Medicine.
University of Pittsburgh School of Medicine.
Woman's Medical College of Pennsylvania.
University of the Philippines College of Medicine and Surgery.
Medical College of the State of South Carolina.
University of South Dakota College of Medicine.
Meharry Medical College (Affiliated Member).
University of Tennessee College of Medicine.
Vanderbilt University Medical Department.
Baylor University College of Medicine.
University of Texas Medical Department.
University of Vermont College of Medicine.
Medical College of Virginia.
West Virginia University School of Medicine.
University of Virginia Department of Medicine.
Marquette University School of Medicine.
University of Wisconsin Medical School.

The secretary-treasurer of the Association is Dr. Fred C. Zapffe, 3431 Lexington Street, Chicago.

Hospital Intern Year

Twelve medical colleges have adopted the requirement of a fifth year to be spent by the student as an intern in an approved hospital or in other acceptable clinical work before the M.D. degree will be granted. These colleges and the years when the requirement became effective for matriculants and graduates are as follows:

	Affects Matriculants	Affects Graduates
University of Minnesota Medical School	1910-11	1915
Stanford University School of Medicine	1914-15	1919
Rush Medical College (University of Chicago)	1914-15	1919
University of California Medical School	1914-15	1919
Marquette University School of Medicine	1915-16	1920
Northwestern University Medical School	1915-16	1920
University of Illinois College of Medicine	1917-18	1922
Loyola University School of Medicine	1917-18	1922
Detroit College of Medicine and Surgery	1919-20	1924
University of Nebraska College of Medicine	1922-23	1927
General Medical College	1923-24	1928
College of Medical Evangelists	1922-23	1927

The hospital intern year has been adopted as an essential qualification for the license to practice in ten states, becoming effective in different years, as follows:

State Board of	Affects Students Matriculants	Affects All Applicants
Pennsylvania	1909-10	1914
New Jersey	1911-12	1916
Alaska	1912-13	1917
Rhode Island	1913-14	1917
North Dakota	1913-14	1918
Washington	1914-15	1919
Illinois	1918-19	1923
Michigan	1917-18	1922
Iowa	1918-19	1923
Delaware	1923-24	1928

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[1] Myers, J. A.: An Experience in Teaching Medical Students the Findings in the Normal Chest, Am. Rev. Tuberc., to be published.

Book Notices

The Ophthalmology of General Practice. By Malcolm L. Hepburn, M.D., F.R.C.S., Surgeon, Royal London Ophthalmic Hospital. Cloth. Price, $4. Pp. 184, with 49 illustrations. New York: Paul B. Hoeber, 1923.

This is a brief work designed to save the general practitioner the time and trouble of reading through larger treatises on ophthalmology for the diseases and conditions he may meet. It is an attempt to give him the essentials of practical ophthalmology from the clinical standpoint, with little or no consideration of the theoretical and anatomic principles involved. The attempt is a success, and the little volume should be received favorably by those for whose benefit it is written. There are four colored plates illustrating twenty-four of the commoner external diseases of the eye, and four illustrating sixteen fundus conditions. The author's style is at times heavy and is not always as clear as might be desired. In the first chapter, the equipment necessary for conducting a proper examination of all parts of the eye is discussed. The microscope does not appear among the paraphernalia recommended, nor is any reference made to the value of this instrument in establishing the diagnosis of angular conjunctivitis due to the Morax-Axenfeld diplobacillus; of purulent conjunctivitis due to the gonococcus, or of spring catarrh. An error of a former era when bacteriology was unknown is again given license to live in the author's discussion of the treatment of hordeolum or sty in the words: "If errors of refraction are present, glasses should be ordered." In spite of its defects, the book has value. It is in no way padded. It is full of common sense advice, and is a safe guide for the general practitioner who wishes or is compelled to treat eye cases.

Die Gallensteinkrankheit, Richtlinien der inneren Klinik. Von Prof. Dr. Gustav Singer. Paper. Pp. 52, with illustrations. Berlin: Urban & Schwarzenberg, 1923.

We have here a fairly brief up-to-date exposition of our knowledge of cholethiasis, a discussion of the most prominent theories on this subject, and a review of its medical therapy. The interesting fact is quoted that, although necropsy statistics in general show an incidence of gallstones of about 12 per cent. for Germany, in Russia and Japan these are found in only 2 or 3 per cent. of all bodies. A deeper study of these observations might lead to a better knowledge regarding the prophylaxis. The author favors the idea of Kehr and Strauss that the hunger pain of cholelithiasis is due to tension of an excessively filled gallbladder due to insufficient frequency of meals. As Frerichs and Naunyn have shown, food is the best cholagogue; and frequent meals are of advantage to patients with gallstones. In duodenal intubation, the author injects into the duodenum, according to the suggestion of Rost, 30 c.c. of a 5 to 10 per cent. solution of Witte's peptone in order to obtain "gallbladder bile." In this country magnesium sulphate is generally employed for the same purpose. While the peptone reflex is regularly obtained in the healthy, it is absent when there is obstruction of the cystic duct. Excess of leukocytes in the bile obtained points to the presence of inflammation of the gallbladder; but these findings should be interpreted in connection with other reliable criteria, and are not in themselves alone decisive. The author believes that duodenal intubation has some therapeutic value. At any rate, it usually does no harm, though in one case he saw a severe attack of colic precipitated by the peptone injection. In severe cases of occlusion of the common duct, he injects from 50 to 100 c.c. of hot olive oil through the duodenal tube into the duodenum, and he believes that he has obtained surprising results in some desperate cases. Roentgen-ray examination, though it usually does not permit a direct demonstration of gallstones, frequently gives indirect functional and anatomic evidence. The author believes that the bilirubin determination in the blood has great possibilities, and hopes that a method will soon be available that is suitable for general practice. Singer is hopeful of the possibilities of a special chemotherapy of the biliary passages, possibly by heavy metal combinations of the bile acids, which, as is well known, have a marked organotropism toward the liver. According to recent observations of Leo and Wiechowsky, the well established efficiency of Carlsbad water in inflammation of the biliary passages is due, in part at least, to the presence of calcium and silica. These ingredients are usually not present in the artificial substitutes for Carlsbad water. We also are reminded that teas containing equisetum, which is rich in silicic acid, have an old established reputation as a domestic remedy in this condition.

Senile Cataract: Methods of Operating. By W. A. Fisher, M.D., F.A.C.S., Professor of Ophthalmology, Chicago Eye, Ear, Nose and Throat College. With the Collaboration of Prof. E. Fuchs, Prof. I. Barraquer, Lt. Col. Henry Smith, Dr. H. T. Holland, and Dr. John-Wesley Wright. Cloth. Price, $2.50. Pp. 256, with 160 illustrations. Chicago: Chicago Eye, Ear, Nose and Throat College, 1923.

Seldom has such a group of specialists been united between two covers in discussing one subject without reaching agreement on at least one minor subheading. Each author praises the other collaborators highly and acknowledges that his technic may possibly be the vade mecum, but emphasizes that time alone (indicating centuries) will prove it. Hofrath Fuchs describes the technic used in his former clinic in Vienna, and his diction seems strangely reminiscent of the style employed so successfully by the late Mr. Noah Webster in his well known book. Ignacio Barraquer then uses ninety-four pages (nearly a third of the book) to indicate that he leans strongly toward the vacuum extraction of the cataractous lens. As this process was first described some forty years ago, which he neglects to mention, he coined the new word facoerisis for the operation. This section is profusely illustrated with excellent drawings that look as if they had been made in the Vogt red-free light. Then Colonel Smith discusses capsulotomy operations in one article, and the intracapsular method that goes by his name in another. The latter is well written and, to the nonsurgical ophthalmologist, is convincing. Dr. Holland, a missionary from Shirkapur, India, follows Smith in the book as he does in technic with the exception that he confesses that the intracapsular method fails in about 3 per cent. of the cases, and in those he is forced to resort to capsulotomy. Dr. Wright of Columbus, Ohio, who, independently, devised his own method of intracapsular operation, devotes a few pages to his technic. The intracapsular operation of Knapp and the capsulotomy method of Homer Smith are described briefly by Fisher, and it really seems a pity that the originators of the operation could not have been persuaded to participate in the symposium. The book ends with two chapters by Dr. Fisher: In the first he describes the method he employs, taking points here and there from the others and adding several really excellent features of his own. In the last, the student is shown how he may become proficient as a cataract operator by practicing on kittens' eyes in sufficient quantity.

Lehrbuch der Gynäkologie. Von Prof. Dr. Rud. Th. v. Jaschke, Direktor der Universitätsfrauenklinik in Giessen, und Prof. Dr. O. Pankow, Direktor der Frauenklinik an der Akademie für Praktische Medicin in Düsseldorf. Third and fourth editions, together with the seventh and eighth editions of Rungeschen Lehrbuches der Gynäkologie. Cloth. Price, $4.80. Pp. 625, with 317 illustrations. Berlin: Julius Springer, 1923.

In the same manner as they have revised Runge's well known textbook on obstetrics, these authors have undertaken a revision of the book on gynecology. The chapters on physiology of woman and diseases of woman have been entirely rewritten. In order to provide space without greatly enlarging the size of the book, the descriptions of certain obsolete operative methods have been discarded. The number of illustrations has also been somewhat increased, and more attention has been paid to the relations of gynecology to other aspects of medical science. In this volume, as in the textbook on obstetrics, the illustrations constitute one of the most important features. One of the most valuable sections of the work is that devoted to the effects of the glands of internal secretion. A special section is devoted to the use of physical therapy, including hydrotherapy, massage, exercise and electrotherapy.

Miscellany

PRESIDENT HARDING'S LAST ILLNESS

Official Bulletins of Attending Physicians

The following are the official bulletins issued by the physiians and consultants who attended President Harding in his ast illness: Drs. C. E. Sawyer, Ray Lyman Wilbur, C. M. ooper, J. T. Boone, and Hubert Work:

July 30, at about 10: 30 a. m.: The President had a fairly omfortable night, with several hours' sleep. His temperature t 9 a. m. was 101; pulse, 118; respiration, 33. The abdominal ymptoms following the digestive disturbance which he expeienced while on the boat are now localized in the gallbladder egion. There are no peritoneal symptoms; the lungs are lear. The white blood cells number 10,800, with 82 per cent. olymorphonuclears. The kidneys are functioning satisfacorily, and there are no disturbances of the nervous system, xcept those associated with fatigue. While his condition is cute, he has temporarily overstrained his cardiovascular ystem by carrying on his speaking engagements while ill. t will be necessary for him to have complete rest during the eriod of his acute symptoms.

July 30, 5: 10 p. m.: The President's condition is as follows: emperature, 100.6; pulse, 125; respiration, 44, and somewhat regular. There is some cough and evidence of congestion n one lung. He has taken some nourishment. Except for eakness and restlessness he has been fairly comfortable uring the day, though his condition is a serious one.

July 30, 9 p. m.: Definite central patches of bronchopneuonia have developed in the right lung, as indicated clinically nd by the roentgen ray. Nourishment is being taken regurly, and the abdominal symptoms are less noticeable. While is condition is grave, he is temperamentally well adapted to ake a strong fight against the infection. Pulse, temperature nd respiration are about the same as in the previous report.

July 31, 9 a. m.: The President had a fairly comfortable ight, with considerable restful sleep. His temperature is 00; pulse, 120; respiration, 40 and regular. There has been o extension of the pneumonic areas, and the heart action is efinitely improved. Nourishment and fluids are being taken egularly. Elimination is satisfactory. He expresses himself s feeling better and less exhausted.

July 31, 4 p. m.: The President has maintained the ground ained since last night. His temperature is 100; pulse, 120; espiration, 44 and regular. Nourishment is taken regularly, nd the laboratory findings indicate elimination is improving. n general, he is more comfortable and is resting better.

July 31, 11: 10 p. m.: The President's condition is: pulse, 16; temperature, 100.2; respiration, 40. He is resting comortably. No further reports will come from the sick room onight unless unfavorable symptoms develop.

August 1, 9: 30 a. m.: The President is fairly comfortable his morning, after a few hours of sleep. His breathing is ss labored, and there is but little cough. The lung condition about the same as yesterday. He is still much exhausted, ut maintains his normal buoyancy of spirit. Small amounts food are taken regularly, and there is regular and satisctory elimination. The temperature is 99; pulse, 114; espiration, 30. While progress is being made, every care is ecessary to assure freedom from further complications.

August 1, 4: 30 p. m.: The President is now resting comortably after a somewhat restless day. The temperature eached normal during the day, and the pulse has varied om 116 to 120 and the respiration from 36 to 40. There is vidence of slight improvement in the lung condition. Otherise there is no marked change.

August 2, 9: 30 a. m.: The President had several hours of estful sleep during the night, and, except for the marked xhaustion of an acute illness, expresses himself as feeling asier this morning. The temperature is 98.2; pulse, 100; spiration, from 32 to 40. The lung condition shows definite nprovement. Small quantities of food are being taken, and imination remains satisfactory. While recovery will inevitably take some little time, we are more confident than heretofore as to the outcome of his illness.

August 2, 4: 30 p. m.: The President has had the most satisfactory day since his illness began. The evidences of infection are subsiding, but he has been left in a very weakened condition by the hard battle he has made. This afternoon the temperature is remaining normal, with the pulse rate around 100 and the respiration averaging about 30. Other factors remain about the same.

August 2: The physicians who had been in attendance on the President at midnight issued the following statement:

Last spring, following a long period of overwork and great strain, President Harding was confined to his bed with an attack of influenza which was followed by a few nocturnal attacks of labored breathing. His recovery was slow, and he had not fully regained his normal strength and health when he started out on the trip to Alaska. He had also had some attacks of abdominal pain and indigestion, and at times he had some pain associated with a feeling of oppression in the chest. For some years his systolic blood pressure had ranged around 180, and there was evidence of some arteriosclerosis, enlargement of the heart and defective action of the kidneys. Except for fatigue and the fact that his heart and blood vessels were some years older than the rest of his body, he was in reasonably good health.

On the return trip from Alaska, he had an acute gastrointestinal attack associated with abdominal pain and fever. In spite of his illness he insisted on putting through his program of speaking in Vancouver and Seattle. He had considerable difficulty in completing his addresses in Seattle because of weakness and pain. Because of this he was persuaded to come directly to San Francisco, and arrived at the Palace Hotel Sunday morning, July 28. He dressed and walked to the automobile from the train. Sunday evening a consultation was called, because his temperature had risen to 102 and his pulse and respirations were abnormally rapid. The abdominal difficulty had by this time become localized in the gallbladder region, but there was a general toxemia, with fever and leukocytosis. A central bronchopneumonia soon developed on the right side. It was accompanied by short circulatory collapses, with cold sweats and an irregular pulse. Most disturbing of all was the rapid and irregular breathing suggestive of arteriosclerosis of the brain vessels in the region of the respiratory center.

Under treatment, marked improvement in the pneumonia and circulatory disturbances took place, and Thursday, August 2, he was free from fever and pain; the acute lung condition was practically gone. He was resting comfortably in bed and conversing with Mrs. Harding and General Sawyer, when he died instantaneously without a word or a groan.

We all believe he died from apoplexy or the rupture of a blood vessel in the axis of the brain near the respiratory center. His death came after recovery from the acute illness was in process. It might have occurred at any time. One of his sisters died suddenly in the same manner.

August 3: Statement by consulting physicians:

We have been asked by President Harding's personal physicians before they leave San Francisco to put on record our impression of the President's physical condition as it affected his last illness and his sudden death.

As already indicated in the bulletins, the heart was enlarged, and probably the blood vessels which carry to it its nutriment thickened, for his history shows that previously he had had anginal manifestations and that during sleep the respiratory center was insufficiently fed. Furthermore, he had suffered from nocturnal dyspnea and a Cheyne-Stokes type of respiration; yet, as often happens in such cases, he had full confidence in his bodily strength; his mind remained most alert, and his judgment unimpaired.

At 4:30 p. m., yesterday, prior to his sudden apoplectic seizure, it seemed to Mrs. Harding and to us that the fight was won and that, with sufficient rest and the carrying out of a definite medical program, this illustrious man, in fair physical health and in full mental vigor, could be preserved for his country.

RAY LYMAN WILBUR, M.D., President,
American Medical Association.
CHARLES MINER COOPER, M.D.

Medicolegal

Validity of Health Council Enactment—Quarantine

(Ex parte Company (Ohio), 139 N. E. R. 204)

The Supreme Court of Ohio, in refusing writs of habeas corpus to the petitioner in this case and one in another case considered at the same time, says that the Act of 1917, which created the state department of health, provided for the creation of a public health council with the duty and power "to make and amend sanitary regulations to be of general application throughout the state." Regulation No. 2 of the sanitary code adopted—effective July 1, 1920—named, classified, and declared dangerous to the public health certain diseases and disabilities, and included in Class B of such designated diseases those known as chancroid, gonorrhea and syphilis. Regulation 18 of the sanitary code declares such diseases to be contagious, infectious, communicable, and dangerous to the public health. Regulation 23 empowers the health commissioner of each city to make examination of persons reasonably suspected of having a venereal disease. All known prostitutes and persons associating with them shall be considered as reasonably suspected of having a venereal disease. Regulation 24 provides that the health commissioner may quarantine any person who has, or is reasonably suspected of having, a venereal disease, whenever in his opinion quarantine is necessary for the protection of the public health. The court holds that the designation of the diseases named in Class B, and Regulations 18, 23 and 24 in relation thereto, are a lawful exercise of the police power of the state; that such regulations and the quarantine therein provided for are not in conflict with, nor do they violate, any provision of either the federal or the state constitution. The right of the state through the exercise of its police power to subject persons and property to reasonable and proper restraints in order to secure the general comfort, health and prosperity of the state is no longer open to question. In the American constitutional system the power to establish the necessary police regulations has been left with the several states.

In the cases here considered it is to be observed that both of the petitioners were charged with violations of Section 13031—13, General Code. Regulation 24 provides that such infected persons shall be subject to quarantine. The statutory provision is that such infected persons shall not be discharged from custody, paroled, or placed on probation. No inconsistency is found as between the regulations complained of and the provisions of the statute. In either event, quarantine is established. Quarantine in the sense herein used means detention to the point of preserving the infected person from contact with others. The power so to quarantine in proper case and reasonable way is not open to question. It is exercised by the state and the subdivisions of the state daily. The protection of the health and lives of the public is paramount, and those who by conduct and association contract such disease as makes them a menace to the health and morals of the community must submit to such regulations as will protect the public.

It was contended that the legislature is without power to delegate its law-making authority. The distinction between power granted to legislate and power granted to administer marks the difference between the contention urged and the true question herein to be considered. That the legislature in the exercise of its constitutional authority may lawfully confer on boards of health the power to enact sanitary ordinances having the force of law within the districts over which their jurisdiction extends is not an open question. This power has been repeatedly recognized and affirmed. It is true that in *State ex rel. Adams* v. *Burdge*, 95 Wis. 390, 70 N. W. 347, it was held that the state board of health of Wisconsin was a purely administrative body, and had no regulatory powers, and that none could constitutionally be delegated to it; but that case apparently stands alone. This court throughout its investigation has been unable to find that that case has been approved or followed in any other jurisdiction. Moreover, it was decided in that case that there was no power in the state board of health to quarantine as against smallpox, or to compel vaccination, or to exclude children from the public schools because of nonvaccination. This court does not subscribe to either the principle or the pronouncement of the Burdge Case.

Information Given to Medical Examiners

(Brown v. Mutual Life Ins. Co. of New York (Ga.), 116 S. E. R. 559)

The Court of Appeals of Georgia, Division No. 2, in reversing a judgment on a verdict directed for the defendant company in this action to recover on a policy of insurance, holds that a physician designated by a life insurance company to examine applicants for life insurance acts as an agent of the company in receiving answers to medical questions propounded to an applicant, and any information given to the physician in answer to such questions is information to the company, although such information does not appear in the application signed by the applicant, and the application contains answers giving information to the contrary. In an action on the policy, the answers actually given by the applicant to the medical examiner, although in conflict with those contained in the written application signed by the applicant, may be placed in evidence by the testimony of one who heard them at the time they were made to the medical examiner. When such statements by the applicant made to the medical examiner were to the effect that the applicant had had malarial fever about a year before the time of the application, and had been treated therefor by two physicians whom she named, who were other than the physicians whose names appeared in the application as the only physicians who treated her, such statements to the medical examiner were relevant as evidence tending to establish information on the part of the insurance company affecting the materiality of the risk, and it was therefore error to exclude them from evidence.

The court further holds that the materiality of alleged false representations made by an applicant being a conclusion, and ordinarily a question for the jury, it is error to permit a medical officer from the home office of the insurance company to testify that, had the company known of the falsity of the representations contained in the application, the company would not have accepted the risk. However, it is proper for such a witness to testify to facts tending to establish the materiality of the representations alleged to have been made in the application as affecting the risk.

Society Proceedings

COMING MEETINGS

American Association of Obstetricians, Gynecologists, and Abdominal Surgeons, Philadelphia, Sept. 19-21. Dr. James E. Davis, 111 Josephine Avenue, Detroit, Secretary.
American Public Health Association, Boston, Oct. 8-11. Mr. A. W. Hedrich, 370 Seventh Avenue, New York, Secretary.
American Roentgen Ray Society, Chicago, Sept. 18-23. Dr. W. W. Watkins, Goodrich Building, Phoenix, Ariz., Secretary.
Association of Military Surgeons of the United States, Carlisle Barracks, Pa., Oct. 4-6. Col. James Robb Church, Army Medical Museum, Washington, D. C., Secretary.
Colorado State Medical Society, Glenwood Springs, Sept. 4-6. Dr. F. B. Stephenson, Metropolitan Building, Denver, Secretary.
Delaware State Medical Society, Middletown, Oct. 8-9. Dr. W. O. La Motte, Industrial Trust Building, Wilmington, Secretary.
Indiana State Medical Association, Terre Haute, Sept. 26-28. Dr. Charles N. Combs, Terre Haute, Secretary.
Kentucky State Medical Association, Crab Orchard, Sept. 17-20. Dr. A. T. McCormack, 532 West Main Street, Louisville, Secretary.
Medical Association of the Southwest, Kansas City, Mo., Oct. 4-8. Dr. E. H. Skinner, Rialto Building, Kansas City, Mo., Secretary.
Michigan State Medical Society, Grand Rapids, Sept. 11-13. Dr. F. C. Warnshuis, 410 Powers Building, Grand Rapids, Secretary.
Minnesota State Medical Association, St. Paul, Oct. 10-12. Dr. Carl B. Drake, Guardian Life Building, St. Paul, Secretary.
Mississippi Valley Medical Association, Hot Springs, Ark., Oct. 9-11. Dr. John L. Tierney, University Club Bldg., St. Louis, Secretary.
Missouri Valley, Medical Society of the, Omaha, Sept. 20-21. Dr. Charles W. Fassett, 115 East 31st Street, Kansas City, Secretary.
Pennsylvania, Medical Society of the State of, Pittsburgh, Oct. 1-4. Dr. W. F. Donaldson, Jenkins Arcade, Pittsburgh, Secretary.
Vermont State Medical Society, Bennington, Oct. 11-12. Dr. W. G. Ricker, St. Johnsbury, Secretary.
Wisconsin, State Medical Society of, Milwaukee, Oct. 3-5. Mr. J. G. Crownhart, 558 Jefferson St., Milwaukee, Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obstetrics and Gynecology, St. Louis

5: 581-694 (June) 1923

Case of Folliculoid Cancer of Ovary. Classification of Ovarian Tumors. M. R. Robinson, New York.—p. 581.

Symptoms and Signs of Extra-Uterine Pregnancy at or Near Term: Report of Two Cases. Treatment of Late Ectopic Gestation. Review of Literature. H. E. Hayd and I. W. Potter, Buffalo.—p. 601.

Defenseless Areas of Abdomen. G. W. Crile, Cleveland.—p. 620.

Surgical Strategy as Adjunct to Local Anesthesia in Abdominal Surgery. R. E. Farr, Minneapolis.—p. 624.

*Primary Sterility. A. J. Rongy, New York.—p. 631.

New Obstetric Table. E. L. Cornell, Chicago.—p. 637.

*What Constitutes Surgical Cervix? An End Result Study of 350 Cervical Operations with Their Effects on Sterility, Discharge, Pregnancy and Labor. J. O. Polak and G. W. Phelan, Brooklyn.—p. 640.

Electrotherapy Is Gynecologic Practice. E. C. Titus, New York.—p. 647.

Treatment of Primary Sterility.—A careful study of his patients has convinced Rongy that the percentage of sterile patients who are amenable to treatment is very small. As a general rule, women who suffer from primary sterility can be separated into three distinct groups: (1) Patients with congenital defects. Such women are beyond the help of all known therapeutic measures. (2) Women who apparently do not have physical defects of the genital organs, but suffer from disturbance of function of these organs. In these patients the sterility very often is temporary in character. It is in this class of patients that to the treatment is ascribed the successful outcome of the case. Rongy asserts that a great number of these patients would have become pregnant if they had not been treated. (3) To this group belong all patients who are sterile because of mechanical obstruction of the tubes, which is caused by infection acquired during the marital state, or induced by inflammatory reactions of the genital organs which occurred during an infectious or contagious disease in infancy or childhood. Not infrequently closure of the tubes can be traced to an extension of the process of specific vulvovaginitis in young children. It is surprising to find the number of young women whose tubes are closed and who have no immediate history of infection of the genital tract. Plastic operations on the tubes in these patients has not cured many. Pregnancy ensued in less than 15 per cent.; the others remained permanently sterile. Partial resection of one or both tubes will often rob the women of any possible chance for future pregnancy, as the postoperative reaction in the pelvis after such an operation is, not infrequently, very severe and causes great damage to the genital organs. Rongy says that present methods of treatment of sterility must be discarded.

Are Operations on Uterine Cervix Effective?—Critical study of this series of cases has led Polak and Phelan to the belief that operation on the surgical cervix, i. e., for extensive or multiple lacerations, extensive erosion with hyperplasia or cystic degeneration, even when the type of operation is carefully selected, in a large number of cases does not cure the leukorrhea or sterility, and that unless the operation is preceded by a long period of preliminary local treatment, the leukorrhea is cured in only a little more than 50 per cent. of the cases subjected to operation. It is, therefore, urged that all operations on chronically infected cervices be preceded by local treatment. Only a relatively small number of sterilities are cured by operations on the cervix, and these operations should only be done for this cause after a Huhner and a Rubin test have shown that the fault is in the biochemical changes in the cervical discharge. Should pregnancy occur after amputation or excision, it is more likely to terminate in abortion than has been the case when trachelorrhaphy has been elected. Polak and Phelan assert that dystocia during labor is also more common after amputation and excision than after cervical repair.

American Journal of Ophthalmology, Chicago

6: 449-544 (June) 1923

Rupture of Choroid: Report of Two Cases. H. D. Lamb, St. Louis.—p. 449.

Effect of Intensity of Stimulus on Size and Shape of Color Fields and Their Order of Ranking as to Breadth. C. E. Ferree and G. Rand, Bryn Mawr, Pa.—p. 453.

Interstitial Keratitis Due to Focal Infection. C. P. Jones, Newport News, Va.—p. 461.

Ocular Inflammations Result of Distant Focal Infection. J. Dunn, Richmond, Va.—p. 464.

Case of Glioma of Optic Thalamus. L. A. Levinson and F. W. Alter, Toledo, Ohio.—p. 468.

Papillary Epithelial Tumor of Orbit. C. C. Saelhof, Chicago.—p. 473.

Familial Retino-Cerebral Degeneration. W. H. Nardin, Anderson, S. C., and R. S. Cunningham, Baltimore.—p. 476.

Neuro-Epithelioma, or Glioma of Retina. J. A. Morgan, Honolulu.—p. 484.

Chalazion Technic. H. Gifford, Omaha.—p. 487.

Steel Splinter Penetrating Lens Without Cataract Formation. G. H. Cross, Chester, Pa.—p. 487.

Spontaneous Rupture of Eyeball. W. W. Gilfillan, New York.—p. 488.

Anterior Subluxation of Crystalline Lens Without Trauma. M. C. Loree, Akron, Ohio.—p. 488.

Archives of Neurology and Psychiatry, Chicago

9: 689-830 (June) 1923

*Mechanism and Fundamental Causes of Epilepsies. J. Rosett, New York.—p. 689.

Lesions of Optic Chiasm and Tracts with Relation to Adjacent Vascular Structures. T. Fay and F. C. Grant, Philadelphia.—p. 739.

Epidemic Encephalitis. Pathologic Study of Five Cases, Including Two with Myoclonia. M. E. Morse, Boston.—p. 751.

Stabilizing Brain Tissue During Fixation. G. S. Stevenson, Ward's Island, N. Y.—p. 763.

*Implantation of Bacillus Acidophilus in Persons with Psychoses. L. A. Julianelle and F. G. Ebaugh, Philadelphia.—p. 769.

Mechanism of Epilepsy.—The investigation made by Rosett discloses a physiologic reaction in normal man and animals which consists of the following connected train of phenomena: (1) A temporary reduction, disintegration or extinction of the cerebral functions. (2) A tonic contraction of the entire skeletal musculature, with a certain predominance of the extensors, adductors and pronators; the consequent fixation of the joints resulting in the posture characteristic of the state of decerebrate rigidity. (3) Clonic muscular contractions, i. e., alternating contractions of antagonistic groups of muscles. (4) Recovery, marked by symptoms of integration of the disintegrated cerebral functions and a state of general exhaustion. This reaction, in a more or less pronounced form, normally occurs under two sets of conditions: (1) on exposure to the action of a stimulus requiring sudden movement on the part of the organism, or the narrow focusing of attention and (2) in connection with certain functions, such as sleep, defecation, sneezing, coughing, parturition. The mechanism of this reaction is to be found in certain anatomic structures and physiologic functions underlying the production and distribution of muscle tonus in the nervous system. The biologic purpose of the reaction is the automatic fixation of the relatively central joints preparatory to any possibly needed movement of relatively distal segments of the body and limbs. The reaction is characterized by a periodicity of occurrence. The phenomena which constitute the normal reaction described, being in a great number of particulars the same as those which constitute the epileptic paroxysm, a suitable name for it would appear to be the normal epileptoid reaction. The normal epileptoid reaction is elicited with greater ease under the influence of the same agencies which cause an exaggeration of the epileptic paroxysm. An example of such an agency is the action of caffein. On the other hand, influences which are potent in holding the epileptic paroxysm in abeyance, such as the action of the bromids and phenobarbital, have the power to diminish the manifestations of the normal epileptoid reaction. A slight and transient suspension of the higher functions, resulting as it does in a release of function of the lower levels, brings about the normal epileptoid reaction. Any factor, therefore, which operates permanently so as to cause large periodic suspensions of the highest nerve functions, whether that factor be a brain tumor, a poison in the blood, a peripheral irritation or an inherited defect, will, by a permanent exaggeration of the normal reaction, tend to degrade it to the clinical picture of the epileptic paroxysm.

Implantation of Bacillus Acidophilus in Psychosis Cases.—Ten patients were studied by Julianelle and Ebaugh. A normal person was used as a control for the rapadity, degree and permanency of *Bacillus acidophilus* implantation. The ten patients all presented marked constipation and frequently complained of headache and fatigue. The chief aims of the experiments were: first, the relief of constipation by implantation and maintenance of *B. acidophilus* in the intestine; and second, observance of the effects on the course of the psychosis. Implantation of *B. acidophilus* in the intestine of patients with psychoses by the oral administration of acidophilus milk resulted in elimination of intestinal putrefaction and in some cases in an increase in weight but no improvement in the mental condition. Intestinal putrefaction is probably a concomitant of some forms of psychosis, if it is at all related. The administration of acidophilus milk is recommended in the treatment of psychoses as a means of physical betterment.

Archives of Occupational Therapy, Baltimore

2: 171-252 (June) 1923

Problem of Physically Handicapped. P. K. Brown, San Francisco.—p. 171.
Status of Occupational Therapy in Canada. N. L. Burnette, Ontario.—p. 179.
Costs of Occupational Therapy and Allied Therapeutic Activities. L. J. Haas, White Plains, N. Y.—p. 183.
Financial Side of Occupational Therapy in State Hospitals. H. M. Pollock, Albany, N. Y.—p. 187.
Cost of Occupational Therapy in Private Sanitarium for Mental Cases. W. W. Richardson, Mercer, Pa.—p. 193.
Charts Used in Sheppard and Enoch Pratt Hospital. H. G. Price.—p. 195. Financial Charts. W. R. Dunton, Jr.—p. 198.
Report of Occupational Therapy in Connecticut. K. H. Root, Stamford.—p. 203.
Experiences with Exservice Men in General Hospital. D. D. Rouse, Minneapolis.—p. 209.
Report of Activities of Massachusetts Association for Occupational Therapy, January, 1921, to September, 1922. H. A. Robeson, Boston.—p. 211.
Occupational Therapy in South Dakota. B. Stewart, Hot Springs.—p. 217.
Crafts Best Suited for Mental and Nervous Patients. W. R. Dunton, Towson, Md.—p. 221.

Annals of Surgery, Philadelphia

77: 641-793 (June) 1923

Surgical Relations of Sympathetic Nervous System. G. P. Muller, Philadelphia.—p. 641.
*Surgical Treatment of Unilateral Pulmonary Tuberculosis. E. Archibald, Montreal.—p. 652.
Tuberculosis of Breast. Report of Seven Cases. D. C. Elkin, Boston.—p. 661.
*Tumors of Breast; Innocent and Malignant. A. Primrose, Toronto.—p. 668.
Ranula: Report of Case. V. P. Blair, St. Louis.—p. 681.
Factors of Safety in Thyroid Surgery. W. Bartlett, St. Louis.—p. 685.
Pathologic Fracture of Neck of Femur Due to Thyroid Metastasis. I. Zadek, New York.—p. 689.
*Involvement of Lymph Glands in Cancer of Cecum. W. McK. Craig and Wm. C. MacCarty, Rochester, Minn.—p. 698.
*Cancer of Rectum and Sigmoid in Childhood and Adolescence. C. H. Phifer, Chicago.—p. 711.
*Sarcoma of Omentum. G. H. Copher, St. Louis.—p. 721.
Congenital Diaphragmatic Hernia: Report of Case. J. F. Connors and W. T. Robinson, New York.—p. 725.
Nonoperative Treatment of Displaced Semilunar Cartilages of Knee Joint. D. Graham, Boston.—p. 729.
Fractures of Femur in Children. Treatment and End Results in 268 Cases. C. G. Burdick and Irwin E. Siris, New York.—p. 736.

Surgical Treatment of Unilateral Pulmonary Tuberculosis.—The total number of patients on whom Archibald has performed extrapleural thoracoplasty for unilateral pulmonary tuberculosis is fifteen. A posterior thoracoplasty was carried out in all but one case in which Archibald resected the whole side of the bony thorax according to Friedrich's plan. The ages of these patients varied from 27 to 55 years. The duration of the illness previous to operation was from two to twenty-two years. The Sauerbruch operation, from the second or first to the tenth rib behind, was done in eleven cases; a total resection was done in one case; a partial resection in three cases. In these last three cases either the upper or the lower lobe was already compressed by an artificial pneumothorax, which was maintained. Three patients died from the operation. Of these, one followed the Friedrich operation. Another died on the twentieth day from streptococcus infection arising in a small abscess hidden under the scapula. This patient had had sixteen punctures done in the attempt to induce artificial pneumothorax. The third died after a third operation; that is, an apicolysis, following two previous ones, posteriorly, on the sixth day, from edema of the good lung with acute purulent bronchitis. On the other hand, practical cures in these fifteen cases number three. The results were: markedly improved three, slightly improved two, and stationary, three. Finally, one died twenty months after operation from the progress of the disease.

Tumors of Breast.—This paper is based on 286 cases of carcinoma, five cases of sarcoma, and 157 benign tumors. Primrose does not agree with Bloodgood that "multiplicity of multiple tumors is suggestive of benignity," and cites a case which showed a very definite relationship between chronic inflammatory conditions in the breast (chronic mastitis) and malignancy; the latter being often the precursor of carcinoma. He also protests against the teaching of Bloodgood that simple cysts in women under 25 are not dangerous, and favors that implied in the aphorism of Finney, when he said, "Any lump in any woman's breast is better out than in."

Lymph Glands in Cancer of Cecum.—One hundred preserved specimens of cancer of the cecum which had been removed at operation formed the basis of the study made by Craig and McCarty. There were sixty-eight cases without and thirty-two cases with metastatic involvement of the regional lymph glands. Colloid cancer, without metastatic involvement of the regional lymph glands, occurred in eight cases, and colloid cancer with metastatic involvement of the regional lymph glands occurred in twelve cases. The size of the intestinal lesion, and the size and number of the regional lymph glands proved to be no criterion of the presence or absence of metastasis. In cases in which a large number of glands were involved pathologically, a high degree of malignancy was usually noted clinically. Predominance of involvement of the posterior ileocolic lymph glands is of significance and should prove of value in the operating room, since 71 per cent. of all glands found were in this region, and 64 per cent. of the glands which showed metastatic involvement belonged to this group.

Cancer of Rectum and Sigmoid.—Phifer analyzes forty-nine reported cases and adds one case of his own.

Sarcoma of Omentum.—Copher cites a case of primary sarcoma of the great omentum with metastasis to the liver in a male, aged 44. The chief complaint was vomiting, pain in the abdomen, weakness and loss of weight. The vomitus was generally of the "coffee-ground" type. A diagnosis of carcinoma of the stomach had previously been made. Operation disclosed a tumor beneath the stomach with many adhesions. The abdomen contained much bloody fluid. The liver lay in contact with the tumor and in the left lobe there was an accumulation of metastatic nodules. Stomach, pancreas, spleen, kidneys and suprarenals were free from tumor. The duration of the illness was only four months.

Boston Medical and Surgical Journal

188: 1023-1034 (June 28) 1923

*Cardiotomy and Valvulotomy for Mitral Stenosis. E. C. Cutler and S. A. Levine, Boston.—p. 1023.
Conservative vs. Radical Obstetrics. R. L. De Normandie.—p. 1028.
Where Does Mental Hygiene Begin? L. V. Briggs, Boston.—p. 1034.
Gastroptosis in Its Relation to Gynecology. K. C. Mead, Middletown, Conn.—p. 1037.
Tuberculosis Problem in Massachusetts. E. R. Kelley, Boston.—p. 1041.

Valvulotomy for Mitral Stenosis.—The picture presented in the case cited by Cutler and Levine was one of mitral stenosis in a child that had no cardiac reserve. She could be fairly comfortable in bed, except for repeated attacks of severe hemoptysis. It was impossible to get her out of bed. The heart muscle was still in fair condition and the stenosis was sufficient to be an important factor from a purely mechanical point of view. Hence, surgical intervention was advised. Ether was administered through a catheter passed into the nasopharynx through the nose, and using the Connell machine. The exposure elected was an elaboration of Milton's median sternotomy known as the Duvall-Barasty median thoraco-abdominal pericardiotomy. The pericardium was split up its anterior surface almost to the base of the heart. Next, the posterior pericardium and diaphragm were divided together, toward the suspensory ligament, thus permitting the bottom of the wound to open widely and exposing the entire heart to view and manipulation. The pulse, which was 180 during the early stages of anesthesia, had dropped to 120, and the pressure had dropped from 110/50 to a systolic of 50. Realizing that heart muscle will stand severe trauma better if gradually initiated to its task, the heart was several times rolled out of its position. At this point about 0.5 c.c. of 1 : 1,000 epinephrin solution was allowed to drip over the heart, followed by some hot salt solution. At once the heart responded by vigorous and full contractions. Rolling the heart out and to the right by the left hand, the valvulotome was plunged into the left ventricle at a point about 1 inch from the apex and away from the branches of the descending coronary artery, where two mattress sutures had already been placed. The knife was pushed upward about 2½ inches, until it encountered what seemed to be the mitral orifice. It was then turned mesially, and a cut made in what seemed to be the aortic leaflet, the resistance encountered being very considerable. The knife was quickly turned and a cut made in the opposite side of the opening. The knife was then withdrawn and the mattress sutures already in place were tied over the point at which the knife had been inserted. There was no bleeding. Hot saline was dripped onto the heart, whose action continued good. The posterior pericardium and diaphragm were closed by a continuous suture of silk, next the small opening in the abdomen in a similar fashion, and the anterior pericardium likewise. No opening had been made in the pleurae and there had been no respiratory disturbance throughout the procedure. At the conclusion of the operation the pulse was 140, respiration 40, and blood pressure, 80/40. The general condition of the patient seemed good. The authors state that at this stage of their observations they cannot with accuracy define just what occurred nor what benefits may have accrued, if any. The experience with this case, however, is of importance in that it shows that surgical intervention in cases of mitral stenosis bears no special risk, and should give further courage and support to attempts to alleviate a chronic condition for which there is now not only no treatment, but one which carries a terrible prognosis.

Florida Medical Association Journal, St. Augustine and Jacksonville

9: 192-211 (June) 1923

Proceedings of the Fiftieth Annual Meeting of Florida Medical Association.—p. 193.

Illinois Medical Journal, Oak Park

43: 410-476 (June) 1923

Surgical Judgment. J. H. Gibbon, Philadelphia.—p. 424.
Certain Factors to be Considered in Judging Effects of Prohibition in Relation to Use of Narcotics. L. D. Volk, Brooklyn.—p. 428.
Smallpox: Differential Diagnosis. A. L. Hoyne, Chciago.—p. 433.
Tuberculosis of Bones and Joints. W. A. Kimmet, Oak Forest.—p. 436.
Nephrolithiasis Complicating Pregnancy. A. P. Heineck, Chicago.—p. 442.
Specific Hypersensitiveness as Common Cause of Illness. W. W. Duke, Kansas City, Mo.—p. 445.
Treatment of Compound Fractures of Extremities. W. H. Byford, Chicago.—p. 452.
Gunshot Injury Involving Ulnar Nerve. A. Bamberger, Chicago.—p. 453.
Acute Appendicitis in Children. T. H. Kelley, Chicago.—p. 454.
Modern Conceptions of Acidosis. J. S. Weingart, Des Moines, Iowa.—p. 459.
Acute Abscess of Nasal Septum: Case Reports. S. M. Morwitz, Chicago.—p. 463.
Plea for Eradication of Chronic Endocervicitis. J. O. Cletcher, Cisco.—p. 465.
Unusual Foreign Body (Seed) in Eye. W. D. Drake, Effingham.—p. 468.

Indiana State Medical Association Journal, Ft. Wayne

16: 189-216 (June) 1923

Rights and Duties of Surgeon. M. F. Porter, Fort Wayne.—p. 189.
Diagnosis of Duodenal Ulcer. F. W. Foxworthy, Indianapolis.—p. 192.
Cycloplegics in Refraction Work. A. E. Bulson, Jr., Fort Wayne.—p. 198.
*Paratyphoid in Baby: Report of Case. L. J. Wisch, Whiting.—p. 204.
*Crochet Needle in Abdominal Cavity: Case Report. R. O. McAlexander, Indianapolis.—p. 204.

Paratyphoid in Baby.—Wisch's patient was only 5 months of age. There was the usual clinical history with recovery.

Crochet Needle in Abdominal Cavity.—McAlexander's patient introduced into her uterus, blunt end first, a celluloid crochet needle, 5 inches long, to induce abortion. She lost control of the needle. She suffered no distress, was able to attent to her household duties, but not finding the needle she became alarmed and called her family physician, who made the usual examinations without finding the needle. Then McAlexander saw her. No evidence of a foreign body could be found in the pelvis or uterus. Her only symptom was that on rare occasions she experienced a slight sticking pain in the abdomen. It never occurred twice in the same region. Her mental state seemed to be the chief concern. Roentgen-ray examination was negative. An exploratory laparotomy was decided on. The crocret needle was found. It was caught in the omentum by the hooked end, the blunt end being free. No evidence of traumatism could be observed about the uterus or pelvic cavity. The patient made an uneventful recovery.

Journal of Industrial Hygiene, Boston

5: 41-80 (June) 1923

Some Results of Investigation into Efficiency of Linen Weavers. H. C. Weston.—p. 41.
Observations on Dysmenorrhea Occurring in Women Employed in a Large Department Store. M. C. Sturgis, Philadelphia.—p. 53.
Prevention of Industrial Lead Poisoning in English Factories. A. C. Burnham, New York.—p. 57.
Atmospheric Particulate Matter: Dust, with New Apparatus for Its Determination. P. Drinker, R. M. Thomson and S. M. Fitchet, New Haven, Conn.—p. 62.

Journal of Urology, Baltimore

9: 491-553 (June) 1923

*Therapeutic Value of Two New Synthetic Antimony Compounds in Cases of Granuloma Inguinale. A. Randall, Philadelphia.—p. 491.
Granuloma Inguinale (Ulcerating Granuloma, Serpiginous Ulceration of Genitals, Ulcerating Granuloma of Pudenda, etc.). M. Weinberg, Sumter, S. C.—p. 505.
Torsion of Spermatic Cord. E. L. Keyes, Jr.; C. W. Collings and M. F. Campbell, New York.—p. 519.
*Infection of Seminal Vesicles in Relation to Systemic Disease. F. W. Smith and J. H. Morrissey, New York.—p. 537.

New Antimony Compounds in Treatment of Granuloma Inguinale.—The two drugs studied by Randall were sodium antimony thioglycollate and triamide of antimony thioglycollic acid. Both preparations were made about twelve years ago by J. J. Abel. The results were excellent. No toxic effects were noted and there was a complete absence of the symptoms usually following tartar emetic administration. The triamide of antimony thioglycollate is regarded as practically specific in its action on the lesions of granuloma inguinale, with a toxicity probably less than that of tartar emetic.

Infection of Seminal Vesicles.—Smith and Morrissey dwell on the importance of seminal vesiculitis as a focus of infection and urge operative treatment on the vesicles in the cases falling in this group.

Kansas Medical Society Journal, Topeka

23: 143-172 (June) 1923

Race Improvement. M. L. Perry, Topeka.—p. 143.
*Insulin Treatment of Diabetes. R. H. Major.—p. 148.
Id. D. R. Thomas, Halstead.—p. 151.

Insulin Treatment of Diabetes.—Major regrets that the term "cure" has been applied by the lay press in speaking of insulin. It does not abolish dietary restrictions in a diabetic, although its use permits the patient to follow a much more liberal diet than would be possible otherwise. It unquestionably permits many severe diabetics "with a progressive course downward" to live in comparatively good health and comfort, instead of dying in coma. It is premature to speak of insulin as a "cure" for diabetes. There is no doubt, however, that it is easily the greatest single advance that has ever been made in the therapy of diabetes mellitus.

Kentucky Medical Journal, Bowling Green

21: 263-300 (June) 1923

Intestinal Obstruction. H. T. Rivers, Paducah.—p. 266.
Cases of Intestinal Resection. E. S. Allen, Louisville.—p. 267.
Mechanism of Prostatism. O. Grant, Louisville.—p. 275.

Pancreatic Cyst: Report of Case. E. W. Northcutt, Covington.—p. 285.
Subacute Vegetative Endocarditis. L. K. Baldauf, Louisville.—p. 287.
Practical Value of Protein Sensitization. R. H. Davis, Louisville.—p. 291.
Exostosis of Tibia: Osteomyelitis. Case Reports. G. P. Grigsby, Louisville.—p. 295.
Immunity and Infectious Diseases. J. S. Chambers, Paducah.—p. 296.
Therapeutic Abortion. L. C. Redmon, Lexington.—p. 298.

Maine Medical Association Journal, Portland

13: 265-298 (June) 1923

Hydrotherapy. W. W. Bolster, Lewiston.—p. 265.
Mental Therapy. L. P. Gerrish, Lisbon Falls.—p. 270.
Radiotherapy in Treatment of Superficial Malignant Disease. R. B. Josselyn, Portland.—p. 279.
Intravenous Medication Made Safer. H. R. Whitney, Portland.—p. 284.

Michigan State Medical Society Journal, Grand Rapids

22: 271-292 (June) 1923

Glandular Fever. C. A. Van Dusen, Ogden Center.—p. 271.
Acute Pelvic Problems. L. Dretzka, Detroit.—p. 272.
Electrotherapy, or What the Physician Can Do and Should Do for "Chronics." J. E. G. Waddington, Detroit.—p. 273.
Does Diet Influence the Course of Basal Metabolic Rate in Exophthalmic Goiter? H. G. Waller and M. N. Woodwell, Ann Arbor.—p. 275.
Sinus Thrombosis. H. F. Ohrt, Detroit.—p. 276.
Signs and Symptoms in Exophthalmic Goiter. C. F. McClintic, Detroit.—p. 277.

22: 293-322 (July) 1923

*Hysterical Paralysis; Report of Case of Five Years' Duration. L. J. Foster, Ann Arbor.—p. 293.
Modern Viewpoints on Gastro-Intestinal Surgery. A. M. Campbell, Grand Rapids.—p. 294.
Early Mobilization in Treatment of Fractures. H. C. Saltzstein, Detroit.—p. 299.
Medical Profession Seen Through Eyes of Preacher. K. D. Beach, Grand Rapids.—p. 302.
Diagnosis and Management of Tabes Dorsalis. F. P. Currier, Grand Rapids.—p. 304.
Obligations of Doctors. A. P. Johnson, Grand Rapids.—p. 311.

Treatment of Hysterical Paralysis.—The main features of Foster's case were a spasmodic quadriplegia with contractures and a hysterical trismus of five years' duration. The patient was treated by psychotherapy by means of strict isolation and persuasion and received a daily treatment with static electricity to reinforce the suggestion. Two weeks after the beginning of treatment the hands were held open and the arms could be moved in any direction. She could also flex the legs at the knees and was able to chew her food. After another two weeks she was able to walk, but with a markedly hysterical gait. She continued to improve and was soon able to walk up and down stairs. Two months after her entrance she was discharged walking normally, having no complaints and weighing 105 pounds.

Military Surgeon, Washington, D. C.

52: 567-670 (June) 1923

Statics of Human Arch When Subjected to Body Weight. H. L. Dunn.—p. 567.
A Field Test for Determining Potability of Water; Method for Performing Presumptive Test for Bacterium Coli Without Special Laboratory Equipment. A. P. Hitchens.—p. 629.
Joseph Janvier Woodward, Brevet Lieutenant Colonel, U. S. Army, Pioneer in Photomicrography, Pathologic Histology and Medical Historian of Civil War. J. C. Hemmeter, Baltimore.—p. 635.
What is Mean Annual Death Rate? P. R. Hawley.—p. 648.

Minnesota Medicine, Minneapolis

6: 363-430 (June) 1923

Is Public Health Work a Menace to Regular Medicine? C. L. Scofield, Benson.—p. 363.
Traumatic Rupture of Normal Spleen. E. C. Robitshek, Minneapolis.—p. 365.
Prostatectomy from Standpoint of General Practitioner. V. J. LaRose, Bismarck, N. D.—p. 376.
Obliteration of Bone Cavities in Chronic Osteomyelitis by Free Fat Transplantation. G. R. Dunn, Minneapolis.—p. 379.
Treatment of Fresh Fractures of Shaft of Femur. R. Earl, St. Paul.—p. 383.
Fractures About Hip Joint. C. C. Chatterton, St. Paul.—p. 387.
Fractures of Forearm. W. H. Cole, St. Paul.—p. 390.
Management of Heart Disease in Children. M. Seham, Minneapolis.—p. 393.
Standardization of Clinical Laboratories and Technicians. K. Ikeda, Minneapolis.—p. 397.
Empyema. H. L. Beye, Iowa City.—p. 401.

Nebraska State Medical Journal, Norfolk

8: 185-220 (June) 1923

Responsibility of Medical Profession to Civilization. B. F. Bailey, Lincoln.—p. 185.
Present Day Economic Problems in Medicine. C. A. Roeder, Omaha.—p. 197.
Cult Menace. E. L. Bridges, Omaha.—p. 201.
Insulin Treatment of Diabetes. L. Crummer, Omaha.—p. 205.
Management of Acute Brain Injuries. G. E. Neuhaus, Omaha.—p. 207.
Thymus Disease in Children: Report of Case. H. E. Flansburg, Lincoln.—p. 211.
Malnutrition in Children of Preschool Age. W. O. Colburn, Lincoln.—p. 213.

New Jersey Medical Society Journal, Orange

20: 181-216 (June) 1923

Medical Problems of Yesterday. T. W. Harvey, Orange, N. J.—p. 181.
Medical Practitioner and American Society for Control of Cancer. J. E. Rush.—p. 186.
Sanatorium; Most Valuable Agency in Antituberculosis Campaign. M. F. Sloan, Baltimore.—p. 188.
Rest and Exercise in Sanatorium Treatment of Pulmonary Tuberculosis. I. Kaufman, Philadelphia.—p. 194.
Clinical Value of Blood Chemistry. E. L. Shaffer, Trenton, N. J.—p. 198.
Impotentia Coeundi, Due to Pathologic Changes in Posterior Urethra. J. Broadman, New York.—p. 200.

Surgery, Gynecology and Obstetrics, Chicago

34: 731-862 (June) 1923

Exstrophy of Bladder with Successful Transplantation of Ureters into Rectum: Report of Two Cases. E. H. Hutchins and A. F. Hutchins, Baltimore.—p. 731.
Modification of Kielland Operation for Prolapsus Uteri. H. J. Boldt, New York.—p. 742.
*Fractures in Transplanted Bone. S. L. Haas, San Francisco.—p. 749.
Efficient Surgeon. R. Bastianelli, Rome, Italy.—p. 762.
*Pathologic Anatomy of "Autointoxications" in Pregnancy and Childbirth. F. Harbitz, Christiania, Norway.—p. 767.
*Unilateral Intestinal Exclusion. G. E. Muennich, Valparaiso, Chile.—p. 773.
Tuberculosis of Genitalia. Review of Literature. B. Solomons, Dublin, Ireland.—p. 777.
*Malignant Neoplasia of Kidney Occurring in Infancy. J. H. Magoun, Jr., and W. C. MacCarty, Rochester, Minn.—p. 781.
Longitudinal Overgrowth of Long Bones. K. Speed, Chicago.—p. 787.
Fibroliposarcoma of Spermatic Cord. T. H. Kelley, Chicago.—p. 795.
Study in Puerperal Morbidity. E. Eno, Des Moines, Ia.—p. 797.
Tubal Twins and Tubal Pregnancy. L. B. Arey, Chicago.—p. 803.
*Autotransfusion. Report of Case. L. E. Burch, Nashville, Tenn.—p. 811.
Bismuth Paste Tumors. F. L. Lederer, Chicago.—p. 815.
Technic of Thyroidectomy. F. H. Lahey, Boston.—p. 825.
Fractured Spine: Consideration of Practical Care and Treatment. W. C. G Kirchner, St. Louis.—p. 830.
*New Sacro-Iliac Support. J. McW. Berry, Albany, N. Y.—p. 835.
Instrument and Method for Aseptic Anastomosis of Intestine. F. E. B. Foley, St. Paul.—p. 836.

Fracture in Transplanted Bone.—Haas studied the healing of fractures in transplanted bone. He found that fractures in transplanted bone, even when buried in muscle, united firmly and in a similar manner to a fracture under normal conditions. Fractures in boiled transplanted bone never united nor showed any signs of proliferation or attempt at repair. Occasionally a small area resembling new bone was noticed on the surface, which bore no relation to the fracture and was possibly of metaplastic origin. Fractures in transplanted bone, in which one-half was boiled and the other half was alive, even when buried in muscle under favorable conditions united. It is believed that this is the crucial test of the independent, inherent osteogenetic powers of the cells of a transplanted piece of bone, and establishes beyond doubt the proof of this independency, and, furthermore, shows an additional reparative property of these same osteoblastic cells.

Pathology of Autointoxication of Pregnancy.—The most important anatomic changes in these conditions, Harbitz states, are degenerations in the liver and kidneys. As a rule, these changes are pronounced, without being specifically characteristic; they are present in cases of eclampsia, both those that do not have infarcts, as well as those that have more or less well-marked infarcts in the liver. Some cases studied showed hemorrhagic infarcts, but no eclampsia, and, on the other hand, one case was typical of eclampsia but with indications only of beginning infarct formation in the liver, the other changes being of the same kind as seen in other forms of toxicosis. Furthermore, there may be hemorrhages in different organs just as in eclampsia; in one case there was a cerebral hemorrhage quite similar to that not infrequently found in eclampsia; another case is interesting because of the necroses and hemorrhages in the suprarenals, the case being one of eclampsia without infarcts. At times the changes in the kidneys may dominate the picture, while at other times the liver degeneration may be the most pronounced lesion. Two cases of excessive vomiting of pregnancy were of special interest. Degeneration of the kidneys was the most marked in one case, but both liver and kidneys were involved and there were present the symptoms of amaurosis without retinitis. In a few cases of hyperemesis, acute yellow atrophy of the liver occurred. Viewed as a whole, the cases present all possible transitions from genuine eclampsia, with or without characteristic anatomic changes, to the different other groupings. The anatomic picture in the different forms to a certain degree is similar, even if there are many variations, and it lies near at hand to think of all these cases as like eclampsia in being due to autointoxication.

Unilateral Intestinal Occlusion.—From his study of the subject Muennich concludes that unilateral exclusion of the intestine offers as great advantages as simple entero-anastomosis and as bilateral exclusion. It is indicated chiefly (*a*) in ileocecal tuberculosis if the extension of the disease or general condition of the patient makes resection impossible; (*b*) in cancer of the colon if the extension of the disease or the general condition of the patient makes resection impossible, and (*c*) in tumors the diagnosis of which is doubtful (inflammatory or malignant) and which produce stricture of the bowel. Unilateral exclusion is superior to simple anastomosis in that it eliminates any strain on the strictured area and to bilateral exclusion in that it avoids an external fistula.

Kidney Tumors in Children.—The material of the study made by Magoun and MacCarty consists of seven renal neoplasms from seven children (six females and one male); the oldest was 7 years, and the youngest 20 months of age. The growth was situated on the right side in five cases, and on the left in two. The largest tumor weighed 760 gm.

Autotransfusion After Splenectomy.—In a case of splenic anemia Burch removed the spleen. The operation was not only difficult but bloody. The large amount of blood that was lost in the abdomen during the operation was recovered by expressing the contents of the abdominal packs into a glass receptacle. A little over 800 c.c. of blood was recovered, and after this was citrated and strained it was injected into a vein at the elbow. At the time the transfusion was started the pulse was 140 and barely perceptible; at its completion the pulse was 102, strong, and the patient's color was good. There was no reaction following the transfusion. Operative recovery was unusually smooth and at the end of two weeks he was able to leave the hospital and return to his home.

New Sacro-Iliac Support.—Berry asserts that it is possible to support and hold together a disarticulated human pelvis by the pressure of one or two fingers on either side. The proper point for pressure on either side is limited to an area about 2.5 cm. in diameter on the outer surface of the ilium opposite the knee of the sacro-iliac joint. If pressure is applied over any other two areas than the above the pelvis falls apart. Corresponding areas on the surface of the body are situated just posterior to the upper end of the greater trochanter of the femur and there are normally depressions in the buttocks at those points. Berry says that many sacro-iliac supports that have been devised, press against the crest of the ilium or other parts of the pelvis and tend rather to displace than support the sacro-iliac joints. The object of the brace which Berry has devised is to give lateral support to the pelvis over the points at which experiment has shown that the disarticulated pelvis can be held together.

Texas State Journal of Medicine, Fort Worth

19: 59-156 (June) 1923

The Doctor. J. Becton, Greenville.—p. 71.
Responsibility of State for Health of Its Citizens. T. W. Davidson, Marshall.—p. 74.
Obligations of Laity to Scientific Medicine. W. B. Thorning, Houston.—p. 78.
In Memory of Our Dead. T. Dorbandt, San Antonio.—p. 82.
Work of American Medical Association. O. Dowling, New Orleans.—p. 84.

U. S. Naval Medical Bulletin, Washington, D. C.

18: 673-763 (June) 1923

Present Status of Anthelmintic Medication. M. C. Hall, Washington, D. C.—p. 673.
Roentgenologic Diagnosis of Bone Tumors. R. W. Hutchinson.—p. 679.
Hookworm Studies in American Samoa. D. Hunt.—p. 685.
Pulmonary Symptoms Incident to Infection of Accessory Sinuses of Nose. R. T. McIntire.—p. 688.
Local Anesthesia. O. D. King.—p. 693.
Diagnosis and Treatment of Otitis Media. A. G. Wenzell.—p. 698.

West Virginia Medical Journal, Huntington

17: 521-576 (June) 1923

Present Status of Diabetes. W. E. Vest, Huntington.—p. 521.
Spontaneous Version and Spontaneous Evolution. U. G. Cook, Beckley.—p. 524.
Case of Syphilis. E. S. Dupuy, Beckley.—p. 525.
Focal Infections. W. T. Riffe, Beckley.—p. 527.
Posthemorrhagic Leukocytosis. R. E. Stifel, Cleveland.—p. 530.
Medical Practitioner and American Society for Control of Cancer. J. E. Rush.—p. 532.
Recurrent Vomiting. C. L. Holland.—p. 536.
Some Common Errors in Care and Feeding of Infants and Young Children. A. A. Shawkey, Charleston.—p. 540.
Care and Feeding of Normal Infant. J. A. Striebach, Moundsville.—p. 547.

Wisconsin Medical Journal, Milwaukee

22: 1-58 (June) 1923

Lethargic Encephalitis. Difficulties in Differential Diagnosis and Late Sequelae. G. W. Hall, Chicago.—p. 1.
Diagnosis and Treatment of Uterine Retrodisplacements. C. H. Davis, Milwaukee.—p. 10.
Symptomatology, Diagnosis and Classification of Goiter. A. S. Jackson, and R. H. Jack, Madison, Wis.—p. 13.
Notes on South America. D. J. Hayes, Milwaukee.—p. 21.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Experimental Pathology, London

4: 105-176 (June) 1923

*Excretion of "Acetone" and Nitrogen in Nausea and Vomiting of Pregnancy. V. J. Harding and C. T. Potter.—p. 105.
*Relative Concentration Ratios of Some Constituents of Urine. II. Urea, Creatinin, Inorganic Phosphate and Uric Acid. S. W. F. Underhill.—p. 117.
*Method of Estimation of Diastase in Blood. G. M. Fyfe.—p. 127.
Precipitation of Colloidal Gold by Cerebrospinal Fluid; Diagnosis of Neurosyphilis. J. Mellanby and T. Anwyl-Davies.—p. 132.
Some New Principles in Bacterial Immunity; Their Experimental Foundation, and Their Application to Treatment of Refractory Infections. G. Dreyer.—p. 146.

Excretion of Acetone in Vomiting of Pregnancy. — The points emphasized by Harding and Potter are: the excretion of "acetone" in the majority of cases of nausea and vomiting of pregnancy parallels the clinical condition. The effect of abortion is to diminish the production of "acetone." Tissue destruction in nausea and vomiting of pregnancy when under the influence of small amounts of carbohydrate is governed by the demand for further supplies of carbohydrates. The results are similar to those observed in some cases of starvation, but in pregnancy the demand for carbohydrate, and consequently the disturbance following its lack, is more intense than in starvation.

Relative Concentration Ratios of Urinary Constituents.—It is considered by Underhill that the results of his experiments on the relative concentration ratios of urea, creatinin and inorganic phosphate are incompatible with the "filtration reabsorption" hypothesis of kidney function in its present form. It is concluded that the kidneys must actively secrete one or more of these substances into the urine.

Estimating Diastase in Blood.—By the adaptation of MacLean's method of blood sugar estimation, a means has been evolved by Fyfe which has the advantage of simplicity and accuracy, while it necessitates the minimum of discomfort to the patient. It also permits of an almost concurrent reading of the blood sugar and the blood diastase figures, dispensing with the need for two different technics. For the method proposed 0.2 c.c. blood only is required, an amount which can easily be obtained by pricking the ear or the finger. The final result depends on a determination of the patient's blood sugar by MacLean's method, and on a second determination after 0.2 c.c. of the patient's blood has been incubated for half an hour at 37 C. with 1 c.c. of a 0.1 per cent. solution of starch.

British Journal of Ophthalmology, London

7: 257-304 (June) 1923

Watertight Suture in Trephining. R. F. Moore.—p. 257.
Hyperplasia of Hypophysis Cerebri? J. D. Cummins.—p. 260.
Treatment of Conical Cornea. C. Killick.—p. 264.
Blue Cataract. R. P. Ratnaker.—p. 269.
Third Dimension in Monocular Vision. C. H. Bryant.—p. 271.

British Medical Journal, London

1: 1081-1120 (June 30) 1923

Notes from Practice. W. J. Tyson.—p. 1081.
Herpes Zoster Ophthalmicus. S. Lodge and W. O. Lodge.—p. 1084.
Quinin Treatment of Chronic Malaria. T. S. Dixson.—p. 1087.
Autogenous Peg Graft in Certain Fractures of Femur. W. Mercer.—p. 1088.
Laryngeal Intubation in Anesthetics. S. Rowbotham.—p. 1090.
Cases of Chancre Redux. P. C. P. Ingram.—p. 1091.
Mediastinal Sarcoma with Venous Thrombosis. J. A. MacLaren.—p. 1092.
*Acute Puerperal Inversion of Uterus. R. R. Foote.—p. 1092.
*Idiosyncrasy to Mercury. F. Meiné.—p. 1092.

Acute Puerperal Inversion of Uterus.—The points of interest in Foote's case were the extreme gravity of the shock, the slight amount of hemorrhage, the rapid contraction of the uterus after reposition, and the good results which followed on early reposition with removal of the placenta as a preliminary.

Idiosyncrasy to Mercury.—Meiné cites the case of a young woman whose eyelids were edematous, with small pearlish blebs on the skin surface; there was a good deal of injection of the conjunctivae, with similar blebs on them. She complained of excessive watering of the eyes, blurred vision and photophobia. On the posterior surface of the auricle and skin adjoining were erythematous pearllike blebs. All down one side of the neck over the distribution of the fibers of the trapezius was a distinctly shotty erythema. The case appeared a puzzle until Meiné went into the question of occupation. The patient had lately been engaged as a dental nurse; she had been clearing up amalgam fillings, and had touched some globules of mercury. Evidently she had rubbed her eye with the finely divided metallic mercury and set up slight mercurial poisoning. She had some slight watering of the mouth, and the parotid was very tender. Evidently the case was one of special idiosyncrasy to mercury.

Glasgow Medical Journal

6: 337-405 (June) 1923

Mental Hygiene. D. K. Henderson.—p. 337.
Use of Blood Sugar Estimations in Investigation of Glycosuria. A. Patrick.—p. 361.
*Case of Advanced Chronic Interstitial Nephritis in Girl of Ten Years. J. Henderson.—p. 370.

Advanced Chronic Interstitial Nephritis in Child.—The associated symptoms in Henderson's case (girl, aged 10) were headache, sickness and vomiting, pains in the legs, cardiac discomfort and slight dyspnea. The patient had "fits" and occasionally hematuria. Associated with the hematuria there was violent sickness and vomiting, so that nothing in the way of food could be retained. The association of the main symptoms, the urinary findings, the hypertrophy of the left ventricle, and the high blood pressure (240 mm.) with a history of previous renal disease, seemed to point to a chronic nephritis of the azotemic variety as the basal lesion, with an acute exacerbation superadded. The Wassermann reaction was negative, as also was the Pirquet test. No growth was obtained on blood culture. The urine was examined on several occasions for tubercle bacilli, with negative result. Roentgenograms of the kidney region showed no abnormality. Ophthalmoscopic examination disclosed swelling of the disk in both eyes, with a few small hemorrhages and slight exudate in the neighborhood. The vessels were moderately tortuous. Between the disk and the macula in the right eye a fan-shaped area of white glistening spots was seen, while in the left eye there were two small patches of exudation at some distance below the disk. There was low hypermetropic astigmatism in both eyes. The progress of the case was steadily downward, with progressive wasting. There was complaint of intermittent headache, and there was occasional vomiting without relation to food. The daily output of urine never exceeded 30 ounces (900 c.c.); the albumen register was variable, but remained constantly low, while the blood almost disappeared. The patient inclined to be drowsy, and at times showed twitching of the eyes and facial muscles, with rigidity of the limbs. The day before death the drowsiness increased and gradually merged into complete coma, with recurrent general convulsions. Postmortem examination confirmed the clinical diagnosis.

Japan Medical World, Tokyo

3: 123-152 (June 15) 1923

*Experimental Study of Cells of Mucous Membrane of Digestive Tract as Toxin or Irritant, and Their Relation to Formation of Peptic Ulcer. Y. Myagawa, H. Murai and M. Terada.—p. 123.
My Method of Closure of Ureter. M. Kawazoe.—p. 135.
*Bacillus Pestis in Blood and Its Cultivation. O. Ohoto.—p. 136.

Experimental Production of Gastric Ulcer.—Having proved the formation of isogastrotoxin and iso-enterotoxin, Myagawa, Murai and Terada used these substances to produce ulcers in the digestive tract of normal animals. They also proved the formation of autogastrotoxin and auto-enterotoxin. By using them they were also able to form ulcer in the animal's own body. The formation of cytotoxin varies according to individuality. The susceptibility of other normal animals to cytotoxin also varies. The authors believe that the direct action of resorbed cell components of the digestive mucus membrane and gastrotoxin and enterotoxin are to be regarded each as a mode of the genesis of ulcers in the digestive tract. The direct action of resorbed cell components and the action of cytotoxin renders recovery of ulcer produced by various other causes very difficult. Isogastrotoxin of the rabbit can act on the stomach wall of a guinea-pig and cause ulcer. When enterotoxin and hepatoxin act on the stomach wall, often there are reactions, but the formation of ulcer may sometimes be seen. But such reactions are not so certain and constant as those of gastrotoxin on the stomach wall.

Pest Septicemia Not Infrequent Occurrence.—By cultivating *Bacillus pestis* in bile medium or 1 per cent. sodium citrate bouillon, Ohoto says, 72.2 per cent. of patients with plague gave positive results. Consequently, plague septicemia is not of infrequent occurrence and the prognosis is not absolutely bad.

Journal of Laryngology and Otology, Edinburgh

38: 285-340 (June) 1923

Case of Rhinosporidiosis. J. H. Ashworth and A. L. Turner.—p. 285.
Nasal Disfigurement and Correction. D. Guthrie.—p. 300.
Otitic Meningitis. G. J. Jenkins.—p. 304.
Boiler Makers' Deafness. R. Lake.—p. 323.

Journal of Physiology, London

57: 253-336 (June 8) 1923

Colloidal Alkali Reserve of Blood. T. H. Milroy.—p. 253.
Carbon Dioxid Partial Pressure in Body Cavities and Tissue Spaces Under Various Conditions. J. A. Campbell.—p. 273.
Creatin Formation in Frog's Muscle Contracted by Nicotin. T. Mitsuda and K. Uyeno.—p. 280.
Maximum Work of Human Muscles, Especially Flexors of Elbow. T. E. Hansen and J. Lindhard.—p. 287.
Calcium Chlorid Acidosis. J. B. S. Haldane, R. Hill and J. M. Luck.—p. 301.
Sympathetic Innervation and Process of Normal Salivary Secretion. W. E. Maevsky.—p. 307.
Creatin Formation During Tonic Muscle Contraction. K. Uyeno and T. Mitsuda.—p. 313.
*Modification of Action of Insulin by Pituitary Extract and Other Substances. J. H. Burn.—p. 318.
Effect of Temperature on Isolated Iris of Cat. C. A. Verbitzky.—p. 330.

Modification of Insulin by Pituitary Extract.—Burn found that subcutaneous injections of extract of posterior lobe of the pituitary gland given simultaneously with injections of insulin, diminish or abolish the fall of blood sugar produced by the latter. The doses of pituitary extract used do not, when given alone, produce a rise of blood sugar sufficient to explain this inhibition of the action of insulin as being the result of an algebraic sum. This effect is not produced by similar extracts of anterior lobe of pituitary, or of spleen, thyroid, brain tissue or thymus. Nor is it produced by histanin. The property, in the case of posterior lobe extract, is destroyed by treatment with normal alkali in the cold. Pituitary extract removes the symptoms of hypoglycemic convulsions, causing a rapid elevation of the blood sugar. The effect of a small dose of insulin is greatly increased by previous intravenous injection of ergotoxin. Confirmation is given of the following points: (*a*) Pituitary extract inhibits epinephrin hyperglycemia and glycosuria; (*b*) ergotoxin abolishes epinephrin hyperglycemia and glycosuria; (*c*) insulin greatly reduces the hyperglycemic action of epinephrin. Instances are cited in which subcutaneous injections of pituitary extract in the normal animal led to a fall of blood sugar, though, as a rule, such injections cause a transient rise.

Journal of Tropical Medicine and Hygiene, London

24: 179-210 (June 1) 1923

Lichen Planus Hypertrophicus in Sudan. R. G. Archibald.—p. 179.
Erythrodermia Congenitale Ichthyosiforme in Arab Child. R. G. Archibald.—p. 180.
Xanthoma Tropicum (Juxta-Articular Nodules). R. W. Mendelson. —p. 181.
Dermal Leishmanoid. U. N. Brahmachari.—p. 182.
*Etiology of "Cute." A. Castellani and H. Tejera.—p. 183.
Acladium Castellanii (Pinoy). R. Craik.—p. 184.
Trichomycosis Axillaris Flava, Rubra and Nigra. A. Castellani. —p. 186.
*Etiologic Fungi of Tinea Versicolor and Tinea Flava. M. F. Schmitter.—p. 190.
*Phosphorus in Treatment of Dermal Leishmaniosis. A. Castellani. —p. 194.

Etiology of "Cute."—In Venezuela a skin disease called "cute" is fairly common, but so far very little attention has been paid to it and nothing is known about its etiology. The affection is characterized by the presence of bright yellow patches, with little or no desquamation, which have no tendency to spontaneous cure. The condition not rarely begins in childhood and spreads very slowly. The symptomatology of "cute" seems to be identical with the affection described by Castellani in Ceylon under the name of tinea flava. Microscopically, the fungus of "cute" seems also to be very similar or identical with the fungus of tinea flava.

Malassezia Furfur Causes Tinea Versicolor.—Schmitter asserts that tinea versicolor is not the harmless skin lesion usually supposed, but persons so affected are chronic carriers of a parasite which under favorable climatic conditions will cause heat rash and other skin lesions in themselves and others. From two cases of tinea flava he has cultivated a different species of a similar organism. The cultural findings harmonize with Castellani's distinction between tinea versicolor and tinea flava, hence Schmitter regards tentatively at least, the organisms of his cultures as *Malassezia furfur* and *Malassezia tropica.*

Phosphorated Oil Cures Oriental Sore.—Castellani adds a fourth case to the three previously reported in which the use of phosphorated oil effected a cure of oriental sore. Phosphorus is chemically closely related to antimony, and Castellani regards it as not improbable that it will be found useful in other diseases in which antimony has been used.

26: 211-226 (June 15) 1923

Treatment of Bilharziasis with Antimony. J. B. Christopherson. —p. 211.
Molluscan Hosts of Human Schistosomes. F. Milton.—p. 211.
Outbreak of Alastrim (Amaas) in Antigua. E. W. R. Branch and W. M. McDonald.—p. 214.
*Blood Studies in Smallpox, with Special Reference to Alastrim. W. H. Hoffmann.—p. 217.

Blood in Smallpox.—The results of the white counts in 300 cases, Hoffman says, was a leukopenia during the time of prodromal symptoms owing to the want of sufficient immunity reaction of the organism, which allows the virus to enter the body. Only after this time—that is, on the fourth day of the disease—is a strong increase of leukocytes observed, the number rising rapidly and being highest with averages of 17,000 from the ninth to the fourteenth day; but higher values up to 30,000 are frequent, and even 40,000 have been counted. The total count remains high during the whole of the third week with averages from 10,000 to 12,000 and in individual cases as many as 24,000 leukocytes. From the fourth week the total numbers sink and approach the normal, but from time to time there are periodical elevations with higher leukocytic values. During the whole period of the fourth, fifth and sixth week, the average numbers remain above the normal, between 9,000 and 12,000, without any apparent relation to the suppuration. At the end of the sixth week the blood has not yet returned to normal. The percentage of polymorphonuclears remains below normal.

Lancet, London

1: 1300-1348 (June 30) 1923

Surgery of Hepatic and Common Bile Ducts. W. J. Mayo.—p. 1299.
*Unexpected Death, Especially in Children, with Comments on Status Lymphaticus. E. Glynn and R. C. Dun.—p. 1302.
Metastatic Gonorrhea. T. Horder.—p. 1304.
Treatment by Electrolysis of Some Affections of Nose and Ear. A. R. Friel.—p. 1305.
Traumatic Asphyxia: Three Cases. A. Moncrieff.—p. 1307.
Case of Lymphemia. A. E. Russell, L. S. Dudgeon and A. L. Urquhart.—p. 1308.
*Radium in Treatment of Uterine Hemorrhage: Report on Forty-Five Cases. S. Forsdike.—p. 1309.
Detection of Coagulable Protein in Feces. R. Coope.—p. 1311.
Two Cases of Erythremia Treated by Roentgen Rays. E. J. Stolkind. —p. 1312.

Sudden Death in Children Not Always Due to Status Lymphaticus.—The expert pathologist after making a postmortem examination in a case of unexpected death, especially in an infant, Glynn and Dun point out, is often forced to admit that he really does not know the cause of death. The organs may appear normal—macroscopically, at any rate; or if lesions are present they may not seem sufficient to be fatal. On account of the youth of the patient, he is unable to take refuge in the diagnosis of "fatty heart"; instead he is tempted by that of "status lymphaticus." In such circumstances, however, there is always the possibility of an acute, or of a terminal infection, as illustrated by six examples cited. In one case, death resulted from terminal infection with *Streptococcus faecalis.* In a second case, death apparently resulted from status lymphaticus, but the child really died of acute meningo-encephalomyelitis, which proved rapidly fatal, partly because it attacked the medulla.

Radium Therapy of Uterine Hemorrhage.—Forsdike chooses radium treatment in all uncomplicated cases of severe and persistent hemorrhage due to chronic metritis, inflammatory disease of the tubes and ovaries constituting the sole contraindication. The radium menopause is not usually accompanied by any symptoms attributable to action on the ovaries, and of all methods it produces the least disturbance of the patient's economic life.

Practitioner, London

110: 409-472 (June) 1923

Puerperium. J. Phillips.—p. 409.
Primary Intrathoracic Neoplasm (Carcinoma; Sarcoma). A. J. S. Pinchin.—p. 422.
Tuberculous Meningitis: Is It a Preventable Disease? D. Paterson. —p. 431.
Appendicitis: Study in Histologic Physiology. O. C. Gruner.—p. 442.
Diet, Dentistry and Disease. J. Brown.—p. 448.
Pott's Caries Successfully Treated by Passive Congestion. V. S. Delany.—p. 455.
Movement to Expose Danger in Appendicitis. C. J. H. Aitken.—p. 457.
Organic Heart Disease in a Tuberculous Subject. H. J. Monypeny. —p. 458.

Tubercle, London

4: 385-432 (June) 1923

*Reproductive Mechanism as Factor in Female Phthisis Death Rate. S. L. Cummins.—p. 385.
Diagnosis and Treatment of Tuberculosis of Kidneys and Urinary Tract. (To be continued.) G. Ekehorn.—p. 393.
Roentgen-Ray Diagnosis of Pulmonary Tuberculosis. S. Melville. —p. 399.

Reproductive Mechanism as Factor in Female Phthisis Death Rate.—Cummins says that during the period of rapid growth and development that precedes, accompanies, and follows closely on the assumption of sexual maturity, and during the early years of the child-bearing period, the female phthisis death rate is higher than the male; in later age periods, especially at and after menopause, the female phthisis death rate falls rapidly while that of the male sex rises.

Archives de Médecine des Enfants, Paris

26: 197-264 (April) 1923

*Apical Pleuritis in Tuberculous Children. J. P. Garrahan.—p. 197.
*Pituitary Dystrophia in Pediatrics. P. Lereboullet.—p. 223.
Boarding Out Young Infants. J. Comby.—p. 242.

Apical Pleuritis in Tuberculous Children. — Garrahan describes seven cases and reproduces the roentgenograms. The typical clinical picture was dulness over one apex in infants and children who had enlarged tracheobronchial glands and a positive tuberculin reaction. The affection did not cause serious subjective disturbances, and it healed after a month or later (up to two years). He believes that the process is a pleuritis, which may be accompanied by a superficial pulmonary affection, and is not an infiltration of the pulmonary lobe (Eliasberg's and Neuland's epituberculous infiltration).

Pituitary Dystrophia in Pediatrics.—Lereboullet admits that the adiposogenital syndrome is probably due to an affection of the tubero-infundibular region of the brain and not to disturbances of the posterior lobe of the pituitary gland. Or it may be due to a primary affection of the sex glands. Diabetes insipidus is also due to an affection of the tuber cinereum and serves only to indicate the possibility of a pituitary lesion. It is possible, however, that the pituitary secretion acts on the nerve centers involved.

Bulletin de l'Académie de Médecine, Paris

89: 499-517 (May 8) 1923

*"Toxic Poliomyelitis." Ribemont-Dessaignes.—p. 506.
Three Years of Military Expert Control of Veterans with Pulmonary Tuberculosis. L. Bernard.—p. 507.
*Respiratory Alertness. G. Rosenthal.—p. 515.

"Toxic Poliomyelitis Due to Poisonous Mushrooms."—Ribemont-Dessaignes believes that mushrooms are either poisonous all the time, or not at all. He attributes contrary observations to lack of experience in determining the species.

Respiratory Alertness: Its Value in Vocal Education.—Rosenthal uses the term, *souplesse respiratoire* for the ability to vary the rapidity and extent of the respiratory movements. A normal subject can demonstrate his vital capacity in five to eight seconds as well as in twenty to thirty seconds. Some persons are able to exceed these figures. One liter of air should be expired in three as well as in fifteen seconds. This respiratory alertness is independent of the vital capacity. Many excellent singers have only a middle vital capacity, (2.5 or 2.75 liters), but a well developed respiratory alertness.

Bulletins de la Société Médicale des Hôpitaux, Paris

47: 549-608 (April 20) 1923

*Ambard's Constant in Orthostatic Albuminuria. Aubertin.—p. 549.
*"Pseudosurgical" Tertiary Syphilis of Liver. Denéchau et al.—p. 556.
Three Cases of Acute Leukemia. E. Rivalier and E. Hartmann.—p. 564.
*Pulmonary Gangrene Treated by "Larding." Caussade and Rosenthal.—p. 575.
*Functional Aortic Insufficiency. Laubry and Doumer.—p. 584.
Spirillocidal Action of Arsenicals by the Mouth. Sézary and Pomaret.—p. 595.
Atypical Lymphocytoma of Mediastinum. Minvielle and Colombies.—p. 598.
Obliteration of Superior Vena Cava Due to Syphilis. Ruitinga.—p. 602.
Syphilis of Ponto-Cerebellar Type. Guillain et al.—p. 605.

Ureosecretory Coefficient in Orthostatic Albuminuria.—Aubertin finds that determination of the Ambard constant is a valuable aid in differentiation between harmless orthostatic albuminuria, and a similar condition which may be a sign of mild nephritis.

Four Cases of "Pseudosurgical" Tertiary Syphilis of Liver.—Denéchau, Fruchaud-Brin and Agoulon report on four cases of syphilis of the liver with severe pains. Two of the patients were needlessly operated on; one escaped the operation because his condition was too serious, and another because he refused. All recovered after specific treatment. Severe pains with a tumor in the epigastrium and irregular fever may be due to syphilis of the liver. In these cases the Wassermann test was negative in two; the interval since infection ranged from two to seven years.

Pulmonary Gangrene Treated by "Larding."—Caussade and Rosenthal designate by the word "larding," transthoracal injections of drugs into a pulmonary infectious focus. They report a case of pulmonary gangrene in which recovery followed two such injections.

Functional Aortic Insufficiency and Its Pathogenesis.—Laubry and Doumer discuss three cases with necropsy which show the possibility of functional insufficiency of the aortic orifice. Hypertension is not an essential condition for it. They discuss the different theories on the pathogenesis of the affection, which they attribute to a dilatation of the heart and fatigue of the muscles which reenforce the orifice.

Encéphale, Paris

18: 217-280 (April) 1923

Thought and Attitudes in Autism. J. Rogues de Fursac and E. Minkowski.—p. 217.
Crossed Chorea. J. Lhermitte and A. Bourguina.—p. 228.
Syphilis of Small Vessels of Brain. C. I. Urechia and N. Elekes.—p. 240.
Brain Tumor Inducing Apraxia, Agraphia and Alexia. Papadato.—p. 253.

18: 281-352 (May) 1923

Glioma of Cerebellopontine Angle. André-Thomas.—p. 281.
Psychologic Analysis in Case of Aphasia. W. van Woerkom.—p. 286.
*Vertebral Syphilis of Scoliosis Type. Roger et al.—p. 305.
Rhythmic Synchronism of Unilateral Endocrine Disturbances and Melancholia. A. Prince.—p. 312.
Delirium of Pathologic Interpretation of Symptoms. R. Targowla.—p. 319.
*Mirror Hallucinations from Cranial Trauma. H. Nouet.—p. 327.
Pluriglandular Syndrome with Infantilism and Psychosis. Paulian and Grigoresco.—p. 329.

Associated Neurosyphilis and Syphilitic Vertebral Process.—Roger, Aymès and Pourtal describe a case of nervous syphilis and osteo-arthropathy of the spine with tendency to scoliosis in a man aged 49. The spinal affection began to cause symptoms in 1916, with compression of the spinal cord and complete paraplegia and anesthesia. Recovery followed bed rest and arsenic-mercury treatment. There was a mild flaring up of the spinal process, accompanied by optic nerve symptoms, four years later. This also yielded to treatment except the optic nerve symptoms persisted. More recent, less serious recurring attacks have also yielded to specific treatment. The decline in intensity of these recurring attacks of pain and paresis is in marked contrast to the usual progressive course of spinal cord disease. The nervous disturbances seem to be connected more with the bone lesions than with the meningomedullary syphilis. They interpret the case as a combination of neurosyphilis (optic nerve) with a syphilitic vertebral affection compressing the spinal cord and roots in the dorsal region.

Mirror Hallucinations from Cranial Traumatism.—Nouet reports an unusual case of mirror hallucination in a man wounded in the right temple during the war. Serious encephalitis was followed by disturbances of memory and dysarthria, but he improved gradually. Two years later he began to see images of his own face, or figure, as in a mirror, sometimes while walking on the street and sometimes indoors. This sensory aura included, besides the visual hallucination, an odor of wintergreen, and was accompanied by an impulse to run straight ahead without aim for a few seconds. He has neither vertigo nor encephalitis, and remembers his actions perfectly. Contrary to the cases of mirror hallucinations previously published, the man is not addicted to alcohol or any drug. The condition is the same now as three years ago.

Journal de Médecine, Lyon

4: 291-326 (May 20) 1923

*Urethral Herpes and Herpetic Urethritis. J. Nicolas et al.—p. 291.
*Protein Therapy in Gonorrheal Epididymitis. L. Bonnet.—p. 299.
*Case of Febrile Syphilis. M. Favre and N. Contamin.—p. 303.
Arsenic, Mercury or Bismuth in Syphilis? Gaté and Pillon.—p. 313.
Diagnosis of Inguinal Adenopathies. Massia and Lacassagne.—p. 319.

Urethral Herpes and Herpetic Urethritis.—Nicolas, Gaté and Papacostas describe six cases of recurrent genital herpes, generally accompanied by neuralgic pains and urethral secretions, which they have studied microscopically. Relapses in genital herpes are frequent, at times incessant, and very regular. The symptoms of urethritis usually do not appear until after several attacks of herpes. "Touch me not" therapy is advised, since herpetic urethritis, like genital herpes, will heal spontaneously if not needlessly irritated. Its recurrent nature may be counteracted by change in habits, more rational diet, and proper hygiene. The urethra should be given a rest, with exclusion of irritating sexual relations, congestive genital excitement, antiseptic washes and caustic injections.

Treatment of Epididymitis by Milk Injections.—Bonnet used parenteral milk injections in treatment of a case of gonorrheal epididymitis, and in five cases of orchitis. He gave two or three injections of 5 c.c., with intervals of two or three days, examining the patients beforehand for tuberculosis. The injections relieved the pain and improved the inflammation, but he is not prepared to say that they cure all cases of orchitis.

Syphilitic Fever.—Favre and Contamin report among others a case of extremely high and irregular fever of six months' duration in a man who had lived twelve years in Africa. Total failure of quinin and other antipyretics, emaciation, constitutional disturbances and general decline indicated febrile tuberculosis. Manifestations of painful and generalized multiple periostitis, enlargement of liver and spleen and an old genital lesion suggested syphilis. The fever and bone pains disappeared rapidly after specific treatment. They say that syphilitic fever is characterized by the dissociation of the thermal and functional manifestations, as a rule, but that it may appear in any form. Sometimes it evolves from slightly febrile states accompanied by functional and general disturbances, but without headache, prostration or anorexia, while at other times it manifests itself as solely a thermometer fever. Duration of weeks or months with visceral syndromes of obscure origin indicates syphilitic fever. It resists antipyretics but yields to mercury, or to arsenic, even after it has resisted mercury.

Journal d'Urologie Médicale et Chirurgicale, Paris

15: 249-336 (April) 1923

*Excess of Uric Acid in the Blood. E. Jeanbrau et al.—p. 249.
*Urinary Complications of Fracture of the Pelvis. P. Guibal.—p. 265.
Urethrocele in Female Urethra. M. Lebrun.—p. 275. Cont'd.
How to Detect Short-Circuiting in a Cystoscope. J. Martin.—p. 295.

Factors Influencing Retention of Uric Acid.—Jeanbrau, Cristol and Nikolitch's 300 tests for azotemia and uricacidemia demonstrated that circulatory and mechanical factors, as well as renal and tissue factors, are often involved in the retention of uric acid. The distention of the bladder from chronic retention of urine with strictures, etc., provides the mechanical obstacle. The excessive uric acid content of the blood resulting from this mechanical factor, alone or with a circulatory factor impeding elimination of water, subsides after these factors have been excluded. Experience at Montpellier confirms the belief that a rise in the uric acid content of the blood is an early and reliable sign of reduction of the permeability of the kidneys.

Urinary Complications of Fracture of the Pelvis.—Guibal says that injury of the urinary apparatus was found only in two of his seven cases of fracture of the pelvis last year; in these two the fracture was comparatively insignificant. If the urethra is ruptured, suprapubic cystostomy, or at least puncture, should be done at once. Clear urine shows that the obstruction is below, and this can await subsidence of the shock. Complete recovery followed the operative measures in two cases described in detail.

Presse Médicale, París

31: 537-548 (June 16) 1923

Is Turpentine a Factor in the Pathology of Painters? F. Heim et al. —p. 537.
Pathogenic Unity of Tumors in the Jaw. Delater and Bercher.—p. 539.
Recent Research on Blood Grouping. J. Mouzon.—p. 541.

31: 549-560 (June 20) 1923

Leprosy. G. Delamare.—p. 549.
*Chronic Tuberculous Splenopneumonia. Armand-Delille et al.—p. 551.
*Methylene Blue Test for Reducing Power. E. Schulmann and L. J. Besançon.—p. 553.
*Asthma and Loss of Vagus-Sympathetic Balance. J. Galup.—p. 555.

31: 561-572 (June 23) 1923

Pathologic Cartilage Growths. A. Policard and R. Leriche.—p. 561.
Localization of Visual Aphasia. L. Poussepp.—p. 564.
Postoperative Shock. Misrachi.—p. 565.
Ethylhydrocuprein in Hay Fever. L. Cheinisse.—p. 567.

Chronic Tuberculous Engorgement and Condensation of Child Lung.—Armand-Delille and his co-workers encountered five children with a form of chronic splenopneumonia in a group of 230 children with lung affections. One entire half of the thorax was almost uniformly opaque, with dulness, and the diaphragm immovable on that side, but the course was extremely slow and torpid. The general condition kept good, although tubercle bacilli were found in two. These children were all about 10 years old, and in some the condition has persisted unmodified during the two years to date; in others an extensive fibrous reaction of the lung seems inevitable, while in still others the lung has cleared up completely, the diaphragm functioning normally. The costodiaphragmatic sinuses were normal throughout in all, which excluded pleural effusion. Artificial pneumothorax—tried in two cases—showed the pleural sheets nonadherent although it proved impossible to induce pneumothorax. They ascribe the condition to incomplete allergy: The defensive reaction is not limited to the point of inoculation, but induces a diffuse process of congestion throughout the entire lung, least pronounced toward the apex.

Methylene Blue Test of Organic Reducing Powers.—The curve of methylene blue in the urine and blood after injection or ingestion seems to be a gage of the intensity of the intraorganic phenomena of oxidation and reduction. Schulmann and Bezançon describe experimental and clinical experiences in this line.

The Vegetative Nervous System in Asthma.—Galup found the oculocardiac reflex exaggerated in 35.52 per cent. of 152 asthma patients, and inverted or abolished in 34.88 per cent. The balance between the vagus and the sympathetic was thus upset in 70 per cent., either the vagus or the sympathetic being abnormally predominant at the moment. The oculocardiac reflex can thus serve as a guide for symptomatic treatment. Causal treatment includes organotherapy and courses of mineral waters.

Revue de Chirurgie, Paris

60: 499-552, 1922

*Radium Treatment of Cancer. J. Roussy and R. Leroux.—p. 499.
*Jackson's Membrane. Mutel and Fourche.—p. 509.
*Peptic Ulcer in Meckel's Diverticulum. E. C. Megevand and R. Dunant.—p. 536.

Radium Treatment of Cancer of Uterine Cervix.—Roussy and Leroux warn that when the connective tissue and the blood are substandard at the time of the radium treatment, they are not only more or less incapable of aiding in the processes of repair, but are liable to be directly injured by the rays, as they lack the normal resisting powers. Hence, substandard histologic findings in the local connective tissue warn for extra cautious doses, especially when the hematologic formula shows conditions below par. By "hematologic formula" they mean repeated examination not only of the blood count and color index, but also of the time curve of sedimentation of the erythrocytes, the resistance of the corpuscles, coagulation conditions and the heterolysin content.

Jackson's Membrane.—The research and experiences related by Mutel and Fourche apparently sustain their contention that Jackson's membrane is merely an exaggeration of the normal fold that connects the colon with the abdominal wall, with or without additional connection with the kidney. It is thus a normal anatomic formation found in 15 per cent. of fetuses and the new-born. The interstitial growth of the posterior wall of the colon, between the fold and its insertion in the mesentery, explains the exaggeration of the fold.

Peptic Ulcer in Meckel's Diverticulum.—The diverticulum was lined throughout with mucous membrane exactly like that in the stomach. The patient was a man aged 32, and there was a history from childhood of occasional bloody stools. Intense abdominal pain and profuse intestinal hemorrhages led to discovery of an acute, bleeding ulcer in Meckel's diverticulum. There was no sign of perforation; the hemorrhages dominated the clinical picture. Resection of the diverticulum cured the tendency to intestinal hemorrhages and other vague gastro-intestinal disturbances.

Revue Franç. de Gynécologie et d'Obstét., Paris

18: 257-288 (April 25) 1923

*Low Cesarean Section. M. Reeb.—p. 257.
Cystic Sacrococcygeal Tumor. F. Chatillon.—p. 264.

Low Cesarean Section.—Reeb reports nine recoveries after low transperitoneal cesarean section, and one death from pulmonary embolism occurring the sixteenth day after the operation.

Schweizerische medizinische Wochenschrift, Basel

53: 441-460 (May 3) 1923

*Lymphangitic Abscess of Neck. P. Clairmont.—p. 441.
*Diagnosis of Smallpox and Varicella. Tièche.—p. 448.
Rachitis. S. Chapuis.—p. 451.

Lymphangitic Abscess of Neck.—Clairmont describes typical abscesses in the lower anterior triangular space between the thyroid gland and the sternocleidomastoid muscle. These abscesses are situated under the middle aponeurosis of the neck, behind the small muscles. Clinically, they resemble suppurative thyroiditis. The prognosis is good if the incision is made in time.

Diagnosis of Smallpox, Modified Smallpox and Varicella.—Tièche describes the mild cases of smallpox which occurred in the last two years in the German cantons of Switzerland, where compulsory vaccination has been repealed. The infection resembles varioloid in vaccinated persons. He calls it modified smallpox. The exanthem in varicella is "centripetal": many vesicles on the trunk, few on the face and extremities. Smallpox prefers the face, back, hands and feet; very few pustules are on the abdomen. In the beginning of the eruption, both smallpox and varicella may appear as small patches of roseola all over the body. In varicella, we find in the center of some of the roseolas a little vesicle, which breaks easily, if compressed. The nodule in smallpox is resistant, and develops slower. A developed vesicle in varicella can be "wiped off" by a strong gliding pressure of a finger. This is a very important differential sign against smallpox.

Policlinico, Rome

30: 585-615 (May 7) 1923

Causes of Error in Roentgenography of Spine. F. Saraceni.—p. 585.
*Ether in Acute Purulent Peritonitis. V. Caccini.—p. 590. Conc'n.
*Autophagia and Automutilation in Mental Disorders. G. Roasenda.—p. 594.
Prophylaxis of Trachoma. A. Rosica.—p. 595.

Ether in Local Treatment of Acute Purulent Peritonitis.—Saraceni extols the sedative action of the ether which permits sleep, while the biologic defensive forces are stimulated. He testifies further to the effectual disinfection realized by the ether, saying that it transforms the sterile exudate into an autovaccine and auto-antiserum, and these act further by parenteral protein therapy. The ether aids in disintegration of the pus, favoring its absorption. The technic is that published by Morestin, flooding the peritoneum with from 100 to 300 c.c. of ether after the abdominal cavity has been cleaned out and dried, and the laparotomy incision sutured, with or without drainage. He adds that the rejection of this method by the French Surgical Congress in 1914, is only another instance of "the prophet in his own country."

Autophagia and Automutilations in Dements and Epileptics.—Roasendi reports two cases of automutilation in general paralysis. One of the men cut off a finger to suck the blood; the other man ligated the scrotum: both with hope of therapeutic effect. In a third case, a young woman during an epileptic equivalent sliced off a toe with a painful corn. The hemorrhage very nearly proved fatal, but the epilepsy seemed to be arrested thereafter, suggesting a therapeutic influence from the profuse hemorrhage. There have been no further equivalents during the years since.

Rivista di Clinica Pediatrica, Florence

21: 129-192 (March) 1923

Cerebrospinal Meningitis in Young Children. E. T. Palmegiani.—p. 129.
*Variation in Perspiration in Infants. A. Borrino.—p. 151.

Variations of Insensible Perspiration and Their Pathologic Import in Infants.—Borrino has, with Galeotti's apparatus, observed great variations of the insensible perspiration and of the temperature of the skin in different conditions of clothing. Heavy clothes induce in new-born children as well as in older infants and children a rapid increase of the skin temperature and an increase of the insensible perspiration, especially with high room temperature. These scientifically controlled data confirm the extreme importance of clothing as affecting the water metabolism and heat regulation in early life, and in the special pathology of the infant during hot weather, and the mortality from gastro-enteritis.

Anales de la Facultad de Medicina, Lima

5: 269-343 (Dec.) 1922

Tribute to Pasteur. Francisco Graña.—p. 307.
*Peruvian Verruca Superimposed on Chronic Malaria. J. Arce.—p. 332.

Peruvian Verruca Superimposed on Chronic Malaria.—The differential diagnosis was unusually difficult as the malarial attacks were of the pernicious, comatose type, accompanied by symptoms of Peruvian verruca, and the onset had followed the day after childbirth. Under quinin, recovery soon followed. Arce emphasizes that Peruvian verruca alone does not cause the spleen to enlarge.

Crónica Médica, Lima

40: 85-124 (March) 1923

*Cure of Abscess in Liver Under Emetin. E. Escomel.—p. 85.
*Turpentine in Treatment of Diarrhea. Id.—p. 92.
Factors in Transmission of Hookworm in Moyobamba. Buenaventura Burga.—p. 95.

40: 125-156 (April) 1923

Addison's Disease with Vagosympathetic Hypertonia. M. Gonzales Olaechea.—p. 125.
Nephrectomy for Renal Tuberculosis. E. P. Manchego.—p. 129.
Certain Brief Pyrexias. Sir P. W. Bassett-Smith.—p. 135.

40: 157-192 (May) 1923

The Teaching of Applied Anatomy. C. Morales Macedo.—p. 157.
Treatment of Malaria. E. Escomel.—p. 167.
Vaccine Therapy of Pulmonary Affections. J. Minet.—p. 171.

Emetin Treatment of Suppuration in the Liver.—Escomel now has a record of twenty-five patients with amebic suppurative hepatitis who recovered under emetin treatment alone, without operation. He has demonstrated that the ameba entering by the mouth has its vitality suspended by normal gastric juice. It becomes encysted, and passes in this torpid condition through the bowel until it reaches the rectum. Here conditions are favorable for the ameba, and it rouses from the latent phase with full vitality, as the clinical picture of dysentery soon testifies. Abuse of red pepper predisposes the intestines to invasion by the ameba, and explains the local prevalence of abscess in the liver in his district. The ameba is often found in alveolar pyorrhea in countries where it is endemic, and it may reach the liver before the dysentery stage has developed. On suspicion of amebiasis of the liver, with or without a history of dysentery, he gives a daily subcutaneous injection of 0.02 gm. of emetin with the same amount of sparteín to counteract the depressing action on the heart of the emetin. If there is no pronounced improvement after four days of this treatment, the conclusion is inevitable that the ameba is not responsible for the hepatitis. Emetin in liquid form rapidly loses its potency, even in ampules. In tablet form it retains all its destructive action on protozoa. He boils the two tablets in 2 c.c. of distilled water, and injects the fluid subcutaneously or by the vein. The number of injections required varied from ten to thirty. Of late he has preferred the intravenous route. The dose is reduced proportionally for children. He has never had occasion to puncture or open the abscess; the pus was gradually absorbed after the death of the amebas. In another patient, a large abscess in the cecum and in the sigmoid region subsided likewise under emetin which cured at the same time the rebellious dysentery of a year's standing.

Turpentine Treatment of Diarrhea.—Escomel declares that the rectum is like an incubator for certain intestinal parasites. They find there an exceptionally favorable culture medium and easy access by the veins to the liver or by the lymphatics to the bladder. He describes his turpentine method of treating diarrhea, which, he says, has proved specific for trichomoniasis, and has cured 90 per cent. of all forms of bacterial diarrhea. The first three days the patient takes a spoonful every two hours of a mixture of 150 gm. of plain-gum solution and 12 gm. of paregoric elixir with from 2 to 4 gm. of oil of turpentine. Morning and evening an evacuating enema is taken of 1 or 2 liters of a decoction of ratanhia or eucalyptus, followed by an enema to be retained: 4 spoonfuls of boiled water containing the yolk of an egg beaten up with from 20 to 40 drops of oil of turpentine and from 10 to 25 drops of laudanum. The food should be only a glass of fresh milk, boiled, with 4 spoonfuls of lime water and a little potato or other gruel every three hours, followed by a tablet containing 0.2 gm. of pancreatin and sodium bicarbonate; 0.4 gm. pepsin, and 0.1 gm. diastase. The beverage should be rice water, made with linseed, gelatin and toasted bread. The fruit of the quince can be taken if desired. Hot applications should be applied every three hours to the abdomen, and it should be kept covered with flannel. The patient should repose during the treatment. If three days of this treatment do not cure, some other cause than a simple parasitic infection of the intestines must be responsible for the disturbances.

Repertorio de Medicina y Cirugía, Bogota

14: 207-246 (March) 1923

Child Welfare Work in Colombia. J. M. Montoya and J. Manrique.—p. 207.
*Essential Asthma. L. F. Calderón.—p. 211.
Elusive Ulcer of the Bladder. J. E. Cavelier.—p. 217.
A Salt-Free Diet in Mental Disease. P. A. Ilinás.—p. 221.

Essential Asthma.—Calderón has encountered three cases of intermittent and periodical dyspnea during expiration, in young women, with a slightly febrile temperature at first. The only physical signs were slight cyanosis of the lips and variable sibilant râles scattered through both sides of the chest. There was little or no dulness on percussion. Each paroxysm of the asthma exhausts the patient, but in the intervals she attends to her usual duties, although weak. The differential diagnosis is still obscure, and no treatment has been effective.

Semana Médica, Buenos Aires

1: 833-884 (May 3) 1923

*Volkmann's Ischemic Contracture. J. M. Jorge.—p. 833.
Pharmacology of Two Bismuth Preparations. O. Calcagno.—p. 843.
*Secondary Meningeal Reactions. J. M. Macera.—p. 867.
Unusual Forms of Tuberculosis in Children. M. E. Benítez.—p. 871.
Oxidizing Action of Sodium Perborate on Benzoic Acid. M. Troncoso Scrantes.—p. 874.
Trocar-Cannula for Maxillary Sinus. R. Becco.—p. 876.

Volkmann's Ischemic Contracture.—Jorge remarks that the prognosis after operative treatment depends not only on the duration and extent of the contracture and loss of elasticity, but also on the patient's perseverance in the exercises afterward. An overtight bandage is usually responsible for the schemia, but a traumatic hematoma or swelling may suffice, ven without a bandage. He advises keeping the limb raised s the compression is removed, and afterward, to prevent verstretching of the vessels. The deep flexor and the adductor muscles suffer most, and it may be a wise precaution to lit the anterior aponeurosis at several points, the minute ncisions serving to drain the deep infiltrations, or to make broad zigzag transverse incision, suturing the skin with nterrupted sutures. Hot baths, exercises, suspension of the mb, adjustable apparatus to aid in stretching the retracted muscles, and massage may succeed alone, but if the contracture shows no signs of yielding, he advises not to wait o long before resecting the diaphysis or doing tenotomy. He gives details of two cases with tenotomy, and of seven with resection of bone, all in the forearm, the ages of the atients being from 9 to 18. The overtight bandage or cast ad caused severe pain, and had been left in place for from hree to twenty days.

Meningeal Reactions in Children Secondary to Infectious rocesses Elsewhere.—Macera warns that the prognosis must e guarded as, although most of the children recover, yet one ied during the meningeal phase in the five cases he has ncountered. The primary affection was pneumonia, inherited yphilis or typhoid in his cases, and the clinical picture of eningitis had preceded the recognized manifestations of the imary affection.

Beiträge zur klinischen Chirurgie, Tübingen

129: 245-482, 1923

Vessels of Lower End of Femur in Relation to Its Pathology. A. Nussbaum.—p. 245.
*Surgery of Blood Vessels. W. Rieder.—p. 282.
Diagnosis of Wound Diphtheria. W. Rieder.—p. 296.
Diagnosis of Duodenal Ulcer. A. Beck.—p. 300.
*Compensatory Hypertrophy of Suprarenals. O. Specht.—p. 311.
*Contrast Suspension for Pyelography. I. Szabó.—p. 329.
Paranephritic Abscess. M. Baumann.—p. 337.
Technic for Suturing Vas Deferens. H. Schmerz.—p. 342.
*Late Injury of Spinal Cord from Scoliosis. W. Jaroschy.—p. 348.
Suture without Drainage after Cholecystectomy. F. C. Hilgenberg.—p. 375.
Insufficiency of the Liver from Surgical Standpoint. K. Laqua.—p. 382.
Experiments with Snake Venoms on Animals. H. Herfarth.—p. 397.
The Wildbolz Own Urine Reaction. H. Schünemann.—p. 403.
*Plastic Operation to Enlarge the Bladder. K. Scheele.—p. 414.
*Resuscitation of the Heart. Harttung.—p. 423.
Acute Serous Peritonitis. E. Melchior.—p. 443.
Treatment of Tuberculous Peritonitis with Exudate. Hufschmid.—p. 449.
Ileocecal Tuberculosis. Becker.—p. 451.
Rupture of Bladder with Vaginal Defect. Schuhert.—p. 454.
Thoracoplastic Operations in Pulmonary Tuberculosis. Hauke.—p. 456.
Direct Fracture of Vertebrae. Radmann.—p. 466.
Transplantation of the Knee Tendons. Seiffert jun.—p. 471.
Nail Extension of the Heel. Hertel.—p. 476.
Resection of Wall of Chest with Mammary Cancer. F. Wiener.—p. 479.

Wounds of Vessels.—Rieder analyzes the experiences at Hamburg with 117 wounds of arteries from trauma or operation, in war and in peace times. Small arteries, especially the paired arteries on the limbs and the external carotid, can be safely ligated. An attempt to suture, with or without a plastic operation, should be made, unless infection contraindicates suturing. When ligation was the only resource, and the ligature was applied very slowly, to ward off thrombosis, gangrene developed in only 2 of 19 arm ligature cases (both subclavian); in 3 of 19 femoral ligature cases, and 4 in 10 popliteal. Encephalomalacia developed in only 6 of 36 cases of ligation of the carotid, and in these cachexia or advanced age had rendered the prognosis graver. Improvement of the collateral circulation was realized, before the operation, by systematic compression. He expatiates on the direct life-saving action of 10 per cent. solution of glucose by the vein after extensive loss of blood; it supplies glycogen to the heart muscle, and improves the circulation. The longer the interval between the injury and the operation, the better the prognosis.

Compensatory Hypertrophy of the Suprarenals.—Specht's research on guinea-pigs and rabbits confirms the view that compensatory hypertrophy of the remaining suprarenal ensues after removal of one. This occurs even in adult animals, and it probably occurs also in man.

Contrast Suspension for Pyelography.—Szabó protests against the use of colloidal suspensions, saying that only solutions are comparatively harmless for injection into the kidney pelvis. He advocates sodium bromid, but says that he has used potassium bromid in 152 cases and never observed any of the local or general reactions characteristic of the colloidal suspensions. He regards as extremely important the rinsing out of the kidney pelvis with sterile water afterward.

Tardy Injury of Spinal Cord from Congenital Scoliosis.—Jaroschy describes his operative treatment in two cases, and compares them with the few similar cases on record. In his cases the severe spastic paraplegia of the legs developed at the ages of 14 and 17. Laminectomy cured the paraplegia completely in one case, and materially improved conditions in the other, in which the paraplegia was of longer standing.

Plastic Operation to Enlarge the Bladder.—Cicatricial contraction after a severe gangrenous cystitis was causing serious symptoms from the inadequate capacity of the bladder. Scheele enlarged the bladder by fastening to it a loop of small intestine sutured in the form of a ring.

Intracardiac Injections.—Harttung has found records of seventy-six cases in which massage of the heart has been applied after apparent death, with resuscitation in thirty-five, and permanent recovery in twenty. Only massage from below the diaphragm proved effectual, but even at the best this is fraught with grave danger. In Amreich's case, the heart action was restored by massage and injection of epinephrin, but the revival was only for an hour, and necropsy revealed laceration of a valve. Efforts to resuscitate a sound heart are indicated in case of death from suffocation, from freezing, from shock (including collapse at operations) or from the effect of an anesthetic. The interval must be less than ten minutes, as otherwise brain functioning is irreparably lost. The intracardiac injection is less dangerous than massage. In one of two personal cases described, the resuscitation was permanent; in the other it lasted six hours. He injected 1 c.c. of the 1 per thousand solution of epinephrin into the right ventricle through the fourth interspace, close to the sternum.

Deutsches Archiv für klinische Medizin, Leipzig

142: 145-240 (April 30) 1923

*Poikilopicry in Nephritis. H. Straub.—p. 145.
*Studies on Bulbus Scillae. E. Boden and P. Neukirch.—p. 173.
Discontinuous Vibration in Diagnosis. R. Geigel.—p. 183.
Clinic of Heart Infarction and Epistenocardiac Pericarditis. R. D. Loewenberg.—p. 189.
Acute Infectious Myeloblastosis in Blood; Recovery. R. Hopmann.—p. 196.
*Microscopic Observations on Capillaries. Jürgensen.—p. 203.
*Action of Intravenous Injections of Sodium Chlorid. Prigge.—p. 216.
Leukemic Reticulo-Endotheliosis. O. Ewald.—p. 222.
Fatty Degeneration of Parenchymatous Organs. O. Gross.—p. 229.

Poikilopicry in Nephritis.—Straub determined the concentrations of chlorids, bicarbonates, soluble phosphorus, residual nitrogen and the molecular concentration in serums from nephritics. He had very variable results, and calls the disturbances of the concentration of anions, poikilopicria. The explanation of the irregular excess or deficiency of carbon dioxid in the blood of these patients is uncertain, until all the substances present in the serum have been examined.

Clinical and Experimental Studies on Squill.—Boden and Neukirch had favorable results with bulbus scillae in degeneration of heart muscle.

Microscopic Observations on the Capillaries and Vasomotors.—Jürgensen finds that systematic microscopic examinations of the capillaries are valuable in early diagnosis of vasomotor disturbances.

Action of Intravenous Injections of Sodium Chlorid on Production of Antibodies.—Prigge found that intravenous injections of large amounts of sodium chlorid in immunized rabbits were followed by a lowering of the titer of immune hemolysins.

Deutsche medizinische Wochenschrift, Berlin

49: 601-632 (May 11) 1923

Diet in Treatment of Diarrhea and Constipation. H. Strauss.—p. 601.
*Serodiagnosis of Tuberculosis. F. Klopstock.—p. 602.
Calcium Content of Human Blood Serum. Herzfeld and Lubowski.—p. 603. Conc'n.
Meinicke's Opacity Reaction for Syphilis. Meinicke and Grün.—p. 605.
Experiences with Ponndorf's Cutaneous Tuberculin Immunization. G. Lieschke.—p. 606.
*Psychology of the Starving. Frank.—p. 608.
An Icterus of Uncertain Etiology. K. Hoesch.—p. 610.
Cause of Angiospasms of Pregnancy. H. Nevermann.—p. 612.
*Treatment of Salivation in Epidemic Encephalitis. Fraenkel.—p. 613.
Anaphylactic Phenomena After Eating Eggs. E. Grahe.—p. 614.
Dermatologic Diagnosis. M. Joseph.—p. 614. Cont'd.
*Diagnostic Significance of Bronchophony. K. Noodt.—p. 616.
Body Measurements and Social Standing. H. Wörner.—p. 617.
Absorption of Madder by Rectal Mucosa. A. Bauer.—p. 617.
Legislation on Organizations for Social Insurance. S. Alexander.—p. 618.

Specificity of Serodiagnosis for Tuberculosis.—Klopstock found that Wassermann antigen prepared from tubercle bacilli and lecithin absorbs all the reacting substance from the serum. Antigens prepared in a similar way from typhoid and colon bacilli did not change the reaction. An antigen from diphtheria bacilli absorbed only a small quantity of the tuberculous antibodies. He concludes that the reaction is specific, and that lecithin makes it only more sensitive.

Psychology of the Starving.—Professor Frank of Kharkof reports his psychiatric observations during the recent famine in the Ukraine. He observed twenty-six cases of anthropophagy—the greater number of them in women. Not one man ate his own child; mothers alone did so. The comparatively short period of personal liberty of the peasants accounts for the fact that such crimes occurred only among them, not among German-Russians or Jews, though thousands of them died too. Some women, who ate their children, still kept the home clean by force of habit. Delirious patients invariably died, but some of the starving died with full consciousness. [A footnote states that this article was read at a meeting of the Kharkof Medical Society.]

Treatment of Salivation in Epidemic Encephalitis by Roentgen-Ray Exposures of the Parotid.—Fraenkel confirms the favorable inhibiting influence of irradiation of the parotid on ptyalism persisting after encephalitis.

Diagnostic Significance of Bronchophony.—Noodt finds bronchophony in most healthy persons on the right but not on the left side, except rarely in combination with right bronchophony. Bronchophony on the left side speaks for tuberculosis. If it is present on both sides, an affection of the left lung is probably responsible for it.

Münchener medizinische Wochenschrift, Munich

70: 485-520 (April 20) 1923

*Famine and Epidemics in Russia. Abel.—p. 485.
*Bismuth in Experimental Syphilis. Plaut and Mulzer.—p. 487.
*Determination of Virulence of Germs in Blood. Philipp.—p. 493.
Oxyuriasis: Fistula and Eosinophilia. Schmidt.—p. 495.
Disturbances of Ejaculation of Sperm. Lissmann.—p. 496.
*"Recurrences" After Operation for Gallstones. H. Flörcken.—p. 498.
Endonasal Operation on Lacrimal Sac. H. Herzog.—p. 499.
Dangers of Exploratory Puncture of Pleural Cavity in Infants, and How to Avoid Them. H. Piutti and E. Rominger.—p. 500.
Kulenkampff's Local Anesthesia in Strumectomies. Schnug.—p. 501.
Intermittent Blindness After Skull Injury. Hegner and Naef.—p. 502.
Localization of Cervix in Deep Roentgen Treatment. Langer.—p. 503.
A New Chair for Examination and Operation. F. Binz.—p. 505.
Alleged Premature Birth in Suit for Alimony. Döderlein.—p. 505.
Treatment of Chronic Constipation and Diarrhea. Penzoldt.—p. 507.

Famine and Epidemics in Russia.—Abel was one of the teachers of hygiene sent by the League of Nations to Warsaw, Moscow and Kharkof. He gives some figures gathered in Russia. In the second half of 1919, 2,237 deaths from inanition (8.8 per cent. of all deaths) were reported in Petrograd. The incomplete official Russian statistics assume about three million deaths from starvation. He says edema disease from hunger was very common. In 10 to 15 per cent. of the starving, no edema occurred. These patients had the worst prognosis. The psychic changes in the starving started with indifference toward relatives, while the persons had still a sense of cleanliness and orderliness. Anthropophagy of members of the own family occurred only among low classes of Russian stock, not among the other nationalities. Starvation had a very disastrous influence on the course of infectious diseases. Typhus was very severe, subfebrile, and without exanthem. Patients with relapsing fever had attacks every other day. Measles was followed by noma, sometimes in more than 20 per cent. of patients. He agrees with the opinion of Tarassewitsch, that the epidemics cannot be mastered as long as the famine continues.

Action of Bismuth on Experimental Syphilis of Rabbits.—Plaut and Mulzer found some new bismuth preparations superior to mercury in the treatment of experimental syphilis in rabbits.

Determination of Virulence of Germs in Blood.—In febrile bacteremia, Philipp draws the blood during the chill, defibrinates it, and uses 1.5 c.c. immediately for an agar plate. He places the rest of the blood in the incubator, and makes new cultures with the same amounts of blood after one, two, three, six and twelve hours or at other definite intervals. If the number of colonies is larger in the subsequent cultures, it is a sign of strong virulence of the germs and insufficient humoral resistance of the patient. The prognosis is very unfavorable if the germs multiply in the first hours. If the multiplication occurs only after eight to ten hours, the prognosis is favorable. If the number of germs decreases, the patient is safe.

"Recurrences" After Operations for Gallstones, and the Significance of a Connection Between the Bile Duct and Duodenum.—Flörcken finds that recurrence of pains is extremely rare after choledochoduodenostomy. They are very frequent after cholecystectomy and drainage of the hepatic duct. This may be due to cholangitis, and perhaps spasms of Oddi's sphincter.

Wiener klinische Wochenschrift, Vienna

36: 287-302 (April 19) 1923

*Syphilis and Pregnancy. H. Thaler.—p. 287.
*Gallstone Surgery. H. Lorenz.—p. 291.
*Early Treatment of Esophageal Burns. H. Salzer.—p. 295.
*Specific Roentgensensitiveness of Some Carcinomas. G. Schwarz.—p. 296.
Insulin and Diabetes. A. Lux.—p. 297.
*Treatment of Intertrigo. H. Simchen.—p. 298.
Treatment of "Roentgen Jag" with Hypertonic Solutions. P. Neuda and H. Siehmann.—p. 298.
"Private Practice and Competition of Hospitals." G. Holzknecht.—p. 299.

Syphilis and Pregnancy.—Thaler reports a positive Wassermann reaction in 4.7 per cent. of the women at the First Obstetric Clinic at Vienna. Syphilis is the usual cause of miscarriages in the last four months of pregnancy, and of macerated fetus. It is less frequent in the abortions in the first months. Complement fixation should be repeated, because of the occurrence of nonspecific reactions. The reaction is especially subject to errors in the first six days after confinement. Retroplacental blood should not be used for the test. In spite of all objections, the Wassermann test is a most valuable aid. He requires at least five years after the primary affection and at least one year of negative Wassermann reaction before consenting to marriage. Energetic treatment should precede marriage, and be repeated at the beginning of every pregnancy. Arsphenamin is well tolerated, except in disturbances of the kidneys. The syphilitic mother should nurse her child. Otherwise only a syphilitic nurse, or artificial feeding should be used. If the mother acquired syphilis in the later part of the pregnancy, if generalization did not occur, and if the child is free from syphilitic symptoms, it may be healthy or syphilitic. Only artificial feeding is indicated in such an exceptional case.

Gallstone Surgery and Transduodenal Choledochotomy.—Lorenz prefers the transduodenal method, in spite of his 15 per cent. mortality, to dilatation of the common bile duct, because the latter method works in the dark. A carcinoma of Vater's papilla may be detected by the first method and the patient's life saved.

Early Treatment of Corrosive Injury of the Esophagus.—Salzer starts dilatation of the esophagus from the second to the sixth day after the injury. His results are excellent.

Specific Roentgensensitiveness of Some Carcinomas.—Schwarz believes that the curability of a carcinoma by roentgen rays is proportionate to the tendency of the organ from which it originated toward involution (for instance, uterus). Therefore he advises roentgen castration not only in carcinoma of the uterus, but also in tumors of the breast, and iodin treatment in tumors of the thyroid.

Treatment of Intertrigo with Hexamethylenamin.—Simchen treated fourteen infants suffering from intertrigo and gluteal erythemas with daily doses of 0.5 to 1 gm. of hexamethylenamin. The children recovered in seven to nine days. This result is a confirmation of Cooke's opinion that gluteal erythema is due to ammoniacal fermentation of the urine.

Zeitschrift für Krebsforschung, Berlin

20: 1-124 (May 12) 1923

Increase of Permeability of Skin for Tar by Removing the Fat, and Its Relation to Artificial Cancer. L. Blumenthal.—p. 1.
*Action of Inactivated Tumor Material on Chicken Sarcoma. E. Berger.—p. 10.
*Cells in Filtrates of Transplantable Chicken Sarcoma. Jung.—p. 20.
*Transplantation of Chicken Sarcomas. Teutschlaender.—p. 43.
Bjelogolowy's Alleged Sarcomas. Teutschlaender.—p. 70.
Biology of My Transplantable Chicken Sarcoma. Teutschlaender.—p. 79.
Experiments on the Presence of Carcinogenous Substances in the Tar from Heidelberg. Teutschlaender.—p. 111.

Action of Inactivated Material from Tumors on the Growth of Transplantable Chicken Sarcoma.—Berger continued Teutschlaender's therapeutic experiments with injections of a normal salt solution extract of chicken sarcomas, which had been kept for fifteen minutes at a temperature of 60 C. He was not able to prevent the initial growth of the transplanted tumor. Yet the developed tumor disappeared in three fowls, and their life was prolonged. Other animals died from cachexia or sudden metastases some time after the treatment.

Presence of Cells in Membrane Filtrates of Transplantable Chicken Sarcoma.—Jung believes that nuclei or parts of the cells can pass through the filter, because some cells are very small. A formed agent is more probable than a fluid in transplantable sarcomas.

The Supposed Cell-Free Transplantation of Chicken Sarcomas.—Teutschlaender discusses the possible explanations of tumors which are transplantable after filtration. The specificity of the new tumors speaks strongly against a parasitic theory: A chondro-osteosarcoma develops cartilage even in places where no such tissue could be present. His investigations convinced him that presence of cells in the filtrates is not impossible, as he assumed before. On the contrary, it is the most plausible explanation. It cannot, however, be denied that transplantation by filtrates is an interesting fact.

Zentralblatt für innere Medizin, Leipzig

44: 257-272 (April 21) 1923

*The Blood in Jaundice for Which the Liver Is Responsible. A. Fortwaengler.—p. 257.

Blood in Hepatogenous Icterus.—Fortwaengler confirms the observations of H. Pribram, who found polyglobulia frequently in icterus, and explained it by the protective action of the increased amount of cholesterol that is present in such cases. Other constituents of the bile may appear in different combinations in blood in hepatogenous icterus.

Casopis lekaruv ceskych, Prague

62: 221-248 (March 3) 1923

Agrammatism. A. Heveroch.—p. 221. Conc'n p. 256.
Lymphogranulomatosis of Stomach and Intestines. Novotny.—p. 224.
Predilection of Parts of Eye for Tuberculosis. J. Deyl.—p. 226. Conc'n.
"Syphilis of Bladder." K. Neuwirt.—p. 228.
Theoretical and Practical Significance of Sedimentation Speed of Erythrocytes. J. A. Sefcik.—p. 232. Conc'n p. 259.
*Turpentine in Treatment of Adnexitis. F. Horalek.—p. 238.

Treatment of Inflammatory Gynecologic Affections with Injections of Turpentine.—Horalek treated fifty-three women with more than 700 injections of turpentine oil. He has the impression that the patients did not gain much by the treatment.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

1: 1842-1964 (May 5) 1923

*Meningococcus Sepsis. F. J. L. Woltring.—p. 1845.
Structure of Ganglion Cells. F. de Moulin.—p. 1853.
Ultimate Fate of Tuberculosis Dispensary Patients. P. J. L. de Bloeme.—p. 1859.
Recent Work of Alexis Carrel. M. A. van Herwerden.—p. 1869.
"Magic Remedies" in History. M. A. van Andel.—p. 1872.
Historical Research on Dodonaeus. 1517-1585. F. W. T. Hunger.—p. 1883.

Meningococcus Sepsis with Latent Meningitis.—In the first of Woltring's two cases, the young man's persisting septicemia suggested septic endocarditis, but, after seven weeks, typical meningitis developed, with meningococci in the fluid. Bacteriologic examination of the blood had been negative; an ascites-agar medium had not been tried. Improvement rapidly followed antimeningococcus serum treatment. The whole course was more than three months. The heart seems normal now. Woltring has found only four similar cases on record of meningococcus sepsis resembling septic endocarditis, with final meningitis. In his second case a previously healthy young sailor had repeated attacks during two months which were diagnosed as hysteria, but they may have been the manifestations of an ambulatory meningococcus sepsis terminated by a rapidly fatal epidemic cerebrospinal meningitis. No other cases of meningitis were known at the time.

Acta Chirurgica Scandinavica, Stockholm

56: 1-88, 1923. Third Supplement

*Plastic Operations on the Thorax in Pulmonary Tuberculosis. H. C. Jacobæus and Einar Key.—p. 1.

Thoracoplasty in Pulmonary Tuberculosis.—Jacobæus and Key give the complete case histories of their 24 male and 36 female patients treated by resection of ribs at two sittings since 1915. The patients were all chronic invalids, scattering tubercle bacilli, and many were restored to active life. The fact that so many were freed from expectoration and tubercle bacilli is a great gain from the standpoint of prophylaxis of tuberculosis. Of the 44 cases before 1921, the earning capacity was restored in 27 per cent. and in 18 per cent. the condition was improved. No improvement was evident in 7 per cent.; 26 per cent. have succumbed to their tuberculosis and 11 per cent. to intercurrent disease. Sauerbruch has reported a practical cure in 35 per cent. of his 381 cases. The presence of small foci in the other lung is not as decisive for or against thoracoplasty as the tendency to an active or stationary course. With an old, shriveling process the operation might be attempted even if the foci were not very small. To determine the trend, it is wise to keep the patient under observation for a time. They usually resect a total of 140.7 cm. of the ribs; this is more than most surgeons advocate. They generally remove the drain the same day.

Acta Pædiatrica, Upsala

2: 209-406 (May 31) 1923

*Influence of Infection on Infant Metabolism. N. Malmberg.—p. 209.
Still's Disease. N. Johannsen.—p. 354.
*Scurvy in One Twin. A. Wallgren.—p. 376.
*Balancing Biocatalyzers in Infants. Lichtenstein and v. Euler.—p. 383.
Unusual Forms of Syphilis of the Liver. H. Bergstrand.—p. 400.

Metabolism in Healthy, Naturally Nourished Infants and the Influence of Parenteral Infection and Intoxication.—Malmberg, in unchanged feeding of two children, vaccinated against smallpox and typhoid, found increased elimination of fats, nitrogen and minerals, indicating effects on retention, with practically unchanged resorption. The degree of change appeared independent of the temperature, and he would change the "fever and metabolism" expression to "infection and metabolism." In both, the mineral, and also the nitrogen retention decreased.

Barlow's Disease in One of Two Twins.—Wallgren found scurvy in a boy aged 14 months, while absent in his twin sister, both having been nourished on identical quantities of the same food, since taken from the breast at the age of 3 months, when both were normal. Vitamin poverty in the food is not the main cause for scurvy, since foods rich in vitamin content may also lead to symptoms of avitaminosis. He believes poor assimilation of the scant vitamin, due to dyspepsia, the principal factor in the case of this boy.

Experiments in Balancing Water-Soluble Catalyzers in Infants.—Lichtenstein and Euler believe the uncertainty of the terminology a hindrance to solution of the problem, and that experiments are risky until measurements have shown to what ends the method leads and to what extent the results obtained through it agree with fixed principles. Their experimental material consisted of water-soluble vitamin (yeast); the mixed milk of six healthy women in the second and third lactation month, and the mixed samples of urine and feces of from six to eight naturally nourished infants, aged from 3-16 weeks. The number of biocatalyzer units assimilated was about twice that discharged.

Hospitalstidende, Copenhagen

66: 249-264 (March 28) 1923

Boeck's Sarcoid on Mucous Membranes. C. Hvidt.—p. 249. Conc'n.
*Photo-Electric Dermatitis. S. Lomholt.—p. 256.

Electric Light Dermatitis.—Lomholt wishes to have the clinical picture of dermatitis furnished by two women, aged 20 and 29, first described by Haslund under the name "dermatitis photo-electrica," recognized. The symptoms developed in both in the same way during treatment for lymphoma or lupus with concentrated carbon arc light at the Finsen Institute. The lesions were identical, small, red, scattered papules on chest, neck or back, the only difference being that thrombophlebitis was present in the first and lacking in the second case. In both cases the dermatitis appeared during each treatment and disappeared during the intervals, the affection fluctuating regularly with the strength of the light.

66: 265-280 (April 4) 1923

*Diagnosis of Death by Strangulation. J. Fog.—p. 265.
Histobacteriologic Diagnosis of Meningococcus Sepsis. P. Møller.—p. 275. Conc'n, p. 281.

Diagnosis of Death by Strangulation.—Fog says the main difficulty of diagnosing death from mechanical strangulation lies in the frequent variation of the signs from type. Such signs as extravasation of blood in external marks, or hemorrhage in underlying tissues are not always present, due in some cases to sudden death from trauma of the vagus or its branches, especially the superior laryngeal nerve, at the moment of the grip on the throat, and in some instance to postmortem suspension to hide the crime. He calls attention to the importance of seemingly insignificant signs, of any nature, as they may give the clue to the mode of death. In one of the fourteen cases described in detail, the victim survived unconscious for two days.

66: 281-296 (April 11) 1923

*Gastro-Enteritis from Milk. Christensen and Grinsted.—p. 291. Conc'n p. 297.

Epidemic of Gastro-Enteritis from Paracolon Bacilli in Milk.—Christensen and Grinsted, last October, found that fifty-six patients and thirty-nine members of the personnel at the Aalborg Hospital were affected with severe gastro-intestinal symptoms which lasted two or three days, but caused no deaths. A cow of the herd furnishing the milk for the hospital, which had died the same day, was found in a septic condition with enormously enlarged spleen, acute hepatitis, petechiae on epicardium and endocardium, inflammation of the mucous membrane of the intestine, and subcutaneous edema of the udder. Bacteriologic investigation revealed the identity of the disease of patients and animal, and that paracolon bacilli may be virulent in man. They found *Bacillus enteritidis* and other bacilli of the meat poison type identical with paracolon bacilli in agglutinating and other tests. A paratyphoid epidemic from milk of cows infected with *B. enteritidis* has been described by Hübener; Delépine also refers to a gastro-intestinal mass infection, in Manchester, by *B. enteritidis* in milk from a herd in which one cow had mastitis from both paratyphoid and enteritidis bacteria. They believe agglutination tests in suspected cases would show such diseases more common than is supposed, but more frequently from infection through meat than through milk.

Ugeskrift for Læger, Copenhagen

85: 421-436 (June 14) 1923

*Protein Therapy in Chronic Arthritis. Jansen and Begtrup.—p. 421.

Parenteral Protein and Other Forms of Shock Therapy in Chronic Arthritis.—Jansen and Begtrup had no results from experiments with injections of a 5 per cent. casein solution in six patients with Strümpell's arthritis deformans; sulphur in oil injections in four cases, and milk injections in one case, when other therapeutic methods were discontinued.

85: 437-452 (June 21) 1923

Hygiene of Summer Houses. M. Hindhede.—p. 437.
*Form and Position of Stomach in Consumptives. J. Paludan.—p. 440.
*Active Syphilis 62 Years After Infection. H. Boas.—p. 443.
Insulin Production in Scandinavia. A. Krogh.—p. 443.
Czechoslovakian Watering Places. K. Secher.—p. 449.

Research on the Form and Position of the Stomach in Male Phthisis Patients.—Paludan by roentgenoscopy determined the form and position, in relation to the umbilicus, of the stomach in 111 male patients with phthisis. The anatomic relations of each were determined by examinations of height, chest volume, lower thoracic opening, and the Becher-Lennhoff and epigastric index. These phthisis patients had longer stomachs in lower positions than normal persons. The congo index was lower and the weight deficit greater, the lower the position of the stomach. Patients with bacilli, in each stage, were taller and presented larger figures for the chest volume and the inferior aperture than those without, of the same stage, but in regard to age, conditions were reversed.

Active Syphilis and Positive Wassermann Reaction Sixty-Two Years After Infection.—Boas reports the case of a patient, aged 83, at the St. Joseph's Hospital, Copenhagen, under treatment for urine retention, giving repeated positive Wassermann reactions, who at the age of 20 had been treated for primary syphilis at the public hospital at Christiania. He had been married twice; neither of his wives had an abortion; he has seven healthy children, none dead, and has never been aware of his disease.

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THE TREND OF AMERICAN OPHTHALMOLOGY *

JOHN O. McREYNOLDS, M.D.
DALLAS, TEXAS

For thirty years, we have watched with interest the currents and countercurrents in ophthalmic practice, and a few facts of some prophetic value have gathered above the horizon. In the brief span of three decades, we have seen modes of practice rise and fall, and then be forgotten. The very demands of the times are changing, and ophthalmology will meet these demands with her accustomed wisdom and zeal. Whole groups of diseases have lost their serious menace, and in the future will become relatively rare. Ophthalmia neonatorum will no longer take its heavy toll among the children of our country. The advanced and destructive forms of trachoma are being rapidly eliminated, and with this progress will go the necessity for operations correcting lid deformities resulting from this disease. With the marked diminution in severe, chronic conjunctival affections, and with the improvement in the treatment of nasal affections, there has been a distinct reduction in the most troublesome forms of lacrimal disease. In fact, the infectious processes involving the superficial ocular structures are rapidly assuming a less important rôle, and with the increased facilities in transportation and communication, all of the more obstinate forms can more readily gain access to efficient modes of management.

A notable change has developed with regard to pterygia. The extremely large pterygia covering the major portion of the cornea have become less frequent, because of efficient treatment more promptly employed; while the small pterygia, especially among women, have materially increased in number because of the more prolonged exposure to wind and dust, incident to motoring and other forms of outdoor life, which in recent years have become more prevalent.

On the other hand, many other kinds of ocular disorders have apparently increased in number, especially cataract and glaucoma. Senile cataract has actually increased by virtue of the fact that we have in this new country a relatively larger percentage of comparatively old persons. And unless some more effective mode of prevention or retardation shall be developed, we may expect an increase in the number of cataract operations. This increase will be still further augmented by the more frequent employment of intracapsular methods of extraction of immature cataracts in order to avoid the long and disheartening period of slowly approaching blindness, as the cataract proceeds in its tedious process of ripening.

In the case of chronic glaucoma, the increase may be more apparent than actual, on account of the greater care and skill commonly employed in the making of a complete and thorough diagnosis.

It is safe to foretell that in the future there will be a much greater emphasis placed on diagnosis by the aid of the Gullstrand slit lamp microscope and other highly specialized optical instruments, and particularly by a more critical study of underlying systemic conditions and a more searching investigation into obscure focal infections and postocular lesions.

In fact, medical ophthalmology must assume a position of greater magnitude, and operative procedures will be undertaken only after the most exhaustive inquiry into every possible cause that might be a factor in producing the disease condition or in modifying the process of healing, or the final result, should an operation be regarded as essential in securing relief.

The whole subject of so-called asthenopia must demand renewed energy in ascertaining the relative importance of anatomic anomalies and functional disturbances operating through the central nervous system.

As the demand grows for more accurate work in diagnosis through unremitting diligence and care, the demand will also grow for greater skill and precision in the actual performance of such operations as may be considered judicious. And, as abundant experience is a requisite for the highest technical skill, the public may regard it necessary to recognize as ophthalmic surgeons only those who have acquired notable proficiency in this art. Such a condition would by no means imply that medical ophthalmology was in any degree inferior in its requirements or in its compensation to surgical ophthalmology. On the contrary, it is highly probable that the medical ophthalmologist will have many advantages in the preservation of his physical vigor from the exhausting solicitude necessarily associated with important ophthalmic operations, especially of the intra-ocular type.

A survey of the daily work of any busy ophthalmologist will disclose the fact that the more opulent patients do not predominate in the surgical group, and I am sure that most of the leading ophthalmologists will testify that their principal income arises from their nonoperative cases. It must be admitted also that while ophthalmic surgery is the oldest and most distinctly specialized of all branches of surgery, still it remains confronted with certain difficulties and dangers that do not pertain to any other kind of surgery. And because of these hazards, the proportion of unqualified successes has never approached the degree of perfection that would be popularly supposed to exist.

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* Chairman's address, read before the Section on Ophthalmology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

If one compares the operative results in cataract and in acute and chronic glaucoma with the whole group of operations in abdominal and pelvic surgery, one will be struck at once with radical differences which emphasize the greater hazards of intra-ocular surgery.

In what other kind of surgery would a few drops of blood, as from minute retinal or choroidal vessels, produce irreparable disaster?

Most serious operations in general surgery are for the removal of abnormal growths or tissues, while the most important intra-ocular operations aim at the restoration of the function and comfort of a perfect optical organ, with preservation of size, form and intra-ocular tension. Myriads of illustrations could be adduced to show the increased hazards that pertain to all intra-ocular surgery.

Then, in the various operations on the extrinsic ocular muscles, we have to contend not only with the mechanical problems presented by anatomic deviations from the normal, but also with the uncertain and variable influence of the nervous system on the harmonious cooperation of twelve muscles which must work with mathematical precision in all of the infinite number of positions in which the visual axes may be directed.

Finally, we should not forget the significant fact that our professional progress is related not only to medical literature and individual experience, but also to personal contact with the leaders in ophthalmologic thought. This contact is of immense assistance in more accurately assessing the value of the various contributions in the written volume of our labors, and even more in the vitalizing stimulus of strong, active and courageous minds working together in hearty sympathy in a common cause. So we may find that the ophthalmic section is not only a school that is rich in recorded experience, but a school that is strong in the silent influence which it brings into the thought and action of our fellows.

Who can remember the firm and inflexible figure of Hermann Knapp standing in our midst, telling without reserve the whole story of his successes and his failures, and not feel the thrill of a renewed impulse to find out the truth, to prove it, and to tell it without fear or favor?

Who can bring back on the wings of memory the radiant face of Risley, breathing the very soul of sympathy and tenderness in his voice and in his very life, and then not feel afresh the spirit of toleration, of lofty ideals, and of good deeds that make up the crowning glory of character?

Who can recall the brilliant work and unselfish service of men like Agnew, and Webster, and Noyes, and Norris, and Oliver, and Green, and Calhoun and a throng of others we have known, and not feel a new call to duty and a new courage to answer that call?

Vital Statistics of Sweden.—According to Swedish statistics, 12,457 of a total population of 5,712,740, or 2.18 per thousand, succumbed to "old age diseases" in 1916, the total deaths numbering 77,771, or 13.61 per thousand, against 121,679 births, or 21.5 per thousand inhabitants. Tuberculosis claimed 11,830; diseases of the respiratory organs, 8,666; cancer and other tumors, 6,614; organic diseases of the heart, 6,506; and cerebral hemorrhages, 4,117, while deformities and diseases of the new-born, five other contagious diseases, suicides and violence were responsible for about 3,000 deaths, each.

INTRACRANIAL HEMORRHAGE IN THE NEW-BORN *

WILLIAM SHARPE, M.D.

Professor of Neurologic Surgery, New York Polyclinic Medical School and Hospital

NEW YORK

The condition of intracranial hemorrhage in the new-born has been diagnosed and studied more as a chronic condition, as an end-result, rather than being recognized in the acute stage within the first ten days after birth. It has been this lack of recognition of the condition as an acute lesion at the time of birth and then the development later, in the children surviving, of the varying degrees of mental and physical impairment as a chronic condition that have permitted much confusion to arise regarding the etiology of the majority of the cases of cerebral spastic paralysis with and without marked mental retardation. For many years it has been recognized by obstetricians that severe intracranial injuries of the new-born could occur at the time of birth, particularly with difficult, prolonged labor and with the use of instruments of the type known as "high forceps." When death did occur, and the actual intracranial lesion of extensive hemorrhage was demonstrated at necropsy, the opinion could be expressed that it was fortunate—both for the relatives and for the child itself—that death intervened and spared all those concerned, including the taxable community with its overflowing state institutions.

These extreme moribund cases of acute intracranial hemorrhage in the new-born are usually recognized; but, most unfortunately, it is in the more common and milder cases, in which the intracranial hemorrhage is less extensive and rarely diagnosed, that the child frequently survives, so far as life is concerned, only to develop later the definite physical impairments and mental retardation so characteristic of this most pitiful group of patients—the bane of the neurologist, pediatrician, orthopedist, and the general practitioner himself. The acute condition at birth not being recognized and often not even suspected, naturally the later development of the chronic condition is usually ascribed, not to a birth trauma, but rather to an obscure lack of development, an earlier meningo-encephalitis, tainted heredity, syphilis, cranial trauma during the years of infancy, or some other factor—all possible causes and considerations in the diagnosis of the chronic condition, and yet not the most common cause, which is an intracranial hemorrhage at the time of birth. It is with these etiologic factors in mind that I desire to indicate briefly the development of medical knowledge regarding this rather common chronic condition, and then to present some recent observations regarding the acute condition in a series of 100 consecutive new-born children.

CONFUSION IN DIAGNOSIS

Although the condition of extensive intracranial hemorrhage in the new-born had been occasionally mentioned in the literature, the chronic condition in the patients surviving from the milder forms of the acute lesion was rarely, if ever, diagnosed, and even Mr. W. J. Little[1] of London, in 1843, in his first monograph on cerebral spastic paralysis in children, the now so-called Little's disease, stated that the condition was due to an impairment of nerve tissues resulting from their lack of development and also to an earlier meningitis. A few cases following difficult labor were, in his opinion, the result of intracranial hemorrhage at birth. But it is most interesting to note that in his second monograph[2] on cerebral spastic paralysis, published in 1862 (just nineteen years later), he stated that, in his opinion, almost 75 per cent. of these cases were the result of an intracranial hemorrhage at the time of birth. Unfortunately, the later observations of Mr. Little regarding the great frequency of intracranial hemorrhage as the chief cause of the chronic condition of cerebral spastic paralysis with and without marked mental retardation have been largely misinterpreted by the medical profession, so that even at present the diagnosis of Little's disease ordinarily implies either a lack of development of cerebral tissues of unknown origin or a destructive process due to an earlier meningo-encephalitis—with the etiologic factors of heredity and of syphilis being common ones—and rarely is this chronic condition in children ascribed to a probable intracranial hemorrhage occurring at the time of birth and of not sufficient amount to cause the early death of the child. The severe acute lesions of intracranial hemorrhage in the new-born are usually recognized within the first week after birth, and especially if the baby dies; but, if the baby survives this acute condition by the natural means of absorption of a large amount of the hemorrhage, hen the clinical signs of the intracranial lesion quickly disappear within the first month after birth, if, indeed, he signs have been definite enough to be recognized at all as indicating a serious intracranial lesion.

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

[1] Little, W. J.: Deformities of the Human Frame, Lancet, 1: 350 (Dec. 16) 1843.

The baby may thus be considered normal until months later, when it is noticed that the child is not beginning to hold up its head; is not sitting up when t should be attempting to do so, and that a stiffness nd spasticity of the extremities of various types and degrees is developing of one leg or of both legs, so hat they remain crossed in adduction; and of one rm or of both arms so that they become flexed with he hand clenched, the thumb being strongly adducted o the palm and beneath the clenched fingers—the ypical clinical picture of early cerebral spastic paralyis of the hemiplegic, diplegic and paraplegic types. The associated mental impairment is frequently indiated grossly by a retardation of speech for months fter the usual time. It is these later chronic patients who so often have passed from the observation of their ttending obstetrician, if, indeed, there was any marked nd recognized clinical evidence of an intracranial emorrhage within the first two weeks after birth, that ave permitted these cases to be variously diagnosed—Little's disease, to be sure; but as to its cause, rarely as the diagnosis in these chronic cases been the definite ne of an intracranial hemorrhage at the time of birth.

The chief reason for this confusion in the diagnosis as been the vagueness and even lack of marked clinal signs indicating the acute lesion within the first n days after birth in the majority of these patients, ith the exception of the extreme cases in which the tracranial hemorrhage and the associated cerebral lema were most extensive and to a degree causing rious signs and even early death. In the milder cases less extensive hemorrhage, the children survive after a period of from ten days to two weeks, during which the clinical signs of a possible intracranial lesion are most meager. This clinical difficulty of accurate diagnosis of the acute condition in the new-born will be considered later. The second factor in the tardy recognition of the intracranial lesion in the chronic cases has been that the babies surviving the acute condition have been considered, and often are, apparently, normal for a period of months after birth, until the seventh or eighth month and even later, when the spasticity of one or more of the extremities of varying degree appears—the child not holding up its head, sitting up and later walking and talking as it should—at a time when the patient has often drifted to a physician other than the obstetrician, so that the vague clinical signs of the intracranial condition at birth, even if suspected, are not correlated with the later clinical findings of physical and mental retardation, and therefore the diagnosis of the later chronic intracranial lesion has at best been only a tentative one, and more often the condition has been ascribed to some mysterious lack of development of cerebral tissues, heredity, syphilis, and other hopeless conditions which dismay the parents on account of the fear of having future children.

CHRONIC CEREBRAL SPASTIC PARALYSIS

During the last ten years[3] I have had the opportunity of examining 5,192 children having the various forms of cerebral spastic paralysis with and without marked mental impairment; the age of these patients (over 1 month) ranged from 34 days to 23 years. In this series of chronic cases, in only 671, or 12 + per cent., was there found definite evidence of an increased intracranial pressure to the degree of producing fundal changes observable with the ophthalmoscope[4] and of being accurately measured by the spinal mercurial manometer at lumbar puncture. By these two modern tests, and especially the latter, it has been possible to differentiate, to a very large degree, those patients having a definite increase of the intracranial pressure (only 12 per cent. in this series) and therefore the ones that may be benefited by a lowering of this pressure either by medicine (thyroid and thymus therapy) or by the cranial operation of decompression and drainage, from those other patients (88 per cent. in this series) not having an increased intracranial pressure and therefore to whom little, if anything, other than orthopedic measures, can be offered to improve their condition, a permanent cerebral damage having already occurred.

Of these 671 chronic patients having a definite increase in the intracranial pressure, 604 have had a subtemporal decompression with drainage of the partially blocked cerebrospinal fluid, and in all of them, with the exception of nineteen cases, the pathologic condition has been the same—edematous "wet" brains under varying degrees of increased intracranial pressure, and along the thickened walls of the supracortical veins in the sulci could be observed a whitish cloudy new tissue formation—the organization-residue of a former layer of supracortical hemorrhage. Since it has now been conclusively demonstrated that almost 80 per cent. of the cerebrospinal fluid is excreted normally through the walls of the supracortical veins into the blood stream, and that only the remaining 20 per cent. is excreted by means of the sinuses, pacchionian bodies, etc., and not almost entirely by the latter, as had been believed and taught, these operative and postmortem findings of organized new tissue formation about the supracortical veins explain the partial blockage of the little stomata of exit of the cerebrospinal fluid, and thus the edematous swollen brain associated with a resulting increased intracranial pressure of varying degree according to the amount of blockage. (The blockage resulting from a former meningeal exudate is much more extensive and complete, producing the various degrees of so-called external hydrocephalus and, if the aqueduct or the foramina of Magendie and Luschka should be occluded, then the ventricular dilatation of internal hydrocephalus.)

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[2] Little, W. J.: On the Influence of Abnormal Parturition, Difficult bors, etc., Upon the Mental and Physical Condition of the Child, st. Tr. **3**: 293, 1862.

[3] Sharpe, William: Brain Injuries, J. A. M. A. **66**: 1536 (May 13) 1916; Proc. Am. Assn. for Feebleminded, 1918.

[4] In not one of these patients has the intracranial pressure been so high as to produce the so-called "choked disks" (a measurable papilledema of 2 diopters plus), but only those fundal changes indicative of a milder degree of increased intracranial pressure—dilatation of the retinal veins, edematous obscuration of the disk margins, especially on the nasal side, and frequently of the nasal halves of the disks themselves. Whether these fundal changes in the individual case are within normal physiologic limits may be ascertained by the more delicate and accurate test of a measurement of the pressure of the cerebrospinal fluid at lumbar puncture as registered by the spinal mercurial manometer. It is an interesting observation in this connection that "choked disks" are only occasionally found in the acute traumatic cases of adults—apparently in only those patients having a large, slowly forming extradural hemorrhage of the middle meningeal artery, and thus gradually producing an extreme intracranial pressure as of tumor formation; in the more common extensive and rapidly forming subdural hemorrhage, on the contrary, the resulting sudden rise of the intracranial pressure apparently precipitates such an early medullary edema and the death of the patient even before the high intracranial pressure can produce a measureable papilledema. In only nine patients in a series of more than 600 acute brain injuries in adults has the condition of "choked disks" been observed.

The histories of the labor and of the first week after birth of these chronic patients having cerebral spastic paralysis, with and without marked mental retardation, with the subsequent operative and postmortem findings[5] of an organic partial blockage of the excretion of the cerebrospinal fluid producing the increased intracranial pressure of chronic cerebral edema,[6] have been most instructive; 81 per cent. have been first children; 72 per cent. have been boys; 95 per cent. have been full-term babies; in 90 per cent. the labor has been prolonged and difficult, forceps being applied in 76 per cent. of them, although in a large percentage of these cases, more as a last resort than as an early indication; in 17 per cent. it has been from a breech presentation. Pituitary extract was reported as having been used in 8 per cent. of these cases. During the first week after birth, 64 per cent. of these children were considered more drowsy and stuporous than is normal, 23 per cent. refusing to nurse, and 78 per cent. not evincing the normal demand for food; 39 per cent. had muscular twitchings of varying degree, particularly of the orbital muscles and of either leg or hand; in 17 per cent. general convulsive seizures occurred one or more times during the first two weeks. An icteroid appearance was noted in 18 per cent. Within two weeks after birth, 61 per cent. of these children were so-called "well" and "normal" (if anything serious had been suspected at all), and in 82 per cent. of them, within one month after birth, the child was "to all appearances" normal in every way. With the exception of 21 per cent., it was only in the later months of the first year that it was observed that the child was not beginning to hold up its head and to sit up when it normally should do so, and in 79 per cent., the beginning of spasticity of the legs or arms was not demonstrable before the seventh month. The later history of not walking and talking within the normal age limits varied by months and even years, a small percentage never having walked or talked. The Wassermann test of the cerebrospinal fluid was positive in only 0.5 per cent. of all the cases.

ACUTE INTRACRANIAL LESIONS FOLLOWING DIFFICULT LABOR

During this period of 1913 to Jan. 1, 1923, I have had the opportunity of examining in consultation and treating forty-six new-born babies within the first two weeks, the diagnosis being a serious intracranial lesion, most probably hemorrhage, following very difficult labor with and without the use of instruments. The acute condition of these children was considered of such grave character that early death was feared and it was hoped that possibly a cranial operative procedure might offer the child a chance of recovery of life at least. Lumbar puncture was performed on all but two (these two having died before the tests could be performed), and free blood under varying degrees of increased pressure was found in the cerebrospinal fluid of 87 per cent. of those patients tested during the first week after birth; during the second week, and especially later, the lumbar puncture becomes increasingly less valuable as a diagnostic aid, the blood usually coagulating within the first ten days. Repeated lumbar punctures for spinal drainage were used in four of the milder and earlier cases within the first week in the hope that the intracranial hemorrhage could all be drained in this simple and safe manner; but in only two of them, after four and seven lumbar punctures, respectively, every twelve hours, did the fluid become clear and of normal pressure. This method of spinal drainage should be attempted in all but the very extreme cases of extensive intracranial hemorrhage under high pressure, within the first week after birth: if then the cerebrospinal fluid does not become clear or the pressure become normal and remain normal, the cranial operation of modified subtemporal decompression and drainage should be considered. The operative and postmortem findings in 100 per cent. of these acute extreme cases disclosed subdural, supracortical and subarachnoid hemorrhage of varying degree.

During the last three years I have become more and more impressed with the fact that these extreme acute cases of extensive intracranial hemorrhage of the new-born, to the degree of producing profound unconsciousness, inability to nurse and even convulsive seizures, were almost the only ones being recognized by the obstetrician with any degree of certainty, the cases of milder degree and of less extensive intracranial hemorrhage at the time of birth not producing marked clinical signs of its presence owing to the fact that the cerebral cortex at this early age is not highly developed, the new-born child being more of a spina than a cerebral animal. Also, the histories of the chronic cases of cerebral spastic paralysis were very suggestive, in that the large majority of babies were first-born, full-term boys delivered after a difficult labor with and without the use of instruments, and in whom the clinical signs, even when observed, were often no more than a slight drowsiness, difficulty in nursing and an occasional muscular twitching, and so often ascribed to "nothing at all." The child having suffered from the difficult labor, such a condition might be expected and it would all "clear up." Fortunately, in the mild cases of small hemorrhage, frequently associated with no definite clinical signs at all, the natural means of absorption were undoubtedly often sufficient to "take care of" the hemorrhage, so that no supracortical residue of organized new tissue formation of the layer of clot remained to block the normal absorption of the cerebrospinal fluid; these patients became normal and remained so. Unfortunately, in those patients with more extensive hemorrhage, and in whom clinical signs during the first ten days after birth were usually noted, as indicated in the histories in this series of chronic cases—mild stupor, difficulty in nursing and occasional muscular twitching—the condition usually did "clear up" within the first two or four weeks, but only temporarily so, for after a period of several months of apparent normality these children began to exhibit, within the first and second years of age, the definite signs of physical impairment and mental retardation, the typical condition of cerebral spastic paralysis. Naturally, this later development of a chronic condition in an apparently normal child has been most puzzling and has been ascribed to numerous causes: lack of development, a former meningo-encephalitis, syphilis, heredity and other causes.

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[5] During the last eight years, I have insisted, before performing an operation on any patient having a chronic neurologic condition, that the nearest relative give me, in writing, permission to make a postmortem examination in case the patient should die (and naturally one does not expect the patient to die), in order to ascertain the real cause of death rather than accept the common report of "shock," "cerebral or pulmonary embolus," and "thrombus formation." If death is due to an operative error or to some avoidable complication, then it is for the surgeon to realize it so that its repetition can, if possible, be prevented in future patients; moreover, the accuracy of the diagnosis is thus confirmed or disproved, and the pathologic lesion is carefully examined. The cooperation of the nearest relative in permitting these examinations has been the rule; in only three instances in a series of more than 1,200 patients operated on was a flat refusal maintained—and no operation was performed.

[6] Sharpe, William: The Condition of Traumatic Cerebral Edema, Am. J. M. Sc. **165**: 405 (March) 1923.

FINDINGS IN ONE HUNDRED CASES

Realizing that the ideal time for treatment of this traumatic condition of the new-born, just as in the cases of traumatic intracranial hemorrhage in adults with and without a fracture of the skull, is during the acute stage at the time of birth, during the first week, when the intracranial hemorrhage can be drained in fluid form and thus the danger of the later physical and mental impairments be lessened and even avoided, and not during the chronic stage—months and years later, when the cerebral cortex may have been or has been permanently damaged—and suspecting that this condition of intracranial hemorrhage of the new-born was occurring more frequently and much more commonly than had been conceived, owing to the paucity and even lack of the symptoms and signs at the time of birth, I obtained the permission in January, 1923, for performing a series of lumbar punctures on consecutive new-born children at the City Hospital, Welfare Island, New York City, through the courtesy of Drs. Wilbur Ward, F. A. Dorman and C. G. Child, Jr., in whose services the following observations have been recorded n 100 consecutive new-born babies.

It was, indeed, surprising to find free blood in arying amounts in the cerebrospinal fluid at lumbar uncture within from twelve to forty-eight hours after rth in nine of the 100 consecutive new-born babies; at is, in 9 per cent. With the exception of four ases, these nine births were apparently normal and e babies themselves appeared to be normal, there eing no marked symptoms or signs of an intracranial sion. The amount of blood varied from merely a ddish tinge of the cerebrospinal fluid in five cases that of almost pure blood in four. In five her cases the cerebrospinal fluid was blood-streaked, ther as it dripped from the needle or as it collected in the test tube; thus, this blood was due the puncture itself, and an immediate second puncture, one lumbar interspace higher, revealing clear fluid, confirmed this belief. Therefore, these five babies were not included with the nine babies with bloodly cerebrospinal fluid. In not one case following these 100 lumbar punctures were any untoward effects on the baby to be observed—no rise of temperature, no cervical or spinal rigidity and no vomiting. The test of lumbar puncture itself on these new-born babies was simpler than the routine procedure of taking the blood, the essentials being a well-flexed spine in the horizontal position, a hypodermic needle instead of the large lumbar puncture needle, and, naturally, no anesthesia. In only eight cases was the failure of a "dry tap" recorded. In each case in which free blood was found in the cerebrospinal fluid and under varying degrees of increased pressure, as accurately recorded by the spinal mercurial manometer, the cerebrospinal fluid was slowly removed until the pressure descended to the lowest level within normal limits (4 mm.), and a second test, twelve hours later, was made, both to confirm the presence of blood of the first test and also to drain away still more of the free blood until the cerebrospinal fluid should become clear and under a pressure within normal limits (not over 8 mm.). In one case, four lumbar punctures for spinal drainage at intervals of twelve hours each were necessary in order to permit the cerebrospinal fluid to become clear and under normal pressure; in the five babies having blood-tinged cerebrospinal fluid, three lumbar punctures were sufficient for four of them, and only two punctures for the other child, in order for the cerebrospinal fluid to become clear and under normal pressure.

In four babies the intracranial hemorrhage was of large amount, a 7 months' baby revealing, at necropsy, a right ventricular hemorrhage and another baby having subarachnoid hemorrhage with extensive cerebral edema. Both of these babies died suddenly within thirty-six hours after birth, and in them the lumbar puncture revealed a bloody cerebrospinal fluid under high pressure. (Early repeated lumbar punctures for spinal drainage, or even a cranial decompression and drainage, might have permitted the patient in the latter case of subarachnoid hemorrhage to recover.) It was also impressive to observe in the other two patients surviving with extensive intracranial hemorrhage, only the so-called mild clinical signs, drowsiness, refusal to nurse and no muscular twitchings. In three of the cases of intracranial hemorrhage of less degree in this series, there were present no marked demonstrable signs indicative of a serious intracranial lesion; apparently the amount of hemorrhage was so slight that possibly the natural means of absorption alone, even if the spinal drainage by repeated lumbar punctures had not been used, would have sufficed to permit the complete absorption of the free blood, and thus to assure the future normality of the child. Undoubtedly the repeated lumbar punctures for spinal drainage aided these natural means of absorption, and in this manner their recovery was facilitated, both as to life and as to future normality. The fontanels were flush in five cases, bulging and tense in two, and apparently relaxed and normal in two, and the increased intracranial pressure, as registered by the spinal mercurial manometer, varied from 16 and 12 mm. in the two patients dying to 10 mm. in the babies having flush fontanels, and to 8 mm. in the two babies with relaxed fontanels. The coagulation time of the blood was taken in each of the nine babies in whom free blood was found in the cerebrospinal fluid, and in each case the coagulation time was within the normal limits.

It is interesting to note in this series of 100 consecutive new-born babies, in 9 per cent. of whom free blood was found in the cerebrospinal fluid, that fifty-one were boys and forty-five were first children, and that only fifteen labors were recorded as being prolonged and difficult, and that instruments of the low forceps type had been applied in only ten of them, and no intracranial hemorrhage had resulted in these particular instrumental deliveries. The two deaths from intracranial hemorrhage with necropsy were described by the obstetrician as being "normal." The remaining labors, with the exception of three having the cord about the neck, were considered as being normal with no complications. There were two pairs of normal twins and only one case of brachial plexus injury. Two babies were recorded as being "jaundiced." One baby developed slight twitchings of the hands and of the legs ten hours after birth, but a lumbar puncture disclosed clear cerebrospinal fluid under normal pressure, so that a possible intracranial hemorrhage could be practically excluded as being an etiologic factor; the muscular twitches disappeared within six hours after the lumbar puncture and did not return. (An early lumbar puncture within the first few days after birth can thus be utilized in many doubtful cases to confirm or disprove any clinical signs pointing to an intracranial hemorrhage at the time of birth—a very valuable method to the obstetrician, especially after severe, difficult labors when an intracranial lesion may be feared and even suspected.)

In adults, the normal pressure of the cerebrospinal fluid, as measured by the spinal mercurial manometer at lumbar puncture, is considered as being from 6 to 8 mm., and it was expected that in the new-born babies of this series, the intracranial pressure would be definitely lower on account of the open fontanels and the normal elasticity of the dura at this early age. It was surprising, therefore, to record almost a uniform pressure of 8 mm. of mercury within the first forty-eight hours after birth, and it was only after lumbar punctures were performed at the date of discharge, two weeks later, that the normal pressure for the babies in this series was apparently from 3 to 5 mm.; whether this temporary mild cerebral edema at the time of birth is a protective mechanism of Nature to lessen the danger of cerebral trauma, or is a result of the cranial molding and possibly mild trauma incidental to parturition, can only be mentioned.

IMPORTANCE OF EARLY LUMBAR PUNCTURE

Acute intracranial hemorrhage and cerebral edema of varying amounts in the new-born occur rather frequently. The simple method of lumbar puncture within the first week after birth may be used to demonstrate the presence or not of free blood in the cerebrospinal fluid; if present, then the natural means of its absorption can be aided by the repeated lumbar punctures of spinal drainage; and, if not present, then an intracranial hemorrhagic lesion can be practically excluded. The mildness and almost lack of clinical symptoms and signs, even in the presence of extensive intracranial hemorrhage and cerebral edema in the new-born, emphasize the advisability and importance of an early lumbar puncture, both as a diagnostic and as a therapeutic measure, in any suspected case of an intracranial lesion in the new-born, irrespective of the type of labor. This early recognition of an intracranial hemorrhage in the new-born and the appropriate treatment will thus tend to lessen that large chronic group of physically impaired and mentally retarded children.

I am deeply indebted to my associate, Dr. G. E. Espejo who performed all of the lumbar punctures in this series, registering the pressure and examining the cerebrospinal fluid in the laboratory; also the making of the coagulation blood tests on those children in whom an intracranial hemorrhage of varying degree had occurred.

20 West Fiftieth Street.

CARE OF THE NEW-BORN IN THE FIRST WEEKS OF LIFE *

E. J. HUENEKENS, M.D.
MINNEAPOLIS

In this paper I shall attempt to consider only the more important aspects of the care of the new-born in the first few weeks of life. No attempt will be made to cover the entire ground, but stress will be placed chiefly on subjects which have not been sufficiently emphasized in the past, such as physical care of the new-born, congenital defects and injuries, infection, hemorrhage and feeding.

The physical care includes proper clothing, bathing, external temperature and the administration of fluids.

New-born infants are apt to be kept in rooms in which too high a temperature is maintained. They frequently respond to too high an external temperature with fever, just as they respond with a subnormal temperature if they become chilled. Many an obscure fever in the new-born would be diagnosed if the room temperature were more carefully observed. The same applies to the clothing of the infant; chilling must be prevented, but too much clothing makes the baby irritable, and if it is at all thermolabile, it reacts with a fever.

Ramsey advises that, in place of the usual bath, an oil rub be used; his point is well taken, especially for the debilitated infant during the first twenty-four hours.

For the first four days, before the mother's breast milk has begun to flow freely, large amounts of fluid in some form must be administered. If this is not done, the baby may develop a fever, owing to dehydration.

CONGENITAL DEFECTS

Only such congenital defects as demand early treatment will be considered. These include cleft palate, Erb's paralysis and clubfoot. With Erb's paralysis, for the first twenty-four hours the injured arm should be held in a cast or splint over the head, with the humerus at right angles to the body and the forearm at right angles to the humerus, so that all strain may be taken off the deltoid muscle. When the nerves regenerate, the muscle will then be in good condition to function. In order to get the best results, clubfoot should be treated as soon as possible after birth. If the baby's condition permits, treatment for harelip and cleft palate should begin within ten days after birth.

Our modern aseptic technic has made cord infections less important than formerly, and the general prophylactic use of silver preparations has done the same for gonorrheal ophthalmia.

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Respiratory infections, on the other hand, are becoming increasingly important. The mother or attendant suffering with acute respiratory infection should be required to wear a gauze mask when handling the baby. Pneumonia, meningitis, otitis and pyelitis in the new-born can often be traced to such a source.

Pemphigus neonatorum has lost none of its dangers. Its high contagiousness means that, in a ward for new-born infants, the slightest suspicion of this disease should cause the isolation of the suspected infant.

Open tuberculosis in the mother is the one sufficient reason against maternal nursing. She not only should not nurse the baby, but, if at all possible, the baby should be separated entirely from the mother, since tuberculosis in the new-born is uniformly fatal.

Congenital syphilis is a very deceptive disease. When the baby is born with clinical evidence of the disease and there is a positive Wassermann reaction, the course to pursue is simple. When, however, as is frequently the case, the infant is born apparently healthy and with a negative Wassermann reaction, but, nevertheless, is in the incubation period of the disease, diagnosis is rendered more difficult, and early treatment is often deferred. In an infant under 3 months of age, a negative Wassermann reaction does not exclude syphilis; but over that age, if carefully and properly performed, it is fairly reliable. In the young infant, when there is any suspicion of syphilis, treatment should be instituted at once until time has made certain the diagnosis.

HEMORRHAGE

Hemorrhage of the new-born is much more common than was formerly supposed. Warwick[1] summarizes thus a necropsy report on hemorrhage in the new-born:

> 1. Cerebral hemorrhage of the new-born is frequently found, occurring in 50 per cent. of thirty-six fatal cases of young infants at the University Hospital.
>
> 2. The condition is brought about by trauma in normal or rapid deliveries, by congestion or asphyxiation in slow deliveries, or by disease of the child itself.
>
> 3. The so-called "hemorrhagic disease of the new-born" is a much neglected but very important cause of cerebral hemorrhage in infants, occurring in 44 per cent. of the deaths of our series.
>
> 4. Forceps deliveries, advanced age of the primipara mother and syphilis probably do not play as important a rôle in the etiology of this condition as was formerly supposed.

In connection with hemorrhagic disease of the new-born, Rodda[2] has shown that the coagulation and bleeding time are prolonged, and has suggested this simple method for determining the coagulation time:

> The apparatus required consists of a spring lance (a simple scalpel will suffice), two 1½ inch watch glasses and No. 6 ead shot, all of which are easily obtained and transported. Glass and shot should be cleaned, preferably by washing with soap and water, followed by alcohol and ether. Needless o say, the lance should be sterile, which implies freedom from old blood. The heel of the infant is sponged with ether, a puncture is made with the lance blade set (about 0.5 cm.) to produce a free flow of blood without the slightest pressure. A clean watch glass containing a No. 6 shot receives the second drop of blood. A second watch glass is inverted over he first. The watch glasses are gently tilted every thirty seconds until the shot no longer rolls, but is fixed in the clot. The end-result is sharply defined; the shot is firmly embedded, so that the glass may be inverted without dislodgment of the hot.

Rodda's work has greatly increased our ability to cope with these cases. Every new-born infant presenting symptoms should have its bleeding and coagulation time tested. Better than this, a prophylactic coagulation test should be done every day for the first three days. The loss of coagulation power usually begins on the second or third day, but may begin during the first six hours of life, and, if no treatment is given, it may last a week or ten days. If the coagulation time is increased, treatment should be instituted at once, even with the absence of any symptoms of hemorrhage. The accepted treatment brings the coagulation back to normal in a comparatively short time, and is so simple that even under the most primitive conditions it can be employed. It consists in injecting, subcutaneously, from 20 to 35 c.c. of whole human blood, once, twice or three times a day, depending on the severity of the symptoms. When given subcutaneously, the blood, of course, need not be grouped. When, as is frequently the case, the hemorrhage is cerebral, the symptoms may be very indefinite; and, unless one has this condition in mind, the diagnosis may be overlooked. Many death certificates signed congenital debility and other meaningless diagnoses are in reality undiagnosed cerebral hemorrhages. Some of these cerebral hemorrhages are due to blood changes which come under the heading of hemorrhagic disease of the new-born; others are due to trauma from either forceps or normal deliveries, or may be due to asphyxia of slow deliveries. In many cases, the hemorrhage is due to a combination of trauma and loss of coagulation power. This can be more readily seen in external trauma, such as forceps or circumcision wounds, in which the hemorrhage may stop entirely for several days, only to begin again as the coagulation time increases.

The common practice of circumcision in the first week of life is undesirable from two standpoints: (1) from the frequent danger of hemorrhage due to increased coagulation time, and (2) because in most infants the normal adhesions of the prepuce at birth can gradually be broken during the early months of life, doing away with the necessity for operation.

The symptoms of brain hemorrhage are often very elusive. Intermittent cyanosis, twitchings, frank convulsions, collapse and cloudy sensorium are the most common symptoms, but any indefinite symptom which cannot be explained on other grounds should lead to the suspicion of brain hemorrhage. If the coagulation time is increased, blood should be injected at once, and lumbar puncture performed, often with the withdrawal of boody fluid, an operation which relieves the pressure. If after several days there is no improvement in the symptoms, even though the coagulation time is returning to normal, decompression must be seriously considered. I believe that many cases of spastic paralysis, mental deficiency and epilepsy might be avoided if this operation were more frequently performed. It is a comparatively simple operation, and the mortality is low.

The recognition of hemorrhage of the new-born, especially cerebral hemorrhage, is a most neglected phase of the care of the new-born, and one on which too much emphasis cannot be placed.

FEEDING

Infant feeding divides with hemorrhage the honor of being the most important factor in neonatal mortality. More than 95 per cent. of babies can and should be breast fed, and the care received during the first two weeks of life often determines whether or not the baby will be nursed. The late Dr. Sedgwick once remarked that "the baby is the by-product of obstetrics." To the obstetrician, the mother is the first consideration, and his comparatively slight interest in the infant has caused many large teaching hospitals to place the new-born infants in the care of the pediatrician.

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[1] Warwick, Margaret: Cerebral Hemorrhage of the New-Born, Am. J. M. Sc. **158**: 95 (July) 1919.

[2] Rodda, F. C.: Studies with a New Method for Determining the Coagulation Time of the Blood in the New Born, Am. J. Dis. Child. **9**: 268 (April) 1920.

The baby should be put to the breast within six hours after birth, and then regularly every four hours, five or six times a day, until the milk begins to flow freely. The practice introduced by Schick of feeding the infant large amounts of carbohydrate solution and other artificial mixtures to do away with the initial weight loss is permissible in a large, well organized hospital; but under other circumstances it may be very undesirable, for it may be the entering wedge for the complete weaning of the baby. A better general practice is to give the baby large quantities of water, and if at the end of a week there is not sufficient breast milk, small amounts of artificial food may be given. However, before this is done, it is usually wiser to nurse both breasts, instead of one; to nurse every three hours, instead of four, and to begin the manual expression of the mother's breasts after each nursing. The religious adherence to the four-hour schedule in the face of a shortage of breast milk is a serious mistake. I am one of the firmest adherents of the four-hour schedule when there is a normal supply of breast milk, but otherwise a temporary placing on the three-hour schedule is frequently of great benefit. One of the most frequent causes of an insufficient supply of breast milk is the fact that the infant's sucking reflex is poorly developed, and, as a consequence, the mother's breasts are not thoroughly emptied. Manual expression of the breasts after each nursing stimulates the supply. The technic is as follows: The breast is grasped firmly between the thumb and index finger just back of the areola, the fingers pressed firmly together, and then, with a sudden "stripping motion" toward the nipple, the milk is ejected in a stream. The method requires practice until a good technic is developed. The increase in the breast milk by this method is often surprising. If, in spite of these methods, artificial food is necessary, it should be complemented, that is, given after each nursing, instead of replacing a nursing, and should be given in minimal amounts. If given ad libitum, the baby soon stops nursing completely to wait for the easier bottle. The quantity of the artificial food given is more important than the kind; the simple milk dilutions with carbohydrate additions, the Holland buttermilk formula or casein milk may be used.

The method of manual expression is also of great value in malformations of the breasts or nipples, as well as in acute mastitis and abscesses of the breast. In malformation, if necessary, the entire breast milk supply may be expressed for the baby for a period of nine months (personal case). In acute conditions of the breast, the secretion of milk may be kept up until the inflammatory process has subsided. In acute generalized disease of the mother, such as the exanthems, in which it may at times be inadvisable to have the baby nursed, the milk may be expressed in this manner and fed to the baby.

It is suprising in now many otherwise efficient hospitals these simple methods are neglected, and in an offhand manner the babies are placed on a bottle because the mother has not enough breast milk.

It should be obvious from the foregoing statement that the interest in the health of the infant should not cease with the first few weeks of life, as is too frequently the case. With our increased knowledge of pediatrics, and especially of infant feeding, the continued health of the infant demands that as a prophylactic measure the baby be seen by a physician at least once a month during the first year of life.

The purpose of this paper has been served if it brings to the obstetrician the realization that the new-born infant has a claim on his time and skill equal to that of the mother.

538 La Salle Building.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. SHARPE AND HUENEKENS

Dr. Henry F. Helmholz, Rochester, Minn.: Dr. Sharpe's paper is of great importance because it suggests a method of preventing disease. Anything that we can do to reduce the number of cerebral palsies is clear gain. When they have reached the chronic stage there is practically nothing that can be done for them in a medical way. The matter of routine lumbar puncture in cases of suspected cerebral hemorrhage is of great importance. I disagree with him only in a minor point: that the symptomatology of cerebral hemorrhage is a very difficult one and that many conditions may give rise to exactly the same symptomatology described but in which at necropsy no cerebral hemorrhage is found. In one other matter, too, I would emphasize the fact that these hemorrhages occur not only on the surface but also in the depth of the cerebral tissues. I think that this is a point that is frequently overlooked and, unfortunately, in my experience, is more frequent than is usually described. Unquestionably, the milder hemorhages are, as a rule, superficial, but even in this connection it is well to realize that hemorrhage at the time of birth, due to rupture of a small vessel, may light up again because of the hemorrhagic tendency in the new-born. During the last year we have made it a routine procedure, in cases of more severe labor and forceps delivery, to give infants at the time of birth a prophylactic injection of blood. The father is usually available, and it can be carried out very simply. It seems to me that the slight hemorrhage occurring immediately after birth can be controlled in this way and should prevent the lighting up of the hemorrhage due to the hemorrhagic tendency that one sees so frequently. With regard to the pathology and possible etiology of pressure or encephalitis, it has been my experience that there is usually considerable involvement of the brain substance, and that exceptionally there may be an element of pressure. Dr. Huenekens has so completely covered the field that it seems useless to attempt to say anything more than just emphasize again the three most essential points: the temperature, guarding the infant against infection, and breast feeding.

Dr. Edward L. Cornell, Chicago: I want to call attention to the importance of brain hemorrhage following rapid normal delivery. I think too many of us overlook the fact that a baby delivered less than two hours after labor is started is frequently subject to brain hemorrhage. Within the last three years I have had three or four cases following short deliveries, one patient having the baby in thirty-five minutes after the first pain. The baby died on the fourth day, and at the necropsy hemorrhage was present throughout the brain, even involving the lower brain structures. For the last year and a half it has been my custom to use some form of hemostatic preparation as a prophylactic measure to combat, if possible, the impending hemorrhage following rapid normal deliveries, a very difficult forceps delivery or long drawn out labor cases. Regarding circumcision early in the baby's life, I feel that Dr. Huenekens' remarks are necessarily true. I have used circumcision on the eighth or ninth day for the last ten years, and, with few exceptions, have had no trouble with hemorrhage afterward. We favor the four hour feeding and have used it since 1917 at the Chicago Lying-in Hospital, with very satisfactory results save for a few exceptions. I agree that we should use three hour feeding in cases of shortage of milk. I wish to call attention to the electric breast pump. This pump was developed by Dr. Abt. We are using it with great satisfaction in cases of shortage of milk or engorged breasts.

Dr. Ernest Sachs, St. Louis: I agree with Dr. Huenekens and Dr. Sharpe that this question of hemorrhage is a very vital one. I agree with Dr. Huenekens in contradistinction to what Dr. Sharpe has said that the diagnosis is extremely difficult. I have had the good fortune in the last year to see all such cases in the pediatric service of Dr. Marriott, and we have all been greatly troubled in making the diagnosis, believing that we had a birth hemorrhage when none was present. I wish to protest strongly against what Dr. Sharpe has advocated for many years, namely, that increase in the spinal fluid was evidence of disturbance or increase in the intracranial pressure. Through the kindness of Dr. Marriott, I had the opportunity of having the spinal pressure measured as a matter of routine in a large number of cases in which spinal puncture was done for diagnostic purposes, and found that the pressure varied anywhere from 4 to 60 mm. None of these cases were traumatic or tumor cases. If this is so, then this argument that a rise in the intraspinal pressure is per se evidence of increased intracranial pressure must fall.

Dr. William Sharpe, New York: In this series of 100 consecutive new-born children it was, indeed, frequent to find a mild frontal and intracranial hemorrhage, as was indicated by bloody cerebrospinal fluid. I agree that, if we attempt to diagnose extensive intracranial hemorrhage or intracranial hemorrhage of varying degree, unless we use early lumbar puncture before the blood clots, it is very difficult to diagnose intracranial hemorrhage. I, too, feel that in these cases intracranial hemorrhage occurs much more frequently than we have any conception of, and that the only method of diagnosing extreme cases of intracranial hemorrhage is the lumbar puncture. I agree with Dr. Helmholz that the signs produced by mild intracranial hemorrhage may be absent entirely or, at least, not recognized, and it is only by means of lumbar puncture that such a diagnosis can be made. By repeated lumbar puncture producing drainage it is possible to lessen the number of spinal palsy cases later in life. In these nine cases in which we found blood in the cerebrospinal fluid, forceps had not been used and labor was in one case a breech with version and extraction, and in one case the cord was about the neck, but otherwise the labors were normal, so that intracranial hemorrhage can occur without labor difficulty. The coagulation time was taken in each one of the nine cases in which blood was found in the cerebrospinal fluid, and it was normal. As to the so-called normal pressure in new-born babies, in adults a pressure of from 6 to 8 mm. is considered normal, but it may be as high as 10. In children with open fontanel and with elasticity of the dura, the pressure was universally 7 or 8, rarely above that. Then we were considering that 6 was normal pressure for new-born babies. When we again made the test at the time they left the hospital, three or four weeks later, the pressure was usually 4, sometimes 5. Whether more cerebrospinal fluid escapes at the time of birth to protect the brain or whether this cerebrospinal edema is the result of trauma at birth, I do not know.

Dr. E. J. Huenekens, Minneapolis: I agree with Dr. Sharpe on the advisability of frequent lumbar puncture in cases of cerebral hemorrhage, but I wish to emphasize more than he has the necessity of ascertaining the coagulation time. I am surprised that in his nine cases he found no increase in coagulation time. Dr. Warwick found that intracranial hemorrhage occurred in 44 per cent. of deaths in a large series, and in all of these 44 per cent. there was an increase in the coagulation time. That is an important point in the treatment of these cases.

Strain and Acute Respiratory Disease.—There can be no doubt that with acute respiratory disease strain makes up a team of immediate etiologic factors that is responsible for more individual outbreaks of tuberculosis than any other single cause.—Allen K. Krause.

THE PROBLEM OF DIAGNOSIS IN SURGICAL LESIONS OF THE RIGHT ILIAC REGION *

A. B. COOKE, M.D.
LOS ANGELES

In some sense, most intra-abdominal operations are exploratory.

After every diagnostic resource has been exhausted, it happens with disconcerting frequency that conditions are encountered at operation of a different and far more serious character than was anticipated.

This is especially true in lesions of the right iliac fossa, in which the appendix so completely dominates the diagnostic picture. As a matter of fact, fully 90 per cent. of the surgical lesions of this region do originate in the appendix. But the remainder, whether 10 or only 1 per cent., constitute too large and too important a clinical group to be ignored or lightly considered.

We are not concerned so much with diagnostic error as with the possible consequences of diagnostic error; for the prime object of diagnosis, when all is said, is the cure of disease, not the scientific satisfaction of solving an obscure problem. In the class of cases now under consideration, life is threatened and time for refinement of diagnosis is not always available. It is often imperative to face emergencies by operating first, determining the exact nature of the trouble incidentally, or afterward when the patient is safe. The alert clinician diagnoses acute surgical conditions of the abdomen as a call to action, be the disease what it may.

Enumeration of the extra-abdominal conditions alone which have been mistaken for appendicitis and treated by operation would make an interesting list, embracing such diverse maladies as pneumonia, tabes, sciatica and spinal caries. And practically every intra-abdominal lesion has furnished the occasion for similar misdirected enthusiasm.

But the class of cases to which attention is here particularly invited is that in which the lesion is really located in the right iliac region.

A series of recent cases in which the diagnosis of appendicitis proved to be incorrect or in some respect misleading has served to direct my attention very forcibly to this question. When first seen, each one of these cases presented every appearance of a typical acute attack, and delay for prolonged study seemed both unwise and unwarranted. In the light of the operative findings, it is quite evident that accurate differential diagnosis would not have been possible even had time for investigation been unlimited.

REPORT OF CASES

A brief report of several cases will serve both to illustrate and to illuminate the problem under discussion:

Case 1.—Mrs. Y., aged 30, healthy and well nourished, for more than a year had suffered from recurrent attacks of pain in the right iliac region, which had been invariably diagnosed appendicitis. There being no improvement in this attack after twenty-four hours, I was called to attend her. The case seemed a typical one of simple acute appendicitis, presenting all the classical features of local rigidity, slight elevation of temperature, vomiting at intervals, and constipation. Pelvic examination was negative. Leukocytosis was

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14,000; polymorphonuclears, 82 per cent. Operation was refused. Twelve hours later, about 9 o'clock p. m., I was again called, when the patient consented to go to the hospital. Operation at 1 a. m. disclosed a normal appendix. About 6 inches from the ileocecal valve, the ileum presented a small, indurated mass with many dense adhesions about it. The intestine was twisted on itself so that almost complete obstruction had resulted. The indications were clear for resection. This was accordingly done, some 4 inches of the intestine being removed and end-to-end anastomosis with sutures effected. The condition proved to be inflammatory only. Complete recovery followed a rather stormy convalescence.

Case 2.—Miss E. A., aged 25, healthy, had had a number of similar attacks during the previous two years. Clinical examination and laboratory findings were much like those of the preceding case. Here again operation was declined until increasing pain won consent twenty-four hours later. The trouble was found to be at the base of the appendix and involving the cecum as well, a large area of the latter being densely infiltrated and presenting numerous foci of suppuration and necrosis. Operation consisted of resection of approximately two thirds of the diseased cecum. Nothing less than this rather formidable procedure seemed to offer any promise of success in this particular case of appendicitis.

Case 3.—J. C., a white man, aged 22, strong and healthy, had marked and typical symptoms of acute appendicitis, and the clinical diagnosis was corroborated by the laboratory findings. So definite were the evidences of localization at the usual site that an oblique, muscle-splitting incision was made. A careful search failed to reveal any pathologic changes in the vicinity, or any trace of either cecum or appendix. Not willing to admit in the presence of such positive symptoms that this could be another instance of "congenital absence" of those organs, I made a second incision through the rectus muscle at a higher level, and the truant structures were at once located. The ascending colon was very short, the freely mobile cecum looked upward and inward, and the highly inflamed appendix lay in contact with the gallbladder, with newly formed adhesions extending in all directions.

Case 4.—D. S. M., a physican, aged 53, a personal friend, had been in bed several days suffering with a continuous and increasingly severe pain in the right iliac region. He had had several similar, but briefer and less painful, attacks during the past few years. The temperature was 101; pulse, 95. On palpation there was marked rigidity of the right rectus and pronounced tenderness about the region of McBurney's point. A well defined mass of firm consistency could be plainly outlined at the latter situation. There was a leukocytosis of 22,500, with 93 per cent. polymorphonuclears. The diagnosis of acute appendicitis and the necessity of immediate operation seemed equally clear, and the patient was sent to the hospital. The mass was delivered without difficulty, and proved to be a greatly thickened cecum with a distinct tumor as large as a medium sized fist occupying the whole of the space between the origin of the appendix and the ileocecal junction. The appendix was in no way involved. Pathologic change was definitely limited to the tumor, which presented numerous areas of necrosis, one of which extended well on to the ileum at its point of junction with the cecum. It was soon apparent that nothing less than a total excision of the cecum must be undertaken. This was done, an end-to-end anastomosis of the ileum to the ascending colon being made with sutures. The tumor proved to be a diverticulum of the cecum containing a firm, round fecalith approximately three-fourths inch (2 cm.) in diameter, in a mucous-lined pocket more than an inch from the lumen of the intestine.[1]

These four cases will suffice to indicate the diagnostic uncertainties and to emphasize the operative difficulties and complications that may be associated with the surgery of appendicitis. They are not mentioned as in any sense unique. Without especial effort, probably every experienced surgeon can recall similar instances that have occurred in his own experience.

THE MODERN SURGICAL CRAZE

Now, what is it all about? Since, in the nature of things, absolute accuracy in diagnosis is impossible, why consume time by stressing the mistakes and failures? Because, as I conceive it, the question is one that vitally concerns this section and the good repute of surgery in general. As matters stand at present, the general practitioner, so far as relates to appendicitis, practically no longer exists. It has come to be the rule in most communities that the family physician who usually first sees these cases is himself both willing and eager to operate. Asked whether he does surgery he is apt to reply, "No, except in simple cases like appendicitis." The result is that the proportion of cases reaching the hands of the trained surgeon has gradually, but steadily, diminished until it is doubtful whether, taking the country as a whole, he now does as much as 50 per cent. of the appendicitis operations. That this is not a fanciful statement, the majority of surgeons whose experience has extended through the last two decades will be able to testify.

There must be some explanation of this condition of things. What is it? Primarily, of course, it is the unprecedented growth of what may be called the surgical craze. As promoting and encouraging this craze, two outstanding factors, each entirely worthy in itself, would appear to be of especial significance.

Promiscuous operating, notably for appendicitis, is largely an outgrowth of the last two decades. During the same period the hospital idea has been sown broadcast and has borne an amazing harvest. Whereas formerly only the cities were supplied, today every town of a thousand population boasts its hospital, which is open to the profession at large and in which the facilities for surgical work are free to all. In the cities, too, even the largest, hospitals exist in which no standard of skill or experience is applied to operators. Thus the widely prevalent desire to do surgery finds easy means of gratification.

The second conspicuous factor in the development of the modern surgical craze is the combined influence of the many schools of operative surgery and of the large open clinics. The former welcome all who apply, the only condition being the price of the course. The latter admit all comers with no questions asked and, apparently, no consideration given to their ability to observe intelligently or to profit by what may be observed.

Time does not permit elaboration of the foregoing. Nor, indeed, is it necessary. But I may be pardoned for stating in plain terms one truth which every one realizes for himself: There should be some minimum standard of fitness for every man who essays major surgery. In view of the utter impossibility of determining in advance the exact nature of the lesion and the operative requirements in all cases diagnosed "appendicitis," would it be in any sense unjust or unreasonable to require of every one who undertakes such operations that he should be competent to handle any condition that may be encountered? Sooner or later, in some way, some such reasonable requirement is certain to be established and enforced. How much better it would be if the profession would do this for itself, rather than remain apathetic and face an inevitable and more or less humiliating alternative.

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[1] This case has already been reported in detail: Cooke, A. B.: When Appendicitis is Not Appendicitis: A Case of Diverticulitis of the Cecum, J. A. M. A. 78: 578 (Feb. 25) 1922.

No fixed standard of surgical skill is here contemplated or suggested. But surely every patient has the right to expect and demand that he be subjected to no avoidable hazard, however small.

Much of what I have said applies with equal force to the surgical lesions of all abdominal organs; indeed, to surgical lesions in general. Emergencies must, of course, be met as they arise, but always to the best interest of the patient. It is beyond dispute that best interest means the services of a trained surgeon in every instance in which it is possible to procure one.

I have no specific remedy to offer. The evil, already great, is steadily growing, in spite of the good work that has been accomplished by the Association through its Council on Medical Education and Hospitals, and by the American College of Surgeons. And unless effective appeal can be made to the individual conscience of the rank and file of the profession, I foresee a constantly waning influence, if not actual disaster, ahead. Already we are under attack from many insidious sources, and regulation in the form of antagonistic legislation is being proposed and enacted in many different states. We must have the confidence of the public, but we must also deserve it.

This desirable end will be promoted in proportion as we recognize and emphasize the basic truth that surgery exists for the patient, not the patient for surgery.

I am well aware that little credit and no glory can attach to the presentation of a paper on such a topic as this. My only excuse is that it has been so long and so studiously ignored. We all must have convictions on the subject. Let us give expression to them now.

SURGERY OF THE APPENDIX *

WILLIAM E. LOWER, M.D.
AND
THOMAS E. JONES, M.D.
CLEVELAND

It is gratifying to note that the establishment of appendicitis as a distinct disease entity was an American achievement. We do not intend to review the enormous literature pertaining to diagnosis and treatment which has developed since the primary publications of Reginald Fitz of Boston, in 1886, and such other earlier writers on this subject as Stimson, McBurney and Bull, but rather to point attention to certain problems that still remain. There has been great progress in the treatment of appendicitis and peritonitis. The increasing readiness of the public to submit to the operation which they have been taught to believe is attended with little danger, and the simplicity of the operation itself, have perhaps lulled the medical profession into a kind of false security. That this is the case is indicated by the fact that while, for a number of years, at every session of this Association the subject of appendicitis was discussed and various new methods of treatment were presented, defended and assailed, more recently papers on this topic have become fewer, and the general impression has seemed to prevail that the appendicitis problem has been settled. In a recent paper, Carr of London stated that, in spite of all advances in diagnosis and treatment, the death rate from appendicitis in England and Wales tends to increase rather than diminish, and now amounts to about 2,500 deaths a year. We feel confident that were figures available, we should find that the death rate from appendicitis in the United States is not diminishing.

While appendicitis is not, so far as we now know, a preventable disease, the possibility of cure if the patient is seen early and properly treated should keep the mortality rate at a low figure. The mortality rate of operations for acute appendicitis ranges from 3 to 6 per cent., and in some cases to even a higher figure; and while the end-results of operations for acute appendicitis among those who survive are almost uniformly good, the percentage of unrelieved patients after operation for chronic appendicitis is alarmingly high. Thus, Deaver and Rodvin,[1] in reporting the end-results in 226 cases, report 9.7 per cent. as only partially relieved and 7.07 per cent. as unrelieved. Gibson,[2] reporting 426 cases, reports 15.2 per cent. as partially relieved, and 23.9 per cent. as unrelieved. Such figures as these may well give us pause and force us to an intensive study of the factors that underlie such figures.

The high operative mortality in cases of acute appendicitis, and the postoperative morbidity in cases of chronic appendicitis, are in our opinion due in large measure to the common belief that in each case the only proper procedure is the removal of the appendix. When the patient with acute appendicitis comes to operation, the removal of the appendix alone does not correct the damage already done by the attendant peritonitis, and there should be a more general appreciation on the part both of the laity and of the profession that acute appendicitis with attendant peritonitis is not a localized but a systemic disease, to which the appropriate after-treatment as well as the appropriate operative procedures themselves must be applied. The morbidity after operations for chronic appendicitis in the majority of cases is due to incorrect diagnosis. Correct diagnosis in cases of supposedly chronic appendicitis and the proper handling of acute cases will lower the mortality rate of the latter condition and the morbidity rate of the former.

In contradistinction to these discouraging factors in the problem, it is pleasant to note a more encouraging condition. With the increased tendency of the public to consult a physician for chronic as well as for acute disturbances, with their diminished reluctance to submit to surgical operation and, on the part of the surgeon, with increasing attention to the importance of the appendix as a focus of infection which may be responsible for many types of general functional disorders, our statistics are showing what appears to be a decreasing number of acute appendicitis cases, and a correspondingly increasing number of operations for chronic appendicitis. Our earlier series of operations for appendicitis shows that 60 per cent. were for acute and 40 per cent. for chronic appendicitis. Our series for the last two years shows that only 28 per cent. of the total number were for acute appendicitis, while 72 per cent. were for chronic appendicitis.

The appropriate treatment of severe acute cases, which includes faithful application of the Ochsner treatment before operation, the Fowler position after operation, plus the Ochsner treatment, plus the Alonzo Clarke treatment for peritonitis, plus large hot packs over the abdomen, plus hypodermoclysis, reduces the

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[1] Deaver, J. B., and Rodvin, I. S.: End-Results of Five Hundred Cases of Chronic Appendicitis, Arch. Surg. **6**: 31-40 (Jan.) 1923.

[2] Gibson, C. L.: Results of Operations for Chronic Appendicitis, Am. J. M. Sc. **159**: 654-663, 1920.

mortality rate to a minimum. Nevertheless, we still too often hear it said that all these methods have been applied without avail. Inquiry, however, will usually elicit the fact that the foregoing routine has not been completely followed; putting a few pillows under the head and shoulders does not put the patient into the Fowler position; the administration of small particles of ice in lieu of water is not the Ochsner treatment; morphin in small doses is not the Alonzo Clarke treatment, and small, warm pieces of gauze are not large hot packs. The full treatment must be rigidly applied to get the best results. In acute appendicitis, we would emphasize our own adherence to the procedures outlined above and to Crile's principle of confining the primary operative procedure to incision and drainage only, if the appendix is not readily accessible, the removal of the appendix and such other exploration as may be advisable being deferred until the acute state is past. Since the adoption of this combination of protective procedures, our mortality rate in acute cases has been reduced to 3.1 per cent. In doubtful cases, especially in women and sometimes in children, we prefer an incision through the right linea semilunaris as offering the easiest opening for a complete investigation of the lower abdomen. Through this incision it is possible to get sufficient exposure to remove any of the female pelvic organs that may be found diseased, and the danger of hernia is small, if no drainage is used. In general, it should be emphasized that the Ochsner treatment was not designed for cases in which all conditions are favorable for immediate operation, but rather for those severe fulminating cases in which there is danger that the risk will be increased by immediate operation—especially by a search for the appendix.

As for chronic appendicitis, the difficulty has been the proneness on the part of the profession to consider that pain in the right side and the consent of the patient are sufficient indications for the removal of the appendix. The diagnosis of chronic appendicitis is by no means the simple problem that it has been considered in the past, and the conditions that may simulate it are many.

It is not my purpose to make extended reference to the many conditions that are simulated by appendicitis, or to those the symptoms of which suggest appendicitis, but rather to confine myself to a brief discussion of certain uncertainties in diagnosis which have been experienced by my associates and myself.

It is generally recognized that, if an abdominal pain localizing in the right lower quadrant is sudden in its onset and severe, is accompanied by rigidity of the abdominal wall, tenderness on pressure over the appendix, symptoms of obstruction with vomiting and nausea, rise in temperature, etc., together with a history of previous attacks, a diagnosis of appendicitis may usually be made with a high degree of certainty. But many cases of acute appendicitis are not as clear cut as this, and cases of chronic appendicitis are often dependent on a history of previous attacks and localized tenderness with hyperesthesia. Consequently, in many cases diagnosed as appendicitis, operation all too often reveals a perfectly normal and healthy appendix. A very careful differential diagnosis is imperative in all cases, and it is necessary to bear in mind not only that apparent cases of appendicitis may be in reality diseases of other organs of the abdominal cavity, but also that some diseases thought to be those of other organs may be traceable to a diseased appendix.

DIFFERENTIAL DIAGNOSIS

Thus, in the experience of our associates and ourselves, in certain cases which before operation had been diagnosed as gallstones, catarrhal jaundice, gastric ulcer, indigestion, ovarian tumor, salpingitis and psoas abscess, at operation, the condition was found to be appendicitis. That these are by no means isolated experiences is shown by the extended literature on this phase of the appendicitis problem. It would seem well, therefore, to devote the remainder of this discussion to a presentation of certain points in differential diagnosis based primarily on our own experience.

While the presence of abdominal pain alone, even when localizing in the right iliac region, immediately suggests appendicitis, it is not conclusive evidence of appendicitis. Other organs, either by their position in this region or by referred pain from some other region, may cause pain at this point, and the presence of such diseases must first be ruled out. Thus, in our army experience it frequently happened that a right sided pain strongly suggesting appendicitis followed an attack of mumps—the temporary appendicular inflammation being followed by an involvement of the testes.

The pain from gastric or duodenal ulcer may be referred to the lower right quadrant; it is usually more intense than appendicular pain, however, and, unlike appendicitis, the intervals of freedom from pain are measured by hours instead of by months. Also in appendicitis the return to health between attacks is not as complete. Vomiting in appendicitis does not afford the relief given by vomiting in cases of duodenal ulcer. Moreover, the vomiting of appendicitis occurs only once or twice, in contradistinction to the persistent vomiting of certain other conditions.

The presence of abdominal pain in the very early stages of pneumonia, particularly in children, may simulate appendicitis, especially when the thoracic signs are absent, as they sometimes are, for twenty-four hours, and in such cases laparotomies have been made to the surgeon's discomfiture. An important diagnostic point is the fact that in pneumonia only the skin is hypersensitive—there is no pain on deep pressure. The leukocyte count will be found of aid in such cases; for, whereas in pneumonia the count may run as high as 30,000, it will seldom be found higher than from 15,000 to 20,000 in appendicitis. The importance of the leukocyte count in the differential diagnosis is emphasized also by the occurrence of symptoms strongly suggesting appendicitis after antityphoid inoculations. Many such cases were seen in army camps, the differential diagnosis being established by the low leukocyte count—4,000 or 5,000 in most cases. It was this low count in certain cases in which the diagnosis of appendicitis appeared certain that called our attention to this occasional occurrence.

The fact that acute appendicitis occurs more frequently in men than in women, and chronic appendicitis more frequently in women than in men, is emphasized by finding in one series of cases of appendicitis that among the acute cases 60 per cent. were males and 40 per cent. were females, while among the chronic cases these percentages were almost exactly reversed, 36 per cent. being males and 64 per cent. females. Such figures as these suggest more than a possibility that among the women in the latter series the symptoms were caused by the disease of some part other than the appendix—one of the generative organs, or the kidney or ureter on that side. It is common experience that disturbances of the latter organs frequently cause right-sided pain which, in a too hasty examination, may appear to be caused by an inflamed appendix. Diseases of the urinary organs may generally be ruled out by roentgen-ray examination.

Acute pyelitis may be mistaken for appendicitis at first, but further examination will usually show a higher temperature than that usually found in appendicitis, laxity of abdominal muscles and pus or bacteria in the urine, as against rigidity of the abdominal muscles, and the normal urine found in appendicitis.

COMMENT

This brief discussion, which is by no means considered as inclusive, is offered merely to emphasize the point that in cases of suspected chronic appendicitis there is no excuse for a hasty operation, for in such a case sufficient time may safely be taken to rule out the possibility of disease of another organ or part. Time for the establishment of the diagnosis in the first place will save many a patient from the unrelieved symptoms, prolonged morbidity and possible later operation which now occur too frequently. On the other hand, not only do diseases of other organs simulate appendicitis, but not all cases of a diseased appendix are manifested by the usual appendicular symptoms, and therefore may be diagnosed as diseases of other abdominal organs.

Appendicitis may be the cause of hematuria; the kidney may be indirectly affected by the general systemic invasion resulting from appendicitis, or the kidney, ureter and bladder may be directly involved, the inflammation extending directly from the appendix.

We have found that the diagnosis of appendicitis in infants or small children may be aided by the use of scopolamin-morphin anesthesia, when pressure over the appendix will elicit a muscle spasm.

It appears to us that all of us have neglected to too great an extent the importance of applying in these cases all of the diagnostic aids at our command. The resources of the clinical laboratory should be used to the utmost; analyses of the blood and of the urine, both chemical and microscopic, may point the way in a doubtful case; the roentgen ray in many cases may not only demonstrate the presence or absence of disease in other organs, stones in the gallbladder, kidney stones, carcinoma of the stomach and intestine, etc., but also, as Lichty[3] has emphasized, may be of importance in localizing tenderness, vizualizing the appendix, and showing fixation, position, kinking of angulation, constriction, abnormal retention, and an incompetent ileocecal valve.

These notes are based on the experience of our associates and ourselves in 6,187 operations for appendicitis, among which 2,067 were for acute appendicitis and 3,068 for chronic appendicitis. In 173 cases the appendicitis was subacute and in 885 cases the appendectomy was incidental, i. e., was performed in the course of a laparotomy for another primary condition; in each such case, however, the appendix gave evidence of a preceding lesion.

In our earlier series, the mortality rate for acute appendicitis was 4.4 per cent., and for chronic appendicitis, 0.8 per cent. In our later series, our mortality rate has been 3.1 per cent. for acute, and 0.2 per cent. for chronic, appendicitis.

CONCLUSIONS

1. The mortality rate in acute appendicitis is still too high.

2. The incidence of errors in operations for chronic appendicitis is too great.

3. More stress should be laid on the treatment of the attendant peritonitis in acute cases and less on the mere removal of the appendix.

4. Greater care in diagnosis of the chronic cases is essential.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. COOKE, AND LOWER AND JONES

DR. A. J. OCHSNER, Chicago: I agree fully with all of Dr. Lower's conclusions and with what he said about the differential diagnosis and the importance of a very careful and extensive examination in all the chronic cases. In the acute cases there is almost no doubt that an operation is indicated which will determine the correct diagnosis. In these cases the time lost in long drawn out examination will do the patient very much more harm than good. Moreover, in the acute cases violent examination is contraindicated. Some surgeons naturally are violent; they have a rough touch, and cannot feel a thing until they force their fingers half way through the patient's abdomen. That type of physical examination is very bad for the patient, especially in acute cases. The examination should be exceedingly gentle and not long continued. A leukocyte count is invariably made—and never looked at until after the operation has been completed. It is not well to cloud one's judgment by paying attention to it beforehand. We have followed this plan in several thousands of these cases of acute appendicitis, and I am satisfied that by applying this method the patient has lost nothing, and we should have gained very little in our knowledge about the condition had we followed the usual plan of making repeated counts before operating. The plan followed by many surgeons of always operating immediately in case of a high leukocyte count or a rising count is bad practice because the judgment is then controlled by a minor factor, which is inconstant and unreliable, instead of being based on history and physical examination. We must remember that in a large proportion of the cases of chronic appendicitis the real trouble is caused by something that has happened during an attack or, in postoperative cases, during the operation or after the operation. These conditions are secondary either to an extension to surrounding structures of an inflammation of the appendix to begin with, or to adhesions or to overdistention of the intestinal wall or to irritation of the peritoneum, or to any one of the other conditions that are secondary to acute appendicitis. Dr. Cooke's suggestions are important and timely. The physician with little experience should not have the opportunity to open the abdominal cavity for the treatment of appendicitis. If one could be certain in every case of the correctness of the diagnosis of uncomplicated appendicitis, the operation could be performed safely by any clean surgeon with fair surgical judgment. Some years ago, Dr. Goldspohn outlined a plan according to which surgeons, gynecologists and all other specialists would have to undergo an apprenticeship. They would have to accumulate a large amount of experience and knowledge under men of experience, and in that way establish their right to perform these operations.

DR. FRED W. BAILEY, St. Louis: The papers of Drs. Cooke and Lower remind me of three vital and prevalent errors, careless diagnosis, indifferent postoperative treatment and the fact that we are not saving all the lives we should by our present-day treatment of acute appendicitis. In seeking a remedy we must strike at the source. Higher medical education and more rigid requirements in the specialty branches must continue to be striven for. In many states the undermining influence of cults is being felt severely. Pernicious state laws favoring such cults and undermining progressive medicine must be made impossible by a far-sighted policy of well planned and active participation in law making. The public must be warned more effectively against the far-reaching danger of lax medical laws that not only permit, but encourage, incompetence. The time must come when gross incompetence in any branch of medicine or method shall receive the condemnation of the public, as well as the frown of the medical fraternity. Participation in law making, lay education and health supervision clear the way for early accurate diagnosis and intelligent treatment. To this must be added an extension of hospital supervision to the small, isolated, poorly equipped hospitals which are susceptible of development into institutions of extreme value to the health of the community, instead of factionally crippled centers of distinct menace. The encouraging statistics of large hospitals and skilled operators are valueless in that they portray ideal conditions and supreme surgical skill and judgment, such as does not obtain in a fair proportion of surgical cases. The records of small country hospitals, in which the bulk of emergency surgery is done, prove that the majority of such cases do not reach the statistical group and that the death rate in perforated cases is fearfully high. What is the remedy? Competent supervision in hospitals; trained men in each community. Let us teach mothers that there is elemental danger in acute abdominal pain and that home treatment must be limited to (1) bed rest; (2) no water, food or medicine by mouth; (3) no laxative, other than a small low enema; (4) no sedative, not even the ice bag, and (5) the physician. Physic and food have caused more deaths in this disease than delay or indifferent surgery.

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[3] Lichty, J. A.: Chronic Appendicitis, J. A. M. A. 79:887 (Sept. 9) 1922.

Dr. A. S. Lobingier, Los Angeles: Dr. Lower's paper is a sane expression of the doctrine that is accepted by the best men in this country, and this country has been the pioneer in the study of appendicitis. Dr. Bailey has well expressed what I had in mind. There is no getting away from the fact that every town of 5,000 in America has, or should have, one competent abdominal surgeon to do the work of that community. If there is no competent surgeon there, we have the opportunities in America to make him such, and it ought to be the patriotic duty of every small town to develop just such a surgeon and stand by him so that he may take care of the emergency conditions in the neighborhood, or, if not feeling competent, would be willing to call a surgeon from a nearby city. In our state, perhaps 70 per cent. of the men in practice feel competent to remove the appendix. These are the men to whom I think Dr. Cooke was addressing himself. It seems to me that until, as Dr. Ochsner said, we can have adequate education and training of young men who are going to enter the field of general surgery, or young men who are willing to act as assistants to trained men until they are competent to pass an examination held by master surgeons, we shall not reach the solution of this problem in America. Every man in this free country claims the right to say whether he is competent to do difficult major surgery; but he cannot justly claim the right to do major surgery unless he can prove his fitness for this work. I took the ground eleven years ago that we should have an examining board that should be under the supervision of the federal government, and I believe so today.

Dr. C. H. Magee, Burlington, Iowa: "There is nothing new under the sun." Dr. Lower referred to the treatment of Alonzo Clarke, who treated appendicitis by tremendous doses of opium, 270 grains in twenty-four hours. That takes me back to my days in the London Hospital when I used to go around with Treves, who laid down the dictum, "When you strike pus, quit."

Dr. Frank Warner, Columbus, Ohio: In talking with pathologists who have made examinations of appendixes after operations for so-called chronic appendicitis, I have been surprised to learn that they had been unable to find any evidence of pathologic change in many of them. I believe that in such cases the disease is elsewhere than in the appendix and that too frequently an insufficient study of the patient's general condition has been made. When a pathologic condition is found to justify the diagnosis of chronic appendicitis, and a cure does not follow the operation, it is evident that complicating factors continue the symptoms. As a result of the high percentage of ineffectual cures following the operation for chronic appendicitis, every surgeon should be admonished to make a most painstaking survey of every patient presenting himself with symptoms of this disease in the chronic state to know, if possible, that the disease really exists and, if it exists, that it is confined to that organ alone, or to know whether it is only one of the organs involved. Then these complicating conditions may be dealt with at the time of operation to the end that the large number of failures for the relief of the symptoms of chronic appendicitis may be reduced materially.

Dr. R. C. Coffey, Portland, Ore: Some wise man, on being asked the function of the appendix, remarked that it was "an organ which contributes to the support of a noble profession." It may also be stated that there is no feature of abdominal practice which contributes more to the ignoble profession of cultism than the poor results obtained from operations for so-called chronic appendicitis. Dr. Lichty last year called attention to an analysis of about 1,300 cases, in which only 60 per cent. could be considered at all cured. Of the patients going through our clinic in a routine way, 70 per cent. of those who have been operated on previously for chronic appendicitis have not been relieved or improved by operation. We all remember the day when right-sided pain called for removal of an ovary; and, if this failed, the appendix was removed; finally, the gallbladder was removed or drained, and then a gastro-enterostomy was performed, but the patient still had the same pain. There is an inorganic condition, which produces probably 50 per cent. of the right-sided pain, and this we must take into consideration in these cases. This condition, in most instances, is based on incomplete attachment of the ascending colon, which predisposes to bagging of the cecum or to the development of acquired bands and membrances which have been called out for its support. The pain is due to distention of the baggy cecum with gas, or to traction by the weight of the distended colon on these acquired membranes. Hence, the failure of appendectomy to relieve it.

Dr. Jabez N. Jackson, Kansas City, Mo.: If I find a case in which the pain is entirely limited to the right side of the abdomen, it is not a case of chronic appendicitis. In acute appendicitis, as long as the pathologic lesion is limited to the mucosa, all the symptoms are referred, not to the site of the appendix, but to the stomach or somewhere in the umbilical region. If the patient is complaining only of pain in the right side, I think of Lane's kink or some form of pure peritoneal lesions. The "colicky" appendix is also of mechanical origin and not infectious. If the patient has had pain in the stomach, and nausea and vomiting; if he gives a history of epigastric pain, I am sure that it is a case of real appendicitis. In examining these cases we should remember three things: first, the patient may have appendicitis alone, acute or chronic; second, he may have chronic appendicitis with complicating conditions. I am sure that in many cases of chronic appendicitis there is more or less generalized colitis, and removal of the appendix is not going to remove the symptoms unless the case is followed up by the internist. Third, we must remember that other conditions in which there is no pathologic change in the appendix closely simulate appendicitis. In those cases the removal of the appendix invites failure.

Dr. C. P. Thomas, Los Angeles: I was in hopes that some of the younger men would stand up and defend themselves against this accusation. Since they do not, I am going to ask a question. I take it for granted that most of the men here are surgeons; some are full-time surgeons, some are part-time surgeons. The part-time surgeon is the one who says to the other fellow, "I do most of my own work, but when I get something hard I call in some one else." I want to ask how they know what is a hard case. At the end of thirty years of surgery I am still unable to diagnose the hard cases from the easy cases before I begin to operate. I can see where the older men, like myself, will admonish the younger men not to attempt things they are not sure of. We learned our surgery in the field of personal experience, often to the disadvantage of our poor patients, but we at least had the knowledge that we knew as much about it as any one else at the time, for the art of surgery had not reached the stage of perfection. What we want to pass on is that there is a way to learn surgery and learn diagnosis without paying the penalty of sad results, as we did. We should go into the service of some good man and skill ourselves, as Dr. Cooke has outlined, until we are able to do everything that we find to do within the abdominal cavity when we open it; and even then we shall find incurable diseases.

Dr. W. D. Haggard, Nashville, Tenn.: When Dr. Ochsner says that he never looks at the blood count, he doubtless means that he can almost tell what the blood count is from the examination of the patient; but when it is 27,000, he looks at it, especially in a child, in whom commonly the condition is a beginning pneumonia instead of appendicitis. In the average case of 12,000 leukocytes, one can estimate within one or two thousand what the leukocyte count will be. This question of chronic appendicitis is one that requires judgment and discrimination. Many patients are operated on unnecessarily for chronic appendicitis who are suffering only from what might be a perityphlitic neuralgia that occurs in neurotic subjects. They are not cured by operation. This is the same group of patients that in former years were operated on for ovarian trouble and for stomach trouble without avail. We must pay more attention to the ubiquitous neurotic patient who masquerades as a person with organic disease. My plea is not to a group of distinguished surgeons like this who are able to penetrate the veil of complaints that the neurotic usually makes, but to the unwary surgeons who are apt to think that the neurotic with pain of a burning type, with very few other symptoms, has chronic appendicitis.

Dr. A. B. Cooke, Los Angeles: I particularly deprecate two observations Dr. Ochsner made, for the reason that when he expresses himself on anything in surgery every one believes it to be exactly as he says. The influence of an unguarded remark from that source is likely to be far-reaching. Dr. Ochsner did not mean that he did not pay any attention to the leukocyte count or, if he did, the rest of us are not in his class in being able by clinical examination to tell all that he can. For that reason I think an ill-advised remark from that source should be objected to. He said one other thing that I wish to take issue with. This was an unqualified statement to the effect that an operation for appendicitis is simple. It is simple when it is simple; but there occurs in that region almost every kind of intra-abdominal pathologic change. I particularly refer to those cases that are not truly appendical in their origin. The retrocecal appendix entails about the most difficult intra-abdominal operation. Hence, the unqualified remark that an appendicitis operation is simple should not be accepted. All his is said with particular deference to Dr. Ochsner. If ninety-nine out of a hundred of those present here had made hese remarks, we might well let them go unchallenged. The burden of the paper I presented has been sidestepped, as I expected it would be. The problem is up to this section, because it is the national representative surgical body, to ake up this matter of indiscriminate abdominal operations. was hoping that some one would see the point and say something and present a resolution or motion that this section would go on record as favoring the adoption of some ort of standard before a man was permitted to open the bdominal cavity for any purpose whatsoever.

Heliotherapy.—The action of sun-baths on metabolism is till to a great extent an unexplored field. We know that a large number of vital reactions are accelerated, and suppose his increased rate to be in some way connected with the bsorption of radiant energy by the blood. In what form is adiant energy stored in the blood, and how is it liberated to he tissues? These are questions of great scientific interest, ut they cannot as yet be answered. The experiments of Bonne, showing that under the influence of visible rays the lood may be heated many degrees above the normal body temperature, open up a vast field for speculation, as we know ow greatly a biochemical reaction may be accelerated by even quite moderate rises in temperature.—Rollier: Heliotherapy, London, Oxford Medical Publications, 1923.

THE DIAGNOSIS AND TREATMENT OF SEPTIC SINUS THROMBOSIS *

WENDELL C. PHILLIPS, M.D.
NEW YORK

Septic invasion of the lateral sinus in its various forms is a comparatively rare complication of purulent otitis media. In view of the comparative thinness of the inner (cranial) table of the temporal bone, areas of which are often bathed with pus or infected exudates for long periods of time, one marvels that proportionately so few intracranial complications occur. Erosions of the inner (visceral) table of the temporal bone may occur at any point, but they are more commonly found in the tegmen and about the knee of the sigmoid sinus. Nevertheless, necrosis of the inner table, even when considerable areas of the dura over the sinus are exposed to the purulent process which invades the mastoid process, is not invariably followed by sepsis within its lumen. Erosions of the inner table, with exposure of the dura, are discovered with comparative frequency during the process of mastoid operations, with no subsequent sequela pertaining to intracranial infections, showing that the outer wall of the dura must possess considerable resistance to the contact of infection. The sinus transversus or lateral sinus, on account of its course along the inner table of the temporal bone, is naturally the intracranial venous structure which most concerns the otologist.

It is generally conceded that lateral sinus infection is induced either (*a*) by extension of the infective process within the temporal bone through the smaller veins whereby the latter become involved with septic thrombi, which gradually extend to and infect the sinus, or (*b*) because the infection in the bone extends, by contiguity, directly through its internal table to the walls of the blood vessel, where its farther advance is characterized by infection of the sinus walls, and thence into the blood stream with resultant thrombosis. Furthermore, according to Boenninghaus, thrombosis may occur from infection located within the labyrinth, in which event the sinus involvement is usually located below the level of the knee or through involvement of the inferior or superior petrosal sinuses.

In another group of cases, the infection proceeds from a labyrinthine infection directly toward the bulb, through involvement of the lymph spaces of the middle ear, or through the extension of a thrombus from the internal auditory vein. Finally, a thrombosis of the jugular bulb may take place from direct infection through dehiscences in the floor of the tympanic cavity. We must conclude, therefore, that phlebitis and thrombosis of any part of the lateral sinus and internal jugular vein may result from (1) anatomic dehiscences in the bony tissue of the parietal wall; (2) direct extension in its walls of the active purulent lesion in the bone; (3) involvement of the smaller veins of the diseased bone, or (4) involvement of the intermediate anastomotic veins in the thrombotic area. An anatomic outline of the sinus, prepared in chart form, has been of great service to me in outlining and teaching the anatomic relations of the lateral sinus.

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* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

DIAGNOSIS

In the management of cases of lateral sinus infection, the diagnostic pathway of the otologist is often beset and befogged with serious difficulties and trying experiences. These difficulties arise from the fact that in a considerable proportion of all cases the symptoms of the invasions do not follow a typical course. In typical cases in which only one ear is involved, when accompanied by the usual variation in temperature and the early appearance of bacteremia, a diagnosis is easily determined. In this type, the symptoms are so characteristic that but little along the line of differentiation becomes necessary. Erysipelas, particularly when the surface manifestations are delayed, often produces similar temperature variations to those seen in early stages of typical cases of septic sinus thrombosis.

One of my patients, an adult, four days after simple mastoid operation, had a severe chill with a temperature rise to 106, followed by a subnormal recession lasting twenty-four hours. In this case, there occurred three such sudden rises of temperature, ranging from 105 to 105.6 on succeeding days with chills, nausea and other symptoms of sinus thrombosis. The sinus was then opened and found normal, but, when the wet dressing was changed twelve hours later, the characteristic skin lesion of erysipelas had appeared. While the patient made a good recovery, the experience was disconcerting to the surgeon.

Another somewhat rare postoperative condition which is invariably ushered in with a sudden rise of temperature and chills may be defined as an extensive nonerysipelatous cellulitis of the scalp. Even in the typical cases of septic sinus thrombosis, one hesitates to operate until the blood examination shows the presence of bacteremia in the blood stream. In atypical cases, the diagnosis is always difficult and requires an exhaustive consideration of the entire chain of symptoms, meanwhile taking advantage of blood cultures, blood examinations and all known methods whereby other diseases may be eliminated. Evidently, atypical cases often occur and recur in which no diagnosis is ever made unless general symptoms of septicemia appear. It is also evident that in typical cases recovery may take place without operative intervention. These statements are confirmed by my experience in discovering obliterated sinuses in cadavers during the years when I taught the operative surgery of the ear. Furthermore, evidences are gradually accumulating that recoveries do take place with comparative frequency in patients whose sinuses are not subjected to operation. This statement is not made as an argument against operation, even though the observation may serve as a hint to the overbold otologist. A high temperature continuing several days after a mastoid operation, especially when the operative findings have disclosed areas of necrosis of the bony covering of the lateral sinus, and examination of the blood shows bacteremia, leukocytosis and a high polymorphonuclear percentage, and no other body complications, furnishes sufficient evidence to call for an examination of the interior of the sinus.

Of the previously mentioned symptoms, the presence of bacteremia, not otherwise accounted for, is the most convincing diagnostic symptom. In both types of sinus involvement, particularly when occurring in chronic purulent otitis media cases, the patient has a chill with each rise of temperature, but this symptom is often absent in young children and it is in young children with acute cases that we meet our most trying difficulties. It is surprising how many writers on this subject fail to mention or to take advantage of so important a measure as blood cultures for bacteremia. In an exhaustive discussion of septic sinus thrombosis, Mulligan[1] made no mention of bacteremia. The diagnosis of primary jugular bulb thrombosis, described by McKernon and others, must depend largely on the violent attack, the sudden rise in temperature, and the subsequent fluctuation from normal or subnormal temperatures to extremely high ranges in infants who may have no general symptoms of mastoiditis. The early diagnosis in infants and young children, in whom it usually occurs, often without intercurrent mastoid infection, is most difficult and may be made only after other diseases, such as pneumonia, typhoid fever and digestive disturbance, have been eliminated. Here again the presence of bacteremia is significant. When necrotic areas of the bony covering of the sinus are encountered during the progress of a mastoid operation, the sinus walls should be carefully observed. Occasionally a thrombosis in the sigmoid region is discovered only at the time of operation. The presence of necrotic or sloughing spots on the sinus wall is strong evidence that the infection has already invaded the blood current within. Palpation of the sinus wall is an uncertain diagnostic measure, since the clot may only be mural. In fact, pulsation may continue after a clot of considerable size has formed. If pulsation is absent and the pressure is doughy, a thrombus may be expected.

Our greatest difficulties in diagnosis, however, occur in cases of double mastoiditis and, unfortunately, double mastoiditis is far more common in young children. This, combined with the fact that children are peculiarly susceptible to high temperature ranges from the more simple causes, and furthermore, that they do not as a rule exhibit the full outline of classical symptoms, renders a diagnosis difficult. This difficulty, however, is comparatively simple when compared with our troubles in determining which lateral sinus in the individual case may be involved. It has been my privilege to be a consultant in a comparatively large number of these cases. In every instance the patients were young children; likewise, in every instance they had extremely high temperatures. With one exception, bacteremia was present, though often delayed. In several of these patients, the sinus walls were exposed on both sides during the performance of the mastoid operation. In general, the operative procedures in these cases have been about as follows: A careful study was given to all the details of each individual mastoid area, and the side presenting the more probable symptoms of sinus involvement was the first to be investigated. In every instance, however, both sinuses were freely exposed, the purpose being to enable us to observe carefully the general condition of the sinus wall, to palpate it, and, if necessary, to introduce a hypodermic needle into the suspected sinus. If no fluid blood could be drawn, a clot would be considered the explanation. If blood was obtained, a culture was immediately started from this specimen. Then the same measure would be followed for the opposite side and a similar culture started, in the hope of determining which side might show an excess of bacteremic contents. In one of these cases there was no return of blood on the side which, fortunately, had been considered the one affected. This cleared up the diagnosis, and a complete operation was then performed.

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[1] Mulligan, William: J. Laryngol. & Otol., Jan. 23, 1923.

In another case manifesting septic symptoms, but without bacteremia, blood was drawn from both sinuses, but the patient's condition was so bad that, without waiting for the laboratory report, the sinus most suspected was opened and no clot was found. The vein was not tied off, nor was the opposite sinus further interfered with. The subsequent treatment consisted of repeated transfusions, but the patient recovered after a long period of metastasis. It is unfortunate that clots are not always encountered in these children and one must often be content to treat the case symptomatically until some definite symptom arises which will warrant ligation. Herein lies an important precautionary principle worthy of consideration by the overzealous operator or the questionable urge for early operation before a positive diagnosis has been determined. In a recent case of mine, in a child, aged 10 months, a simple mastoid operation was followed by a postoperative rise of temperature to about 100 for six days, and then a sudden jump to 105. There was no cough or lung complication, but the appetite was poor. A liberal dose of castor oil was followed by foul, mucus laden stools. The digestion was then supervised, and the temperature became normal and has remained so.

It is probable that atypical cases of sinus involvement are extremely rare in young children. This fact is probably accounted for by the tendency to high temperatures which children seem to possess. It is possible, of course, that occasionally an atypical case may be overlooked by the surgeon, for it is a fact that they often recover spontaneously. It is also a fact that children with sinus involvement who have extremely high temperatures recover under appropriate treatment. In one case that I observed a child's temperature reached 106 before the sinus operation and 107 immediately after it. This child made an uninterrupted recovery. A temperature of 106 is not at all rare. Of the more recent additions to our armamentarium of treatment for this infection, blood transfusion must take the most prominent place. In fact, a transfusion may well be administered in every case, whether the sinus is operated on or not. It is not recommended that transfusion displace ligation in unilateral cases in which a positive diagnosis is made, but in bilateral mastoiditis, when it is impossible to determine which sinus may be involved, transfusion is a most valuable adjunct in helping to combat the infection, at least until the side of infection may be located. A number of undoubted cases of lateral sinus thrombosis occurring in bilateral mastoiditis have been reported in which transfusion alone has been relied on, rather than subjecting the patient to the risk of an uncertain operative procedure.

At a recent meeting of the New York Otological Society, McFarland reported two cases of double mastoiditis in which there were typical histories of lateral sinus involvement and it was impossible to determine which sinus might be invaded. In both of these cases, several transfusions were given covering a period of from ten days to two weeks, and both patients recovered. The positive symptoms stated by McFarland are the typical temperature range, leukocytosis and bacteremia. It would seem advisable to resort to blood transfusion at the very earliest possible moment after a diagnosis has been made, even though subsequent ligation should be determined on. As a rule, children comfortably receive from 300 to 400 c.c. at a time, while in adults a much larger amount is required and transfusion may be repeated, when necessary, in from two to three days.

TREATMENT

Regarding the type of operation to be performed on the vein in the neck, opinions still vary. The majority of operators have gradually come to believe that simple ligation of the vein accomplishes every required purpose, and it does not seem to matter even if the vein is ligated in its lower portion. Theoretically, it would seem wise to ligate above the entrance of the facial vein, but practically the lower ligation is fully as effective and is much more easily accomplished. A complete dissection of the vein is still advocated by some operators on the ground that it removes a larger infected area, but statistics prove that ligation is equally effective and successful. The fact that ligation, particularly when made in the lower portion of the vein, can be accomplished quickly and without subjecting the already weakened and exhausted patient to prolonged anesthesia, counts much in its favor, and Nature seems to care for all the rest, except in occasional cases in which the prolonged temperature is finally relieved by opening up the bulb region freely from the mastoid wound. The lower neck operation can be completed in from ten to twenty minutes. The bulb region is apparently the only area in which real pus is liable to collect as a postoperative lateral sinus complication. If the ligation method is followed, the ligatures should be applied to the vein sufficiently far apart to enable the operator to sever the vein. It has been my experience that in my ligation cases the neck wound heals more promptly and with less deformity than when the vein is resected.

At the 1923 meeting of the American Laryngological, Rhinological and Otological Society, Dr. H. G. Tobey of Boston reported a case of double sinus infection in which the sinus was opened by him on both sides. He observes that a careful review of the literature since 1890 reveals only three other cases of actual obliteration of both sinuses. In one of these cases, the left sigmoid sinus was opened and a thrombosis removed without the jugular vein being tied. Five days later a thrombosis was removed from the right side and the jugular vein of that side was ligated. The patient recovered. In a second case, it would appear that both sinuses were opened without positive evidence of a clot and without ligation on either side and the patient recovered. In a third case, the right sinus was incised about three weeks after the primary mastoid operation and the jugular vein of that side tied and partially resected. No clot was found and there was free bleeding from the sinus. The left sinus was then incised and packed, but the jugular was not ligated. This patient recovered. Dr. Tobey's patient was subjected to a double mastoid operation, April 25, 1918. Four weeks later the right sinus was opened and the internal jugular vein ligated. Six days later the left sinus was incised and packed off, but the jugular was not ligated, and after a prolonged illness this patient recovered. It should be noted that in these four cases only one jugular vein was ligated. In the light of the more recently reported cases of recovery from lateral sinus infection in double mastoid cases wherein it was impossible to determine which sinus might be involved, it is a question whether, in the four cases enumerated above, the patients might not have recovered without being subjected to the extreme danger of opening both sinuses.

Ballance,[2] who in turn quotes from Charpy, outlines the various anastomotic channels followed by the return flow from the cranium:

> Under normal conditions almost the whole of the blood from within the cranium is returned by the two internal jugular veins; there are, however, numerous anastomoses between the intracranial and the intracranial venous circulation, which allow of alternative routes when one or the other of the jugular veins is not available.
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> There are three principal, and many accessory, communications. The three principal ones are: 1. The plexus of the foramen magnum, the uppermost of the spinal plexuses, anastomoses with the transverse occipital sinus in front and with the posterior occipital sinuses behind. Further, these plexuses, or their collecting trunks, the vertebral and posterior jugular veins, anastomose with the posterior condyloid emissary vein and with the mastoid emissary vein. The communications here are so free that the whole of the blood from within the skull can emerge by this route after ligature of both jugulars. In the fetus, and even in the new-born, the cranial surface of the lower half of the occipital bone is covered with a close network of large veins, which take up the blood from the torcula and its vicinity and discharge it into the origin of the jugular. This network, as development proceeds, becomes gradually changed into occipital sinuses; hence, the great variety in the size and arrangement of these vessels. 2. The ophthalmic vein and its affluents, through which a considerable volume of blood may enter the facial and temporal veins. 3. The middle meningeal veins, through which there is communication between the superior longitudinal sinus and the pterygoid plexus.
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> The accessory communications are innumerable, for the origins of the external jugular and of the facial portion of the internal jugular communicate with those of the intracranial veins practically everywhere over the vault and over the base.

In the preparation of this paper, no attempt has been made to cover the subject completely; but it is hoped that the comments on some of the problems met in lateral sinus infection may provoke a valuable discussion and that much light may be thrown on a difficult phase of otologic practice.

40 West Forty-Seventh Street.

ABSTRACT OF DISCUSSION

Dr. Ralph A. Fenton, Portland, Ore.: The early recognition of organisms in the blood is important. We must agree that continued high temperature should call for blood cultures, timed, if possible, to catch the organism just before the critical temperature rise. Improper timing often misses this diagnostic discovery. His recommendation of a direct blood culture by aspiration from suspected sinuses is most important, and his suggestion of transfusion from properly classified donors in doubtful cases will be received gratefully by men who have felt that operation alone was of uncertain value, or, in certain single and all double cases, a menace. I should like to ask Dr. Phillips his opinion regarding the merits of administering mercurochrome-220 soluble or acriflavine solution intravenously.

Dr. Harold M. Hays, New York: The problem of vital interest is, Which sinus is causing the trouble? I have had a number of these cases, and repeated blood cultures have been taken until we could determine there was actually some sinus involvement. In cases of double mastoiditis with sinus involvement, examination of the eyegrounds is of the utmost importance, because frequently there is congestion about the optic disk on the side of the involved sinus. It is also important to take the blood from both sinuses and wait for a report from the laboratory; then ligate on the side containing the most bacteria. Another question is, whether the sinus must be ligated if a clot is not found. Is opening the sinus sufficient without ligating the vein? Dr. Phillips and I attended a child with double mastoiditis, and the culture showed *Streptococcus hemolyticus.* We felt sure that the left side was causing the trouble. We opened the vein, and then went to the right side. There was free blood in both veins, and we felt that it was not proper to do more. We did not ligate the vein. The temperature fell, and the child is well today. I cannot emphasize too strongly repeated blood cultures—sometimes before operation, and sometimes after. We make use of blood transfusion by the Young method all the time, and the more we use it the more we are assured that there are many cases that cannot be cleared up without blood transfusion.

Dr. Malcolm C. Rose, New York: No treatment has given me such satisfactory results as vaccine treatment. One should use a vaccine as soon as one sees the patient. Valuable time is often lost by waiting for an autogenous vaccine to be made. I start immediately with a stock vaccine, and sometimes the case is cleared up before the autogenous vaccine is ready for use.

Dr. Wendell C. Phillips, Philadelphia: I have had no experience with mercurochrome-220 soluble.

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[2] Ballance: Surgery of the Temporal Bone, New York, the Macmillan Company, 1919.

ACUTE TOTAL VOLVULUS OF THE STOMACH *

MAX THOREK, M.D.

CHICAGO

Volvulus of the stomach is rare. The first case was reported by Berti[1] in 1866. Berti's case was a total volvulus found at necropsy.

The first reported case in which operation was performed was that of Berg,[2] in 1895. Berg reported two cases, one of a total, the other a partial, volvulus. Since then, several total and partial cases have been reported, the partial being the more common.

Kocher,[3] who in 1914 reported a case of total idiopathic volvulus of the stomach in a woman, aged 53, found twenty-eight cases in the literature. Cases of total volvulus have since been reported by Niosi[4] and Siegel,[5] the latter case being in a child, aged 2 years.

REPORT OF CASE

I have recently observed and operated in the case of volvulus here reported:

History.—Mrs. A. P., a widow, aged 77, had pneumonia during 1895 and again seven years ago; otherwise she was never ill and enjoyed good health except for chronic constipation. There was no previous history of gastric ulcer or distress. Two days previous to admission to the hospital, Dec. 19, 1922, the patient partook of some indigestible food. The bowel action for three days before that time had been constipated. Toward evening she experienced rather sharp pains in the upper part of the abdomen, radiating from the right to the left hypochondrium. At the onset of these pains there was constant emesis of the stomach contents, which gradually subsided to be superseded by nausea. The abdomen (below the umbilicus) from that time on became very much distended and, despite attempts at catharsis and enemas, as well as intramuscular administration of pituitary extract and physostigmin salicylate, no bowel action could be obtained. Since the day of admission to the hospital, retching yielded a small quantity of mucus tinged with blood.

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* Read before the Section on Gastro-Enterology and Proctology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

[1] Berti: Singolare attortigliamento dell'esofago col duodeno seguito da rapida morte, Gazz. med. Ital. **9:** 139, 1866.

[2] Berg: Zwei Falle von Axendrehung des Magens; Operation; Heilung, Nord. Med. Arch. **13:** 191, 1895.

[3] Kocher: Ein Fall von Magenvolvulus, Deutsch. Ztschr. f. Chir. **127:** 591, 1914.

[4] Niosi: Contributo allo conoscanza del volvolo dello stomaco, Rif. Med. **23:** 1287, 1907.

[5] Siegel: Ueber den Magenvolvulus, Zentralbl. f. Chir. **48:** 618, 1921.

Physical Examination.—The general appearance of the patient was that of severe agony. The temperature was subnormal (96.8 F.); the pulse was of good quality, 88 and arrythmic. The head, neck and thorax were normal. There were no murmurs. The systolic blood pressure was 155; diastolic, 80; pulse pressure, 75. Urine analysis and blood examinations were negative. The abdomen showed marked distention, commencing about two fingerbreadths above the umbilicus and extending down to the symphysis pubis and spreading laterally to the flanks. The recti abdominis were rigid; no peristaltic waves were visible. Despite the emaciated condition of the patient, and consequent thinness of the abdominal wall, auscultatory phenomena could not be elicited. There was uniform dull, tympanitic resonance all over the distended area. Attempts to pass a stomach tube were unsuccessful.

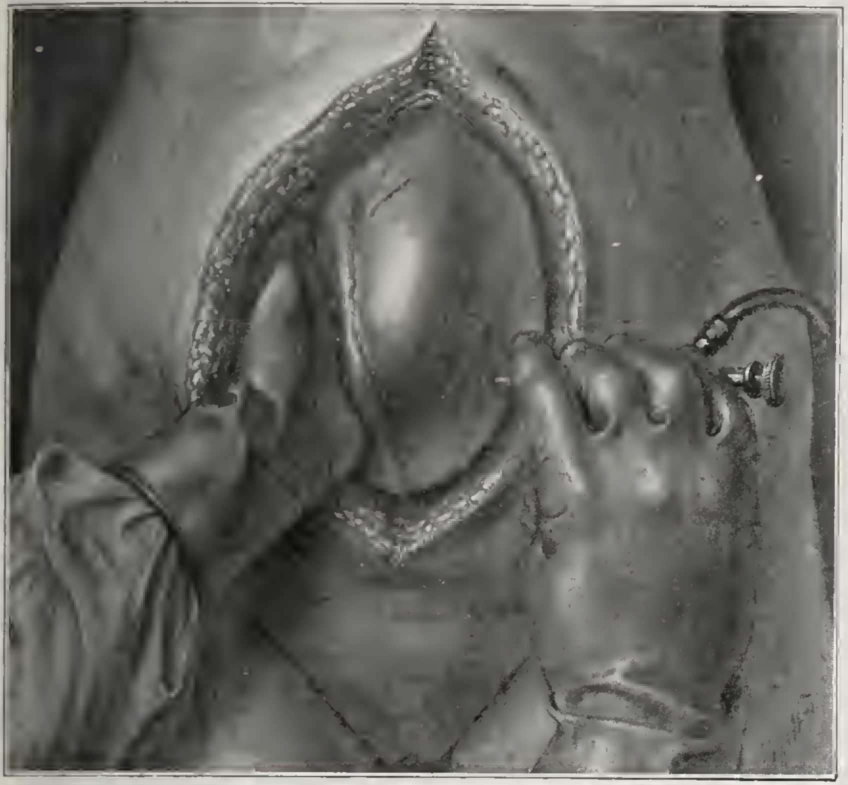
Fig. 1.—Appearance of twisted stomach simulating ovarian cyst with twisted pedicle.

Acute intestinal obstruction, and stricture at the cardiac end of the stomach were diagnosed.

Operation and Result.—Under spinal anesthesia (tropacocain), a median celiotomy was made. A large mass resembling a distended ovarian cyst appeared in the peritoneal opening. The thought occurring at that moment was the possibility of an incarcerated ovarian cyst with twisted pedicle and compression of certain segments of the intestinal tract, giving rise to intestinal obstruction. Exploration by guiding the right hand over the mass into the pelvis and lifting it up and evacuating its contents by means of an ovarian trocar revealed the true nature of the condition (Fig. 1). We were dealing with the stomach. Its weight and enormous size made it difficult to deliver it into the wound. After packing the surrounding area with laparotomy sponges wrung out of a warm salt solution and evacuating the stomach contents (found to consist of undigested food particles and an enormous quantity of gastric fluid of turbid appearance and gastric odor), the tumor reduced its size and permitted its delivery into the wound, where it was found to be completely twisted on its horizontal axis about 270 degrees, the pylorus being dragged to the left side and the cardiac end being completely twisted (Fig. 2). The transverse colon was vertical and above the lesser curvature (Fig. 3). The spleen was displaced forward and upward. Detorsion was effected, after which the stomach was found to be extremely ptosed. It was suspended to the anterior abdominal wall by the Rovsing method of gastropexy (Figs. 4 and 5). The patient experienced no pains during the operative manipulation.

The patient was returned to bed in excellent condition with no shock. No fluids were permitted for the first twenty-six hours by mouth. Glucose and salt solution were administered by rectum. Gastric lavage was done morning and night for seventy-two hours. Gradually, liquids were allowed by mouth, followed by semisolid and solid foods, respectively. Complete recovery ensued.

OCCURRENCE OF VOLVULUS

Volvulus of the stomach almost always occurs in the isoperistaltic sense, i. e., from back to front; it is rarely antiperistaltic, and when so is usually only partial.

According to its extent, a volvulus may be total or partial. The volvulus is said to be total when the viscus entirely turns about the cardiopyloric axis for 180 degrees, the rotation bringing the great curvature of the stomach under the diaphragm and the posterior face in front. If only a part of the viscus turns, the volvulus is incomplete or partial.

According to its evolution, volvulus may be acute or chronic, idiopathic or complex. We speak of it as idiopathic when there is volvulus alone without apparent coexisting pathologic conditions in the organ. Partial volvulus is more frequently complex, showing an associated ulcerous condition, hernia or other complication.

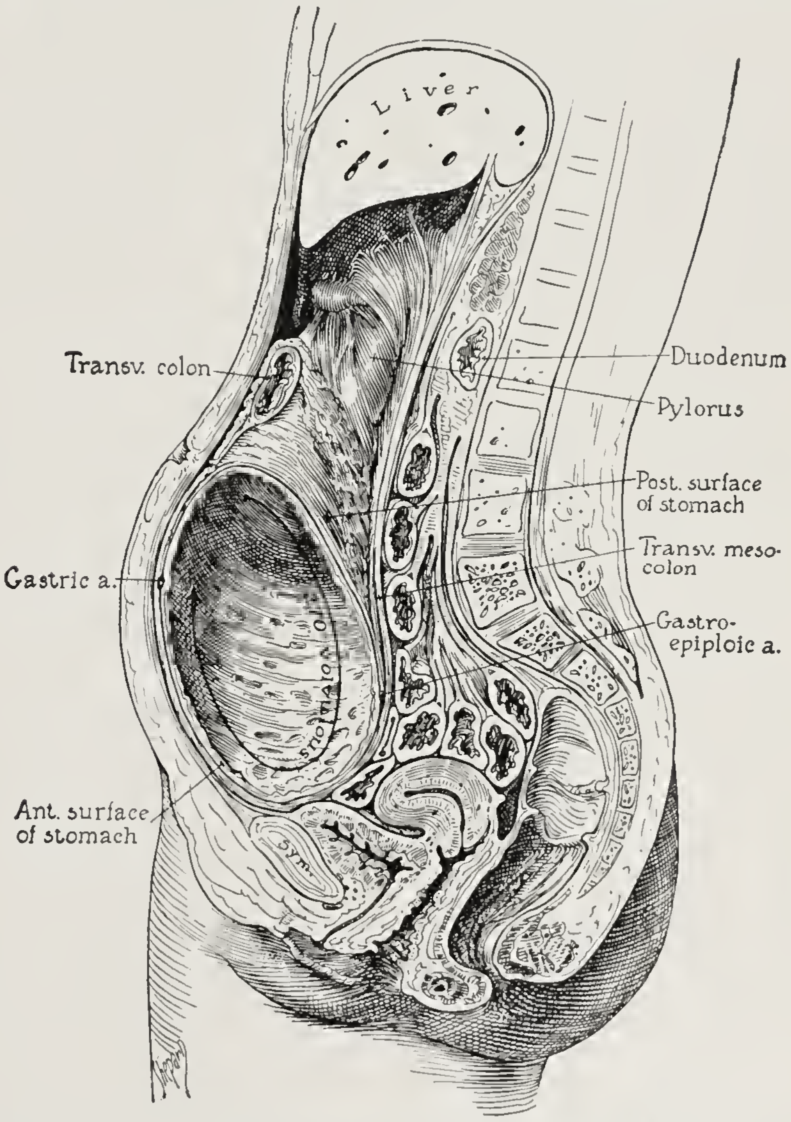

Fig. 2.—Degree of torsion of stomach (270 degrees) in author's case; the relative position of pylorus and cardia may be noted.

Practically all forms of stomach volvulus may be reduced to two principal types: the total idiopathic acute type, and the partial subacute or complex type.

MECHANISM

In displacements, the stomach is firmly held only by the cardia and the pericardial peritoneum. The pylorus has not the same fixity, and allows complete rotation of the stomach from below upward.

No ligament offers any serious obstacle to stomach volvulus, except perhaps the phrenogastric ligament, but this does not seriously hamper evolutions of the great curvature of the stomach. The vertical portion of what is habitually called the great curvature in reality belongs to the anterior face, the true great curvature being several centimeters behind. The stomach dome, in immediate contact with the diaphragm and fixed by the phrenogastric ligament, does not move unless it is subjected to extraordinary traction; no volvulus can therefore be total, in the strict sense of the word, but partial only.

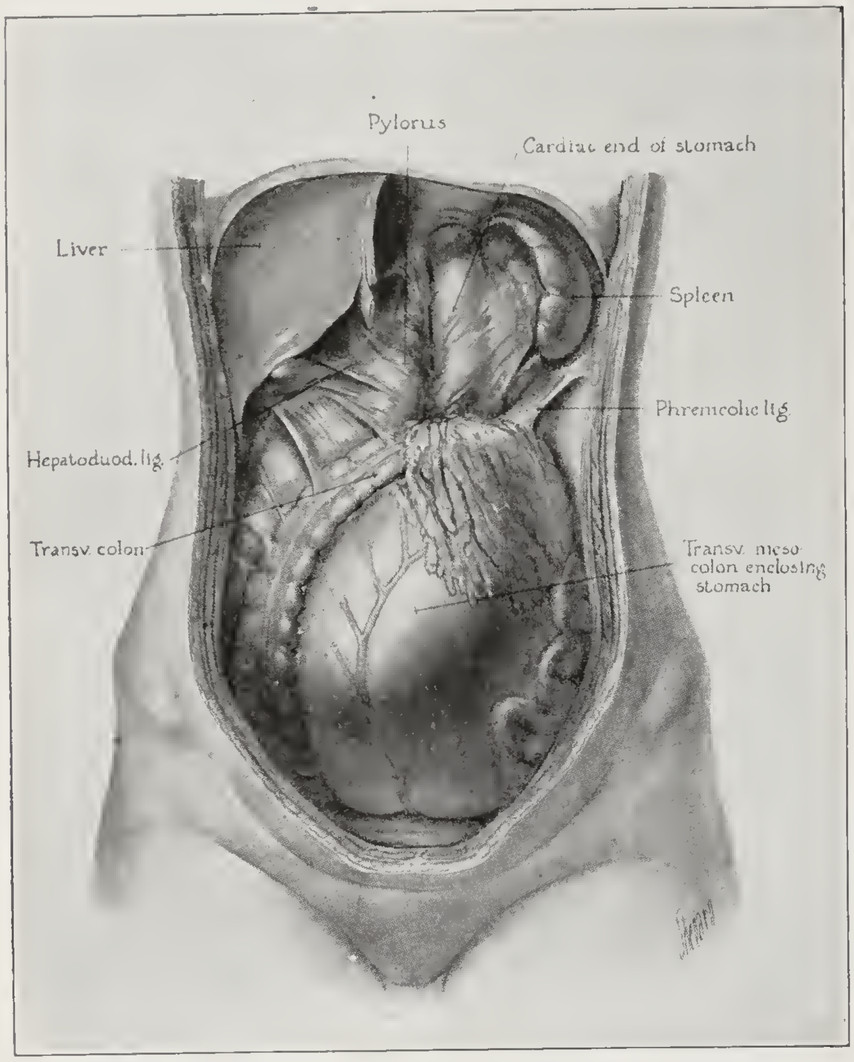

Fig. 3.—Almost vertical position of transverse colon, occupying position above lesser curvature of twisted stomach.

The axis of the movement of torsion is the small curvature and does not vary in ordinary cases. After a certain amount of rotation, the mobile pylorus begins to move (Fig. 6) toward the immobile cardia; the small curvature folding into a V with the opening above. When the torsion becomes more accentuated, the pylorus may actually come into contact with the cardia, and the small curvature is then only a deep sulcus by reason of the approximation of the sides of the V. If the torsion still continues, which is very exceptional, the two orifices form but one pivot, about which the viscus twists.

The ordinary degree of torsion does not exceed 180 degrees, but exceptionally it may reach 270 degrees, as in Kocher's and in my case, or even 360 degrees, as in Niosi's case.

Usually the large curvature is above, beneath the diaphragm and liver, the small curvature is below and may, if suspected, be recognized by the branches of the stomachal coronary artery, which has an ascending direction (Fig. 7).

PATHOLOGY

In total idiopathic volvulus, when the abdominal wall is opened, the posterior wall of the stomach appears, covered by mesocolon (unless the latter has ruptured). The vascular circulation is not, however, usually disturbed to any great degree. The orifices of the stomach are kinked, stretched or displaced, and become occluded, resulting in distention of the stomach, which may reach a great degree. An enormous, tense, congested, discolored tumor bulges into the abdominal incision. The transverse colon, spleen and pancreas may be displaced even to the fundus of the bladder, or even luxated.

In the literature, the spleen was observed to be twisted in four cases; it was much displaced in my case also.

The transverse colon following the displacement of the stomach may take a vertical position, as in the case reported, in which case the volvulus is intracolic. The greater and lesser omentum and ligaments are usually involved in a total volvulus, and may be ruptured. Blood or serosanguineous fluid may be found in the peritoneal cavity if there has been any rupture. Finally, the distended stomach may herniate through the diaphragm, drawing other organs with it, although such an eventuality is very rare.

In the great majority of cases of stomach volvulus, the condition is only partial; the cardiac part of the stomach remains in place, while the pyloric part undergoes rotation from behind toward the front and from below upward. The stomach then appears in two parts, one upward to the left and vertical, the other beneath and horizontal, the pyloric vertical part being dilated.

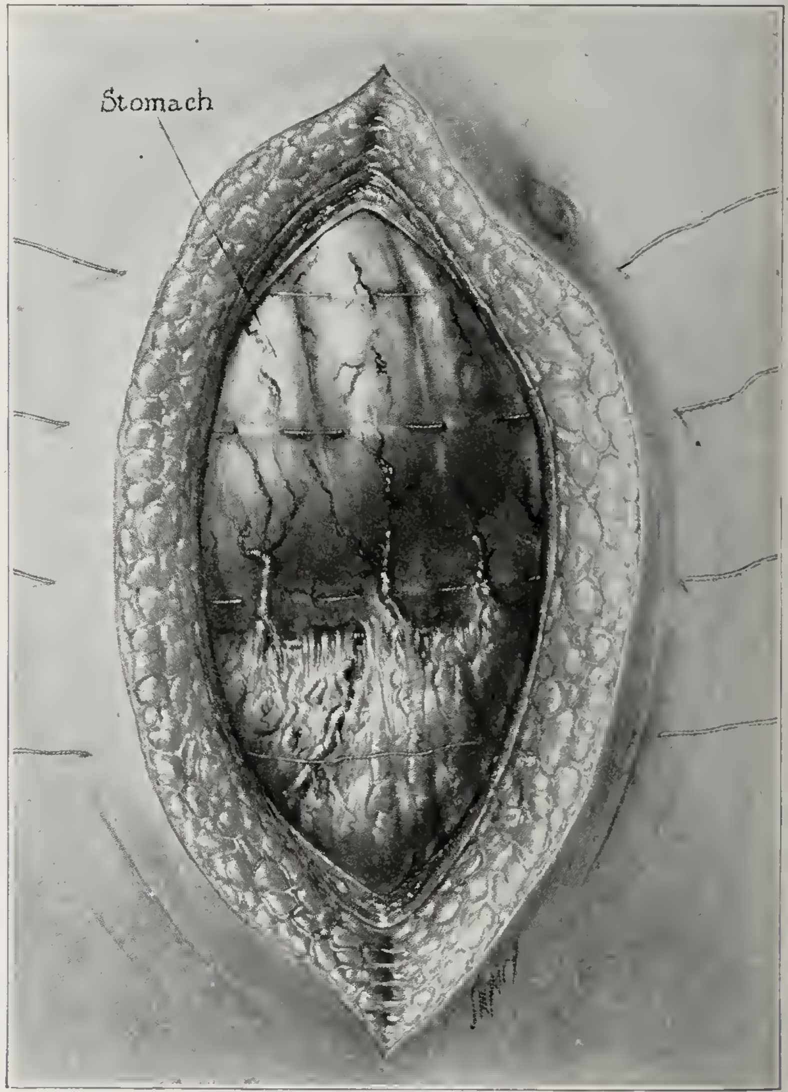

Fig. 4.—Gastropexy after detorsion of stomach.

Occasionally a partial volvulus may result from the stomach becoming engaged through an abdominal peritoneal opening and forming a stomachal abdominal hernia. There are at least two such cases in the literature.

One of the first effects of stomach distention is the pulling of the pyloric end. As the volvulus proceeds, the pylorus approaches nearer and nearer to the cardia, and the latter may even be stretched downward, as it is laterally fixed by the diaphragm. The distended fundus of the stomach pushes the diaphragm, and with the cardia drags and elongates the esophagus. The obliteration of its orifices is not the only obstacle to evacuation of the stomach contents; the mediogastric kink at the junction of the vessels of the small curvature causes a very acute angle and tends toward the formation of isolated cardiac and pyloric sacs. The occlusion and attendant distention act reciprocally on each other, one increasing with the other. That is, there is a reciprocal action of effect on cause and a vicious chain without end.

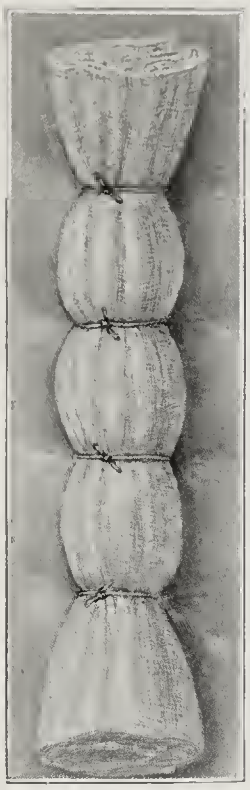

Fig. 5. — Gastropexy sutures tied over roll of gauze placed along the line of the abdominal incision.

Up to a certain degree of torsion, dilatation of the stomach has a tendency to reduce volvulus and diminish it. But if equilibrium betweeen the forces, which on the one hand tend to force the stomach upward in the torsion sense and, on the other hand, to force it downward, is upset, the stomach becomes incarcerated between the anterior abdominal wall and the diaphragm, and spontaneous reduction is no longer possible. Siegel thinks that an abnormal elongation of the small omentum is an indispensable condition.

The obstacles to evacuation of the stomach in volvulus are not always extrinsic strictures by vascular or ligamental bands, but intrinsic kinks and flexures situated either at the orifices or in their neighborhod and on the body of the organ. The lesions of an occluded stomach are similar to those of an obstructed intestine: dilatation, distention, congestion and turgescence. If death does not cut the process short, it ends in perforation of the stomach by fissure or rupture, the result of the extreme stretching of its tunics, as well as sphacelation and necrosis due to disturbances of circulation.

ETIOLOGY

Total volvulus is rendered possible by ligamental relaxation and consequent stomach ptosis, as in the case reported here. Most writers on the subject, and Peyer[6] especially, give an important rôle to ptosis of the stomach and to abnormal mobility. The immediate excitatory causes, according to Kocher, being usually overfilling of the stomach, peristalsis after antiperistalses, vomiting and mechanical torsion after movements of the body because of the weight of the distended and ptosed organ. Hour-glass stomach, Kocher thinks, is a frequent factor in partial volvulus; it was observed in seven of eighteen cases in which operation was performed.

Partial volvulus is almost always associated with other lesions, either gastric or extragastric, such as tumors and ulcers. Adhesions and biloculation hold the first place as accessory factors. A partial volvulus of the stomach, realized experimentally, produces two kinks, one in the body of the organ, the other, the more important, being the pyloric or duodenopyloric. The latter is due to ascension of the pylorus, the duodenum being fixed. It causes dilatation, ascension and deviation of the pyloric sac toward the right; but, the evolution being slow and nutrition of the organ being sufficient, the lesions never reach the stage of rupture but only cause hypertrophy of the stomachal walls.

SYMPTOMATOLOGY

The symptomatology of total idiopathic volvulus forms a characteristic picture. Its onset is sudden, its evolution is rapid, its progress, if unrelieved, is fatal.

The symptomatic triad which is characteristic of gastric volvulus is (1) acute meteorism of the stomach; (2) impossibility of passing a gastric sound, and (3) symptoms of ileus. Niosi thinks that thoracic pain and displacement of the heart to the left might be added, and he adds three other symptoms observed in his cases: (1) the sensation of torsion in the gastric region; (2) the sensation of painful traction in the vicinity of the heart corresponding to elongation of the esophagus, and, (3) displacement of the spleen, which forms a hard, palpable tumor in the mesogastric region or above the pubis. All these symptoms are valuable when a gastric volvulus is thought of or suggested, and other conditions can be ruled out.

The symptoms of partial volvulus are often preceded by old digestive disturbances, and have no clear-cut clinical individuality. Occlusion in partial volvulus is not complete, and remissions are frequent. The symptoms rather resemble those of stenosis (vomiting; loss of weight).

DIAGNOSIS

Diagnoses of stomach volvulus have not been made often; as the lesion is a rare one, physicians have no chance to observe its evolution. It has been confused with the majority of the major pathologic conditions of the abdomen, intestinal ileus, pancreatitis, etc.

Siegel says that in his case the diagnosis was evident, as after lavage of the stomach and the withdrawal of a large quantity of fluid contents, the original distended dimensions reappeared after a few hours. Niosi preoperatively diagnosed his case of partial volvulus. Rosselet[7] recently reported a case of partial stomach volvulus radiographically demonstrated and verified by operation.

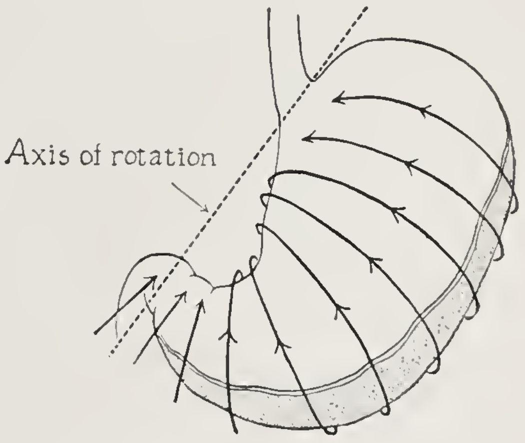

Fig. 6.—Axis of rotation of lesser curvature in volvulus of the stomach.

If volvulus of the stomach is thought of, perforative peritonitis must be excluded as well as acute pancreatitis. A stomach condition is differentiated by the sudden extreme meteorism, by the appearance of a large tympanitic tumor in the stomach region, and by a change in the level of the fluid when the patient's position is changed.

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[6] Peyer: Mitt. a. d. Grenzgeb. d. Med. u. Chir. 20: 686, 1907.

[7] Rosselet and Gilbert: J. de radiol. et d'élect. 6: 76, 1922.

TREATMENT

The treatment of volvulus of the stomach can only be surgical. A correct appreciation of the condition, either before operation or after opening the abdomen, is essential, as delay in proper treatment or a failure to recognize the findings may be fatal. In Kerr's [8] case the condition was thought to be an acute dilatation of the stomach, and the stomach was punctured, the incision made being only about two inches. The patient died fourteen hours later, and necropsy showed complete volvulus. When recognized early, evacuation of the stomach, detorsion and fixation are all that is necessary to afford complete relief.

The first operative procedures include: (*a*) incision; (*b*) examination of the existing conditions and diagnosis, if not diagnosed already; (*c*) evacuation of the stomach contents, and (*d*) the detorsion proper. The volvulus can be considered as reduced only when the ramifications of the coronary arteries of the stomach are placed in their proper situation.

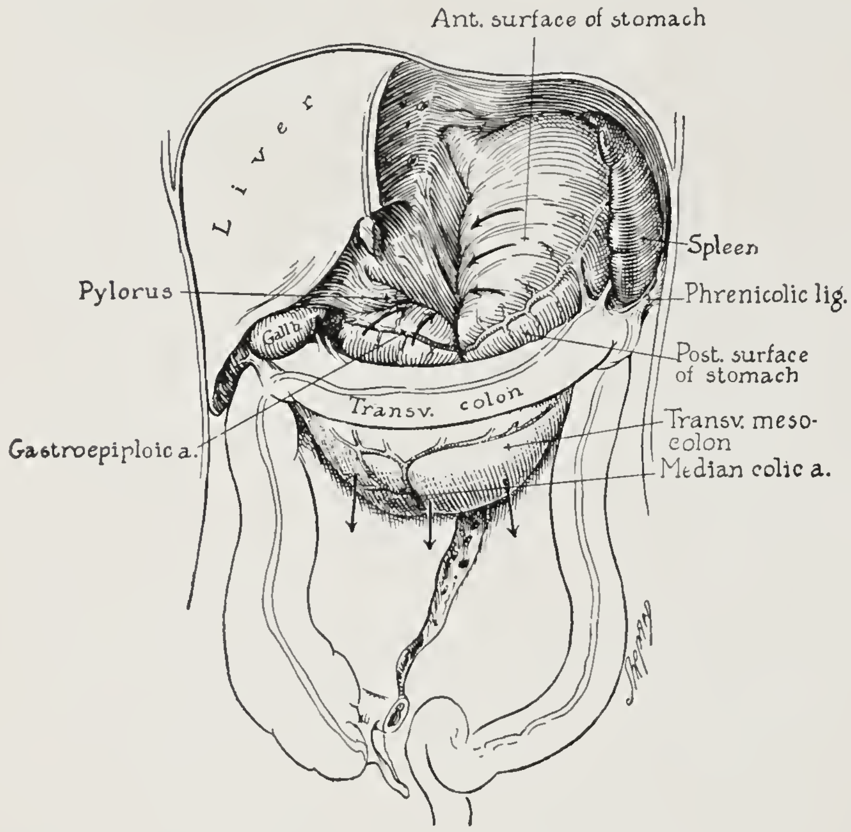

Fig. 7.—V-shaped infolding of lesser curvature in volvulus of stomach. The relative position of the viscera may be noted.

The complementary operations are either a gastropexy (anterior partial) or Coffey's operation of gastropexy, which fixes the organ in a good place; or, if there is any concomitant stenosis, a gastro-enterostomy, jejunostomy, or fistulization of the stomach. The actual condition of the patient must determine the choice of operation.

Niosi thinks detorsion and gastro-enterostomy preferable to gastropexy.

Operation in cases of total volvulus has given 60 per cent. of recoveries; and in the case of partial volvulus, operation is benignant.

Tuffier and Jeanne[9] give case histories of five early cases discovered at necropsy, including that of Berti already mentioned, and also fourteen cases in which operation was performed. These include the cases of Berg, Wiesinger, Dujon, Borchardt, Pendl, Sinjuschin and Peyer, of total volvulus.

Of the twenty-eight cases compiled by Kocher, operation was performed in eighteen, and of these patients thirteen recovered. Siegel's and Niosi's patients both recovered. With early operation, the prognosis of total stomach volvulus may be said to be good.

SUMMARY

The possibility of stomach volvulus must be kept in mind in obscure and puzzling acute abdominal conditions. The simpler the operative porcedure, the better. Detorsion and simple suspension, followed by persistent and thorough gastric lavage, seems to be the most rational procedure in such cases.

ABSTRACT OF DISCUSSION

Dr. James T. Pilcher, Brooklyn: This condition is precipitated almost invariably by the ingestion of a rather large meal, eaten hurriedly. The mechanism, however, I do not think anybody knows. We theorize to a large extent. There should never be any difficulty in immediately diagnosing the condition when there is vomiting, which stops, and is followed by an immediate increase in distention as the result of the production of some gas, due to a changed chemical reaction in the stomach. It seems extraordinary, the rapidity with which this gas forms and the inability of the patient to belch. In one case which I saw I was able to "detorsionize" the stomach, to rerotate it, turn the stomach back far enough to introduce the stomach tube, and, after the evacuation of the stomach had deflated it, the organ could be rotated around into place, and the patient was entirely relieved. The literature of this subject shows that in a large majority of the cases these people have had acute but transient previous attacks, very many of them, and that they have found relief previous to their final catastrophe by manipulation, lifting up and pressing in the epigastrium. They reduce and detorsionize the stomach. The most interesting feature of these cases is the fact that in many hour glass stomachs the proximal pocket becomes rotated, constituting a volvulus of the proximal pocket of an hour glass stomach. There is no question that the operation as proposed and carried out by Dr. Thorek is the only feasible one. We know that in many of these cases, when the condition has occurred once, it predisposes to a secondary attack.

Dr. Max Thorek, Chicago: I regret that I did not know that Dr. Pilcher was successful in reducing a twisted stomach. If I had known of it, I would have made mention of it in my paper, because such a step would be the first known in the history of medicine, and it should go on record. We know from our experiences in strangulated hernia, that the patient after taxis remains well for some time. What Dr. Pilcher has done is to diagnose stomach volvulus and reduce it. It should be recorded as a most important accomplishment in the history of gastric surgery. From the patient's point of view, the quicker the situation is diagnosed, the quicker we must operate to save life, because these cases have a tendency to recur. Neither Dr. Pilcher nor any one else can be on hand all the time to detort that stomach, and the volvulus may progress to such a degree that it may be too late to operate. I have never been able to make a diagnosis of volvulus of the stomach before entering the abdomen.

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[8] Kerr: Volvulus of the Stomach, Ann. Surg. **56**: 697, 1912.

[9] Tuffier and Jeanne: Le volvulus del'estomac, Rev. de gynéc. **18**: 27, 1912.

Rest in Tuberculosis.—Rest remains the sovereign remedy for tuberculosis. More direct and spectacular methods of treatment—inhalations, injections, drugs by mouth—come and go: the years since 1900 have spawned hundreds of them. Few have survived the sensation of their momentary announcement; none has earned even a vogue. Rest alone has returned thousands of consumptives to productive life. Of those who, while living an active life, relied on drugs or vapors or "serums" or vaccines to fight their battle, few have made the journey back.—Allen K. Krause.

THE DEVELOPMENT OF INTESTINAL SURGERY *

HARRY HYLAND KERR, M.D., C.M.
WASHINGTON, D. C.

There is no more fascinating story in the history of medicine than the development of intestinal surgery. In the very earliest medical writings occur occasional cases of spontaneous recovery following perforating abdominal wounds. The study of these isolated cases showed that the intestinal wound had agglutinated to the parietes, thus preventing effusion of the intestinal contents into the abdomen. In one of the earliest textbooks, Lanfrank's "Science of Cirurgie," published in 1396, we find the treatment of intestinal wounds outlined in this quaint language:

> Take that one side of mirac (the outer or parietal peritoneum) and siphac (the inner or visceral peritoneum) together, so that they be one. And look that the nedel be three square and then make one point brought together. In the same manner in the other and there thou shalt make there-on as many points as thou thinkest necessary. And when thou hast sewd mirac and siphac together in good manner, then knot the threads together that they unknot not—and let the ends of the threads hang out and then sprinkle upon the sewing the powder consolidatif—and hold open the wound withoutforth till mirac and siphac be perfectly solid.

As we so often see, this ancient teaching survived without question for more than four hundred years. It is probable that the success under such surgery did not exceed the spontaneous recoveries which occasionally occur.

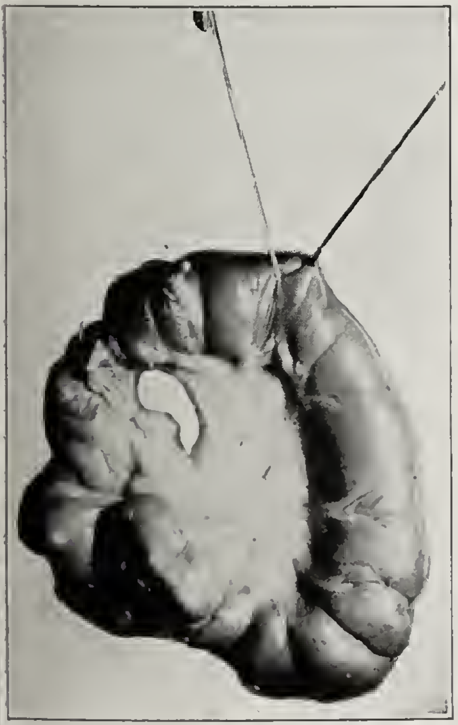

Fig. 1.—Importance of the fibrous coat in intestinal suture: one suture (white), passing into the muscular coat only; the other (black), passing through the muscular and into the fibrous coat.

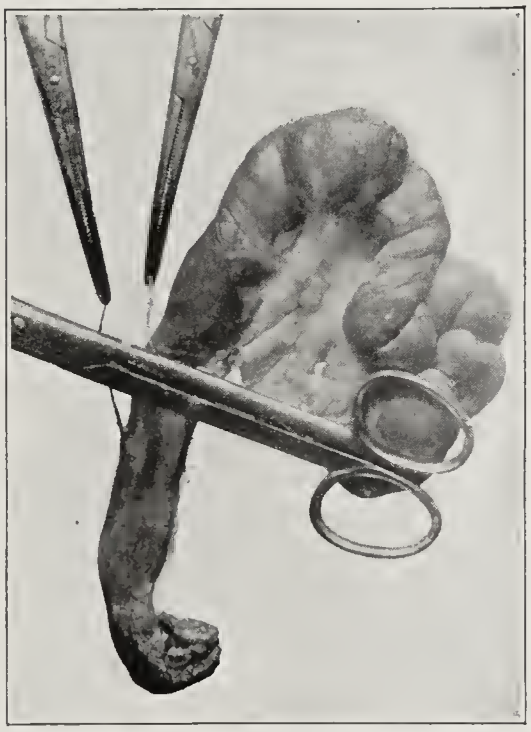

Fig. 2.—Importance of the fibrous coat in intestinal suture: the piece of bowel shown in Figure 1 stripped between the handles of a pair of scissors. All coats are stripped off the thin fibrous coat. The white suture anchored in the muscular coat alone is stripped off with that coat; the black suture passing into the fibrous coat remains firmly anchored therein.

The next milestone marking progress is "An Inquiry Into the Process of Nature in Repairing Injuries of the Intestines" by Benjamin Travers, demonstrator of anatomy at Guy's Hospital, London, published in 1812. He made a series of experiments on horses and dogs in which he proved that the healing of intestinal wounds was by agglutination of the visceral peritoneum at the edges of the wound in the intestine to the parietal peritoneum or the peritoneum of the adjacent viscera. He cites many spontaneous cures from penetrating wounds of the abdomen in which at necropsy the perforation was not necessarily agglutinated to the penetrating wound of the abdominal wall.

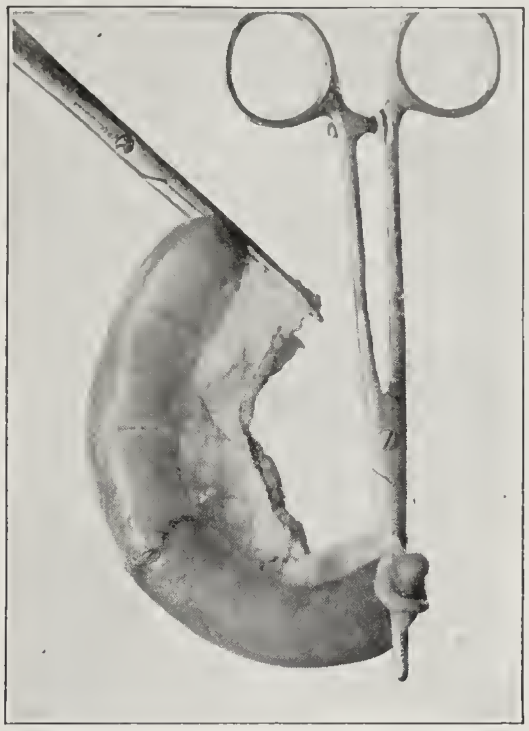

Fig. 3.—End-to-end anastomosis with interrupted suture: the glycerin with which the bowel is distended can be seen leaking through the suture line.

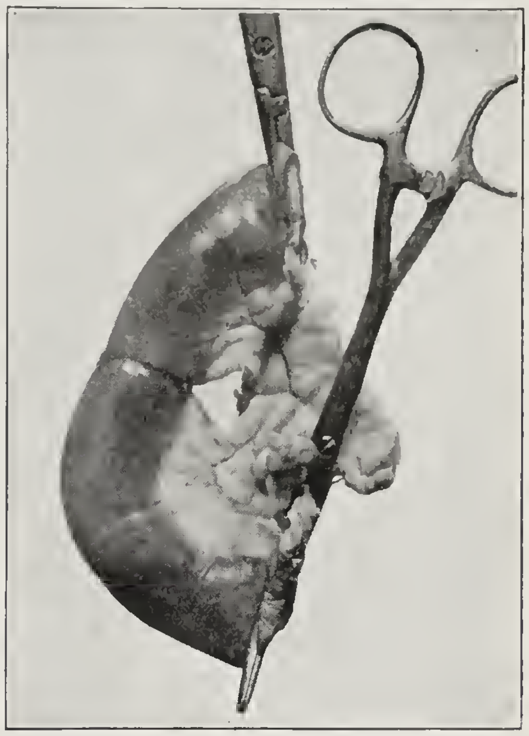

Fig. 4.—End-to-end anastomosis: continuous suture; no leaking.

In considering the prevailing practice at that time, Travers says:

> The suture is recommended and in general that species which we denominate the glover's suture; one or both ends of the thread being included in the external wound, that the gut may be confined to that point and the suture readily withdrawn. It is not the kind of suture employed, but the application of it which is of real importance. It was upon close connection of the injured gut with the parietes exclusively that the union was supposed to depend.

He then discusses the value of agglutination to the surrounding viscera and states that the healing of intestinal wounds in apposition to the parietal wound interferes with the healing of both. To quote again:

> Whenever the suture is decided on it should be complete. The intestines should be returned fairly into the abdomen and the wound of the parietes be treated as if it had not extended beyond them. Let a small round sewing needle armed with a silk thread be passed near to the lines formed at the bases of the everted lips. The thread is to be carried at short regular distances through the whole extent of the wound, the operator being mindful that an equal portion of the edges is included in each stitch. When the suture is finished, let the thread be securely fastened, and cut close to the knot. The reduction of the prolapsed fold should then be conducted with the nicest caution; and when completed, the wound of

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* Read before the Section on Surgery, General and Abdominal, at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

> the teguments should be treated with a stitch, a plaister, or a poultice as circumstances dictate.

Thus, we see that the knowledge that intestinal wounds heal by agglutination of the peritoneum had been well known to the profession for over 400 years. The only improvement in that time was Travers' study. He showed that it was not necessary to use the parietal peritoneum, but one could rely on agglutination to the peritoneum anywhere, and therefore the visceral wound should not be anchored to the parietal wound.

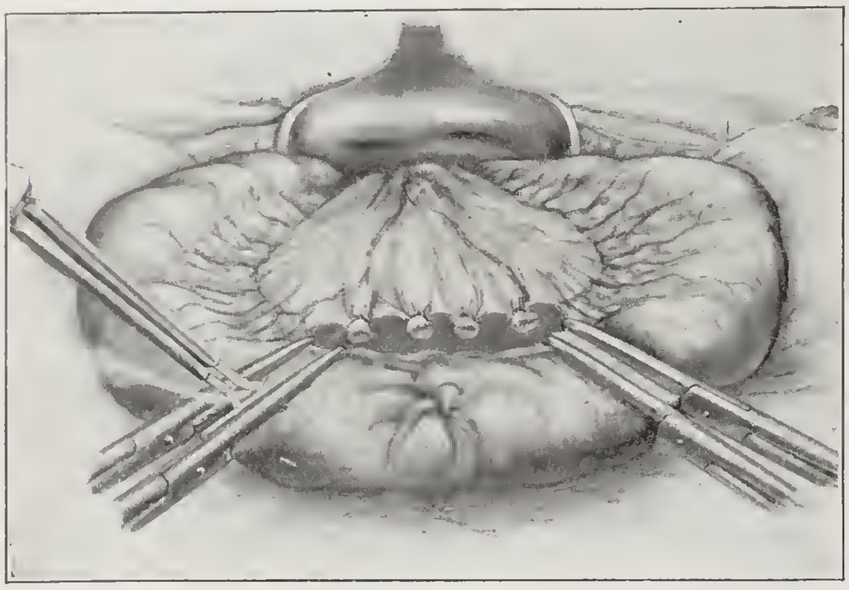

Fig. 5.—Basting stitch method of anastomosis: division of the intestine with cautery knife between crushing clamps.

It remained for Antoine Lembert, then an intern in the Charité in Paris, to discover the simple expedient of approximating the peritoneal edges of the wound. In 1826 he published his paper "Nouveau procédé d'enterorraphie" in the Rapport général d'anatomie. I quote from an abstract published one year later:

> As many threads and needles are prepared as stitches are required by the extent of the wound. Each stitch is isolated and spaced from the other by four or five lines; no thread should be tied until all are passed, which is done in the following manner: The surgeon, having in his right hand a simple needle, in which is a linen or, better, a silk thread, brings the index finger of the left hand into the cavity of the intestine and thus fixes the edges of the wound. It is better to have the edges of the wound stretched by an assistant. The operator buries the needle about the space of two lines from the bloody edge, or he slips the point of the needle between the mucous and muscular membranes, according as the intestine is more or less thick, and he brings it out about one line from the bloody edge, so that the thread takes in a line's space almost of the intestinal wall. This is the first stitch made. The same needle is directed toward the opposite edge, and is buried about one line from it, crossing completely the wall of the intestine, or simply burying it in the thickness of the muscular and mucous membrane; the needle is then brought out about one line from this first puncture and consequently two lines from the bloody edge, as has been done for the other edge of the wound, in such a way that the same thread penetrates twice into the walls of the intestines and twice comes out. It may be seen that it embraces on the convexity of the intestine, about a line of the cylinder which forms the intestine.
>
> When this thread is tied, each of the walls which it embraces is brought forcibly toward the other, and joins the other with its serous membrane; the free edges of the wound are then found turned toward the cavity of the intestine, where they form a more or less pronounced prominence. To tie the thread, one has an assistant place a "poicon" or any other instrument of similar form on the part which lies between the two sides of the wound. This "poicon" serves to turn the bloody edges toward the cavity of the intestine, and to favor the apposition of the serous membranes. This is done when one ties the ligature.
>
> In cases of transverse division of the intestine, the threads are passed as if the wound were longitudinal, taking precaution to place a thread on each side of the mesentery, and to have the portion of the intestine which they take in correspond on each extremity; one then ties as we have just said, so that the free edges are turned toward the cavity of the intestine, and there forms a circular ridge.
>
> When the intestine is reunited, the threads are cut near the knots, keeping only one to fix in one of the angles of the exterior wound. The others gradually cut through the small portion of the intestine which they embrace, fall into the interior when the local inflammation which they have already caused has provoked in the vicinity plastic exudation, which promptly agglutinates the serous membranes and saves the patient from the dangers of an effusion.

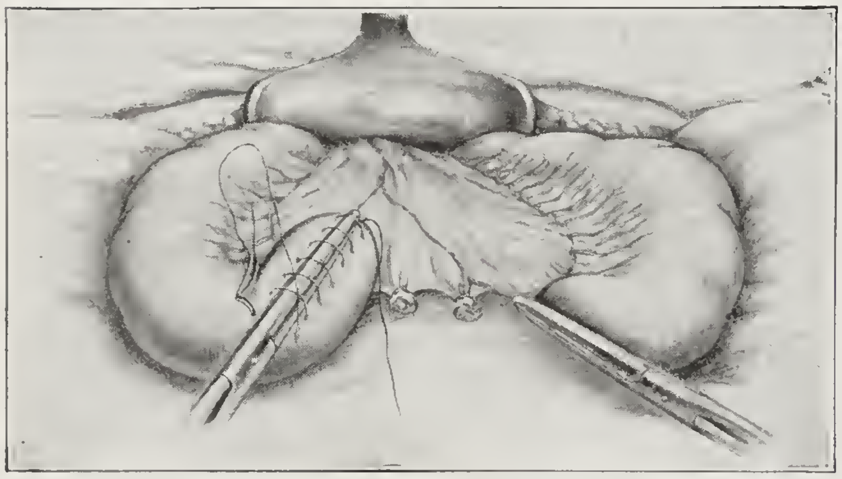

Fig. 6.—Basting stitch method of anastomosis: basting stitch applied over clamp occluding divided intestine.

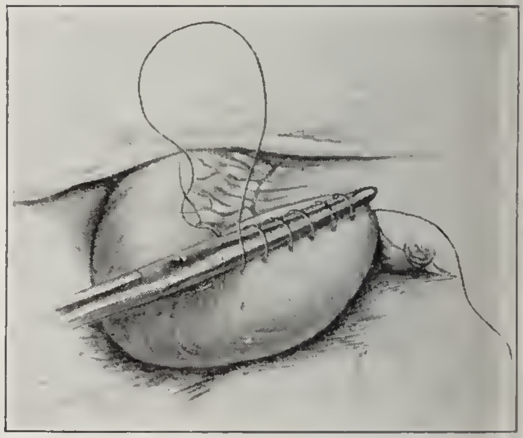

Fig. 7.—Basting stitch method of anastomosis: detail of basting stitch; first and last bites of stitch parallel to bowel axis at free and mesenteric borders, all intervening stitches across bowel axis with loops passing over crushing clamp.

> This operation is so simple in dogs that they seem to eat, digest and pass feces the day after operation. Five were operated on and all five survived. In another, sacrificed three days after suture had been made for complete transverse division, the union was already complete and any later effusion would have been impossible; the threads had fallen away. It must be added that the threads were always left in the abdomen after they were cut near the knot, and no inconvenience resulted.
>
> This procedure combines the following advantages: (1) It is easy and promptly executed; (2) it is applicable to all cases of division of the intestines; (3) it does not expose to hemorrhage; (4) it maintains the continuity in so exact a manner that even the gases cannot escape; (5) it causes constriction in only a very small portion of the intestine, and causes only the irritation necessary to produce prompt plastic exudation; (6) finally, it leaves no fault in the conformation in the intestine which injures its function, and it is followed by a cure in a few days.

Thus, nearly a hundred years ago it was shown that intestinal wounds heal not by reciprocal healing of adjacent cut edges but by adhesion of the inverted peritoneal coats.

The discovery of this fundamental principle of intestinal surgery made possible operative procedure in many intra-abdominal lesions. However, it was not till the era of antisepsis inaugurated by Lister that Lembert's teachings were frequently applied. As experience grew, many methods of anastomosis and suture were advanced. In 1892, Murphy invented his famous button. This automatically united all coats of the intestine and held them in approximation till the union was firm. It is one of the most brilliant contributions ever made to surgery. The button, in addition to being ingenious, fulfilled what may be termed the surgical principle of intestinal anastomosis, i. e., the infolding of the bowel wall throughout its circumference, and fixation till firm healing was complete. The button advanced intestinal surgery more than any other factor. Murphy might be said to have popularized intestinal surgery. The necessity of intestinal resection had no terrors for the surgeon who had a button handy.

The suture method then gradually replaced the button, and the literature became rich with methods of performing intestinal anastomosis. There have been described about 250 different methods of intestinal suture in the past century.

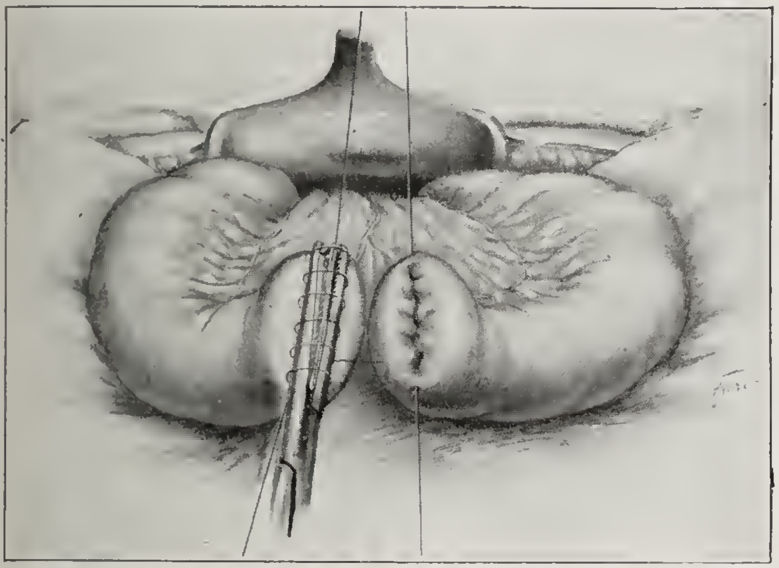

Fig. 8.—Basting stitch method of anastomosis: crushing clamp withdrawn from beneath basting stitch, and basting stitch drawn tight, inverting divided ends of intestine.

Successful intestinal surgery depends on a clear appreciation of the anatomic, physiologic and hydraulic factors concerned.

Of the five histologic coats of the intestinal wall, only two are of surgical importance, the peritoneal and the fibrous. As Lembert pointed out many years ago, it is by the agglutination of the peritoneal walls that union takes place. Many of the older methods of anastomosis failed because they did not succeed in approximating the peritoneal coats at the mesenteric attachment. It is necessary that the entire circumference of the stoma be covered with peritoneum. This can be accomplished only by infolding the entire wall at its mesenteric attachment.

The value of the fibrous coat to the bowel in surgery is probably not sufficiently appreciated. The simple experiment of pulling a piece of intestine between the handles of a pair of scissors, thus stripping off the outer peritoneal and muscular coats and the inner mucous coat, demonstrates the tough fibrous tube which is the real histologic foundation of the bowel. Into this coat every intestinal suture should pass; when so anchored, there is no danger of the stitch tearing out or of leakage occurring. When, in addition, the uniting suture is not only anchored in the tough fibrous coat of the bowel, but at the same time invaginates the peritoneal coat so that the walls of the stoma are completely surrounded by the peritoneum, only one suture is required. The usual two or three layers of sutures are unnecessary unless they are placed in separate coats of the bowel wall. One absorbable suture which unites the fibrous coat and invaginates the peritoneal coats is all that is required, even in stomach resection.

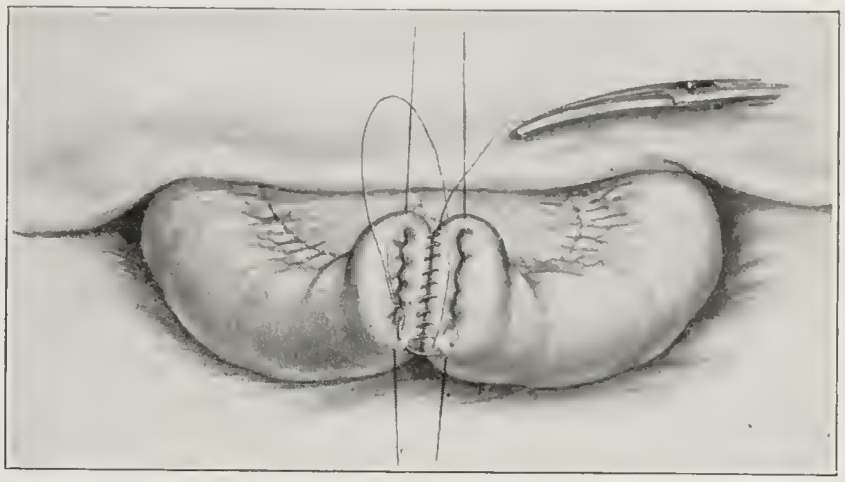

Fig. 9.—Basting stitch method of anastomosis: inverted bowel ends suspended on basting threads, and anastomosing suture started.

To fulfil the requirement of uniting the approximated edges, some of the bowel wall must be turned into the lumen. This fringe of united bowel wall forms a partial diaphragm, depending on the amount turned in and the diameter of the stoma. Should the diaphragm be excessive, it is possible that it might offer obstruction to the intestinal contents, or form a constriction of the lumen where subsequent obstruction might occur. Such an occurrence is obviated by enlarging the stoma to a size greater than the diameter of the bowel. This is accomplished by dividing the intestines not transversely to the long axis as is our usual habit but at an angle of 45 degrees. The area of the opening thus produced is just twice that of the opening on transverse section. Of course, such an incision is made with the acute angle of the mesenteric side so that the blood supply of the end of the bowel is preserved. When the two ends are jointed, no angulation occurs. Since the fanning of the mesentery prevents any part of the

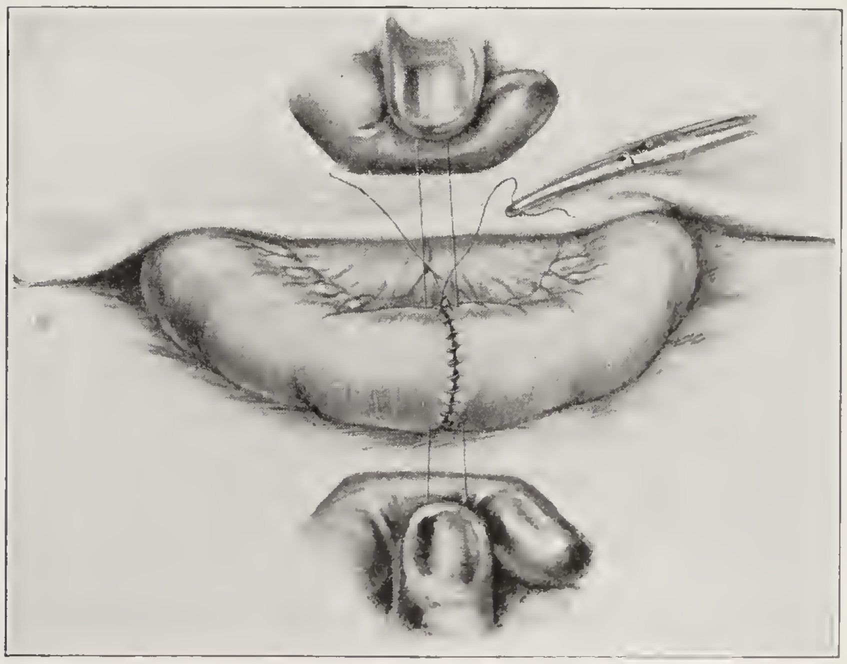

Fig. 10.—Basting stitch method of anastomosis: anastomosis complete; ends still occluded by basting stitch.

intestinal tube extending any farther from the root of the mesentery than any other, angulation in the plane of the mesentery is impossible. The united tips of the sutured bowel, on the other hand, angulate into the mesentery toward its root. We have, therefore, as a result of the union of two pieces of bowel, a straight, free border and an angulated mesenteric border. An anastomosis made in this way has a stoma just twice the size of the lumen of the anastomosed bowel. Even excessive invagination into such a lumen could not form a diaphragm. The chances of obstruction, therefore, at the site of the suture are reduced to nil.

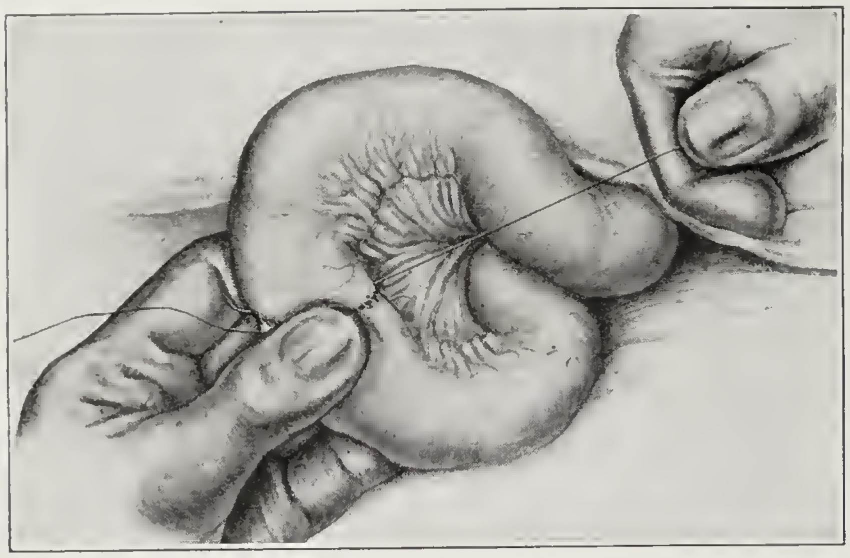
Fig. 11.—Basting stitch method of anastomosis: basting stitch being withdrawn.

A law of hydraulics states that the circumferential or bursting pressure in a tube is twice the longitudinal pressure. Applying the law to the intestinal tube, the usual pressure exerted therein from peristaltic action is multiplied by two as a distending force. Any wound, therefore, of the intestinal wall is subjected to a force which tends to stretch that wound of the wall across the axis of the intestine. Such a wound should be closed in a transverse direction by a continuous suture. The distending force, if applied to such a closure, would tend to lengthen the wound, stretch the suture and tighten the closure. In perforating wounds, such a closure encroaches less on the lumen than a longitudinal closure. In intestinal anastomosis, for similar reasons, the ideal closure is at right angles to the long axis of the bowel, and is performed with a continuous suture. Any force acting from within the lumen will tend to distend the bowel at the site of the suture, stretch the continuous stitch, and automatically tighten the anastomosis. It can therefore safely be said that all intestinal anastomisis should be end to end, made with a continuous, absorbable suture passing into the fibrous coat and uniting the intestinal walls, so that there is an approximation of the peritoneal coats throughout the complete circumference.

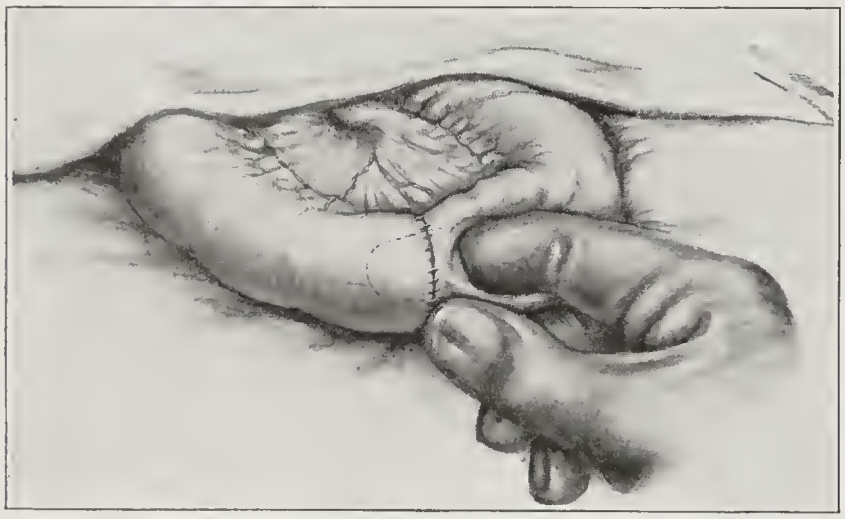
Fig. 12.—Basting stitch method of anastomosis: lumen reestablished, separating crushed ends by inverting bowel wall through stoma.

Through the long development of methods of intestinal anastomosis, the aims of surgery have gradually changed. In the early days, prevention of effusion of intestinal contents into the abdominal cavity, even at the expense of a fistula, was the first consideration. Then direct union of the divided intestine with a minimum of complications was the chief aim. As these difficulties became mastered, an aseptic method was sought.

In elective intestinal surgery, the technic of laparotomy is nearly perfect till the lumen of the bowel is opened. Then the entire operative field is exposed to contamination. It is true that this difficulty is usually successfully obviated by protecting the operative field from the open lumen by gauze pads and dressings, by changing instruments, by gloves, and by other aseptic measures. Nevertheless, there is a definite break in an otherwise efficient technic as soon as the operative field is open to contamination from exposure of the bowel lumen.

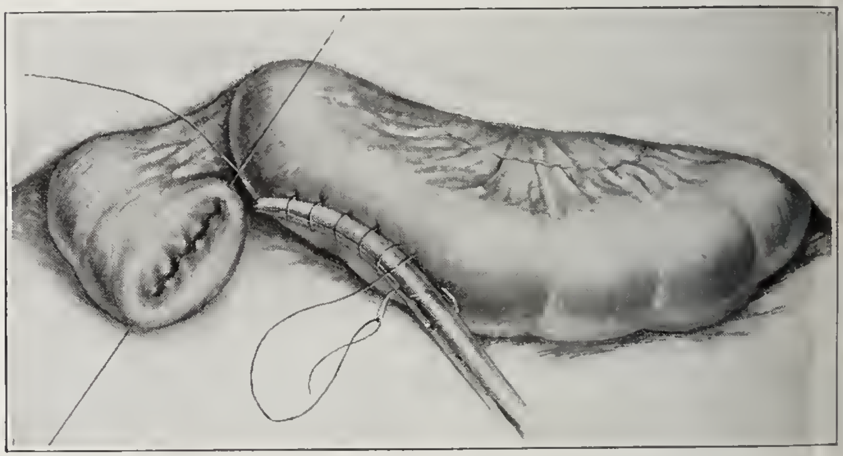
Fig. 13.—Basting stitch method of anastomosis: end-to-side anastomosis, crescent of free border of bowel having been removed with the cautery.

Can intestinal union be accomplished by a method that is aseptic, practical and applicable to all forms of anastomosis?

BASTING STITCH METHOD

In 1907, E. M. Parker and I suggested the basting stitch method of intestinal suture, based on experiments carried out on dogs. We said:

> It consists essentially in the use of the Cushing continuous stitch, without knots, to temporarily close the intestinal incision, a separate stitch being used for each of the two visceral openings that are to be sewn together. These stitches remain in place only while the permanent sutures are being applied. On account of their method of application and temporary purpose which they serve, they bear a certain likeness to the "basting" stitches of the seamstress, and for convenience we have called them by that name.
>
> The steps of the operation and the advantages which we believe it to possess may be briefly summarized as follows:
>
> Division of the intestinal walls is made between two narrow-bladed crushing clamps placed first in actual contact and then slightly separated so that there is left between them a narrow crushed area, consisting practically of serosa and fibrous coat, which may be divided by knife or cautery.
>
> The basting stitch is a Cushing continuous stitch without knots, placed upon the clamped incision with loops between

the stitches crossing over the blades of the clamp. When the clamp is removed and the stitch at the same time drawn tight, the edges of the incision are automatically inverted and held firmly pressed together in a straight line without any separation of the lips of the opening having occurred. The two incisions, so prepared, are then placed side by side, and are stitched together around the whole circumference of the intestinal tube or of the new operative opening that is to be established. When the last suture has been placed and tied, the basting stitches are cut short and withdrawn; the intestinal canal, or the new anastomotic stoma, then instantly becomes patent. This completes the operation as far as suture of the intestines is concerned. The lumen has not been opened and it has not been entered by any instrument or other object. The stoma becomes open only with the withdrawal of the basting threads. The steps of the operation are essentially the same whether circular, lateral or end-to-side anastomosis is done.

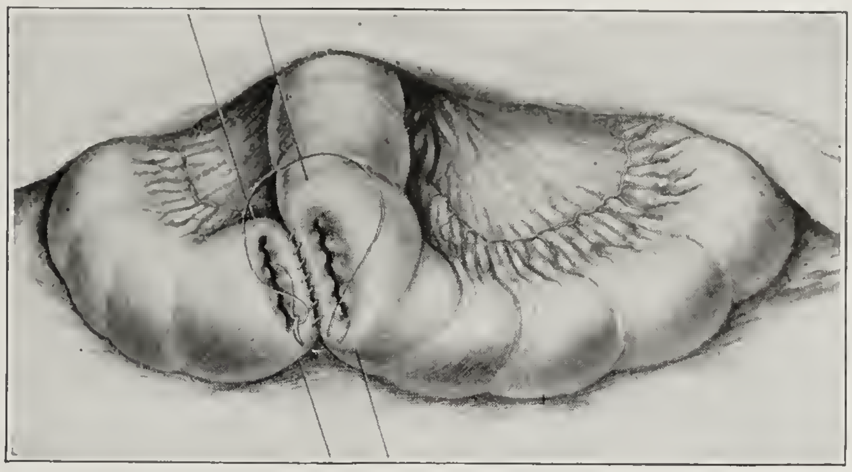
Fig. 14.—Basting stitch method of anastomosis: end-to-side anastomosis; anastomosing stitch being applied.

The operation so performed calls for no time consuming maneuvers and no more than ordinary manipulative skill. The basting stitches are as easily and as quickly placed as the purse-string suture used to turn in the stump of the appendix or grasp the Murphy button. Upon removal of the clamp the stitch is at once drawn tight by a single motion and the incision, securely closed in a straight line, is then ready for suturing without further attention. The turning in of the cut edges which takes place is automatic and never requires the use of an instrument to assist it as in the case of the purse-string suture.

With the basting stitches in place, intestinal suture becomes singularly free from its usual difficulties. Only a single assistant is ever needed, and even he may be readily dispensed with. The parts to be joined are held in the most convenient position and under perfect control, so that the stitching is done with surprising rapidity and ease.

The troublesome eversion of the mucosa and the vermicular contractions of the muscular coats no longer exist. Approximation of the serous surfaces to any desired extent and at a uniform distance from the margins of the incision is assured. The inversion of the cut edges presents a folded wall through which to pass the stitches, making precision in their application, with secure anchorage in the fibrous coat, particularly easy.

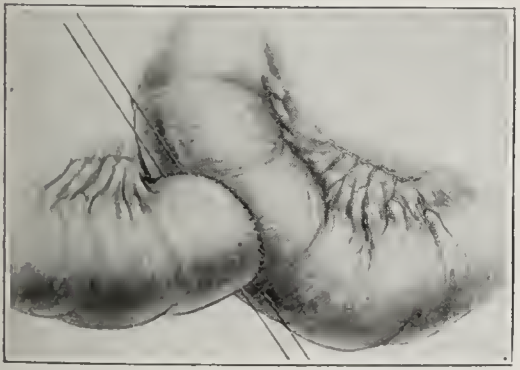
Fig. 15.—Basting stitch method of anastomosis: end-to-side anastomosis; anastomosis complete.

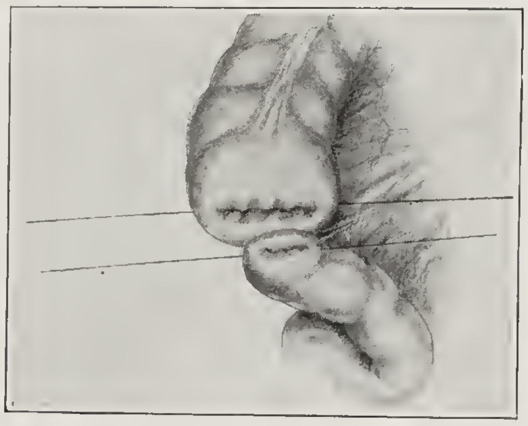
Fig. 16—Basting stitch method of anastomosis: end-to-end anastomosis between bowel of unequal diameter.

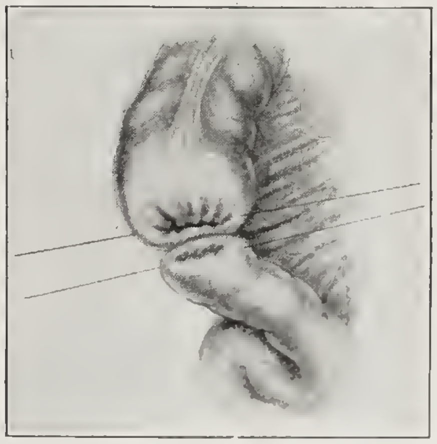
Fig. 17.—Basting stitch method of anastomosis: end-to-end anastomosis between bowel of unequal diameter; large bowel gathered on its basting thread to conform with small bowel.

Handling of the intestines is reduced to a minimum. The hands of the operator need scarcely touch them, and those of the assistant not at all.

In the end-to-end suturing the small triangular peritoneal defect at the mesenteric border is automatically obliterated by the basting stitch insuring apposition of the serous surfaces at this point.

A striking advantage of the method is seen when two incisions to be joined happen to be of unequal length. In this case the longer one is simply puckered or "gathered" in upon its basting thread until it corresponds in length with the shorter incision and the sutures are then applied. We have successfully united in this way without the slightest difficulty intestinal incisions, one of which was double the length of the other.

RESULTS

Since 1907, the method has been put to numerous tests in performing anastomosis between all the hollow viscera of the abdomen. When the operation is carried out as described by us, a failure has never been known. In two cases obstruction occurred, owing to the invagination of too much of the bowel wall, with the formation of an obstructing diaphragm. With the section of the bowel at an angle, rather than transversely across the axis, a stoma of sufficient size is produced to obviate that danger completely.

The method is used in all our intestinal work. End-to-end, end-to-side, and side-to-side suture is easily performed. Cholecystenterostomy is readily accomplished with one single No. 0 chromic catgut suture. Likewise, gastric resection with a single catgut suture properly placed is eminently successful. In stomach surgery, it is not wise to rely on the crushing of the Payr clamp or the cooking of the cautery knife to control hemorrhage. The crushed and cauterized edge must be inspected and bleeding points ligated before invagination with the basting stitch.

In low resection of the large bowel, the suggestion of Balfour of passing a rectal tube to above the stoma, after the anastomosis is accomplished, is adopted unless there has been a previous cecotomy.

CONCLUSIONS

1. The history of intestinal surgery is punctuated by the gradual establishment of definite surgical principles.

2. Intestinal wounds heal, not by reciprocal healing of adjacent cut edges, but by adhesion of the inverted peritoneal coats.

3. Each bite of the suture should be securely anchored in the fibrous coat, thus necessitating only one suture.
4. All openings of the intestine, whether perforations or anastomoses, should be closed transversely by a continuous suture.

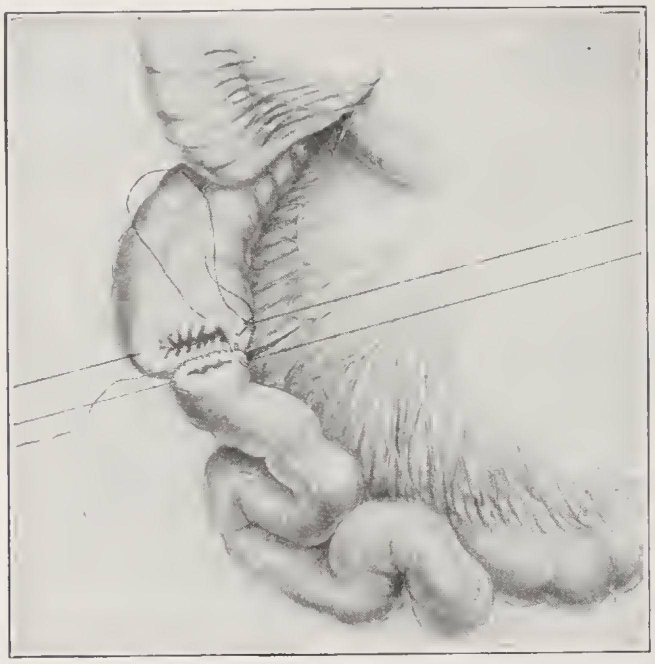

Fig. 18.—Basting stitch method of anastomosis: end-to-end anastomosis between bowel of unequal diameter; anastomosing stitch being applied.

5. Ideal aseptic intestinal resection is readily performed by the basting stitch method.
6. The method is applicable to all forms of anastomosis of viscera covered by peritoneum.

1744 N Street N.W.

ABSTRACT OF DISCUSSION

Dr. Harold Brunn, San Francisco: Dr. Kerr's method was adopted at the university clinic in San Francisco several years ago, but we did not know then that he was responsible for it. We heard of his work, done with Dr. Parker, only a few years ago. This method, it seems to me, is an improvement of Halsted's method.

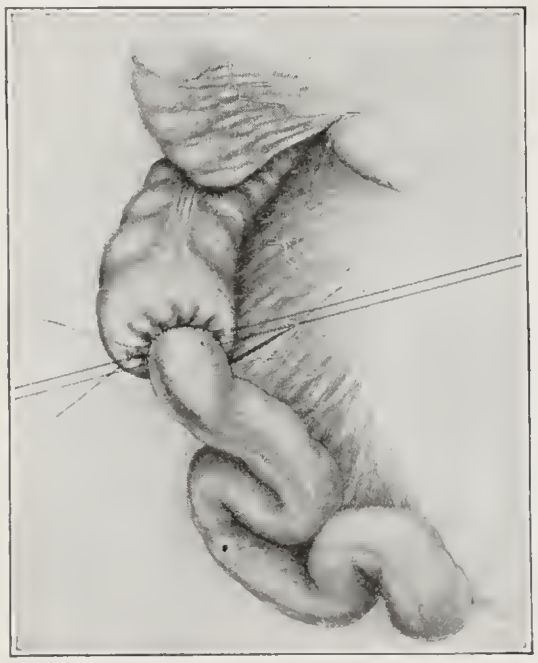

Fig. 19.—Basting stitch method of anastomosis: end-to-end anastomosis between bowel of unequal diameter; anastomosis complete.

Dr. J. Shelton Horsley, Richmond, Va.: We should always bear in mind, in intestinal surgery, the location of the site of operation. All raw surfaces should be closed before the lumen of the bowel is opened. When the lumen of the bowel is opened, the slightest amount of bowel content that gets into the mesenteric tissue will produce an infection that will cause a leak. That leak is not due so much to inefficient suturing as to the fact that the surgeon infects the field, and infected sutures break down. The continuous mattress suture, as Dr. Kerr demonstrated, is a valuable suture in intestinal surgery, but we cannot make a constant rule for suturing or recommend any one standard method that can be applied to any portion of the intestine. The results that Dr. Kerr and Dr. Brunn have shown are excellent, and this method of suture would be effective in inaccessible parts of the intestine, such as the lower sigmoid, where other methods will fail. We must remember, however, that, beginning at the jejunum and going down to the rectum, the tissues, function and bowel contents change. If we make an anastomosis and get too much of a diaphragm in the upper portion of the jejunum, we are very likely to get an obstruction. Many surgeons say that in operating on dogs they can turn in as much bowel as they wish. This is true in dogs but not in human beings. I lost a patient from this error. Dragstedt of the Department of Physiology of the University of Chicago has called attention to the fact that very little obstruction in the upper portion of the jejunum or duodenum will produce a fatal result, but the same obstruction may be borne farther down in the ileum. At the ileocecal valve it is better to follow nature, and a slight intussusception, as pointed out by Kellogg, is advisable. In resections of the large bowel, I believe that the end-to-end method should be used, whenever possible. In this region, where sepsis is so likely to occur and where bacteria are teeming in the fecal contents, we must be particularly careful about infection; but in the upper jejunum or in the stomach, where there is very little bacterial content, we can, if necessary, take more chances. Why do we have so many fistulas following resections of the large bowel? Because of the great bacterial content and because we have not been careful to exclude infection during the operation.

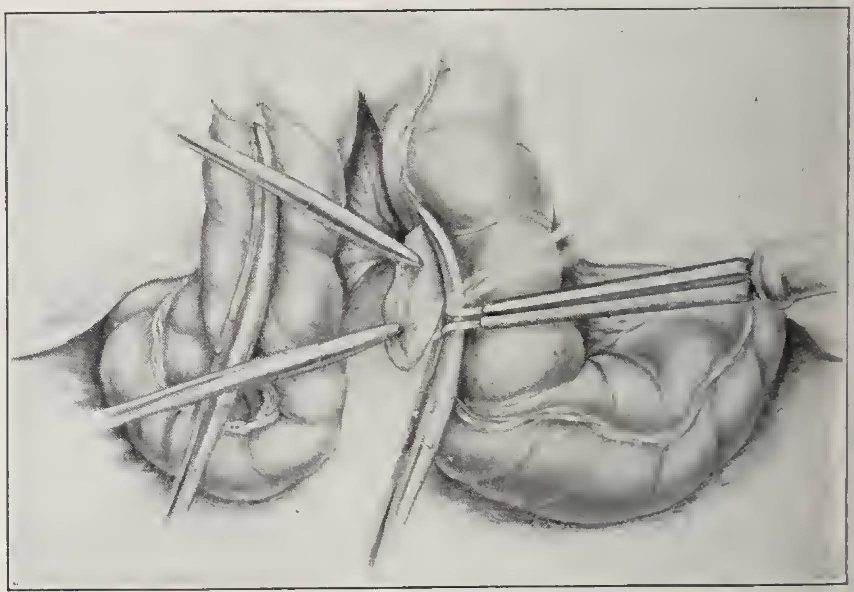

Fig. 20.—Basting stitch method of anastomosis: end-to-end anastomsis; crescent of free border being excised with cautery.

Dr. Foster K. Collins, Los Angeles: I have been greatly interested in aseptic intestinal anastomosis. Surgeons are demanding some technic that is aseptic, and methods of end-to-end anastomosis, in order to avoid stasis later on. In December, 1922, I published in the *Annals of Surgery* a technic that differs from Dr. Kerr's in that it is simpler, safer and quicker, and involves less handling of the intestine. The important point is to ligate the vessels to the intestine and the resection is done where the circulation is demonstrated to be good. At the points selected for resection the intestine is crushed lightly. In this crushed tract I tie tightly about the intestine a simple loop of strong, light tape. Then I place over this ligature a moderate size Kocher clamp with its tip at the mesenteric border of the intestine. The clamp so placed remains until all suturing has been completed. It prevents the cautery from burning the ligature, and after the portion of intestine is resected by cautery, the two clamps are held in one hand approximating the ends perfectly for end-to-end anastomosis with no handling of the remaining intestine. With this method there is no cuff to be turned back; there is no chance of leakage at any stage of the operation. After suturing, the clamps are loosened and pulled out between the stitches, and a purse-string suture closes the point where they were removed. The looped ligatures are then easily removed by a gentle pull as they protrude between the stitches, fully opening the lumen of the bowel.

Dr. R. C. Coffey, Portland, Ore.: I want to raise a protest at the recommendation of end-to-end anastomosis as a general rule. The earlier years of my work were devoted entirely to dog surgery. I went through all this experimental work with end-to-end anastomosis, by suture and with the Murphy button, and after doing nearly 1,000 experimental operations I decided that an end-to-end anastomosis was not as safe as a side-to-side anastomosis and that the Murphy button was even more unsafe. What is the trouble with the lateral anastomosis? You say that it dilates. When does it dilate and why? It is not the distal segment that dilates, it is the proximal segment. You put two ends of the intestine together side by side and it is the proximal end that dilates because the peristaltic waves come down from above and produce a dilatation. The distal segment does not become dilated. You must, therefore, protect the proximal blind end by oversuturing, shortening and covering it with omentum, thus preventing dilatation. In that way can be prevented the dilatation that has been the bane of lateral anastomosis which is a safer operation in the hands of the average operator.

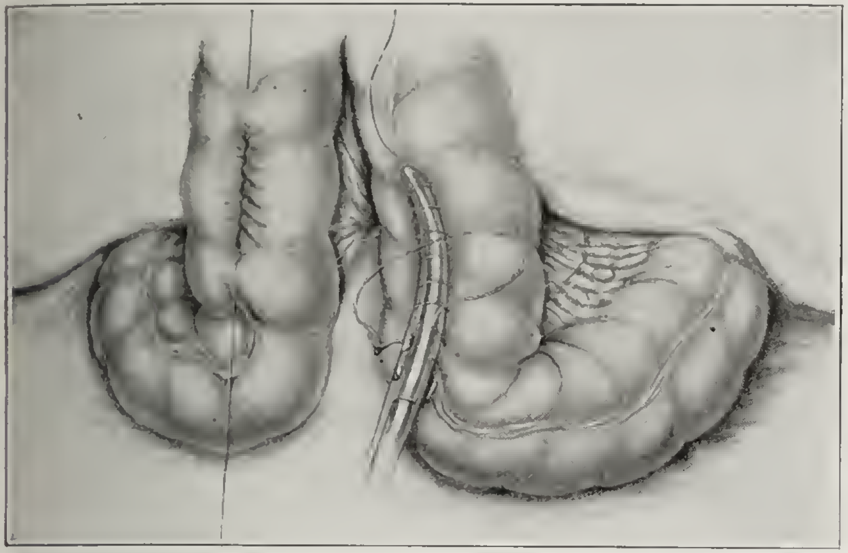

Fig. 21.—Basting stitch method of anastomosis: side-to-side anastomosis; basting stitch applied.

Dr. Harry H. Kerr, San Francisco: In view of Dr. Coffey's discussion, the presentation of this method of intestional anastomosis is worth while. I feel very definitely that the modern demand is for surgery that follows the laws of physiology. Side-to-side anastomosis should be discarded, except for rare cases when circumstances may demand it. Aseptic end-to-end anastomosis, with the inversion of the intestinal walls, circular suture of the fibrous coat and a stoma that is larger than the original diameter is the ideal to which we should aim.

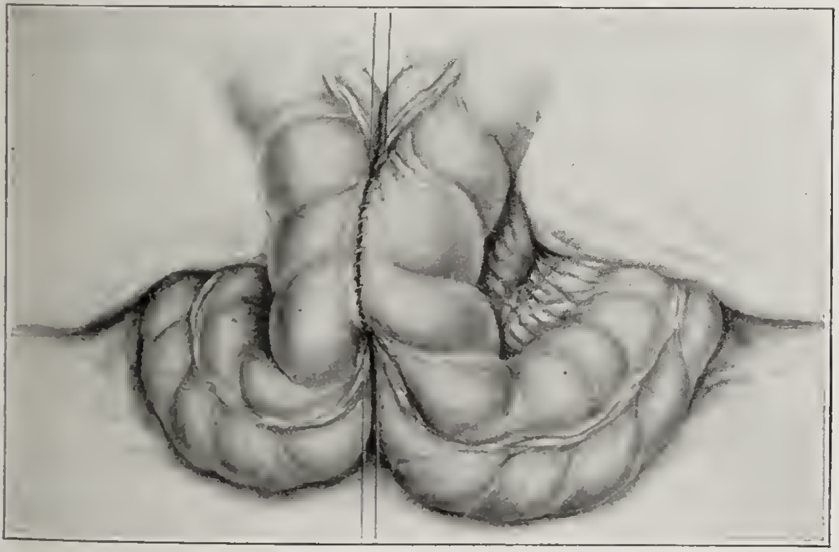

Fig. 22.—Basting stitch method of anastomosis: side-to-side anastomosis; anastomosis complete; basting stitch not yet withdrawn.

FUNGOUS DISEASES OF MAN IN THE STATE OF NEBRASKA

SPOROTRICHOSIS; BLASTOMYCOSIS; ACTINOMYCOSIS *

MICHAEL G. WOHL, M.D.
OMAHA

It is rather surprising that the study of fungi has received comparatively little attention, although the early demonstration of micro-organisms as the etiologic factor of disease was the discovery of a fungus by Schoenlein in 1839, in a case of favus. Even today, the occurrence of diseases caused by pathogenic fungi is considered very rare, which is probably due either to mistaken diagnosis or to failure of men to report these cases. The committee on statistics of the American Dermatological Association reports[1] the occurrence of blastomycosis in 1921 as 0.4 per thousand (or twenty-one cases out of the total of cutaneous cases reported), and sporotrichosis, 0.1 per thousand (or six cases out of the total number of cases reported). The ratio of these diseases is practically identical with those of 1916 or the period 1898-1911.

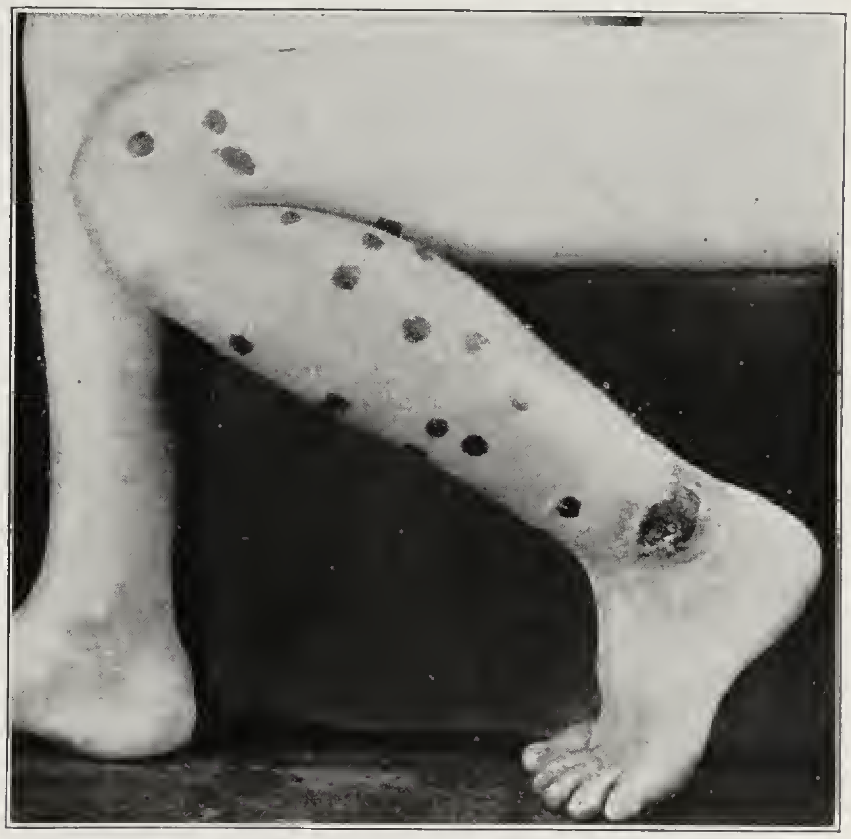

Fig. 1 (Case 2).—Lesions of sporotrichosis.

The Middle West constitutes the main source of supply of these cases. The number of reported cases is, however, too small to give a true estimate of its occurrence. Within the last five years there came under my observation eleven cases of fungous disease all from the state of Nebraska. Other cases of fungous disease reported from Nebraska have been compiled from the literature; the essential points of these are given in the table (Cases 1 to 8).

Through letters sent to representative men of the profession and by means of the state medical journal, I was able to compile nine additional unpublished cases,

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* Because of lack of space, this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the author's reprints.

* Read before the Section on Pathology and Physiology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

[1] Pollitzer, Sigmund: Report of the Committee on Statistics of the American Dermatological Association for the Year 1921, Arch. Dermat. & Syph. **7**: 99 (Jan.) 1923.

as analyzed in the table (Cases 9-17). The total number of cases is twenty-eight, including my cases.

The criteria that I adhered to for placing the cases in this group are: (1) the bacteriologic demonstration of the causative micro-organism; (2) the clinical appearance of the lesions, and (3) the course of the disease. Sixty-eight cases communicated to me were eliminated from this study because the causative organism was not demonstrated in the lesions, although in more than half of these cases the lesions healed under potassium iodid, yet from the description given they might equally well have been infectious granulomas.

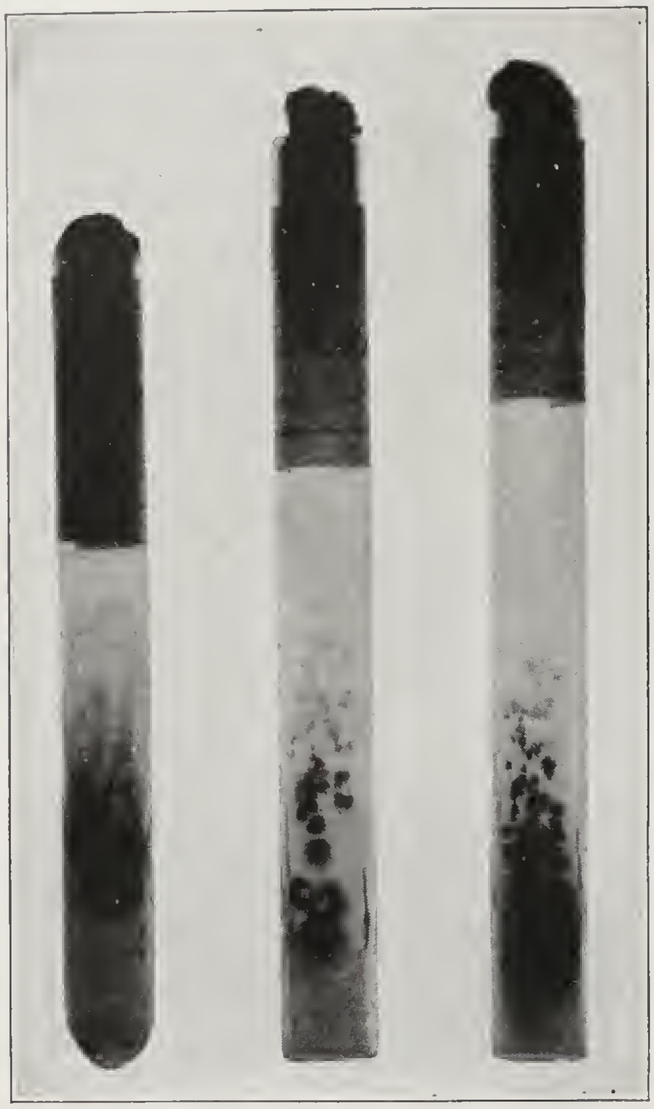

Fig. 2.—Glucose agar cultures of sporotricha: The colonies have a wrinkled appearance; dark brown pigment formed within the course of eight days.

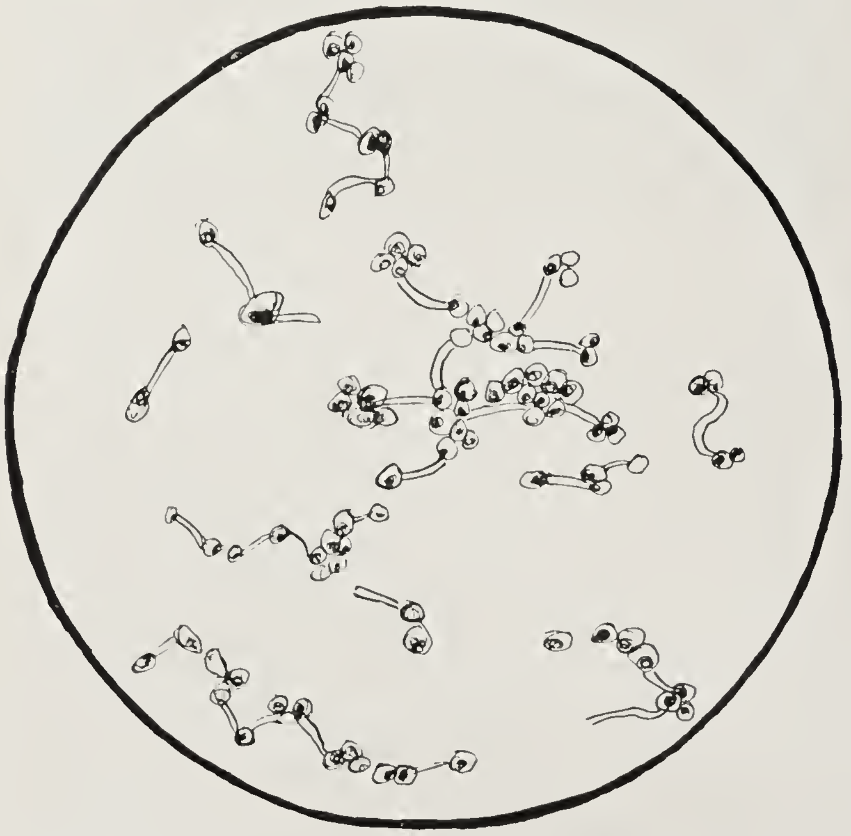

Fig. 3.—Hanging drop preparation from bouillon culture in sporotrichosis.

Under the name of fungous diseases or oidiomycosis may be included: (1) sporotrichosis, (2) blastomycosis, (3) actinomycosis and (4) coccidioidal granuloma.[2] These diseases are considered conjointly because, clinically, they present a more or less similar picture, and are often mistaken for such diseases as tuberculosis, syphilis or epithelioma; secondly, therapeutically they yield in the great percentage of cases to heavy doses of potassium iodid. They are occasioned by fungi which, although having fine points of differentiation, yet possess characteristics common to all.

SPOROTRICHOSIS

Sporotrichosis has been known since 1898; although first described in America, the exact bacteriologic aspects of the disease have been thoroughly worked out by European investigators, among whom de Beurmann and Gougerot[3] have contributed largely; hence the name of the organism, *Sporothrix beurmanni.* The first cases in this country were described by Schenck.[4]

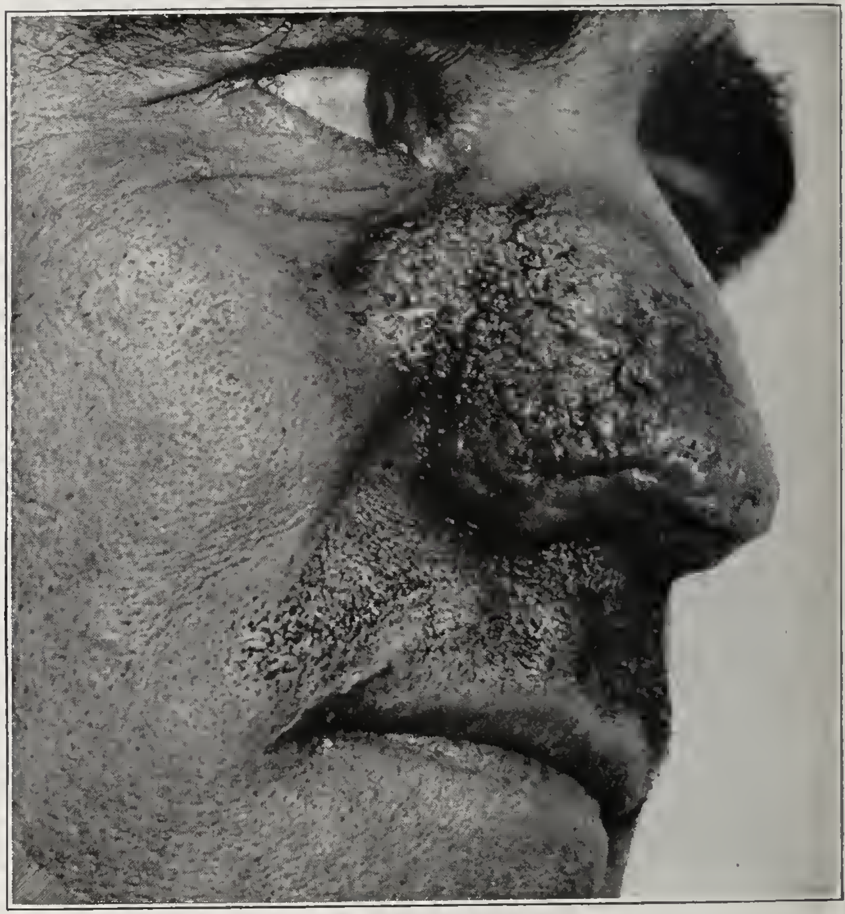

Fig. 4 (Case 8).—Skin lesions of blastomycosis.

The condition primarily affects the skin, involvement of internal organs and generalized septicemia being unusual. In the group of my cases, involvement of the upper extremities was predominant; in one patient, the left lower extremity was primarily involved.

Case 2.—F. A., school girl, aged 8 years, a patient of Drs. Tyler and Blackman, had been noticed by her mother, six weeks previous to consulting a physician, to have a red spot the size of a half dollar on the external malleolus of the left ankle. A week later a "pimple" formed in the center. It increased in size, and at the end of two weeks it broke open and discharged a thick, yellow material. When the patient was first seen she had an ulcer the size of a silver dollar over the left outer malleolus. The base of the ulcer presented a granulating surface with the edges thickened. There were eighteen nodules along lymphatics from the ankle to the groin. The nodules were the size of a cherry, movable under the skin, and rather painful. The mother stated that the girl had struck her ankle against a door several days before the spot was noticed, and that a break in the skin had resulted. A smear obtained from the primary lesion was studied unstained, with the addition of a drop of 10 per cent. potassium hydroxid, also stained by dilute carbolfuchsin. The smear showed elongated, sausage-like and filamentous forms; along the sides of the filaments there were oval, refractile bodies. Stained smears showed pus cells and filaments of sporotricha. Cultures showed staphylococci. The blood of the patient gave agglutination with a known sporotrichum culture in a dilution of 1:80; the macroscopic method was employed. The child was placed on potassium iodid and roentgen-ray treatment used locally. The lesion completely disappeared within four weeks.

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[2] The last named disease is not treated in this paper, since no case of coccidioidal granuloma was observed in the state.

[3] De Beurmann and Gougerot: Les sporotricoses, Paris, 1912.

[4] Schenck, B. R.: Bull. Johns Hopkins Hosp. **9**: 286, 1898.

The disease seems to be of early life, the youngest patient in our series being 9 years of age, and the oldest 41. The male sex predominated. The lesions started with the formation of a hard nodule, in three cases the primary origin being at the wrist, in one the little finger of the right hand, and in one the left ankle. The odules at first were painless until they ruptured, forming punched out ulcers; two patients complained of ain at the primary site; secondary nodules formed long the subcutaneous lymphatics. The largest numer of the nodules was eighteen; the average number, even. The nodules were somewhat hard in consistency, nd not tender to the touch; the size of the nodules aried from that of a pea to that of a large olive. It a remarkable fact that the true condition of these ases was unrecognized until the bacteriologic examiation was made; the lesions invariably became ggravated after they were curetted. Material for icroscopic study was obtained by means of sterile ypodermic syringes from the nodules. It has been y experience that the search for the organism in the rimary sore, the so-called "chancre," is attended with ttle success. Direct slides are best studied by appliation of 10 per cent. sodium hydroxid solution; other lides are stained with a weak solution of carbolfuchsin. n one case the direct smear showed short filaments, ith refractile bodies interspersed in the meshes of the lamentous forms.

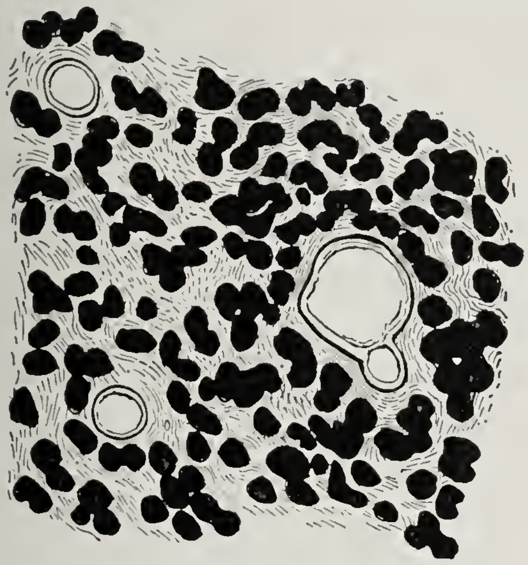

Fig. 5.—Direct smear from pus from blastomycotic lesion.

Cultures were made on glucose agar, Loeffler's edium and glucose bouillon; within four or five days ere appeared on the solid mediums small, white colnies, which later became wrinkled and leathery. In the broth there were white, cotton-like flakes; smears from solid mediums showed mycelia with many spores adherent. The organisms stained rather deeply with weak carbolfuchsin and Gram stain. Colonies on all of the solid culture tubes of four cases have become pigmented in the course of from eight to ten days, the pigment varying from light brown to a dark chocolate. The pigment was firmly attached to the medium, penetrating it to some depth, so that in removing it one had to tear the medium. The cultures from two of our cases failed to show pigmentation.

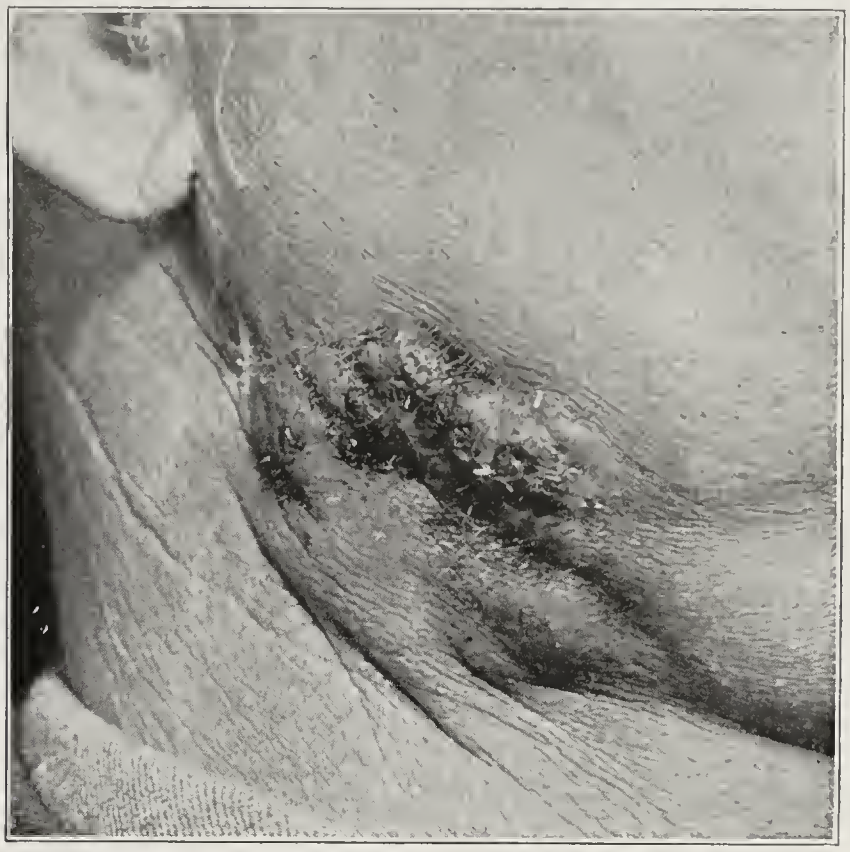

Fig. 6 (Case 9).—Actinomycosis of right submaxillary region.

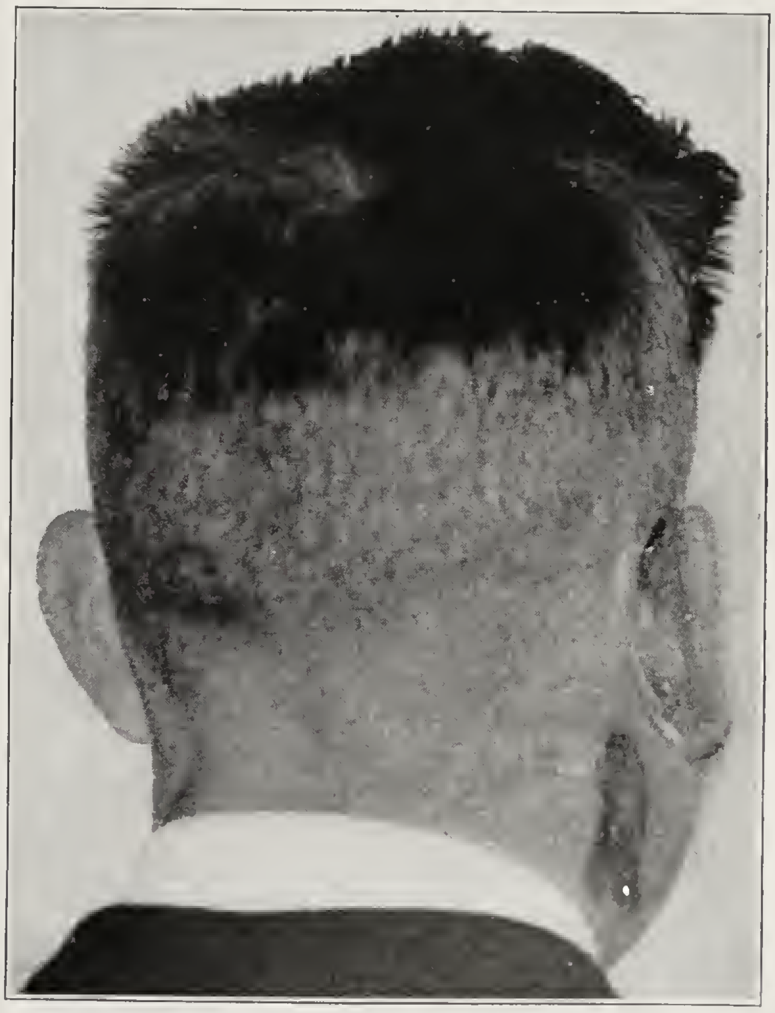

Fig. 7 (Case 10).—Actinomycosis.

Gougerot, Matrouchot and others[7] have utilized the characteristics of pigment formation as well as the formation of chlamydospores (unusually large sized spores) and that of pleomorphism to differentiate the American species—*Sporothrix schenckii*—from that of the European, *Sporothrix beurmanni*.

From the study of my cultures and from the publications of Trimble, Hamburger, Davis[8] and Meyer and Aird,[5] it appears that these characteristics, particularly that of pigmentation, are not always absent in the American species, and, as Meyer and Aird have suggested, the organism is best called *Sporothrix beurmanni-schenckii*.

The slowness of the progress of the disease is undoubtedly accounted for by the formation of immune bodies. In three cases we obtained a definite agglutination of sporotricha with patient's serums in dilutions of 1 : 200, 1 : 100 and 1 : 80, respectively. In a fourth case (Dr. Gifford's) the agglutination proved slightly positive in a dilution of 1 : 10 on several occasions, although cultures showed a luxuriant growth of nonchromogenic sporotricha. This method has been suggested as a practical aid in the diagnosis of the disease.

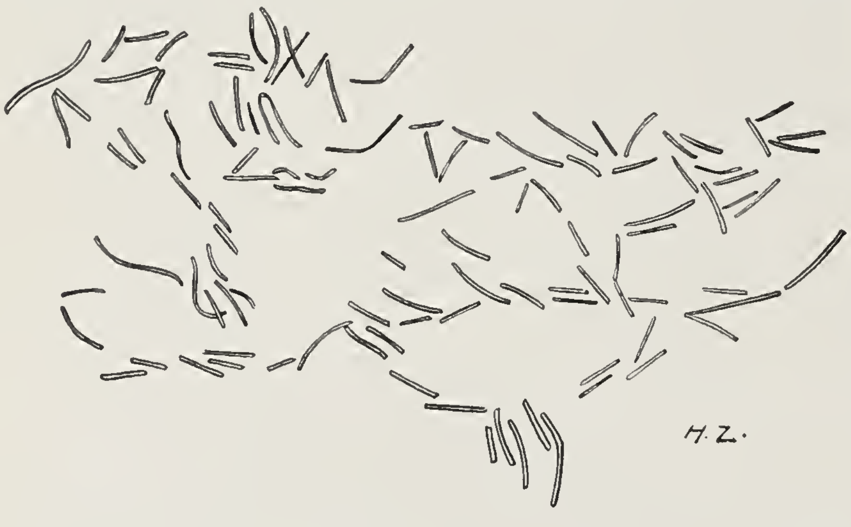

Fig. 8.—Direct smear from pus from actinomycotic lesion, showing mycelial structures.

BLASTOMYCOSIS

Since Gilchrist,[9] in 1894, described the first case of blastomycosis occurring in America, numerous investigators have made an intensive study of the condition. It is noteworthy that the majority of cases published in the early literature occurred in Chicago and its vicinity (Wells, Hyde, Montgomery and others); hence the name "Chicago disease." The number of cases involving the skin first predominated; yet, as Osler[10] states, involvement of the internal organs occurs in 40 per cent. of the cases. The actual presence of the organisms in the blood has been demonstrated. Bushke obtained pure cultures from the blood in his case, and Irons and Graham found blastomycetes in the blood vessels and microscopic sections.[11] Among the internal organs most frequently involved are the lungs, pleura and bones.

Involvement of the meninges, brain, kidney, testis and prostate have been observed. The systemic cases are 90 per cent. fatal, the patient usually dying with the clinical picture of tuberculosis.

Bearing in mind that the lesions in systemic blastomycosis consist of areas of consolidation and abscesses, and that the clinical symptoms are cough, expectoration of a sanguinopurulent material, fever which is highest at night, emaciation and asthenia, one can readily understand how a case of blastomycosis can be diagnosed as one of pulmonary tuberculosis.

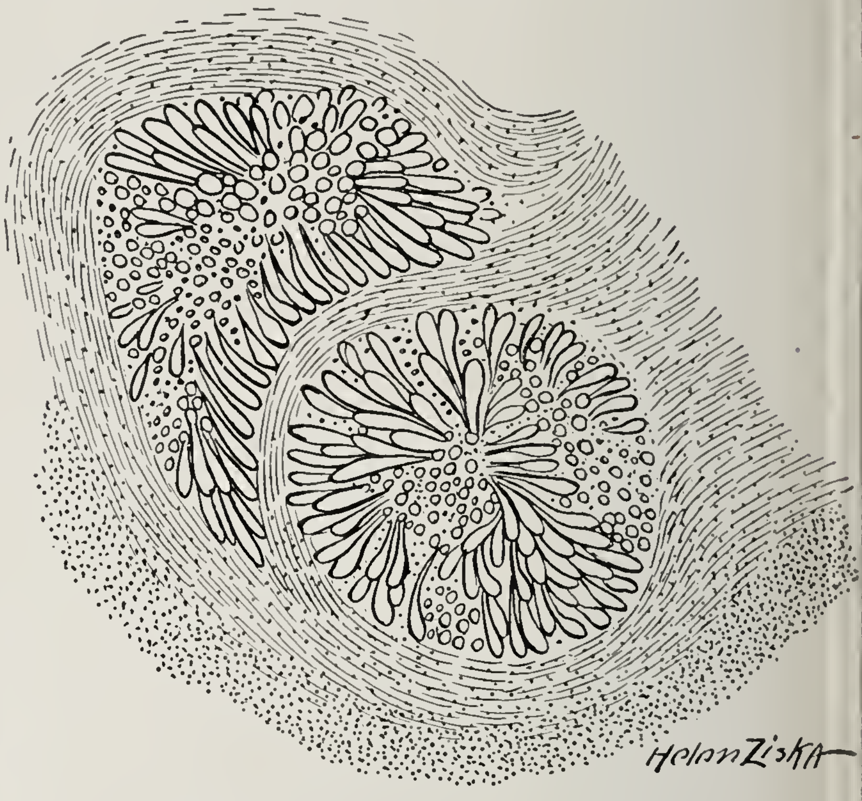

Fig. 9.—Crushed granules of Actinomyces.

The ultimate diagnosis rests on a microscopic examination of the sputum, mixed with potassium hydroxid. The fungi may also be demonstrated in the feces and urine as well as in the sputum.

The clinical picture of the skin lesions are illustrated by the three cases that came under my observation.

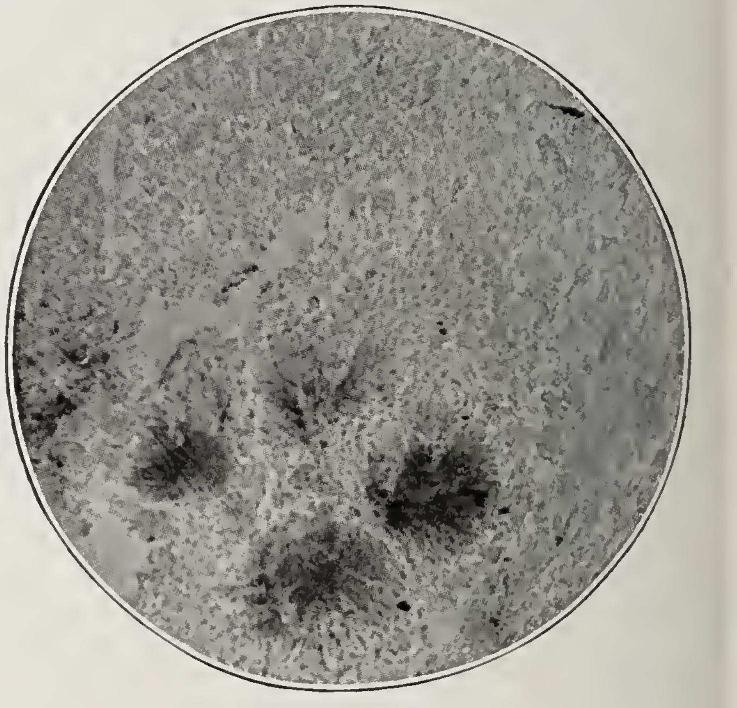

Fig. 10.—Ray fungus in tissue.

Case 8.—C. E. R., a man, aged 40, a farmer, patient of Dr. Alfred Schalek, had always enjoyed good health until this illness. In July, 1922, while plowing, he was hit in the face on the right side of the nasal region; an abrasion resulted which kept getting larger until it spread to the whole right side of the nose and extended to the right cheek. He appeared to be in good health except for the lesion. It was red, raised and of papillomatous character. Along its edges there were multiple minute abscesses; the patient complained of some pain and itching in the right side of the face. When the lesion was pressed, there exuded a thick, tenacious pus. Direct slides were made by Dr. Schalek, to which a few drops of 20 per cent. potassium hydroxid solution were added, and blastomycetes were easily demonstrated on the slide. Cultures were not made.

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[7] Quoted by Meyer, K. F., and Aird, J. A.: Infect. Dis. **16**: 399, 1915.

[8] Cited by MacLean, E. H.: An Additional Case of Sporotrichosis, J. A. M. A. **69**: 1774 (Nov. 24) 1917.

[9] Gilchrist: Bull. Johns Hopkins Hosp. **7**, 1896.

[10] Osler: Modern Medicine **1**: 1053.

[11] Cited by Hektoen, Ludvig: Systemic Blastomycosis and Coccidioidal Granuloma, J. A. M. A. **49**: 1071 (Sept. 28) 1907.

The patient was placed on potassium iodid internally, and local applications of 1 per cent. copper sulphate solution. The lesion healed sluggishly. The roentgen ray was used in addition, and within six weeks from this time the lesion healed. March 13, the patient showed a nodule the size of a pea about one-half inch from the primary nodule; it was painless and reddened. A drop of pus which exuded from it revealed, on microscopic examination, double refractile bodies of the blastomyces type. Treatment was resumed, with good results.

Cases of Fungous Disease Reported from Nebraska

Author and Reference	Patient's Age	Patient's Sex*	Occupation	Location of Lesion	History of Trauma	Duration of Symptoms	Bacteriologic Findings	Comment
1. Gifford, Harold: Ophth. Rec. **19:** 573 (Nov.) 1910	18	♀	Housemaid	Left eye; conjunctiva	None	4 mo.	Cultures revealed nonpigmented sporothrix	The author relates five more cases; the lack of bacteriologic evidence, however, prevents their being classed as cases of sporotrichosis
2. McLean, E. H.: J. A. M. A. **69:** 1774 (Nov. 24) 1917	33	♂	Laborer	Neck below left ear	None	?	Pigment forming sporothrix in culture	Duration of symptoms not known; patient, from South Dakota, disappeared after diagnosis; patient had lesions three weeks before consulting physician
3. Dermody, L. A., and McMartin, Charles: J. A. M. A **63:** 1028 (Sept. 19) 1914	35	♀	Housewife; lives on farm	Middle finger of left hand	None	5 mo.	Culture showed nonpigmented sporothrix	
4. Watson, E. A.: Nebraska M. J. **7:** 282 (Aug.) 1922	25	♀	Housewife; lives on farm	Left arm	None	8 mo.	Culture showed sporothrix	Author reports four aditional cases that came from same territory within a radius of 20 miles; It is to be regretted, however, that no bacteriologic examination was made, nor is the description of the clinical picture convincing enough to place them in the class of sporotrichosis; in the case cited the author informs me the word "spores" in the text should read "sporothrix."
5. Gifford, S. R.: Arch. Ophth. **51:** 540 (Nov.) 1922	8	♂	School boy	Left lacrimal sac	None	6 mo.	Sporothrix schenckii in culture	The author mentions briefly two other ocular cases, but demonstration of sporothrix was unsuccessful
6. Mullin: Western M. Rev. **13:** 482, 1908	36	♀	Housewife; lives on farm	Left molar region	None	6 mo.	Blastomyces demonstrated in direct smear	
7. Langdon, J. F.: Nebraska M. J. **7:** 172 (May) 1922	41	♂	Laundryman	Index finger	Yes	4 mo.	Blastomyces demonstrated in smears	
8. Baskin, M. J.: J. A. M. A. **78:** 1367 (May 6) 1922	35	♂	Farmer	Left hand	None	1 mo.	Ray fungus demonstrated in direct smears	
9. C. G. Moore (Fremont) Personal communication	22	♂	Laborer, feeding cattle	Right inguinal gland	None	2 mo.	Cultures showed nonpigmented sporothrix	Seven nodules
10. C. D. Eby (Leigh) Personal communication	55	♀	Housewife	Ring finger, right hand	Yes	3½ mo.	Smears and cultures showed sporothrix	Six nodules; injured while washing dirty clothes
11. J. Burghoff (Omaha) Personal communication	47	♂	Launderer	Index finger, left hand	Yes	3 mo.	Cultures showed pigmented sporothrix	Twelve nodules
12. C. G. Moore, Personal communication	25	♂	Farm hand	Right forearm	None	10 wk.	Cultures showed sporothrix	Six nodules
13. R. Reed (McCook) Personal communication	16	♂	Farmer boy	Dorsum, right hand	None	3 mo.	Cultures showed sporothrix	Three nodules
14. J. M. Willis (McCook) Personal communication	20	♀	Works on farm	Left hand	None	3 mo.	Cultures showed sporothrix	Fifteen nodules
15. F. Clark (Omaha) Personal communication	8	♂	School boy	Index finger, left hand	None	2 mo.	Culture showed sporothrix	Six nodules
16. W. I. Devers (Upland) Personal communication	26	♂	Garage man	Neck, right side	None	8 wk.	Blastomyces demonstrated in cultures	Small abscesses in vicinity of lesion
17. A. F. Tyler (Omaha) Personal communication	18	♂	Farmer	Left side of face	None	8 mo.	Actinomyces bovis demonstrated in smears	Lump under angle of inferior maxilla

* In this column, ♂ denotes male; ♀, female.

The first and second cases (Cases 6 and 7) yielded good results under the classical treatment of Bevan,[14] 1 per cent. copper sulphate solution locally and increasing doses of potassium iodid internally. To be effective, the iodids are to be given in large doses; the second patient took 300 grains (19.5 gm.) a day for many days, and only once showed symptoms of iodism.

The material obtained from the lesions of these patients was studied in fresh slide preparations made by adding 20 per cent. sodium hydroxid solution, and also stained with weak gentian violet. Cultures were made on glucose agar, which medium was found to give the best results. Cultures were obtained in Cases 6 and 7.

The stained slides revealed oval bodies from 10 to 15 microns in size; they appeared in pairs, and several of them showed budding. The central part of the organism was granular. The capsule in the unstained slides appeared refractile.

It was rather difficult to obtain pure cultures, as they showed staphylococcic and diplococcic contamination.

In Case 6, I succeeded in getting a pure culture after eight platings, using high dilutions. After the fifth day the pure growth showed colonies that were at first yellowish white and glistening; later they assumed rather a wrinkled appearance; they were firmly adherent to the agar medium. Slides made from colonies revealed budding cells intermixed with mycelial filaments. In Case 7, no pure culture was obtained.

A piece of tissue obtained from the lesion in Case 6 showed the stratum malpighii hypertrophied, sending out finger-like projections into the corium, much as in epithelioma. Polymorphonuclear leukocytes were scattered within and between the epithelium. In some places they accumulated, and, with the addition of fragments of nuclei, detached epithelial cells and giant cells, they formed abscesses. The corium was also the seat of inflammatory changes.

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[14] Bevan, A. D.: Treatment of Actinomycosis and Blastomycosis with Copper Salts, J. A. M. A. **45:** 1492 (Nov. 11) 1905.

Patient 6 was a farmer; he lived in very unhygienic conditions; on visiting his place I found moldy boards piled up in an old shack in the back yard where he was doing odds and ends. No history of injury could be elicited from him. Patient 7 was employed in a laundry sorting soiled clothes; while working, he caught his index finger between two barrels, bruising the finger and tearing off part of the nail. Patient 8 was injured with an old plow while working in the field.

It would appear logical to assume, as Stober [15] suggested, that the origin of the disease is from natural molds, since the latter are easily grown on moist paper, cotton, boards, etc. Injury seems to offer a place of least resistance or offers an opportunity for direct inoculation. It is interesting to note that blastomycetes are very resistant, and may persist in healed lesions and resume activity either on discontinuation of treatment or when the patient's resistance is lowered.

In our last two cases, after the lesion healed treatment was discontinued; six weeks later the lesion at the elbow recurred in Case 7. After the patient had been placed for two weeks on potassium iodid, the lesion cleared up. In Case 8, a recurrent lesion formed two months after the primary sore healed. The resistance of blastomycetes to drying was clearly demonstrated by the fact that I was able to start fresh subcultures from pure cultures four months old which were practically dry.

Since it has been shown that fungi produce antibodies,[16] skin tests with suspension of blastomycetes have been suggested by Stober,[17] and complement fixation tests using suspensions of organisms as an antigen have been suggested by me. I must admit, however, that these tests are rather unnecessary in the skin cases, since, in the latter, blastomycetes can be successfully demonstrated. In internal blastomycosis, in which the lesions are inaccessible, the serologic tests might prove of distinct aid in the diagnosis of the condition.

ACTINOMYCOSIS

Actinomycosis is rather a rare disease, yet it has been recognized for years. Bollinger,[18] in 1877, gave the first accurate description of the disease in cattle; one year later, Israel [19] gave the clinical description of actinomycosis in man. It remained for Ponfick [20] to demonstrate the identity of bovine and human actinomycosis; since that time much has been written on the subject, and cases of actinomycosis occurring practically in every organ and tissue of the body have been reported.

The parts of the body affected, in order of their frequency, are the head and neck, infection taking place through the mouth and pharynx; the chest, through the respiratory tract, and the abdominal viscera, through the alimentary tract.

The cases under my observation belonged to the first group. In two of them the infection could be definitely traced to a primary sore on the inside of the mouth; in the third case no history of injury or any primary sore inside the buccal cavity could be demonstrated. Although it has been asserted [21] that actinomycotic infection arises from within the individual and probably from carious teeth or infected tonsils, I failed to find any organisms resembling true *Actinomyces* in material obtained from the tonsillar crypts of my patients, or from their carious teeth found at the time they were under observation. If the former statement were true, it can be readily seen that actinomycosis would occur more frequently.

It is true that one may often find mycelial filaments in the cheesy particles obtained from tonsillar crypts, yet on further identification one is soon convinced that they belong to the nonpathogenic aerobic genus of *Nocardia,* and not to the true anaerobic "ray fungus" of the bovine type. Since the alveolar margin near a carious or erupting tooth presents a vulnerable place, the former constitutes a predisposing factor in this sense only.

The exact method of infection has not as yet been clearly proved, yet it would seem that the theory of the infection being conveyed to man largely from a vegetable source, such as barley beards, the hard portion of grain, or grasses is still the logical one.

Two of my patients gave a history of being in the habit of using straw as a toothpick, and the third patient, being a mail carrier, had to go through weeds that touched his face in his daily route, infection being carried into the tissues by the vegetable matter.

It is interesting to note that there is no positive evidence of infection of human beings from eating meat or consuming milk or milk products from infected cattle.

The clinical and pathologic aspects of the disease can be illustrated by the following cases:

Case 9.—J. A., a farmer, aged 58, patient of Dr. Shearer, had been perfectly well until the latter part of June, 1922, when he received an injury to his jaw; it resulted in a fracture of the lower maxillary bone; usual surgical treatment was instituted; in the course of from seven weeks to two months, the fracture healed. The patient stated that there was no case of lumpy jaw in his cattle at this time; however, he admitted being in the habit of using a straw as a toothpick. About the latter part of November, 1922, he noticed a small boil on the right side of the upper part of the neck about half an inch from the midline; this sore enlarged and became the size of a "cherry pit." At the same time he noticed a lump the size of a marble in the right submaxillary region; it was not painful or tender to the touch. The skin over the lesion was not inflamed. The smaller sized lesion was painful; it opened spontaneously, and a bloody discharge exuded from it. The lump under the jaw continued to enlarge until it reached the present size.

When the patient presented himself he was healthy, with no subjective symptoms, and with negative constitutional findings except for the right side of his neck. On this side there was a swelling the size of a walnut. The swelling was of rather hard consistency, and slightly tender. The skin was purplish. At the center of the mass there was a small discharging sinus. Pressing on the lesion caused a thick material, containing white granules, to exude; the finding of these so-called "sulphur bodies" in the pus is characteristic. Organized tissue substance like epithelial pearls in an infected carcinoma might be mistaken for them.

Some of these bodies were crushed on a slide with a cover slip after addition of 10 per cent. potassium hydroxid solution. The examination of the slide with the high power revealed a central pale area, radiating from which were clublike formations presenting a daisy-like appearance. The crushed granule, stained by the Gram method, showed many filaments of varying lengths irregularly arranged.

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[15] Stober, A. M.: Arch. Int. Med., April, 1914.

[16] Kolmer, J. A., and Strickler, Albert: Complement Fixation in Parasitic Skin Diseases, J. A. M. A. **64**: 800 (March 6) 1915.

[17] Stober, A. M.: Systemic Blastomycosis, Arch. Int. Med. **13**: 509 (April) 1914.

[18] Bollinger: Centralbl. f. med. Wisschensch. **34**: 789, 1877.

[19] Israel: Arch. f. Path. Anat. & Phys. **74**, 1878.

[20] Ponfick, Emil: Die Actinomycosis, Berlin, 1882.

[21] Lord, F. T.: The Etiology of Actinomycosis, J. A. M. A. **55**: 1261 (Oct. 8) 1910.

Stab cultures were made in glucose agar. At about 2 cm. from the surface of the tube, colonies appeared; they were spherical and whitish; after four days, radiating filaments appeared from the central colonies. Stained smears from the culture showed long and short filaments. No club formation was noticed.

It is interesting to note that agglutination tests made with cultures of *Actinomyces* failed to give positive results even in as low a dilution as 1:20. The patient was placed on heavy doses of potassium iodid, and simultaneously the roentgen ray was applied locally. He completely recovered at the end of two months.

Case 10.—B., a mail carrier, aged 25, patient of Dr. Hyde, had always enjoyed good health until about three months before, when he noticed a swelling of the right side of his face, the swelling being about one-half inch from the inner border of the right ear and just below it. He stated that he remembered having his face scratched by tall weeds, about two weeks previously, in passing through them on his daily route. The swelling began to enlarge and caused him considerable pain. When I saw him, about seven weeks after the initial symptoms, he appeared to be healthy constitutionally; there was no fever and there was no abnormal physical findings except for the swelling, which after a while extended to the right submaxillary triangle; the skin over the swelling was reddened and of rather firm consistency. There were two openings just below the ear, from which serosanguineous material escaped.

Stained smears of the discharge showed many branching filaments. After making a wide opening, I succeeded in obtaining a few granules that gave the picture described in Case 9. Cultures were unsuccessful on account of the presence of contaminating bacteria. Immunologic reactions were not carried out. Bits of tissue were obtained from the sinus and run through by the paraffin method. Mallory's modified Gram and hematoxylin-eosin methods of staining were used. The tissue showed areas of necrosis, in the center of which were seen ray fungi. At the periphery of the areas were many round cells, among which epithelioid cells predominated. The swelling was incised and irrigated with surgical solution of chlorinated soda (Dakin's solution) as suggested by Baskin.[22] The irrigation was continued for a month. Locally, the roentgen ray was used.

The patient had made a complete recovery at the end of six weeks.

Case 11 illuminates the point that the so-called sulphur granules, which really more closely resemble fish eggs, and are not always yellowish, so characteristic of the disease, are not always present in the pus; the findings of the mycelia in the pus and the tendency of the condition to advance through all tissues, with the formation of fistulous tracts, should attract one's attention as to the existence of actinomycosis.

CONCLUSIONS

1. Fungous diseases occur more commonly than assumed; they are frequently overlooked.
2. Lesions of nodular character that fail to yield to ordinary surgical treatment should be investigated bacteriologically for the presence of fungi.
3. Of the three diseases described, sporotrichosis is by far the most frequent.
4. In my experience, surgical intervention, especially curettage, has aggravated the lesions, while they readily yield to potassium iodid internally, compound solution of iodin, and copper sulphate solution, as well as the roentgen ray locally.

517 City National Bank Building.

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[22] Baskin, M. J.: Primary Actinomycosis of the Skin, J. A. M. A. 78: 1367 (May 6) 1922.

ACTINOMYCOSIS OF THE ABDOMINAL WALL *

HENRY ALBERT, M.D., and J. B. HARDY, M.D.
RENO, NEV.
AND
J. W. HARRISON, M.D.
GUTHRIE CENTER, IOWA

Reports of cases of actinomycosis of the abdominal wall are so rare, and the features are so significant, that the recording of two new cases and a brief discussion of the subject seems to us to be worth while.

Actinomycosis of the abdominal wall is probably always secondary to the involvement of the gastro-intestinal tract, chiefly in the region of the appendix or cecum. Nevertheless, there are cases in which the first symptoms, at least those of a focal or localizing type, are referred to the abdominal wall rather than to some organ within that cavity. In other cases, the involvement of the wall is so extensive, as compared to that within the cavity, as entirely to overshadow the latter.

REPORTS OF CASES

Case 1 (by J. W. H.).—K. S., a girl, aged 11, had initial symptoms of acute appendicitis. Jan. 29, 1917, the third day of illness, a perforated, gangrenous adherent appendix was removed and free drainage established in the usual manner. The wound refused to heal properly. It would close for a few days at a time, and then again open up and discharge pus. Five months after the first operation, a second one was performed, the incision being made in the median line. At this time, a large amount of necrotic tissue and pockets of pus, producing a somewhat honeycombed condition of the abdominal wall, were found. After a short period of improvement, fever again appeared, and the left thigh became flexed. Three months after the second operation, another median line incision was made, and a well defined psoas abscess on the left side was opened up. This abscess communicated by means of a sinus with the old drainage area. Examination of the pus (by H. A.) revealed the presence of *Actinomyces bovis*. The appendix, which had been removed eight months previously, was then examined, and the ray fungus also found there. The primary focus of the actinomycotic infection was probably in that organ. During the following eight months, the patient was treated at the University Hospital in Iowa City. During this time, the patient received large doses of potassium iodid, a number of abscesses involving practically all portions of the abdominal wall were opened, and the wounds were irrigated with solutions of copper sulphate. Roentgen rays were also used. The condition of the patient slowly but gradually became worse. She died Sept. 19, 1917—one year, seven months and twenty-one days after the appearance of the first symptoms. No necropsy was performed.

Case 2 (by J. B. H.).—E. E. S., a man, aged 36, a truck driver, July 10, 1922, came to the office complaining of a severe pain in his abdomen. He had worked all day. He had not felt well for several months, but had not missed a day's work. Five days previously, he had sustained a sharp blow on the abdomen from the crank of an automobile. Since then, he experienced continuous and increasing pain.

The temperature was 101.4, the pulse 118. The skin was cold and clammy, and there was every appearance of intense infection. The entire lower right side of the abdomen was hard, tender and resistant. About 3 inches below the umbilicus, a fluctuating mass 2 inches (5 cm.) in diameter was found.

The patient was taken to a hospital and prepared for an immediate operation. When the abdominal wall was opened at McBurney's point, a profuse flow of pus was encountered at the depth of the sheath of the rectus. Pressure on the fluctuating mass below the umbilicus accelerated the flow of pus

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* Read before the Section on Pathology and Physiology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

from the original incision. With a blunt probe, a sort of sinus posterior to the right rectus, connecting the original incision with the lesion in the median line, was followed.

The median line lesion was then opened, and thorough drainage between the two incisions was established. The pus evacuated at that time was not measured, but it was estimated to be 28 ounces (828 c.c.).

From both incisions, the drainage continued to be profuse. The dressings were changed at least twice a day during the entire course of the disease.

July 18, a swelling appeared over the right Poupart's ligament. When it was opened, about 12 ounces (355 c.c.) of thick pus was encountered.

From July 18 until the time of death, no new openings were made, but occasional probings into the honeycombed area of sinuses in the right lower quadrant seemed to increase the flow of pus.

Leukocyte counts were made every few days during the entire course of the disease. The total white count varied between 17,000 and 22,000. Several cultures were made. A pure culture of staphylococcus was obtained July 24. A specimen of pus examined by one of us (H. A.), August 9, showed *Actinomyces.*

The temperature curve between the date of admission and August 21, three days before death, was normal in the morning and from 101.4 to 104.6 in the evening. After August 21, the temperature was continuously subnormal until death.

The pulse varied between 110 and 140; it was of fair quality, and the heart sounds remained normal.

Frequent examinations of the urine were made during the course of the disease. Slight traces of albumin were always present.

The patient's appetite remained fair. No intra-abdominal symptoms appeared. There was no general peritonitis, and no severe pain was ever complained of. The liver was somewhat enlarged. Increase or decrease of drainage seemed to exhibit no influence on pulse or temperature. The terminal stage was an extreme overwhelming sepsis. Death occurred, August 24, one month and nineteen days after the appearance of the first symptoms.

NECROPSY (BY H. A.)

The body was markedly emaciated, with very little subcutaneous fat. Three abdominal skin wounds with gauze drainage discharged a slight amount of pus of a distinctly fecal odor. The omentum was practically free from fat and markedly adherent to the pelvis, and on the right side. The peritoneum, where not adherent, was smooth and shiny, except in the pelvic cavity, where it was covered with flakes of fibrin.

The abdominal wall contained a number of tortuous channels from 0.5 to 1 cm. in diameter. These were intercommunicating, making, in some places, a network so thick as to produce a honeycombed appearance. These occasionally expanded into small abscesses. The channels and abscesses contained a thick, creamy pus in which, when spread out in a thin layer, small yellowish bodies (ray fungus) were visible. The lining wall of the channels was pink. The sinus-like channels were found in the connective tissue, chiefly subperitoneal, but also intermuscular and subcutaneous. The breaking up of adhesions between the omentum and the abdominal wall and intestines and between the several coils of adherent intestines in the right iliac region exposed quite a number of tortuous sinuses containing pus.

Posterior to the ascending colon, and extending up to the liver, was a large abscess well walled off. The appendix was short, thick, light colored and firmly adherent, extending posteriorly and upward. It was nodular, and contained a small perforated opening near the cecum. The outer lining of the cecum and ascending colon was rough, and in places slightly necrotic, as a result of the extension of the process from without inward. The mucosa was normal except for a small ulcer in the cecum adjacent to the opening of the appendix. *Actinomyces* was found in the wall in such places.

The liver was enlarged, its lower border extending 8 cm. below the border of the ribs, and to within 2 cm. of the umbilicus, and 2 cm. below the crest of the ileum. The lower third of the right lobe of the liver was soft. Section disclosed this portion to be made up of small intercommunicating abscesses with only a delicate remnant of liver tissue between them. The portion of the liver involved by the purulent process measured 13 by 12 by 8 cm.

The posterior portions of both lungs were firm in consistency, almost air free, dark red, and containing a number of light colored subpleural nodules measuring from 1 to 5 mm. in diameter. Other portions of the lungs were normal.

The pleurae were smooth and free from adhesions. The right cavity contained 90 c.c., and the left, 100 c.c. of clear, light, straw-colored fluid.

The diaphragm was normal and free from adhesions on both sides. The kidneys were cloudy and swollen. The other organs were normal.

Actinomyces was found in the pus from the sinuses of the abdominal wall, in the cecum, in the abscesses of the liver and in the miliary nodules of the lungs. Staphylococci were also found at all of these sites. Colon bacilli were found in the abdominal wall sinuses.

COMMENT

The literature contains reports of but few cases of actinomycosis involving the abdominal wall. One case each has been reported by Lange[1] Ruhräh,[2] Van Der Veer and Elting,[3] Harris,[4] Keefe,[5] Chipman,[6] Bevan,[7] Choyce,[8] Israel,[9] Cope,[10] Ramstad[11] and McCalla.[12] Seven cases of abdominal wall involvement were included in the recent report by Brogden[13] of fourteen cases of actinomycosis of the gastro-intestinal tract.

The large amount of loose connective tissue—subperitoneal, intermuscular and subcutaneous—appears to serve as a predisposing factor in the more extensive involvement of this tissue and portion of the body than occurs at the primary sites of infection, such as the intestine or the jaw.

The part of the abdominal wall usually involved first is the right lower quadrant overlying the appendiceal-cecal region. Exceptions are the development of abscesses in the prevesical region,[4] vaginal region[13] and umbilical and vaginal regions.[1]

Multiple sinus openings occurred in both of our cases, as well as in most of the other reported cases.

The initial symptoms may be of an acute nature. In some cases, they correspond to an acute appendicitis (Case 1). Cases in which the involvement of the abdominal wall has been preceded, for from two weeks to four years, by symptoms of general abdominal distress or pain have been reported by Ramstad[11] (two weeks), Cope[10] (two months); Van Der Veer and Elting[3] (three months), and Brogden[13] (four years).

Abscess formation in the abdominal wall without previous symptoms especially referable to the abdominal cavity occurred in the second of our cases, and also in the case reported by Chipman.[6]

Traumatism appears to have played a part in initiating the development of the first symptoms in the second of our cases, and in the case reported by Bevan.[7]

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2. Ruhräh, J.: Actinomycosis in Man, with Special Reference to the Cases Which Have Been Observed in America, Ann. Surg. **30:** 417 (Oct.-Dec.) 1899.
3. Van Der Veer, A., and Elting, A. W.: A Résumé of the Subject of Actinomycosis, with Report of a Case of Actinomycosis Abdominalis, M. Rec. **30:** 109, 1902.
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5. Keefe, J. W.: Intestinal Actinomycosis, Am. J. Obst. **79:** 13-18 (Jan.) 1919.
6. Chipman, W. W.: The Clinical Aspect of Actinomycosis, Montreal M. J. **34:** 93-98, 1905.
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9. Israel, J.: Seltener Fall von Aktinomykose, Deutsch. med. Wchnschr. **39:** 2378, 1913.
10. Cope, V. Z.: A Clinical Study of Actinomycosis, with Illustrative Cases, Brit. J. Surg. **3:** 55-81, 1915-1916.
11. Ramstad, N. O.: Actinomycosis, Journal-Lancet **36:** 732-735, 1916.
12. McCalla, A. J.: Actinomycotic Infection, with Case Reports, Canadian M. A. J. **9:** 411-420 (May) 1919.
13. Brogden, J. C.: Actinomycosis of the Gastro-Intestinal Tract: A Study of Fourteen Cases, J. Lab. & Clin. Med. **8:** 180 (Dec.) 1922.

he traumatism in each case occurred about four days revious to the development of the more acute symptoms. It probably acted by hastening the invasion of he part by secondary pyogenic micro-organisms.

SUMMARY AND CONCLUSIONS

1. Actinomycosis of the abdominal wall is a rather are condition, although greater use of the diagnostic aboratory indicates that it is not so rare as the few ases reported in the literature would lead us to believe.

2. Although probably always secondary to involvement of the gastro-intestinal canal, chiefly the appendix nd cecum, the fact that in some cases the first symptoms are referable to the abdominal wall, and that in thers the wall is very extensively involved, warrants pecial consideration of the subject.

3. The first symptoms may be referable to the development of an abscess in the abdominal wall, or to an cute appendicitis, or they may be in the nature of ndefinite abdominal symptoms of distress.

4. The abdominal wall is usually involved first in the wer right quadrant. The region overlying the appendix is the portion chiefly involved, although in some ases the abscess has made its first appearance in the egion of the umbilicus, and in others, in the vagina.

5. The process extends by burrowing small channels bout 1 cm. in diameter in the subcutaneous, subperineal and intermuscular connective tissue. In places, rger abscesses are formed, which, if not opened by cision, will perforate the skin. In either case, a sinus hich discharges pus and which has little tendency to eal is formed.

6. Actinomycotic granules should be looked for henever an abdominal sinus persists in spite of free rainage. The condition becomes very suspicious henever an abscess secondary by extension by way a burrowing channel develops, in spite of free drainge of the primary abscess. Still greater suspicion ould be aroused if, in addition to the conditions menoned, the liver becomes enlarged.

7. To establish a diagnosis, the pus should be diluted ith water to see if light, yellowish granules are present. The gauze drains should likewise be washed. If cessary, the lining wall of the sinus should be curetd. The finding of other micro-organisms should not ter one from making a determined search for the y fungus.

8. The treatment consists of opening up the scesses, establishing free drainage, irrigating the scesses and sinuses with solutions of copper sulphate, d administrating orally large doses of potassium lid.

9. The prognosis depends largely on the establishnt of an early diagnosis and the institution of the oper treatment in a vigorous manner. At best, the ognosis is unfavorable. Lange[1] and Bevan,[7] hower, have reported cases which, at the time of reportg, had apparently recovered.

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nfant Mortality in United States for 1922.—Infant mority rates for 1922, on the whole, balance those of 1921, only of twenty-five states showing higher rates in 1922 than 1921. The highest 1922 infant mortality rate (105) appears the cities of South Carolina, and the lowest (55) for the al district of Nebraska. Infant mortality rates shown for h years for fifty-one cities of 100,000 population or more 1920 are in nineteen of these cities lower in 1922 than in 1, the highest rate (107) appearing for Trenton and the est (50) for Seattle.—*Public Health Rep.* **38**:1638 (July 1923.

DISTRIBUTION OF ACTINOMYCOSIS IN THE UNITED STATES *

ARTHUR H. SANFORD, M.D.
ROCHESTER, MINN.

The last compilation of cases of actinomycosis in America was published by Erving[1] in 1902, who reported 100 cases, including the cases in Ruhräh's[2] very complete study, made in 1899. In 1921 I presented, with Magath,[3] before the Minnesota State Medical Association, a review of 119 collected cases in the United States and ninety-six cases that had been observed in the Mayo Clinic. This number did not seem to us to represent all the cases of actinomycosis that had been recognized in this country. We believed, also, that the paucity of reports in the literature had kept alive the idea that actinomycosis is a rare condition. I decided, therefore, to collect from as many sources as possible, reports of all types of the disease in this country.

Formerly we followed the suggestion of J. Homer Wright[4] and other writers as regards nomenclature, calling *Actinomyces* only an organism of the type *Actinomyces bovis* forming typical "sulphur granules" with club-shaped rays, not acid-fast, and growing with difficulty in cultures, usually anaerobic. Our previous report was made only on patients that were definitely infected with organisms of this type, the term "nocardiosis" being applied to the disease in which the infection was caused by so-called nocardia or streptothrix or any of the actinomycetes that grow aerobically and are acid-fast. However, the Committee on Nomenclature[5] of the American Society of Bacteriologists, in its final report, has recommended that all organisms of this type be now classified under the generic name *Actinomyces*.

There have been many interesting controversies regarding the classification of these organisms, and little progress has been made in straightening out the tangles that have arisen through mistakes in description of individual strains and from false nomenclature. It seems best to follow the recommendation of the Committee on Nomenclature, and to classify as belonging to the genus *Actinomyces* those organisms growing with much branching mycelia which may break up into segments that function as conidia, sometimes parasitic, with clubbed ends and radiating threads in the lesions of the animal body. The organism is nonmotile, and certain species are micro-aerophilic or anaerobic. It must also be said that some of the actinomycetes are acid-fast, while others are not acid-fast. When an organism that can be classified in this genus is found in the tissues or discharges, the disease must be called actinomycosis.

With this criterion, then, the literature in the United States has been searched as thoroughly as possible. Many titles in no way suggest that the disease is actinomycosis, and sometimes none of the obsolete synonyms, streptothrix, cladothrix, oospora, discomyces, actinocladothrix, that have been used at various times for this organism appear. Probably there are still buried in the literature cases of actinomycosis that may not have been diagnosed as such, but which could be so classified from the description of the unusual organism that had been found. We have been able to find 209 cases of actinomycosis that have been reported heretofore in American literature.

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* From the Section on Clinical Pathology, Mayo Clinic.

* Read before the Section on Pathology and Physiology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

[1] Erving, W. G.: Actinomycosis Hominis in America, with Report of Six Cases, Bull. Johns Hopkins Hosp. **13**: 261-268, 1902.

[2] Ruhräh, John: Actinomycosis in Man, with Special Reference to the Cases Which Have Been Observed in America, Ann. Surg. **30**: 477-451, 605-631, 722-746, 1899.

[3] Sanford, A. H., and Magath, T. B.: The Etiology and Laboratory Diagnosis of Actinomycosis, Minn. Med. **5**: 71-79 (Feb.) 1922.

[4] Wright, J. H.: The Biology of the Micro-Organism of Actinomycosis, J. M. Res. **13**: 349-404, 1904.

[5] Committee Report: The Families and Genera of the Bacteria, J. Bacteriol. **5**: 191-229, 1920.

Table 1.—*Actinomycosis in the United States*

Region and State	Published Cases	Unpublished			Total	Total for Regions	Veterinarian's Statistics
		Personal Letters	Health Officer	Hospitals			
New England:							
Maine	..	2	4	..	6	..	Fraction of 1 per cent. in cattle
N'w Hampshire	..	..	..	..	..	..	Occurs, but not prevalent
Vermont	..	..	..	1	1	..	One case in twenty years
Massachusetts	21	2	48*	..	71	..	Forty-six cases in five years
Rhode Island	1	..	..	1	2	..	
Connecticut	..	1	3	2	6	..	
Totals	22	5	55	4	86	86	
No. Atlantic Coast:							
New York	40	7	..	17	64	..	Forty-four cases in 1921, on western border
Pennsylvania	13	1	5	2	21	..	
New Jersey	3	1	..	..	4	..	
Delaware	..	..	..	1	1	..	
Maryland	12	..	..	35†	..	..	
Dist. Columbia	1	..	..	..	1	..	
Totals	69	9	5	55	138	138	
So. Atlantic Coast:							
Virginia	3	..	..	7	10	..	
No. Carolina	3	..	..	..	3	..	
So. Carolina	..	1	..	..	1	..	
Georgia	..	1	..	..	1	..	Only in feeder cattle shipped in from Texas
Florida	..	1	..	..	1	..	Forty cattle in 87,151 cattle examined
Totals	6	3	..	7	16	16	

* No data on thirteen of these.
† Data to be published from Johns Hopkins Hospital.

An attempt was made to collect, from representative sources in all parts of the United States, reports of unpublished cases of actinomycosis. Letters were sent to the health officers in every state in the Union, and many interesting replies were received, indicating the great difference in the various portions of the country as regards the reportability of the disease. In this manner, eighty-seven unpublished case reports were obtained. Likewise, letters were sent to the larger hospitals and to all of the existing medical schools in the country, with the result that 148 additional case reports were obtained. A letter requesting information on the subject of actinomycosis was published in The Journal, in the various state medical journals, and in many dental journals. The response from these requests for information was most gratifying, ninety-nine cases being reported. A total of 334 unpublished cases was collected. There has been an increasing number of cases of actinomycosis at the Mayo Clinic during the last fourteen years. Up to the present there have been 160 diagnosed. Twenty-five of these, however, are from Canada and are not included in this statistical study. New,[6] of the clinic, is making a report at this time on 107 cases of actinomycosis of the head and neck that he has seen. New and Figi[7] have reported cases of actinomycosis of the tongue observed by them. Brogden,[8] of the clinic, reported fourteen cases of abdominal actinomycosis. Since then there have been eight cases, making a total of twenty-two cases of actinomycosis of the abdominal type seen at the Mayo Clinic. Moersch[9] has reviewed cases of actinomycosis of the central nervous system and reported three. In recent years there has practically never been a time that a case of actinomycosis in some form could not be seen at the clinic.

Data were obtained concerning nearly 700 cases in the United States, and it is probable that there are many more than this. Complete protocols of the reports of these cases, obtained from various sources, have been arranged geographically and will be published elsewhere as a geographic index of the disease. A brief summary of the data thus obtained may be of interest from the standpoint of the distribution of actinomycosis in the United States. For convenience, the states have been grouped in the usual geographic manner; the distribution of actinomycosis in these regions is as follows:

In the six New England states (Table 1) there were eighty-six cases; special attention is directed to the state of Massachusetts. The count given is for the total number of cases in the health officers' reports, but the data are complete in only thirty-five. The disease has been reportable in Massachusetts since

Table 2.—*Actinomycosis in the United States*

Region and State	Published Cases	Unpublished			Mayo Clinic	Total	Total for Regions	Veterinarian's Statistics
		Personal Letters	Health Officer	Hospitals				
East Central:								
Michigan	7	1	3	8	2	21	..	No data; very little among cattle
Ohio	9	..	..	4	4	17	..	Not rare, only sporadic
West Virginia	1	1	..	..	..	2	..	
Indiana	1	2	1	..	7	11	..	
Kentucky	1	..	..	..	..	1	..	
Totals	19	4	4	12	13	52	52	
Mississippi Valley:								
Illinois	34	..	1	10	5	50	..	
Wisconsin	10	16	4	2	8	40	..	
Minnesota	4	10	8	1	24	47	..	
Iowa	9	11	..	..	17	37	..	
Missouri	2	3	..	5	7	17	..	
Totals	59	40	13	18	61	191	191	
Northwest Central:								
Kansas	4	10	2	1	1	18	..	
Nebraska	2	4	..	..	4	10	..	30% of herds; 2% of total cattle, probably infected
North Dakota	6	1	1	22	13	43	..	
South Dakota	..	2	..	..	22	24	..	
Totals	12	17	3	23	40	95	95	
Southern:								
Tennessee	1	1	..	3	..	5	..	Very prevalent; 80 cattle in herd of 100
Arkansas	1	1	..	..	..	2	..	Probably fraction of 1%
Alabama	1	..	..	2	..	3	..	None
Mississippi	..	..	..	3	..	3	..	
Oklahoma	3	4	..	4	1	12	..	
Louisiana	..	..	..	2	..	2	..	
Texas	2	..	3	2	1	8	..	
Totals	8	6	3	16	2	35	35	

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[6] New, G. B.: Actinomycosis of the Head and Neck: Report of One Hundred and Seven Cases, to be published.

[7] New, G. B., and Figi, F. A.: Actinomycosis of the Tongue, Am. J. M. Sc. **143**: 507-517 (April) 1922.

[8] Brogden, J. C.: Actinomycosis of the Intestinal Tract: A Study of Fourteen Cases, J. Lab. & Clin. Med. **8**: 180-189 (Dec.) 1922.

[9] Moersch, F. P.: Actinomycosis of the Central Nervous System, Arch. Neurol. & Psychiat. **7**: 745-752 (June) 1922.

1907. The well-known studies of Wright,[4] in the Massachusetts General Hospital, and the interest in the disease in Massachusetts undoubtedly account for the accurate diagnoses in this state.

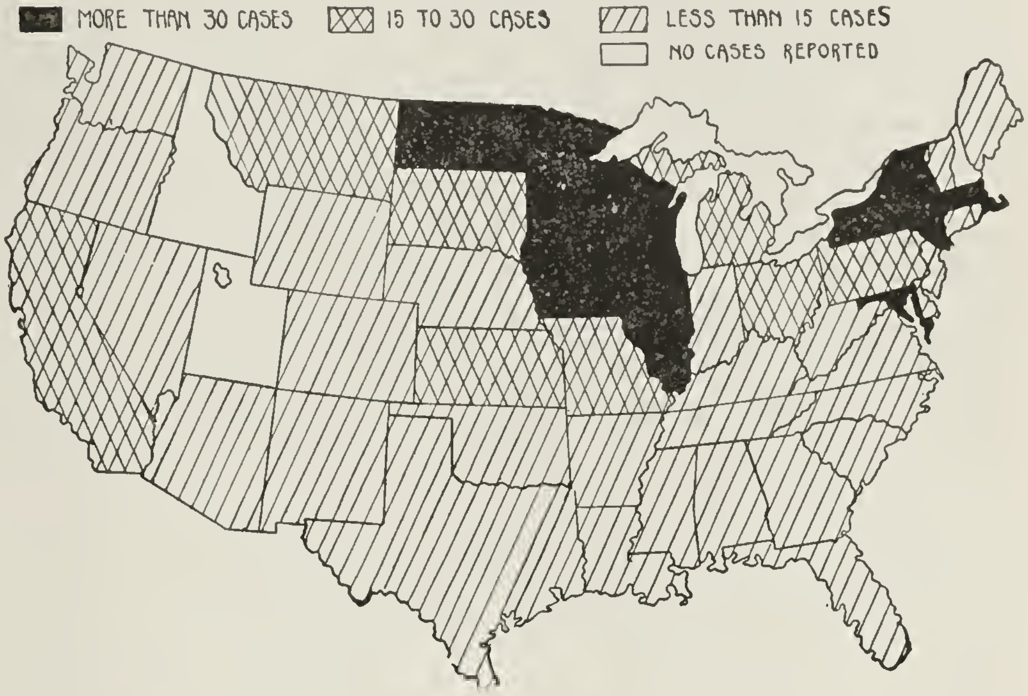
In the North Atlantic coast states there have been 103 cases reported, including one case from the District of Columbia. The states of New York, Pennsylvania and Maryland have furnished a large amount of material. Here, again, it should be observed that accurate diagnoses in the large medical centers may be largely responsible for the apparent increase in the number of cases in the states mentioned in this region. Also, the population in these states is very large. The South Atlantic coast states furnished only sixteen cases.

The Central states, for convenience, are divided into the East Central, the states of the Mississippi Valley, and the Northwest Central states. In the five states composing the east portion of the Central states there were fifty-two cases. In the Mississippi Valley portion, composed of Illinois, Wisconsin, Minnesota, Iowa and Missouri, there were 191 cases. In the northwest portion of the Central states there were ninety-five cases reported. One hundred and one of the 161 Mayo Clinic patients are resident in these two portions of the Central states. The seven Southern states—Tennessee, Arkansas, Alabama, Mississippi, Oklahoma, Louisiana and Texas—report thirty-five cases; the Plateau states furnished data for thirty-seven. The three states of the Pacific coast have reported twenty-eight cases (Tables 2 and 3).

Table 3.—*Actinomycosis in the United States*

Region and State	Published Cases	Unpublished Personal Letters	Unpublished Health Officer	Unpublished Hospitals	Mayo Clinic	Total	Total for Regions	Veterinarian's Statistics
Plateau States:								
Montana	?	6	3	..	13	22	..	Very interesting letter; 0.25% infected
Idaho	..	..	..	..	..	..	..	
Wyoming	..	1	..	1	1	3	..	
Nevada	..	2	..	..	..	2	..	
Utah	..	..	..	..	..	..	..	Widely distributed; more prevalent in lowlands
Colorado	1	3	..	2	1	7	..	
Arizona	1	..	..	..	1	2	..	
New Mexico	..	..	1	..	..	1	..	Very rare; probably not more than one in 10,000
Totals	2	12	4	3	16	37	37	
Pacific Coast:								
California	9	2	..	7	..	18	..	Not uncommon in Sacramento and San Joaquin valleys
Oregon	..	1	..	..	1	2	..	
Washington	3	..	..	3	2	8	..	Not prevalent; mostly on range east side of mountains
Totals	12	3	..	10	3	28	28	
Total for United States							678	

It is evident that the Central states have furnished he greatest number of cases. However, considering he individual states, Massachusetts leads. New York tate, with its large population and its numerous medcal centers, comes next. Illinois, with fifty cases, is hird. It should be recalled that the first case of ctinomycosis in the United States was reported from Illinois by Murphy. While the disease has been of interest in Chicago ever since, the number of cases reported probably does not represent the number of cases that have been seen in the various hospitals and clinics of that state. Minnesota has the next largest number of cases, forty-seven having been reported from this state. Twenty-four of these were seen in the Mayo Clinic. The order in the other states is: Wisconsin, forty; Iowa, thirty-seven; South Dakota, twenty-four; Montana, twenty-two; Michigan, twenty-one; California, eighteen; Ohio, seventeen; Oklahoma, twelve; all other states have reported a lesser number. The only states that have not reported at least one case are New Hampshire, Idaho and Utah. It seems probable that the disease exists in the last two states at least.



Distribution of actinomycosis in the United States.

An important factor in the consideration of the distribution of actinomycosis is the population of the various states. Sixty-four cases in nearly forty years in New York state, which has a population of ten million, is, after all, proportionately only about a tenth the number that forty-three cases represent in North Dakota, where the population is only 650,000. With this in mind, it is even more apparent that the disease is much more often diagnosed in patients living in the Central and Plateau states. The only exceptions are Massachusetts and Maryland, where interest in the disease has been paramount in the large medical centers.

In order further to study the distribution of actinomycosis in this country, the veterinarian of each state was asked for information concerning this disease in cattle. The general impression in the New England states is that "lumpy-jaw" is not common in cattle. The state of Vermont has had one case in the last twenty years. The state of Massachusetts has had only forty-six cases in the last five years. The State Department of Farms and Markets of New York reports that in the year ending June 30, 1921, there were forty-four cases reported in that state, principally in the western part next the Pennsylvania line. The disease, however, seems not to be as prevalent as in years past. It would seem then that in the North Atlantic states the disease among cattle is very well controlled. In the South Atlantic states, actinomycosis in man and beast seems to be a rare disease. In Florida the state veterinarian reports that only forty of 87,151 cattle examined had the disease, about four for each 10,000. In Georgia it is claimed that the disease is not found except in feeder cattle shipped from Texas. The eastern portion of the Central states does not seem to be troubled. The statistics from the state veterinarians in the Mississippi Valley states furnished little information regarding the distribution of the disease. The state veterinarian of Nebraska, of the northwest portion of the Central states, says that 30 per cent. of the herds, or probably 2 per cent. of the total cattle, are probably infected. In the Southern states, while actinomycosis is not common in man, there is a considerable difference of opinion as to the prevalence of the disease among cattle. In Alabama it is said that there is no actinomycosis; in Arkansas, probably a fraction of 1 per cent.; in Texas it is prevalent, and in Tennessee it is most prevalent. The state veterinarian of Tennessee has seen as many as eighty cattle infected with actinomycosis in a herd of 100. The state veterinarian of New Mexico says that it is very rare in the Plateau states, probably not more than one in 10,000. In Utah, actinomycosis is widely distributed, being more prevalent in the lowlands and where the forage is rough. Since the introduction of downy brome grass, or *Bromus tectorum*, there has been more infection. In sections where straw is consumed and where bearded grain is grown, the disease is quite prevalent.[10]

One of the most interesting letters received was from W. T. Butler of Helena, Mont., state veterinarian, who believes that the condition exists in practically every section of Montana. He says:

> I have seen it in dairy cattle as well as in range cattle, only we find a much greater percentage of range cattle affected, and in certain districts we find it much more prevalent than in other districts.
>
> Years ago when I spent most of my time on the range, this condition was very prevalent in the Musselshell country, and also on the Crow Indian Reservation, and apparently more so in the cattle that ranged around the Big Horn River. I can remember very clearly that, when an outfit shipped out of Custer, the Indians always followed the wagon, knowing that most of the "lumpy jaws" would be cut out and given to them. They ate these particular animals with apparent relish.
>
> I was talking to an old range man the other day, and the question of lumpy jaw came up. It was his observation, and it has been my observation, that this disease is less prevalent today than in the past; but why it is less prevalent we are unable to determine, unless it is due to the fact that cattle are pastured and fed hay more than in the past. . . .
>
> On a rough guess, I would say that probably less than 0.25 of 1 per cent. of our cattle are affected with actinomycosis.

It would not be practicable in this paper to give a complete review of the clinical data concerning these cases. Briefly, in these 678 cases it was found that the disease is either acute or chronic and located in every part of the body mentioned in the classical work of Poncet and Bérard,[11] except the esophagus and lacrimal ducts, and in many rare locations that these authors do not mention. The most common locations, in the order of incidence, are the head and neck, the abdomen and the thorax. The extremities, pelvic organs, genitalia, central nervous system and, in fact, any portion of the body, may be the seat of infection. Eighty per cent. of the cases occurred in males. It is a disease usually of young adult life, although the cases of one infant aged 28 days and two men aged 82 years were reported. There were twenty-two patients between the ages of 1 and 10 years and seventy-one between 10 and 20. Actinomycosis is, therefore, to be considered in childhood and youth. Occupation is not important, since only 50 per cent. of the patients were really in contact with cattle or in occupations that would predispose to the infection. If it is considered that man and beast obtain their infection from a common source, it may be surmised that any individual who is careless about chewing straws, twigs, grasses or grains, or who is neglectful in the care of his mouth and teeth, may thus be readily infected.

CONCLUSIONS

Actinomycosis is distributed widely in this country, being especially prevalent in the upper Mississippi valley and the northwest portion of the country. It is far more common than one is led to believe from the scattered reports that have appeared in the American literature. This fact should make all physicians more alert in the diagnosis of the disease, which is very easily made from a microscopic examination of the discharges. The public generally might be warned of the danger of chewing straws, weeds and grain, as a possible means of infection with *Actinomyces*. Much is yet to be learned, however, with regard to the source of infection in man and animals, and also much is to be done in the proper classification and the bacteriologic investigation of the different species in this group.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. WOHL; ALBERT, HARDY AND HARRISON, AND SANFORD

Dr. **David J. Davis**, Chicago: I recall seeing some years ago a case of abdominal actinomycosis in a woman, aged about 19. There were abscesses in the lower part of the abdomen involving both ovaries. They were about the size of an orange. On the right side, the fallopian tube also was involved, and in it were found typical actinomycotic granules. These abscesses were removed surgically. They were intimately related to the abdominal wall. This young woman recovered or, at any rate, she was quite well a year and a half after the operation. The appendix was not involved in this case. I recall looking up the literature at that time, and I think there were recorded twenty-one cases of actinomycosis of the female genitalia. Most of them came apparently from the intestinal canal, some from the rectum, and some from the appendix. Since there was not a necropsy made in this case, it was not possible to determine the exact origin of the infection; presumably, however, it was the intestinal canal.

Dr. **H. E. Robertson**, Rochester, Minn.: There is one point about actinomycosis not only of the abdominal wall but also of other parts of the body that I think needs more attention than it has received in literature; namely, the fact that the primary lesion of actinomycosis not only is not always demonstrated, but cannot always be demonstrated. Dr. Davis mentioned that a necropsy had not been performed, and consequently the primary lesion could not be determined. It is quite possible that even if the necropsy had been performed the primary lesion could not have been determined. I have in mind a case we had at the Mayo Clinic in which actinomycosis was demonstrated in the liver. Going back in the history of the man's case, we found that he had had appendicitis; his appendix was removed, and there was a scar in the abdominal wall following this procedure. It was immediately taken for granted that the source of this actinomycosis of the liver was the appendix; but the appendical region was absolutely clean; the appendical wound was clean; the cecum was clean; in fact, there were fewer adhesions than usually follow such a surgical procedure; there was not a sign of actinomycotic or other lesion remaining behind. I do not see any reason for selecting the appendix so uniformly as the source of origin. There is no reason why the actinomycosis organism should not go through the mucosa of the intestinal tract at any point. As a matter of fact, in the case mentioned, the duodenum was fastened extremely closely to the liver, whether as the result of the actinomycosis or as the cause of it, I could not say, but it is quite possible that it was the cause of it. Another thing we have to bear in mind is that in tuberculosis, for example, we cannot always demonstrate the primary source of entrance of the infection. It may find entrance through any mucous surface, circulate for a long time, perhaps, or rest for a long time, perhaps, and finally find a locus in which it can set up its growth activities. Hence, when we try to demonstrate the point of entrance, there may be no lesion seen and the place where actinomycosis finally locates is the place where it can grow best. The same is true of cancer, sarcoma and other diseases of that type; and we must recognize this when we are talking about primary foci of disease.

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[10] Stephensen, W. A.: Personal communication to the author.

[11] Poncet, A., and Bérard, L.: Traité clinique de l'actinomycose humaine, pseudo-actinomycoses et botryomycoses, Paris, Masson & Cie, 1898.

Dr. George T. Caldwell, Dallas, Texas: In a case of multiple abscesses of the liver, the typical organism of actinomycosis was demonstrated. This man, aged 75, had had upper abdominal pain for about three years. The real nature of his trouble was never suspected during life, but at the necropsy I found great numbers of abscesses in the liver, with no involvement whatever of the appendix or cecum. The appendix was perfectly free from adhesions. The gallbladder was thick walled; it was shrunken down over a few gallstones, and there were many adhesions about the duodenum. It seemed probable that the source of infection might be the gallbladder, although the distribution of the lesions throughout the liver was that which we usually consider as a hematogenous distribution.

Dr. Peter Bassoe, Chicago: I have been greatly impressed by the difficulty in diagnosis, particularly in those very interesting cases in which the chief symptoms relate to the spine. For instance, at a hospital in Chicago at which are in attendance men who have reported the largest number of cases from the Middle West, there was a young man who stayed in the hospital for many months. He had symptoms leading to a diagnosis that seemed very obviously tuberculosis of the spinal cord, until it was found in a subsequent roentgen-ray examination that the heads of the ribs on both sides had become eroded; then the diagnosis was changed to malignant tumor. Vertebral abscesses were formed, but that patient went right on to necropsy before any man who saw him suspected actinomycosis. I recall also another unpublished case of actinomycosis of the spine for a while in the service of Charles A. Parker in which there was a very extensive lump on the spine, and finally examination of the signs led to the correct diagnosis of actinomycosis during life. In view of the difficulty in diagnosis, I believe that the maps and charts showing the distribution of the disease in this country are more truly maps showing the order of excellence of routine laboratory examinations in hospitals. These dark areas on Dr. Sanford's map really represent the section of the country where the most thorough work is being done. It is entirely too early for us to say anything positive about the actual frequency of these diseases, and the same is true with regard to the involvement of the different organs. The appendix, as Dr. Robertson mentioned, is an organ that receives a great deal of attention, that is in everybody's mind, and for that reason, perhaps, has been singled out for attention.

Dr. Harlan P. Mills, Phoenix, Ariz.: A case that came to us recently would seem to indicate actinomycotic infection from contamination of an operation wound of the abdominal wall. The tissues taken at the abdominal operation were not sent in for examination. The wound failed to heal entirely, leaving a discharging ulcerated surface. This area was excised and the wound healed in part, but a portion of the line of excision remained open, discharging, with an ulcerated surface involving not the entire distance through to the peritoneal cavity, but into the muscle structure. Finally, after a number of weeks, this was removed by wide excision, and the tissue sent to our laboratory for examination. The ray fungus was found. The wound following this excision healed apparently completely for a time; then small nodules and areas of ulceration appeared along the line of the incision. These were immediately treated by radiotherapy, and have remained healed for the past three or four months.

Dr. Roy W. Hammack, Los Angeles: I have recently studied two cases of actinomycosis in the abdominal wall which are interesting from the standpoint of the source of the infection. One patient was a physician. His case has been reported in the *California State Journal of Medicine* by Kinkenberger. The other patient was an elderly lawyer. In the case of the physician, the affected area was low on the lateral abdominal wall; in fact, pointing below the crest of the ilium. There were no abdominal symptoms. An operation and cleaning out of the affected area was followed by recovery. This doctor recalled that he had treated a case of possible actinomycosis of the jaw, and he thought that he might have infected the skin by scratching himself. He had hives at that time. The lawyer had two pointing abscesses, one on the anterior abdominal wall and one on the posterolateral wall. At the necropsy, an extensive tuberculosis of the lungs was found, and ulceration in the sigmoid, which was adherent to the abdominal wall. A retroperitoneal abscess extended from this point through the retroperitoneal tissues, pointing at the two places I mentioned. The appendix was normal. The infection evidently was through the large intestine.

Dr. Michael G. Wohl, Omaha: One practical point to be emphasized is this: The primary source of actinomycosis is not well established. It is still a mooted question as to whether it is of animal or vegetable origin; however, it has been stated that a large percentage of these cases occur in rural communities, particularly in people who are in the habit of picking their teeth with straw or who chew grasses. Propaganda against the use of straw as a toothpick, etc., particularly in those communities where actinomycosis has been found to be prevalent, would materially lessen the incidence of this disease.

Dr. Henry Albert, Reno, Nev.: With reference to the distribution of actinomycosis in cattle, I wonder whether Dr. Sanford has secured data from the Bureau of Animal Industry. It seems to me that one might get more accurate information from the Meat Inspection Division of the Bureau of Animal Industry than from the state veterinary departments which, for the most part, are not engaged in doing much laboratory pathologic work.

Dr. A. H. Sanford, Rochester, Minn.: I have the 1920 report of the meat inspection at the slaughter houses of the United States, and, perhaps, should have included it in the paper. The data were published in a paper in *Minnesota Medicine* two years ago. The slaughter houses at Chicago and Omaha show a great preponderance of actinomycosis in inspected cattle; the slaughter houses in the Southern and Eastern states show practically none. One point that Dr. Bassoe brought up is pertinent. I do not pretend to have shown the distribution of actinomycosis in the United States. The only thing I am trying to do is to indicate that it is more prevalent than we are led to believe from the reports of literature. Many men reporting a single case will go back to the last collection of cases, which was made twenty-three years ago, in which there were only 100 cases reported. It seems to me that it would be well to make a new start with the idea that this disease is not so rare, that we are likely to find it at any time, and that it is confused with these other diseases. The disease is not reportable in many states. In Massachusetts it has been reportable since 1907. A large number of cases have been reported. Many health officers wrote that they had no data; that the disease was not reportable. The United States Public Health Service has so many duties to perform in taking care of the health of the country generally that diseases of mycotic origin, so called, are not given any consideration at all in their reports. I hope that in another decade we shall have an entirely different report, as far as mycotic diseases are concerned.

Clinical Notes, Suggestions, and New Instruments

A NEW DEVICE FOR LIFTING AND SUPPORTING PARALYZED OR DISABLED PATIENTS *

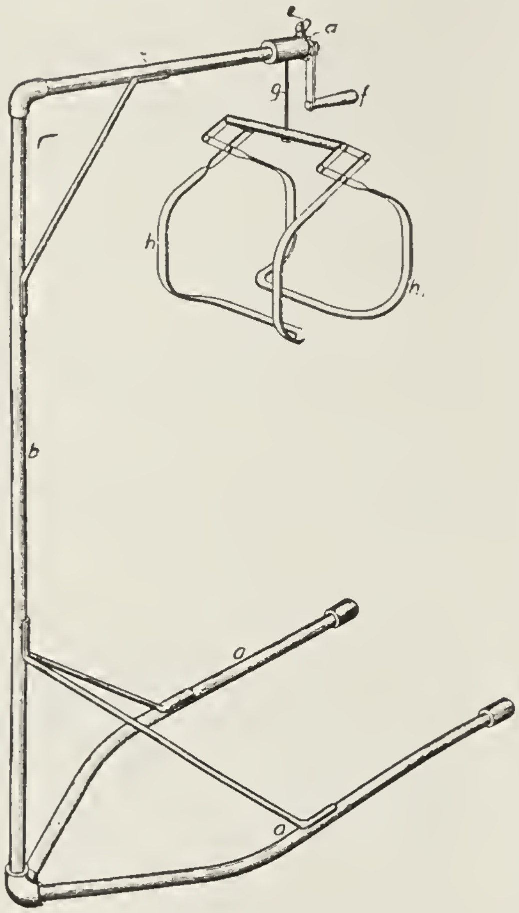
Charles L. Freytag, B.A., M.D., and Ferdinand Freytag, Ph.D., San Francisco

The difficulties of lifting helpless patients by hand, in order to place them on the bedpan, to have their sheets and bandages renewed, or wounds and sinuses dressed, are great and distressing. To overcome these difficulties, we have, after many disappointing experiments, constructed the apparatus shown in the accompanying drawing.

DESCRIPTION OF APPARATUS

On a strong horizontal base, *a*, mounted on casters, and extending on the floor under the bed of the patient, is supported a vertical stand, *b*, 180 cm. in height, the upper end of which carries a horizontal arm, *c*, 50 cm. long, parallel to the base. A ratchet, *d*, is fastened to the end of the arm, bearing a catch (pawl), *e*, and a crank, *f*. By means of a perpendicular steel cable, *g*, this ratchet is connected to a pair of steel prongs, *h* and *h'*, which are, in shape and size, adapted to the pelvis of the human body, and padded with soft leather or rubber.

The action of the apparatus is so arranged that, after the base has been adjusted under the bed at right angles to it, a few turns of the ratchet will close the prongs gently but firmly around the patient's pelvis, extending upward to the crest of the ilium and downward to the end of the upper third of the femur. A few additional turns of the crank will lift the patient to any desired height, and the action of the pawl of the ratchet will support him for any length of time. Releasing the pawl and gently turning the crank backward will result in the patient's being lowered on the bed without the slightest inconvenience.



Apparatus for lifting patients.

As this device gives a steady side pressure against the pelvis, it forms a valuable substitute for the hammock, the use of which in pelvic fractures has caused so many difficulties that it has been practically abandoned. The objectionable features of the hammock, such as uncleanliness, discomfort and lack of rigidity, are all overcome by our apparatus. As there is no direct pressure against bony prominences, there should be no danger of decubitus.

RESULTS

The apparatus is giving perfect satisfaction even in the most difficult cases. It is absolutely safe, and enables the average nurse to handle the heaviest and most helpless patients easily and unassisted. We hope that it will prove a blessing to many patients, nurses and physicians.

259 Geary Street.

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* The right of manufacture has been retained by the Helios Sanitarium, San Rafael, Calif.

BEE STING OF THE UVULA

C. W. Geiger, M.D., and J. H. Roth, M.D., Kankakee, Ill.

The youth with open mouth catching flies may have a serious as well as humorous aspect. The average layman rarely has more inconvenience than a revulsion of feeling if an insect happens to fly into the mouth. Occasionally insects are aspirated or swallowed, but they seldom cause distress. Usually they are the kind that fly at twilight or at night. The more aggressive insects, such as bees, wasps, hornets and yellow jackets, are successful in avoiding moving objects. A bee sting of the uvula is unusual and serious enough to warrant a report:

As W. J., a man, aged 26, while riding a motorcycle, turned his head to expectorate, an insect flew into his mouth and on the impact stung. After several attempts the insect was dislodged. It proved to be an ordinary honey bee. Violent gagging and vomiting followed before he was able to reach a physician. He was told that nothing serious would result, and was given a gargle. The patient said that the gargle caused the pain to be worse, and he attributed much of the subsequent swelling to the medication. When we saw him, about six hours after the accident, he was having slight difficulty in speech, and considerable difficulty with swallowing. Breathing and temperature were normal. Examination of the pharynx showed extreme edema of the uvula, which was pale red, tense, and about the size of a man's thumb. The palate and the pillars on the right side were edematous in proportion to the uvula. With cocain applied locally, enough anesthesia was obtained to inspect the parts. At the junction of the anterior pillar and the uvula was a circumscribed area of paleness 5 mm. in diameter with a black center, which proved to be the stinger of the bee. This was removed. Silver nitrate, 10 per cent., was applied as an astringent, and the patient given a gargle of saturated solution of sodium bicarbonate to be used very frequently. His relief began within a few minutes. No multiple punctures of the uvula and pillars were made, as respiration was not impaired. The young man was a transient, and unfortunately was not seen the next day.

A RARE COMPLICATION FOLLOWING APPENDECTOMY

George Webb, M.D., Lahaina, Maui, H. I.

Mrs. Y., aged 35, Japanese, was admitted to the Pioneer Mill Company Hospital, Feb. 2, 1922, with severe pains in the right lower abdominal quadrant, a temperature of 102, and a pulse ranging from 100 to 110. The diagnosis of acute appendicitis was made (details of the clinical and laboratory examinations are omitted for the sake of brevity), and she was operated on immediately. An enlarged, acutely inflamed and distended appendix was easily delivered and removed. The technic used was the usual one, the stump of the appendix (about 2 mm. in length) being inverted and buried by a purse-string suture. No drains were used, and the convalescence was entirely uneventful. Twelve days later the patient was discharged, feeling well and strong.

April 17, 1923 (two years and two months later), the patient was readmitted to the wards of the hospital complaining of continuous dull pain in the lower right abdominal region of about a month's duration, constipation, a feeling of fulness in the abdomen and loss of appetite.

On palpation of the abdomen, a mass was felt in the ileocecal region, the size of a man's fist, tender and not movable. A roentgenogram (contrast meal and enema) was suggestive of tumor, and showed a fair sized filling defect at the ileocecal junction. There was a moderate leukocytosis. Physical examination was otherwise negative. A tentative diagnosis of tumor (probably tuberculous) was made, and operation was advised.

April 20, operation was performed under ether anesthesia. A right pararectal incision gave ample access to the diseased region. With some difficulty (owing to dense adhesions) a tumor about the size of a large orange and involving the whole ileocecal junction was delivered and resected. Several enlarged adjacent glands were removed at the same ime. A side to side anastomosis was made, and the abdomen was closed in layers with a cigaret drain down to the anastomosis. The patient went through a rather stormy convalescence, during which a fecal fistula formed and shortly afterward closed spontaneously.

The patient was discharged completely recovered and in excellent condition, the beginning of June.

Section of the removed tumor revealed that the lumen of the bowel was considerably narrowed. The bowel wall was about 2 cm. thick all the way round the cecum. On the inside and at the place of the old appendectomy there was a small, thimble-like eminence covered with normal mucous membrane, evidently the old inverted stump. On the bowel wall opposite this stump there was a deep, crateriform ulcer corresponding to it in size and situation. The floor of the ulcer was covered with foul detritus-like masses. The wall of the cecum was thickest at this place. The pathologist's report on the specimen was: inflammatory tissue, no signs of malignancy or tuberculosis.

The probable explanation of this condition is that of a slow pressure necrosis of the opposite bowel wall by the inverted appendix stump, with following reactive inflammatory hyperplasia of the bowel wall and connective tissue proliferation.

New and Nonofficial Remedies

BISMUTH PREPARATIONS IN THE TREATMENT OF SYPHILIS

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following statement of the present status of bismuth preparations in the treatment of syphilis. W. A. Puckner, Secretary.

HISTORY

Balzer[1] was the first to make preliminary experiments to determine if bismuth could be used in the treatment of syphilis. He used bismuth citrate chiefly and abandoned his investigation when he found that bismuth compounds produced severe reactions in dogs, especially stomatitis and enteritis.

The investigation was again taken up by Sauton and Robert[2] who used a method similar to Ehrlich and Hata's experiments on the spirillocidal action of arsenical compounds. They studied the action of a so-called sodium tartrobismuthate in hens infected with *Spirochaetae gallinarum*. The results which are the real fundament of the later researches were sufficiently favorable to induce them to extend their work to syphilis and recurrent fever. The study was interrupted by the war and the death of Sauton.

Sazerac and Levaditi[3] continued the investigations and tested different compounds of bismuth and the metal itself in experimental syphilis of rabbits and in trypanosomiasis. They recommended a compound, which they said was a sodium and potassium tartrobismuthate, for further tests in human syphilis.[4] Rabbits tolerated from 50 to 60 mg. of this drug per kilogram of body weight, when injected intramuscularly. The experimenters found 100 mg. to be the toxic dose, while 200 mg. proved lethal within from two to four days. The toxic effects of intravenous injections were in a striking contrast to the comparatively high dose tolerated intramuscularly. An intravenous injection of 5 mg. per kg. caused death. Whether the difference is due to the slow absorption after intramuscular injections of the drug, or to other causes is not known. The so-called *"curative dose"* of sodium and potassium tartrobismuthate in oil suspensions in syphilis of rabbits is at least 0.05 gm. per kg. of body weight, which is about one fourth of the lethal dose. Milian pointed out that the tolerated dose in man is much smaller than the sterilizing dose would be. The total amount which can be administered per kilogram in man in a period longer than a month hardly reaches the single minimal *"curative dose"* per kilogram in rabbits. The comparison of the effect of intramuscular injections of insoluble drugs is of course more difficult than of intravenous injections of arsphenamine and other drugs.

The first clinical tests were made by Fournier and Guenot[5] on 200 patients in different stages of syphilis, and the results were favorable. Numerous other authors have reported since on the effects of different preparations of bismuth in experimental and human syphilis, and the results obtained agree fairly. Among the more comprehensive reports are those by Klauder,[6] Hopkins,[7] and Pardo-Castello,[8] which may also be consulted for a more extensive review of literature.

The action on visible lesions in all stages of syphilis is distinct, though most of the authors admit that it is inferior to arsphenamine preparations. Neurosyphilis is also favorably influenced, though resistent cases are reported as with every other drug. Neurorecidives have not been observed so far, but the drug has not been used sufficiently to exclude such possibilities. It is generally agreed that the effect on the Wassermann reaction is slower than with arsphenamine. Some cases, however, which had remained positive in spite of treatment with arsphenamine and mercury, became negative after bismuth. Relapses occur.

UNTOWARD EFFECTS

Bismuth may cause a stomatitis characterized in milder cases by foul breath and a blue line on the gums. Pseudomembranes and ulcerations infected with fusiform bacilli and Vincent's spirochetes appear in severe cases. Enterocolitis is less frequent. Symptoms of slight lesions of the kidneys (polyuria, albuminuria) were observed. Severe nephritis is rare. Chills and fever sometimes follow the injections. While a rapid increase in weight has been observed after the first injections, prolonged treatment may cause loss in weight, headaches, fatigue and jaundice. It is a question if the increase in weight is a favorable symptom or whether it is due to retention of water by toxic action on the capillaries. Toxic exanthems have been reported.

METHOD OF USE

Fournier and Guenot recommend the administration of from 10 to 12 intramuscular injections of from 0.2 to 0.3 gm. of their "potassium and sodium tartrobismuthate" in oil suspension in about one month. The majority of other authors give smaller doses (0.1 gm.) or make longer intervals (4 days). Individualization is necessary, as everywhere. The interval between doses must be extended if the warning symptom of foul breath or other signs of intolerance appear. The resorption is not regular and may be checked by roentgenograms. After the course of from 10 to 12 injections one month of rest is given and the treatment may be repeated. Injections especially of higher doses are painful. Anesthetics may be added.

SUMMARY

1. Bismuth preparations have a sufficient experimental basis both for their favorable effects and limitations. The advantage consists in their distinct action on experimental syphilis. The limitations are clear, if one considers the disproportion between the large dose, which is necessary to sterilize an animal, and the small dose, which can be tolerated by man. The available information appears to show that bismuth preparations will not cure syphilis, when used alone.

2. Bismuth treatment is not usually injurious if the necessary precautions (observations for beginning stomatitis, examination of urine, etc.) are observed. Intravenous injection is to be strictly avoided. The therapeutic effect of bismuth is rated by the majority of authors between arsphenamine and mercury. Bismuth compounds may be valuable in cases in which the patients are intolerant to the other drugs used in the treatment of syphilis or resistant to them, as shown by a persistent positive Wassermann reaction.

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[1] Balzer, M. F.: Compt. rend. Soc. de biol. **41**: 537, 1889.

[2] Sauton, B., and Robert, A. E.: Ann. Past. **30**: 261, 1916.

[3] Sazerac, R., and Levaditi, C.: Ann. Past. **36**: 1 (Jan.) 1922.

[4] Bismuth tartrate compounds appear to have been first described by Schwarzenberg (Ann. Chem. Pharm. **61**: 244, 1847). Since then many chemists have prepared compounds of bismuth and tartaric acid. Sauton and Robert prepared their drug by the method given by Cowley (Chem. Drug. **82**: 212, 1913). Levaditi and Sazerac apparently prepared the compound which they called tartrobismuthate of sodium and potassium by the Cowley method, but without dissolving the precipitate (which is obtained in next to the last step of the operation) in sodium hydroxid.

[5] Fournier, L., and Guenot, L.: Ann. Past. **36**: 14 (Jan.) 1922.

[6] Klauder, J. V.: Arch. Dermat. & Syph. **7**: 721 (June) 1923.

[7] Hopkins, J. G.: Arch. Dermat. & Syph. **7**: 745 (June) 1923.

[8] Pardo-Castello, V.: Arch. Derm. & Syph. **7**: 586 (May) 1923.

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SATURDAY, AUGUST 25, 1923

HUMAN COLOSTRUM

To Theobald Smith and his co-workers in the Department of Animal Pathology of the Rockefeller Institute at Princeton, N. J., is due the important discovery that the colostrum of the cow is the chief agent for transferring known antibodies to the new-born calf. The earliest postpartum secretion of the mammary gland may be regarded almost as essential to survival in the case of this animal. Calves which have never received colostrum are extremely likely to succumb during the first week of life to the common invasion of the alimentary tract with organisms of the *Bacillus coli* group. Furthermore, it has been shown by the Princeton investigators that the blood of the new-born calf, before ingestion of colostrum, is lacking in certain characteristic proteins which rapidly make their appearance in the circulation when the animals are colostrum-fed. As might be expected, these findings in cattle prompted the conclusion that colostrum must also be of great importance to the human species—a view in part seemingly substantiated by the observation that the blood of the new-born infant is lacking in euglobulin, which seems to increase in quantity as soon as human colostrum has been ingested.

On reflection, it is obvious that early immunity may be conferred on the offspring either through the placenta or with the colostral milk. The records obtained with some species indicate clearly that the placenta is impermeable to proteins, and does not permit the passage of maternal antibodies. Indeed, earlier investigators frequently expressed the belief that antibodies appear in the fetal blood only when the placenta is injured in some way; and they regarded placental transmission of antibodies as a pathologic rather than a physiologic process. Such conclusions, it should be emphasized here, were derived from studies of laboratory animals. In harmony with data already on record, Kuttner and Ratner [1] of Columbia University College of Physicians and Surgeons have found that the human placenta is permeable to diphtheria antitoxin. According to their determinations, the concentration of the latter in cord blood corresponds with considerable accuracy to that in the blood of the mothers, there being no measurable loss of antitoxin in passage through the placenta. Kuttner and Ratner state that human colostrum occasionally contains small amounts of the antitoxin; but the quantity is always less per volume than is found in the blood serum of the mother or in the cord blood. In the cases studied, the antitoxin content of the infants' blood failed to show an increase attributable to colostrum feeding. Furthermore, in contrast to what is clearly the case in calves, clinical studies have failed to reveal to the New York investigators evidence of possible harm to the infant resulting from the omission of colostrum from its earliest diet.

How are such apparent discrepancies between the species studied to be explained? Kuttner and Ratner remind us that well-known histologic differences in the placentas of the various animals may suffice to account for the varying results with respect to placental exchange. In the human organ the maternal blood is separated from the fetal by a single layer of cells, whereas in the ruminant the placenta consists of three-cell layers. The differences in permeability seem to be in accord with the unlike physical basis offered by the dissimilarity of structure. In goats and cows, with a placental make-up that is fairly complex, placental transmission of immune substances may not occur, so that the colostrum becomes the main agent for transmitting immunity from mother to offspring. In man it is otherwise. In this connection, reference has been made by Kuttner and Ratner to some of the striking differences in the conditions of the mammary secretion in animals, such as cows, with the placenta impermeable, and the new-born calf dependent mainly on colostrum for the transmission of antibodies; and in man, with the placental structure simpler and more permeable. The cow's udder at the time of parturition, they point out, is filled with approximately 20 pounds (9 kg.) of colostrum, which is immediately and reflexly ingested by the calf shortly after birth to the extent of about 2 pounds (0.9 kg.) at the first feeding. In human beings, colostrum does not appear for at least twelve hours after birth, and is secreted in amounts not greater than 5 c.c. in the first twenty-four hours after birth, and not exceeding 90 c.c. after forty-eight hours. In the face of the great interest recently awakened in the possible functions of colostrum, a problem long before physiologists and pediatricians, it would probably be a step too far backward to conclude that colostrum feeding has no significance whatever to the human infant—until the evidence is more compelling. But the earlier enthusiasm for the immunity functions of the first formed milk are being somewhat dispelled so far as the human species is concerned.

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[1] Kuttner, Ann; and Ratner, Bret: The Importance of Colostrum to the New-Born Infant, Am. J. Dis. Child. **25**: 413 (June) 1923.

FUNCTIONS OF THE PARATHYROIDS

Fourteen years ago, two investigators [1] at the Johns Iopkins University Medical Department formulated he theory that the parathyroids control the metabolism f calcium and in this way exert an influence on the ervous system, which is singularly reactive to marked lterations in the calcium content of the fluids that athe it. The theory has experienced various vicissiudes and led to disappointment, because some of the ttempts to apply it to the conditions prevailing after emoval of the parathyroid structures ended in failure. xtirpation of the glands is now known definitely to ead to a drop in the otherwise constant level of calcium ontent in the blood. Whenever this occurs, whether s the result of parathyroidectomy or for other reasons, etany is almost certain to ensue when an adequate egree of lowering has been attained. In such condiions the administration of calcium salts, particularly y the intravenous method, often brings relief; but the oal of preserving the life of individuals deprived of heir parathyroids was not regarded as attainable by alcium therapy. Another obstacle to the ready accepance of the calcium-control theory of parathyroid unction has been the fact that the tetany has been verted by methods which seemed to have no obvious elation to calcium administration.

A renewed investigation of the subject by Salvesen [2] t the University of Christiania leaves little doubt that e parathyroids do control the calcium level of the lood, and by doing so influence the function not only f the muscular and nervous tissues, but probably also f all organs. The behavior of the calcium in the lood, which has been carefully studied by this Noregian physiologist, indicates that the recovery of ompletely parathyroidectomized dogs—which he has ctually accomplished by calcium treatment—is not ue to a compensatory function of some accessory lands. All the symptoms are relieved and the animals ade normal for a while by intravenous injection of lcium chlorid. The symptoms reappear after a time, ut not until the blood calcium has again reached a low vel. An outstanding observation is the fact that the jected calcium is very rapidly excreted through the testine, and only small amounts appear in the urine; en large doses disappear in a remarkably short time. his accounts, as Salvesen points out for the first time, r the fact that it has been so difficult to preserve parayroidectomized animals by injection of calcium salts. he favorable influence of milk is readily explained hen one recalls that this fluid has a calcium content uivalent to a 1 per cent. solution of calcium lactate.

What, then, is the cause of the drop in blood calcium hich is so menacing and so difficult to combat permaently? Salvesen ascribes it to "a lowered threshold for the excretion of calcium in the intestine." This element seems literally to leak away from the blood and be lost through the bowel. Such a process apparently causes a calcium deficiency and thereby all of its symptoms. One may consequently conceive of the parathyroid as furnishing some "hormone" which ordinarily prevents this unlimited excretion of calcium through the alimentary tract. That the "permeability" of the intestine in one direction or another may be modified by dietary factors has already been intimated.[3] Many novel lines of thought and investigation are opened up by these studies.

THE SYSTEMIC TREATMENT OF EXTENSIVE SUPERFICIAL BURNS

The occurrence and clinical consequences of anhydremia have lately acquired considerable prominence in medical litarature. There is accumulating evidence that an animal or a man cannot long survive a concentration of blood to 140 per cent. of the normal value; indeed, when it reaches even 125 per cent., conditions for the maintenance of life are reported to become precarious. The tardiness of interest in the possibilities of such situations is probably attributable to the circumstance that changes in the water content of the circulation do not obtrude themselves on our notice as so many other symptoms do; nor have they heretofore been looked for as frequently and assiduously as their significance now seems to warrant. Changes in the concentration are easily followed under ordinary circumstances by the simple expedient of determining the content of a characteristic component of the blood, namely, hemoglobin.

It has not been difficult to understand that when there are obvious large losses of fluid, as through diarrhea or vomiting, the concentration of the blood in dissolved substances may become altered unless some compensatory process of dilution is effected. Underhill and his collaborators at the Yale School of Medicine have recently pointed out how inflammatory reactions of various sorts may lead to blood concentration. In the acute massive edema of the lungs brought about by poisoning with war gases, and in certain types of influenza, this is what occurs through segregation of fluid in damaged pulmonary areas. And now we are reminded that other extreme inflammatory reactions, such as are seen in extensive superficial burns, meet a similar response on the part of the body. Fluid is poured out on the surface of the injured area. Up to a certain point, the greater and more acute the inflammatory reaction, the greater and more rapid will be the response.

The actual occurrence of threatening degrees of concentration of the blood in burned patients has now been clearly demonstrated.[1] Furthermore, the logical consequences with respect to treatment of the cases of severe superficial burns have been applied with gratifying results in a considerable number of cases. The burned areas obviously require adequate local treatment, about the preferred technic of which there still is considerable difference in practice. But, according to Underhill's report, rapid and continued introduction of fluid by all possible channels, as by mouth, by rectum, subcutaneously or even intravenously, will cause a gradual return of the blood concentration to normal and a comparable improvement in systemic signs and symptoms. One may assume that the hypothetic poisons said to be associated with severe burns will be diluted so as to diminish their toxicity and promote their elimination. At any rate, we are assured from the New Haven experiences that restoration of normal blood concentration by adequate forcing of fluid is accompanied by marked evidences of improvement, and the development of some of the common sequels (delirium, unconsciousness, gastro-intestinal disturbance, albuminuria, hemoglobinuria) of extensive burns may be checked.

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[1] MacCallum, W. G., and Voegtlin, Carl: J. Exper. Med. **11**: 118, 09.

[2] Salvesen, H. A.: The Function of the Parathyroids, J. Biol. em. **56**: 443 (June) 1923; Proc. Soc. Exper. Biol. & Med. **20**: 204, 22-1923.

[3] The Sources of Calcium for the Body, editorial, J. A. M. A. **81**: 394 (Aug. 4) 1923.

If we may accept Underhill's fortunate conclusion that under such a treatment "the vast majority of badly burned patients ultimately recover," it behooves the clinician to secure in the systemic treatment of burn cases decrease in blood concentration to a point near the normal limit. We are told that the determination of the degree of blood concentration may be regarded as an index of the patient's general condition, and will also indicate the extent to which fluid should be forced. In considering the possible outcome, the added possible favorable effect of restoration of blood fluid on blood pressure must also not be overlooked. Low arterial tension is a symptom long recognized to attend certain cases of superficial burn. If marked concentration of the blood can be a primary etiologic factor in connection with a failing circulation, insufficient carriage of oxygen with consequent oxygen starvation of the tissues, fall in temperature and other threatening phenomena, a relatively simple method of combating it must be very welcome. The mode of detection and the technic of therapy referred to call for procedures that are easily within the reach of every practitioner.

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[1] Underhill, F. P.; Carrington, G. L.; Kapsinow, Robert, and Pack, G. T.: Blood Concentration Changes in Extensive Superficial Burns, and Their Significance for Systemic Treatment, Arch. Int. Med. **32**: 31 (July) 1923.

Tetrachrome Blood Stain.—The tetrachrome blood stain devised by Ward J. MacNeal is a mixture of four stains used for staining blood cells and hematozoa: water-soluble eosin, 1.0 gm.; medicinally pure methylene blue, 1.0 gm.; methylene azure, recrystallized, 0.6 gm.; methylene violet, recrystallized, 0.2 gm.; pure methyl alcohol (Merck's Reagent), 1000.0 c.c. This stain is recommended as a satisfactory imitation of the Leishman stain because of the excellent results in staining blood films, the uniformity of composition and the low cost. The latter is of some importance in large hospitals where many specimens have to be examined daily.—(*Proc. New York Path. Soc.* **22**:43 [Jan.-May] 1922).

Current Comment

OPERATIONS ON THE HEART FOR RELIEF OF VALVULAR STENOSIS

In 1902, Sir Lauder Brunton suggested the possibility of treating valvular disease of the heart surgically, and various investigators since that time have attempted to widen stenotic valves, apparently succeeding, however, only in creating defective valves with subsequent regurgitation. Last year, Allen and Graham devised a method for cutting the valves through the use of a cardioscope carrying a small knife. For some time Cutler and Levine[1] have been experimenting on animals, producing stenosis of the mitral valve mechanically, and determining in this manner the ability of the heart muscle to withstand trauma in various methods of restoring function. It has been their experience that the use of the cardioscope is so much more complicated than the direct use of the valvulotome that the latter method is preferable. In May, 1923, operation was attempted in the case of a girl, aged 12 years, who had been confined to bed for more than six months because of a heart lesion, and who had rapid pulse and severe dyspnea with pulmonary hemorrhages following any attempt to get out of bed. The patient could not lie flat, was cyanotic, had a heart rate of 126, and had some congestion of the lungs. She appeared to be the victim of typical mitral stenosis without cardiac reserve. Examination indicated that the stenosis was sufficient to be an important factor from a purely mechanical point of view. Electrocardiographic and blood pressure observations were made, and on May 20, 1923, operation was performed. In their report, the authors give the complete details of this operation, which involved exposure of the heart, splitting of the pericardium, insertion of the valvulotome into the left ventricle, and incision of two leaflets of the mitral valve. Following this, the ventricle was sewed with mattress sutures and the pericardium closed with silk. The convalescence was marked by rapid pulse, pain over the sternum, and respirations rising to 45. However, the patient responded well to digitalis and oxygen therapy. Toward the end of the third day after operation, the patient became more comfortable, and on the fourth day convalescence became rapid. Seven days after operation, the sutures and all dressings were removed; and in the illustrations, showing the girl sitting up in bed, she appears quite comfortable. The authors state that they are unable at this time to define with accuracy just what has occurred or what benefits have accrued, if any. The experience does show, however, that surgical intervention in such cases may be successfully made. In view of the fact that mitral stenosis is a chronic condition, for which there is no successful treatment and in which the prognosis is invariably bad, the method is of unusual interest. The operation is, of course, hazardous and not to be undertaken lightly. The report itself bears special testimony to the manner which progress may come through properly conucted experimental surgery: first, a careful study of nderlying factors; second, a thorough working out of iethods and technic on experimental animals and, inally, the application of the results to the human being.

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[1] Cutler, E. C., and Levine, S. A.: Cardiotomy and Valvulotomy for Mitral Stenosis: Experimental Observations and Clinical Notes Concerning an Operated Case with Recovery, Boston M. & S. J. **188**: 1023-1027 (June 28) 1923.

THE DISTRIBUTION OF TULAREMIA

Tularemia, the most recently reported infectious disase of man, is ordinarily transmitted from rabbits v the bite of an insect. Many human cases ave been reported from Utah and two from hio. Now the organism has been found in abbits on sale in Washington, D. C.[1] Among a rge number of rabbits examined at the market, seven resented macroscopic evidence of this disease. The iagnosis was confirmed by inoculating guinea-pigs ith suspected material, and recovering *Bacterium larense* in pure culture in every instance. The dealer t whose stand the rabbits were found handled them ithout becoming infected. He had had tularemia bout a year before, however, and was immune. His lood serum agglutinated *Bacterium tularense* in a ilution of 1:100 repeatedly, and as late as March of his year. The region from which the first five rabbits ere shipped could not be traced. The last two came rom different points in Tennessee. The known distriution of tularemia has thus been extended. In addion to the states mentioned, this infection has been ound in California, Idaho, Wyoming, Colorado, ndiana and North Carolina. Only one fatal case has een reported, it appears, but tularemia disables its ictims for several weeks. With the approach of cool eather and heavier traffic in rabbits for the markets, n opportunity will be afforded to study further the istribution of this disease, as well as to rid the markets f undesirable food.

THE NATURE OF THIRST

Hunger and thirst are sensations that not infreently demand serious clinical consideration. They ay become sources of distress to a patient and thereore require to be combated in some way. Now and en circumstances arise which preclude relief through e simple expedients of eating and drinking. Condions often ensue whereby food cannot be ingested in e usual way, or it cannot be digested and utilized en if it can be consumed. The control of hunger a sensation consists primarily in checking the disessing contractions of the gastric musculature when e stomach has been empty for some time. Inability drink fluids can be more easily combated because ater can be introduced into the organism with conderable ease in a variety of other ways than by outh. Rectal, intravenous and subcutaneous paths administration of fluid are available in an nergency. Nevertheless, it is important to know hether the sensation of thirst represents the direct fects of loss of water from the tissues and is "genal" in character, with only a secondary local reference the pharynx; or whether it is essentially a sensation limited to the mucous membrane of the mouth and throat to which it is popularly referred by the subject. In case the latter was true, relief might temporarily be secured by purely local treatment. Cannon[1] has championed the view that thirst is due to a relative drying of the mucosa of the mouth or pharynx. The desiccation, he believes, may be due to either a diminution or absence of the salivary secretion, a condition arising as the result of loss of water in the tissues through diarrhea, polyuria, etc., or such local factors as mouth breathing, prolonged singing and speaking. Substantiation of Cannon's theory has been furnished recently by Pack[2] at Yale University. He has observed that thirst is relieved, in animals deprived of water, by administration of drugs, such as pilocarpin, which promote the flow of saliva. This method, however, has not been found successful in severe cases of diabetes insipidus or chronic polyuria.[3] It still remains an open question, therefore, whether in the latter malady thirst is not the expression of other factors than mere dryness of the oral membranes.

THE THYROID HORMONE

The fact that the iodin-bearing compound thyroxin, which has been isolated through a series of chemical manipulations from thyroid tissue, has a marked physiologic potency has led many persons to speak of it offhand as the "active principle" of the thyroid glands. It does not minimize the importance of the splendid researches that led to the discovery of thyroxin nor detract from its therapeutic usefulness to raise the question whether, in truth, the thyroid hormone is to be identified with this well defined chemical substance. It has been known for some time that a protein constituent of the glandular tissue, notably the globulin fraction extractable from it, will elicit many of the effects secured by thyroid medication. Tests recently conducted by Hunt[4] at the Medical School of Harvard University have tended to indicate that, for certain functions at least, thyroxin shows less potency than an equivalent dose of iodin in the form of the entire thyroid gland. One is led to ask, therefore, whether the iodized protein fragment isolated by Kendall retains all of the specific physiologic actions of the real thyroid hormone, and whether thyroxin can entirely replace the latter in man and animals in the complete absence of thyroids. In considering such problems it will be helpful to learn, if possible, in what form the thyroid hormone actually leaves the glandular structures that produce it, and how it circulates in the organism. An interesting contribution was recently made by Hektoen, Carlson and Schulhof[5] of Chicago. By the use of serologic methods they have demonstrated the presence of a thyroid product, thyroglobulin, in the lymph issuing from the thyroid gland. Thus far, they have failed to detect the same protein in the general circulation. It must be recalled, in this connection, that the existence of thyroxin or a related product in the blood stream has been intimated as the result of determinations of iodin in the fluid. The Chicago investigators assert that their inability to find thyroglobulin there by means of the precipitin test may have been due to the great dilution of the thyroid lymph when mixed with the total blood, or to a rapid absorption of thyroglobulin by the tissues; perhaps, also, the product is speedily disintegrated into derivatives like thyroxin, which do not betray themselves by serologic evidence. At any rate, attention must now be centered on the lymphatics as well as the blood capillaries as the carriers of gland-hormones. As Hektoen, Carlson and Schulhof point out, other hormones present problems similar to that of the thyroid product. They add, further, that there is as yet no proof that the internal secretion of the suprarenal medulla, for instance, is really epinephrin and not some more complex compound.

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[1] Francis, Edward: Tularemia in the Washington (D. C.) Market, b. Health Rep. **38**: 1391 (June 22) 1923.

[1] Cannon, W. B.: Proc. Roy. Soc. London, Series B, **90**: 283, 1919.

[2] Pack, G. T.: New Experiments on the Nature of the Sensation of Thirst, Am. J. Physiol. **65**: 346 (July) 1923.

[3] Weir, J. F.; Larson, E. E., and Rowntree, L. G.: Studies in Diabetes Insipidus: Water Balance and Water Intoxication, Arch. Int. Med. **29**: 306 (March) 1922.

[4] Hunt, Reid: Am. J. Physiol. **63**: 257 (Jan.) 1923.

[5] Hektoen, Ludvig; Carlson, A. J., and Schulhof, Kamil: The Precipitin Reaction of Thyroglobulin, J. A. M. A. **81**: 86 (July 14) 1923.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ALASKA

Personal.—Dr. John J. Myers, Lodi, Calif., has been appointed director of the government hospital at Juneau.

CALIFORNIA

Additions to State Hospital.—Four additional cottages have been constructed to relieve congestion at the Southern California State Hospital at Patton.

Chiropractor Imprisoned.—Dr. H. C. Saunders, Huntington Beach, having failed in his appeal to obtain a reversal of the judgment of the superior court, following a trial for practicing medicine without a license, in September, 1922, started serving his sentence of 120 days, July 24, according to reports.

Validity of Health Act Upheld by Court.—Judge Plummer handed down, August 2, a decision upholding the constitutionality of the act under which the San Joaquin County Health District was created. The court held that the health district is a legal subsisting agency, duly established according to the laws of the state. The prayer for an injunction to prevent the levy of $96,000 tax for the expenses of the health district during the fiscal year starting July 1, 1923, was denied, but it is now legal for the health district to draw warrants for expenses incurred on or after July 1. These warrants will be paid when the next tax money is available in December. The action was brought by E. G. Stuckenbruck and a taxpayer against the board of supervisors for an injunction to prevent the tax levy for the health district. This was followed by a mandamus suit by the health district and the Cutter Laboratory against the county auditor and treasurer to compel the issuing and payment of warrants on the county for health district expenditures. Both actions were brought to test the legality of the district. Dr. John J. Sippy, formerly of Helena, Mont., recently was appointed county health officer and executive of the health district.

COLORADO

Personal.—Dr. Hunley S. Day was appointed county physician to succeed the late Dr. Hampton S. Henderson, effective August 1.

FLORIDA

Personal.—Dr. Charles W. Tompkins, health officer of South Jacksonville, has resigned and will go to Washington, D. C., to live.

Sanitary and Health Officers' Course.—A school of instruction for city health officers and sanitary inspectors will b held by the state board of health, in Jacksonville, September 18-22, according to Col. Raymond C. Turck, state health officer. The course will be given in order that the methods of sanitary control throughout the state may be uniform.

GEORGIA

New State Tuberculosis Sanatorium.—An appropriation of $500,000 will be asked at the next session of the state legislature for the purpose of establishing a state tuberculosis sanatorium near Alto.

IDAHO

Personal.—Dr. Raymond J. Cluen, Boise, recently appointed physician for the Idaho penitentiary, has tendered his resignation to the state board of prison commissioners. Dr. George Collister, Boise, has been appointed to fill the vacancy.——Dr. Clayton A. Hoover, medical superintendent of the Idaho Insane Asylum, Blackfoot, has resigned.——Dr. Joseph Fremstad, Burley, owner of the Fremstad Hospital, is giving up the institution and moving to Everett, Wash.

ILLINOIS

Personal.—The Jo Daviess County Medical Society gave a banquet, August 9, to Dr. I. Carson Smith, Stockton, in honor of his fortieth year of practice in the county. Physicians from Dubuque, Iowa, presented Dr. Smith with a gold-headed cane.

Central Illinois Radiological Society.—At the annual meeting of the society, recently, Dr. James H. Finch, Champaign, was elected president; Dr. Harold Swanberg, Quincy, vice president, and Dr. Perry B. Goodwin, Peoria, secretary-treasurer.

Medical Milk Commissions.—The Adams County Medical Society has appointed Drs. Thomas B. Knox, John A. Koch and Arthur H. Bitter, all of Quincy, and the Peoria City Medical Society has appointed Drs. Sumner M. Miller, Edward E. Barbour, Jacob M. Furstman and Aloysius J. Kanne as members of a medical milk commission, a branch of the American Association of Medical Milk Commissions.

Chicago

Augustana Superintendent Dead.—Matthias Wahlstrom, D.D., superintendent of Augustana Hospital since 1904, died, August 15, of cerebral hemorrhage, aged 72.

Behavior Clinic for Children.—A clinic for unruly children will be established at Rush Medical College. The clinic will specialize in neurotic children between the ages of 3 and 14. Home conditions will be investigated by physicians and nurses.

Hospital Drive Opens.—For the first time in its history, the Evangelical Deaconess Hospital has had to request public aid. A drive has been launched to collect $500,000 to erect a larger health center. Of the 4,000 calls made last year, 30 per cent. of those treated at the institution were charity patients.

Society of Medical History of Chicago.—The society is collecting historic medical publications of this region. Two files are not complete. It is requested that physicians having volumes of the *Chicago Medical Journal and Examiner,* 1880 to 1889 (40 to 58), and *Transactions of the Illinois State Medical Society,* Vol. 5 (1885) and from 1864 to 1871, might place them where they would have a permanent value.

IOWA

Hospital News.—Plans have been completed for the erection of a $125,000 hospital building at Cherokee. The state board of control, Des Moines, is owner of the property.

Personal.—Dr. William C. Behen, Dubuque, recently received from Poland the Cross of Valor for service during the Bolshevist uprising in 1920. Dr. Behen also received the Order of the Eagle and a gold medal (San Salva) from the Serbian government for services in that country.

KANSAS

Personal.—Dr. Samuel J. Crumbine, Topeka, until recently state health officer of Kansas, has been appointed associate director of medical service of the American Child Health Association. Dr. Crumbine will visit Southern communities which have applied for a child health demonstration, and will make recommendations as to which community is best suited or a successful demonstration. He will also confer with state health authorities in regard to promoting birth registration n states not yet in the U. S. registration area.

LOUISIANA

Jury Indicts Physicians.—According to reports, the federal grand jury, August 3, returned indictments against Drs. G. F. Cocker and A. Ledoux, two New Orleans physicians, for violations of the Harrison Narcotic Law. Both were arrested everal weeks ago by federal narcotic agents, charged with ssuing narcotic prescriptions unlawfully to drug addicts.

MASSACHUSETTS

Physician's License Revoked.—The board of registration n medicine of Massachusetts, July 23, revoked the registraion of Dr. James P. A. Nolan, Boston, following complaint of a patient that he had terminated her pregnancy by an llegal operation. The board asserted that it "believed the practice of medicine by him to be a menace to the health and morals of the public."

Hospital News.—Plans have been completed for the erecion of a new two-story and basement building for Waltham Hospital, Waltham.——A new nurses' home to accommodate orty-four nurses will be erected for the Marlboro Hospital, Marlboro.——Bids are being taken on the general contract or the new unit of Cape Cod Hospital, Hyannis, which will be erected at an estimated cost of $150,000.

Personal.—Dr. Elliott S. Robinson has been appointed assistant director of the division of biologic laboratories of he Massachusetts State Department of Health to succeed Dr. Robert N. Nye.——Dr. William F. Holzer, Worcester, ormerly of the City Hospital, Boston, has been appointed oculist-in-chief at the Memorial Hospital.——Dr. Nathaniel Allison, St. Louis, has been appointed chief of the orthopedic department of the Massachusetts General Hospital.

MICHIGAN

Food Handlers' Clinic.—The Department of Health of Detroit has added an educational program to the work of the Food Handlers' Clinic, and changed the name to the Food Handlers' Clinic and School. Lectures on food sanitation nd personal hygiene will be given in addition to physical xaminations.

Hospital News.—The Catholic Sisters who conduct St. Mary's Hospital, Grand Rapids, will sell the nurses' home hat is connected with that institution, according to reports. They will conduct a campaign in the fall for the erection of wo additional buildings.——The Battle Creek Sanatorium ntertained Prof. J. B. Pavlov and his son of Petrograd, Russia, at a banquet, July 9. Nearly 200 physicians from all over the state and their wives, attended.——A new infirmary will be erected at Alpena at a cost of $75,000.——With the ooperation of the steel industries which own mines in the ity limits, Wakefield plans to erect a municipal hospital.——The cornerstone of the James W. Sheldon Memorial Hospital, Albion, was laid recently.

MINNESOTA

Funds for New Dispensary.—An additional sum of $150,000 as been set aside from the surplus of the Amherst H. Wilder Charity, Incorporated, for the St. Paul Dispensary, now nder construction near the Miller Hospital, St. Paul. The harity formerly set aside $300,000 for the dispensary.

Physicians Endorse Sanatorium Proposal.—Members of the tearns-Benton County Medical Society, at a meeting at Pelican Lake, July 17, adopted a resolution endorsing a proposal for erecting a tuberculosis sanatorium for Stearns and djoining counties. Dr. George Bosworth, of the state dvisory committee on tuberculous sanitation, stated that 50,000 in state aid could be obtained for the project.

MISSOURI

Naprapath Fined.—According to reports, Edward Barnett, t. Louis, was recently found guilty in the court of criminal orrection of practicing medicine without a license. He laimed to be a doctor of naprapathy.

A Physician Eighty-Three Years.—Dr. Joseph Singer Halead, Breckenridge, is the oldest physician in the United tates, it is reported. Dr. Halsted graduated from the Medical Department, Transylvania University, Louisville, 1840. He was born March 5, 1818, and is a veteran of the Civil War.

MONTANA

Hospital News.—The contract has been let for the construction of the new addition to St. Patrick's Hospital, Missoula, for $150,000. The institution, which will be ready for occupancy by February, 1924, will be five stories high and of brick and concrete construction.——The Columbia Hospital, Butte, closed its doors, August 1.

NEVADA

Court Rules Gas Not Inhuman Death Penalty.—The Nevada State Supreme Court ruled, August 20, in denying a second petition for rehearing in the cases of Gee Jon and Jugh Sing, Chinese tong murderers, under sentence of death, that the execution of criminals by lethal gas is not cruel or inhuman. An appeal will be made to the U. S. Supreme Court.

NEW JERSEY

Campaign Against Rabies.—An emergency appropriation of $1,000 was made by the Bayonne Health Board, June 12, to combat the stray dog nuisance. The city health officer is endeavoring to have all dogs vaccinated. Fourteen persons have been bitten recently. Eleven of the dogs were found to have rabies. It is estimated that the cost to the city of each case will be $40.

Personal.—Dr. Thomas A. Clay has been succeeded by Dr. Frederick P. Lee as health officer of Paterson. Dr. Lee was formerly health officer of New Britain, Conn.——Dr. Lewis S. Herndon, Newark, has been awarded the French Croix de Guerre, with gilt star, in recognition of service during a gas attack near Soissons, France, in 1918, while serving with the Medical Corps of the A. E. F.

New York City

Maternal Hospital to Build.—The Jewish Maternity Hospital has purchased four lots at the northwest corner of Fifth Avenue and One Hundred and Eighth Street, where it plans to build a new twelve-story hospital building, which, when equipped, will cost about $1,000,000, and provide 150 beds. Most of the necessary funds have been subscribed.

Hay-Fever Clinic Opens.—A new department for the scientific diagnosis of hay-fever, asthma and kindred maladies was opened at the Victory Memorial Hospital, Brooklyn, August 16. After the diagnosis has been made, applicants will be referred to their family physicians. The clinic, which will be open Monday, Wednesday and Friday evenings, is equipped to care for 2,000 patients a week.

Personal.—Dr. L. Miller Kahn has been appointed attending surgeon at Beth David Hospital.——Dr. James P. Hunt has been appointed head of the tuberculosis division of the U. S. Veterans' Bureau to succeed Dr. Stanley M. Rinehart, Washington, D. C., resigned.——Dr. G. Sanneman, in charge of the public health service, the Port of Hamburg, Germany, recently arrived in this country. He will spend a month studying methods of the United States health officers at Quarantine Station, Staten Island.

The Flagler Memorial.—Papers have been filed at Albany approving the incorporation of the Alice Mandelick Flagler Foundation. This opens the way for carrying out the plan of the late John H. Flagler to establish a memorial to his deceased wife. The foundation is organized for charitable purposes, and especially to assist nurses. It is believed the share of the Flagler estate which will go to the foundation will be about $500,000. The residual portion will be divided equally among St. Luke's, New York and the Presbyterian hospitals.

NORTH CAROLINA

Hospital News.—A four-story administration building and hospital wing has been begun for St. Joseph's Sanatorium, Ashville. The structure, which is to be completed by Jan. 1, 1924, will have seventy-five rooms and will cost about $140,000.

Dr. Rankin to Help New York.—Dr. Watson S. Rankin, Raleigh, state health officer, has been requested by the state health department of New York to aid that department for one year. Dr. Rankin formally applied for leave of absence from the South Carolina State Board of Health, August 17.

Personal.—Dr. John S. McKee, for many years city physician of Raleigh, has again been appointed to the position to succeed Dr. Luther T. Buchanan, Raleigh, who resigned after two months' service.——Dr. Thomas Craven, Huntersville, has been appointed assistant county health officer to succeed Dr. George Collins, Charlotte, resigned.

NORTH DAKOTA

State Health Work to Be Unified.—Under the regime of the new state health department created by the last legislature, efforts will be made to unify health work throughout the state. Dr. Arthur A. Whittemore, Bowman, is the state health officer. North Dakota will seek to qualify for the United States registration area. A convention of all county and city health officers will be called sometime this fall, at which uniform methods for use throughout the state will be worked out.

OHIO

Chiropractors Convicted.—It is reported that Ernest Bovey, John E. Jones and C. E. Stewart were fined $25 and costs, each, at Springfield, August 1, on charges of practicing medicine without a license.

New School Inspection Law.—Under the new school inspection law, every school child within the jurisdiction of the city and county health departments must be weighed and measured, and have his teeth, eyes, ears, nose, throat and heart examined.

Personal.—Dr. Edmund M. Baehr, chief executive physician and psychiatrist of the state bureau of juvenile research, has tendered his resignation, it is reported.——Dr. Georgetta S. Williams, Hamilton, has been appointed a member of the city board of health.——Dr. Harold L. Higgins has been appointed professor of pediatrics at the College of Medicine, University of Cincinnati, to succeed Dr. Kenneth D. Blackfan, who resigned recently to accept a position at the Harvard Medical School, Boston.——Dr. Robert Olesen, U. S. Public Health Service, has been detailed to study the public health aspects of simple goiter. He will make his headquarters at Cincinnati.——Dr. Mason R. Pratt has resigned as superintendent of the Aultman Memorial Hospital, Canton.——Dr. Robert H. Trimble, Mount Sterling, has been appointed to succeed Dr. Franklin D. Postle, London, as health officer of Madison County.——Dr. Matthias A. Wagner, Lima, has recently returned from Europe where he attended pediatric clinics.

OREGON

Personal.—Dr. Herbert C. Eastland has been appointed health officer of Reedsport.——Dr. Walter E. Hempstead, Oregon City, has resigned as county health officer.——Dr. Frank E. Boyden, Pendleton, was elected president of the Eastern Oregon Medical Society at the annual meeting at Wallowa Lake, July 27-28.

PENNSYLVANIA

Bucks County Society Anniversary.—The seventy-fifth anniversary of the Bucks County Medical Society will be held at Doylestown, September 19.

Reading Milk Regulations.—A new feature of the milk regulations of Reading became effective, August 1, when the caps of milk bottles were required to bear the day of the week on which the milk was bottled, in addition to the name and address of the dealer. The ordinance will be enforced the year round, and the penalty for the first offense is a fine of not less than $25. The city consumes about 50,000 quarts of milk a day.

Personal. — Dr. James S. Hammers, Embreeville, has resigned as superintendent of the Chester County Hospital for the Insane to become medical director of the Pittsburgh City Home and Hospital, Mayview.——Dr. Harry T. O'Connor, Pittsburgh, has been appointed county medical director of Allegheny County to succeed Dr. Augustus H. Eggers, Pittsburgh, who resigned recently.——Dr. Thomas A. H. Stites, Alexandria, La., has been appointed medical director of the Pennsylvania State Sanatorium for Tuberculosis, Cresson, succeeding Dr. William G. Turnbull, who has been appointed deputy commissioner of health for the state of Pennsylvania.

Philadelphia

Dr. Ellis Sails for Siam.—Dr. Aller G. Ellis, formerly associate professor of pathology at Jefferson Medical College, has sailed for Bangkok, Siam, where he will take charge of the pathologic department of the Royal Medical College, Bangkok, under the auspices of the Rockefeller Foundation of New York. Dr. Ellis will also occupy a position similar to the dean in an American educational institution.

Personal.—Dr. John I. Fanz, Philadelphia, has been elected professor of pathology, hygiene and bacteriology at the school of medicine of Temple University to fill the vacancy caused by the resignation of Dr. Eugene T. Asnis.——Dr. George E. de Schweinitz, Philadelphia, delivered an address before the Mechlenburg County Medical Society at Charlotte, N. C., August 1.——Dr. Edward B. Krumbhaar, Philadelphia General Hospital, was recently the recipient of the $150 award of the Elizabeth Thompson Science Fund for the study of immunity to cancer.——Dr. Maude E. Abbott, curator of the medical museum and lecturer at McGill University, Montreal, Canada, has accepted the chair of pathology and bacteriology and the supervision of the clinical laboratories of the Women's Medical College of Pennsylvania, Philadelphia. Dr. Abbott is managing editor of the *Descriptive Catalogue of the Canadian Army Medical Museum*, permanent secretary-treasurer of the International Association of Medical Museums, of which she was a founder, and a member of the editorial board of the *Journal of the Canadian Medical Association.*

TEXAS

Epidemic of Typhoid.—According to a report from Dr. William H. Beazley, Austin, state health officer, typhoid fever has reached epidemic form in several sections of Texas. Polluted streams are attributed as the cause.

Personal. — Dr. John Francis McDonald was recently appointed city health officer of Hillsboro.——Dr. Henkle Garst, Pharr, has been appointed director of the division of child hygiene of the state health department.—Dr. Joshua M. Blackwell, Austin, has been appointed to succeed Dr. William H. Sory as health officer of the public health unit at Brenham.

WASHINGTON

Hospital News.—The contract has been awarded for the construction of the Providence Hospital, Everett, at a cost of $300,000. The structure will be erected for the Sisters of the Charity of the House of Providence, and will be four stories high and of brick and concrete construction.——The county commissioners of Pierce County voted last month to establish a nonsalaried staff of physicians at the Pierce County Hospital, Tacoma, which will displace the present office of county physician and his assistant. This action will retire Dr. Clarence P. Gammon, county physician.——The board of directors of the Walla Walla Sanatorium, College Place, announce a reorganization of the medical department of the institution, the appointment of a complete staff, and the establishment of a diagnostic clinic with modern hospital facilities. The newly appointed chiefs of departments are: superintendent, Drs. Adam D. Schlotthauer; internal medicine, Edward L. Whitney; surgery, John C. Lyman; ophthalmology, rhinology, laryngology and otology, James T. Rooks, and radiology, Carl J. Johannesson.

WISCONSIN

Inspection of Summer Resorts.—Under the auspices of the state board of health, sanitary supervisors have given strict attention to the sanitation of summer resorts in Wisconsin. In July, there were 391 hotels inspected and sixty-three orders for improvements; 458 restaurants were also inspected.

Four-Year Medical Course at Wisconsin University.—When the new $1,400,000 state general hospital, now under construction at the University of Wisconsin, Madison, is completed, the university will be able to give a four-year course in medicine. The new hospital will have 300 rooms, twelve large wards and facilities for medical students to serve internships there.

CANADA

Canadian Association of Anesthetists. — The following officers have been elected for the ensuing year: president, Dr. Walter I. Muir, Halifax; vice president, Dr. John J. J. Buettner, Syracuse, N. Y., and secretary-treasurer, Dr. Harry J. Shields, Toronto.

Canadian Physicians in Politics.—More than twenty physicians of Ontario were candidates at the recent elections to the Canadian House of Parliament. The following physicians were the successful candidates: Joseph D. Monteith, Stratford; the Hon. David Jamieson, Durham; Arthur G. Wallis, Algoma; Leeming Carr, East Hamilton; George V. Harcourt, Parry Sound; Forbes E. Godfrey, West York, and John P. Vrooman, Lennox.

Tuberculosis Dispensaries to Be Established in Quebec.—Under the auspices of the board of health, dispensaries for

The treatment of tuberculous patients will be established throughout the province of Quebec in the near future. The dispensaries will be located in hospitals already established, or in other institutions at points where the disease is most prevalent. School dispensaries will be established in Montreal and Quebec, where nurses and physicians will be trained. Later, this part of the scheme will be extended to other parts of the province.

Hospital News.—Bids have been received for the erection of a hospital at Monston, N. B., which will cost $125,000——Construction work has been started on additions to the Brantford General Hospital, Brantford, Ont.——A new isolation hospital will be erected in the near future at Revelstoke, B. C. ——A hospital, to be known as the Hotel Dieu de St. Laurent, will be erected at a cost of $600,000 by the Reverend Sisters of Quebec General Hospital, Quebec.——Citizens of Restigouche and Bay of Chaleur counties have raised $150,000 to erect a memorial hospital to the fallen soldiers. Its capacity will be fifty beds.——Construction work has been started on a 25 bed addition to the Grace Hospital, Winnipeg, Manit.——The north wing of the Ste. Anne Hospital for the Insane, Baie St. Paul, Quebec, was completely destroyed by fire recently, involving a loss of $150,000. The 250 male inmates were marched out of the building at 2 o'clock in the morning without loss of life.——The fiftieth anniversary of the St. Jean de Dieu Hospital for the Insane, Quebec, was celebrated recently. The hospital was established by the Sisters ot Providence in 1873.——The government of the Province of Quebec has decided to assume control of the Ste. Agathe Sanatorium. At present it is occupied by invalided soldiers cared for by the Dominion government, and it is announced that the institution will be taken over as soon as the present inmates have left. —— A new hospital will be erected at Nanaimo, B. C., at a cost of 150,000.

GENERAL

Negro Death Rate.—According to statistics compiled by Howard University, Washington, D. C., the mortality rate among negroes in the United States is seventeen in a 1,000. It is also stated that colored physicians and surgeons have increased 23.7 per cent. during the last ten years.

Incidence of Trachoma in the United States. — At the twentieth annual conference of State and Territorial Health Officers, recently, Dr. John McMullen, secretary of the standing committee on trachoma, in his annual report stated that the general work included twenty-seven clinics in rural communities in Kentucky, Ohio, Texas, Mississippi, Tennessee, North Carolina and Georgia, at which more than 5,000 people were examined, 686 cases discovered and 498 operations performed. In some cases the disease could be traced back four generations.

The "Devil's Grip."—Dr. William C. Fowler, health officer of the District of Columbia, has recently returned from an investigation of the outbreak of "devil's grip" in Virginia. More than 400 cases have already been reported in the state in a district about sixty miles south of Washington. At a special meeting of physicians in the Virginia Academy of Medicine, Richmond, a committee was appointed to make a thorough study of the strange malady and report its findings to the academy. This disease, or one similar, appeared in Virginia in 1888, and was described by a professor in the University of Virginia at that time as the "devil's grip."

New Magazine in Health Field.—The most recent number of *Venereal Disease Information*, a monthly publication issued by the U. S. Public Health Service, primarily for health officers, physicians, nurses and social workers engaged in venereal disease control activities, appeared in print, instead of in mimeograph, as formerly. The publication has been improved. The contents are divided into six sections under the heads of special articles, research, diagnosis, treatment, clinical notes and public health and administrative notes. Subscription rates for this new periodical are 50 cents per year, and it may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C.

Regional Anticancer Drives.—It has been announced by the American Society for the Control of Cancer that, beginning October 15, a series of six regional cancer campaigns, which will not only cover the entire United States, but Canada and the maritime provinces as well, will be given to take the place of the National Cancer Week held in 1921 and 1922. Dr. George A. Soper, now head of the society in place of the late Dr. Charles A. Powers, believes that the work can be more effectively accomplished by the new method. The campaign in the region comprising Wisconsin, Michigan, Illinois, Ohio, Indiana, West Virginia and Kentucky will begin February 15, and continue until March 14, 1924. Preparatory work will occupy three weeks in each region or district, and the fourth week will be devoted to a cancer week in which information will be broadcasted to the public.

Public Health Laws.—More than 200 new health laws have been added to the statute books this year. Sixty-eight of these were in New York. Iowa has twenty-four new health laws; Minnesota, twenty-one; Ohio, thirteen; Connecticut, eleven, and Idaho, ten. Other states each passed less than ten, as in New Jersey, where forty-four measures were considered and only four passed. Forty-one states have now accepted, through legislation, the provisions of the Sheppard-Towner Maternity Act. Of the new health laws of this year, forty concern municipal health, twenty-four concern tuberculosis and nineteen are connected with food and drugs. There were several laws passed on state health, and eight new narcotic acts. Chiropractors got legislation in only two states (Maine and Tennessee), but the cult now has recognition in twenty-five states. All antivivisection and antivaccination bills were defeated.

Glandular Therapy and Body Growth.—The physical records of the graduating classes of 1920-1921 at the U. S. Naval Academy revealed that approximately 10.6 per cent. of each class failed to attain the minimum height for officers of 66 inches. Capt. D. N. Carpenter and Lieut. D. Ferguson of the U. S. Navy attempted to stimulate growth by endocrine therapy. The group of undersized midshipmen submitting to organotherapy was wholly volunteer. The conclusions based on the study were:

1. The new regulations governing the height requirement of candidates for the Naval Academy, namely, 62 inches at 16 years of age and an additional inch for each year or fraction over six months, if rigidly enforced, promise to reduce underheight in officers by almost one half.
2. Growth is not stimulated by thyroid and pituitary therapy in persons at or near maturity.
3. Preparations of anterior pituitary extract appear to be inert as growth stimulants in these men, when administered orally.
4. There is possibly an appreciable percentage of thyropenia in this country.

World's Dairy Congress. — The annual meeting of the World's Dairy Congress Association will open at Washington, D. C., October 2-3. There will be twenty-nine sessions, and delegates from thirty-seven countries will attend. The delegates will spend October 4 at Philadelphia as guests of the National Dairy Council, and from October 5-10 they will hold their meeting in cooperation with the seventeenth annual National Dairy Exposition at Syracuse, N. Y. Among the speakers will be Dr. Costantino Gorini, professor of bacteriology and hygiene, Agricultural High School, Milan, Italy, and at the University of Pavia; Lafayette B. Mendel, Ph.D., physiologic chemist of Yale University, New Haven, Conn., and editor of the *Journal of Biological Chemistry;* Elmer V. McCollum, Ph.D., professor of chemical hygiene, Johns Hopkins University, Baltimore, and Dr. Osakar Laxa, professor and director, Bacteriological Institute, Prague.

Society News.—The thirty-sixth annual meeting of the Medical Society of the Missouri Valley will be held in Omaha, September 18-21 in conjunction with the meeting of the Interstate Society of Radiology and Physiotherapy. The latter is a new organization of which Dr. Charles L. Mullins, Broken Bow, Neb., is president, and Dr. Roland G. Breuer, Lincoln, Neb., secretary.——The annual meeting of the American Electrotherapeutic Association will be held in Atlantic City, N. J., September 18-21.——Dr. Homer D. Dudley, Seattle, was recently elected president of the Pacific Northwest Medical Association for the ensuing year. The association is composed of physicians from British Columbia, Alberta, Washington, Idaho and Montana.——The twenty-seventh annual meeting of the Sioux Valley Medical Association was held in Sioux Falls, S. D., July 5-6. Dr. Louis L. Corcoran, Rock Rapids, Iowa, was elected president, and Dr. Ralph M. Waters, Sioux City, Iowa, secretary.——The first annual convention of the American Child Health Association will be held at Detroit, October 15-17. Health education, nursing and general subjects will be discussed.——The semiannual meeting of the American Association of Hospital Social Workers will be held at Milwaukee, October 29-November 2, in conjunction with the twenty-fifth annual conference of the American Hospital Association. A group meeting will also be held with the American Dietetic Association.

LATIN AMERICA

Baby Clinic in Mexico.—The Young Women's Christian Association will shortly open a daily clinic in Mexico City for the instruction of mothers in the care and feeding of young children. Artificial food will be sold at cost to mothers unable to nurse their babies. The patio of an old convent in a crowded district has been loaned to the association and equipment donated.

Personal.—Dr. E. V. Segura, professor of diseases of the ear, nose and throat at Buenos Aires, has been elected foreign correspondent by the Académie de médecine at Paris.——A subscription list has been opened at Buenos Aires to collect funds for a bronze tablet in memory of Dr. Juan Guglielmetti, and for the publication of some of his most important works.——The Academia Nacional de Medicina of Brazil recently reelected Dr. Miguel Couto president for the tenth time. Dr. A. de Castro was elected vice president; Drs. Belmiro Valverde, first secretary; Artidonio Pamplona, second secretary, and H. Roxo, Ferreira da Silva and H. Autran, editors of the *Annaes*. The ninety-fourth anniversary of the Academia was celebrated recently.——The *Anales* de la Sociedad Médico-Quirúrgica of Guayaquil mentions the arrival and brief visit of Dr. J. D. Long, assistant surgeon general of the U. S. Public Health Service, on his return from the Pan-American Conference at Santiago de Chile.——Dr. A. J. Valenzuela V. has returned to Guayaquil from a trip to Europe, after serving at the Sixth Latin-American Congress at Havana as the official delegate from Ecuador.

FOREIGN

Improved Health Conditions in Japan.—Baron Masuda and Baron Mitsui have each contributed 200,000 yen to the Keio University, Japan, to establish a food research laboratory in connection with the university hospital with a view to improving the health conditions of the people. This laboratory will be the first of its kind in Japan. Drs. Kenta Omori, head of the research work, and Z. Kawakami will visit the United States and Europe in the near future, under the auspices of the university, to study similar undertakings in those countries.

New Australian Maternity Law.—With the proceeds from the "Golden Casket" lottery (averaging more than $1,000,000 per annum) maternity hospitals, hospitals for diseases of women, antenatal and baby clinics and training schools for nurses in midwifery and infant welfare will be established throughout Queensland under the provisions of a new measure known as the Maternity Act, passed at the last session of the Queensland Parliament. In isolated places cottage maternity hospitals will be erected. Sums varying between £2,500 and £10,000 will be set aside for the provision of adequate institutional accommodation in the ten largest centers in Queensland. No persons, under this act, shall be refused admission to these maternity hospitals because they cannot pay the fees or "on account of any other cause."

Measles Convalescents' Serum in Prophylaxis.—The *Klinische Wochenschrift* of Berlin relates that the public health authorities of Germany have been discussing provision of measles convalescents' serum for preventive purposes for children under 4 years of age. The plan of having some arrangement by which the public health authorities in large towns could have a supply of the serum was endorsed, and propaganda through the medical press and daily papers was advocated, to interest physicians and parents in the matter. Practitioners were urged to refer to hospitals children above the age of 4 who might be considered as donors, and instruct the children themselves, as well as the parents, in the danger to the younger children without the preventive injection. All interested in the technic for obtaining the serum and its clinical application were referred to recent articles by Degkwitz. Two were summarized briefly in The Journal, July 31, 1920, p. 356, and May 13, 1922, p. 1501.

International Surgical Congress.—At the congress recently held in London, Dr. Davide Giordano, Venice, Italy, was elected president to succeed Sir William Macewen. The predecessors of Giordano in the presidency of these congresses were: Kocher of Berne; Czerny of Heidelberg; Lucas Championnière of Paris; Depage of Brussels; Keen of Philadelphia, and Macewen of London. The *Riforma Medica* states that Giordano is the first president who is not connected with a university. The toast to the delegates at the annual banquet was acknowledged by Dr. Crile, for the U. S.; Dr. Koch, for Holland; Dr. Mayer, for France and Belgium; Dr. Alessandri, for Italy; Dr. Hansen, for Denmark; Dr. Kayser, for Sweden; Dr. Petridis, for Egypt; Dr. De Zawadski, for Poland, and Dr. de Quervain, for Switzerland. The next congress will be held in Rome and not in Warsaw as had been proposed.

School Medical Inspection Abroad.—Legal provision for school medical inspection in foreign countries is as follows:

Austria.—The state organized medical inspection and the medical inspectors are appointed by central authorities.

Belgium.—The general lines along which medical inspection of those schools coming under the provision of the law should be carried out are specified by royal decree, March 25, 1921, in conformity with article 45 of the Organic Elementary Education Law.

England.—The Education Act of 1907 requires the local education authorities to provide for the medical inspection of school children when they enter a public elementary school and as often thereafter as the board of education may determine.

France.—The law of Oct. 30, 1886, dealing with the organization of elementary education, provides for the medical inspection of private or elementary schools by communal or departmental medical inspectors.

Germany.—School medical inspection is carried on under special enactment in several confederate states.

Hungary.—The law of April 8, 1876, places the sanitary problems of school under the supervision of municipal authority, subject to the direction and control of administrative authorities through their medical officer and special officials.

Norway—School medical inspection is carried on under the education law of 1896.

Roumania—The law of June 14, 1893, charges town physicians with the medical inspection of schools

Scotland.—By the Education Act of 1908, every school committee when called on by the education department is required to provide for school medical inspection in accordance with departmental directions.

Switzerland.—School medical inspection is carried on in several cantons under legal provision.

Health Conditions in Various Countries.—Rangoon, in 1920, had an infant mortality of 303, Calcutta, of 386 and Bombay, of 556 per thousand born, the incredible figures of 995.6 and 900.5 deaths per thousand being given for certain parts of the last mentioned city. Of 19,731 births registered in Bombay, 1920, 14,956 occurred in single room tenements with a mortality of 631 per thousand.——In Uganda, Africa, according to statistics, quoted by the *China Medical Journal* (June), 33 per cent. of infants die at birth; with the addition of miscarriages, and deaths during the first week, the infant mortality rate reaches 70 per cent. During the last six years, Uganda has had 64,000 more deaths than births.——Siam, according to a recent survey, has 8,000 lepers.——Brazil, according to official statistics for the federal district quoted by the *Brazil-Medico,* has 714 lepers interned at hospitals or under domiciliary supervision.——Argentina, according to *Néoplasmes* (June), had 9,400 deaths from cancer in Buenos Aires alone, from 1912 to 1918, or 10 for each 10,000 inhabitants.——Brazil had 2,790 deaths from cancer in Rio de Janeiro, from 1912 to 1918, with a death rate of 5.09 per 10,000 from this disease in 1921. The state of S. Paulo reported 798 deaths from cancer in 1918.——Japan reported 192,530 deaths from cancer (70.8 per 10,000 male, and 69.2 per 10,000 female inhabitants) from 1914 to 1918.

Plans of American Medical Aid in Russia.—Plans for the medical work of the Friends' Relief Mission in Russia have been announced. This work is supported by the American Friends' Service Committee, Philadelphia, through its medical section, American Medical Aid for Russia. The first part of the program is to provide hospitals with sheets, blankets, medicines and other necessities. Many of the hospitals in the district have had only a small amount of medicine, and almost none of the most essential equipment, such as thermometers, hot water bags and instruments. The second part of the program is to continue the antimalaria work. There are now two clinics, one in Sorochinskoye and one in Buzuluk, each of which has received more than 7,000 persons for quinin treatment, and each of which is taking about 100 new patients a day. A general sanitary survey of most of the villages will be made, followed by a health campaign. The third feature is child welfare work. As a first step, the government will reduce the number of children in charity homes to a minimum, so that efforts may be concentrated on keeping the general population in health. Day nurseries will be opened in villages during the summer, that young children may be cared for while their mothers work in the fields. Where necessary food relief will be given to widows with more than one child. Better medical inspection of institutions and schools will be necessary, for which additional Russian physicians will be brought in by the mission, or local physicians procured. Summer homes for defective children will be opened. The final point in the program will be a campaign against venereal disease following a special appeal from the government for help in this connection due to the alarming increase since 1914. This program has the full approval of the health department of the Russian government. Dr. Elfie R. Graff, Poughkeepsie, N. Y., is in charge of the work.

Personal.—M. Strauss, minister of Hygiene in France, presided July 9 at the unveiling of the tablet in memory of Professor Chantemesse at the house where he was born at Pny.——Professor Tiffeneau of the department of pharmacology, Paris, has been awarded the Jecker prize by the Académie des sciences.——Professor Delepine of the department of pharmacology, Paris, has received the international Cannizzaro prize in chemistry from the Italian Academia de Lincei at Rome.——Drs. Widal and Sicard, and M. Mourier, director of the Assistance publique, delivered addresses at the ceremony of naming a ward of the Necker Hospital, Paris, in memory of Dr. Hirtz, who for many years was physician to that hospital.——Dr. Henry Reynès, professor of surgical pathology at Bordeaux, founder and president of the Association professionelle des médecins et chirurgiens of the civilian hospitals of France, director of the journal *Les Hôpitaux de France,* has been appointed to the council of the Assistance publique.——Sir Thomas Oliver of England, specialist in occupational diseases, will visit the United States in September to ascertain the progress made in industrial hygiene and employees' welfare work since 1912, when he made a similar tour.——Col. Charles H. Bowle-Evans has been appointed director of medical services of the British Army in India, to succeed Lieut. Gen. Sir Charles H. Burtchaell.——Surgeon Rear Admiral Joseph Chambers will, October 1, succeed Surgeon Vice Admiral Sir Robert Hill as director general of the medical department of the Royal Navy.——The honorary degree of LL.D. was conferred on Sir John Bland-Sutton, President of the Royal College of Surgeons of England at the installation ceremonies of Mr. Rudyard Kipling as Rector of the University of St. Andrews, Scotland.——Dr. Emerich v. Gergö has been elected president of the newly organized Hungarian Roentgen Society. Dr. A. Henszelmann is vice president, and Dr. Vidor Revesz, secretary, all of Budapest.——The *Medicina Ibera* mentions that a traveling fellowship has been given Dr. Abelardo Serrada of Madrid for studying the treatment of gastric cancer in other countries. He is now in Paris.——Dr. José M. Jorge, professor of clinical and orthopedic surgery at the University of Buenos Aires, has been sent by the medical faculty on a special mission to Europe to study orthopedic institutions.

Deaths in Other Countries

Dr. **George E. Miles,** superintendent of the lunacy department of New South Wales and veteran of the World War; at Sydney, Australia, June 11.——Dr. **Harry Shore** of Walsall, England, in a motor bicycle accident, recently.——Dr. **William F. Robertson,** pathologist to the Scottish asylums; author of "Textbook of Pathology in Relation to Mental Diseases," and translator of Tanzi's "Textbook of Mental Diseases"; July 17, aged 56.——Dr. **Heinrich Bircher,** chief of the Aarau Hospital, one of the leading surgeons of Switzerland, author of works on the thyroid and on war surgery, aged 73.——Dr. **A. Ellinger,** professor of pharmacology at the University of Frankfort, aged 53.——Dr. **E. Hess Bey,** at Zurich, a Swiss physician, long practicing in Cairo, aged 75.——Dr. **Delépine,** Lille.——Dr. **Demetrio Murúa Pérez,** chief of the public disinfection service of Valparaiso, Chile, and on the staff of the San Augustin Hospital.——Dr. **E. G. Müller,** professor of histology and anatomy at Stockholm, and president of the Swedish Medical Association, 915-1916.——Dr. **J. Dallemagne,** formerly professor of legal medicine at the University of Brussels, and pioneer in Belgium in the application of modern psychiatry to criminals.——Dr. **Mario Bastos Rodríguez,** a radiotherapeutist on the staff f the Hospital Rivadavia, Buenos Aires.——Dr. **Juan Antonio Agrelo,** a young physician of Buenos Aires.——Dr. **M. Wolff,** rofessor emeritus of internal medicine at the University of Berlin, aged 80.——Dr. **J. Forschbach,** professor of internal medicine at the University of Berlin, aged 45.——The *Brazil Medico* mentions the death of Dr. **Henrique Araujo,** professor n the law school at Nictheroy and author of works on preentive medicine, and also the death of Dr. **Camillo Fonseca** f Rio de Janeiro.

CORRECTION

Dr. Cohen Awarded Knapp Medal.—In the report of the ection on Ophthalmology of the American Medical Associa-on, The Journal, July 14, p. 126, it was stated that the Knapp Medal was awarded to Dr. Martin Cullen, New York. t should have read Dr. Martin Cohen, New York.

Government Services

Court Martial Ordered

It is reported that court martial proceedings have been ordered against Major George W. Cook and Capt. Samuel C. Gwynne, Medical Corps, U. S. Army, following an investigation by the Surgeon General and the Inspector General of the treatment of Private Guy Pendleton whose legs were amputated while in hospital at Camp Eustis, Va. Major Cook was in charge of the hospital at the time of the operation.

Advisory Committee of Public Health Service Meets

August 15, a conference of the advisory committee to the Surgeon General on the education of sanitarians and the future of the Public Health Service in the United States, was held in Washington, D. C. The activities of the Public Health Service to insure a larger number of trained sanitarians for the future and to discover how those now employed might receive further academic training were reviewed by the advisory committee, at this meeting. In attendance were Dr. David L. Edsall, chairman; Dr. H. S. Cummins, head of the U. S. Public Health Service; Dr. Haven Emerson, professor of public health administration, Columbia University, New York; Dr. Frederick W. Sears, sanitary supervisor, New York State Department of Health; Dr. W. S. Rankin, state secretary, Board of Health of North Carolina; Surg. A. J. McLaughlin, U. S. Public Health Service; Dr. W. F. Draper, Asst. Surgeon General, U. S. Public Health Service, and Mr. H. H. Moore, director of public health education of the U. S. Public Health Service. Particular attention was given to replies from questionnaires sent to 3,700 employees of health departments, 6,300 public health nurses and to 10,000 physicians in five states in various parts of the country.

Among 6,123 replies, more than 5,700 asserted that there is need for public health institutes of six to eight weeks' duration, to be established in connection with existing university centers. The majority preferred that the institutes be held in the summer. The committee will suggest to the Public Health Service that a limited number of universities be requested to establish public health summer schools in 1924, and that the service assist in this work. The aim of these schools of public health, such as are proposed, would be to provide intensive training for all professional groups engaged in public health work; to make available to practicing physicians instruction which would enable them to participate more fully in preventive work; to treat more effectively cases referred to them by school clinics, and to bring together in a more cooperative relationship practicing physicians, health officers and sanitarians.

The following groups, it is proposed, might be eligible for admission: physicians; nurses; employees of health departments or recognized private agencies, recommended by the heads of such departments or agencies, and students of universities who present a statement from the president or dean that they are competent to do advanced work.

It is probable that the Public Health Service will propose to four or five universities of the country the establishment of these public health summer schools so that at each one a program of courses would be available, with a number of specialists of eminent reputation for each of the faculties. A suggested course of subjects to be covered would be tuberculosis, nutrition, public health nursing, child hygiene, syphilis, gonorrhea, diseases of the heart and arteries and the noncommunicable diseases (including diabetes and cancer). In addition, laboratories should be available for work in bacteriology, epidemiology and immunology. The experience of the Public Health Service in conducting venereal disease institutes in 1920 indicates that the success of the proposed summer schools will rest largely on the skill of the instructors to make their subjects interesting, and on their nationwide reputation. Physicians will travel long distances to secure instruction from recognized authorities.

Present Status of Reserve Corps Units

The Surgeon General of the Army believes that the medical profession will be interested in a statement of the present status of organization of reserve corps units of the Army. The difficulties attending the organization of staff departments for an army of three million men make desirable the necessity for an organization or superstructure in peace time from which effective military units could be quickly built in time of emergency.

The complete lack of organization of the civil profession for the stupendous expansion required by the World War resulted necessarily in defects and inequities in many instances. The purpose of the War Department is now to effect an organization of the medical profession which will provide a more effective medical department organization for the next public emergency. No one knows better than the Surgeon General of the Army that the lack of a personnel organization prior to the World War resulted in individual injustices and errors in assignment. These defects all point to one remedy, which is prewar preparedness, along which path the medical department is now proceeding. Success can be obtained only by the cooperation of the medical profession, whose interests are fundamentally great in perfecting such organization. Broadly speaking, the endeavor of the medical department is along three lines, military education, military enrolment and military organization.

Military education is cared for by the R. O. T. C. units which are established in a considerable percentage of the recognized professional schools of this country, and also by the training of reserve officers in the military schools and training camps of the Army. Enrolment is fundamentally the acceptance of a commission in the National Guard or Officers' Reserve Corps. Organization is effected by assigning enrolled personnel to potential military units of the National Guard and Organized Reserves. In the medical department, these units fall broadly into two groups which may be described as tactical units pertaining to combatant forces, and hospital and supply units pertaining, in a broad sense, to the service of supply and hospitalization.

At the present, the enrolment of commissioned personnel of the medical department is as follows:

	Medical	Dental	Veterinary	Medical Administrative	Sanitary
Reserve Corps.....	6,478	3,267	640	662	334
National Guard....	628	171	79	51	...

In relation to the total medical profession of America, this enrolment is not satisfactory. The failure to secure a larger enrolment is probably due mainly to three factors: (1) A national apathy toward preparedness for war in peace time; (2) the natural reaction immediately after a war toward things military, and (3) the sense of inequity or injustice which occurred in many individual instances.

The medical department is earnestly seeking by fair and impartial treatment of all to win the confidence of the profession and to overcome ill feeling toward the service. It is believed that the pendulum has begun to swing the other way and that before long a much more satisfactory enrolment in the medical department will be secured.

The present state of the organization of units is, of course, affected by the relatively low enrolment in the Officers' Reserve Corps. The War Department divides units into two large groups, which are called the branch assignment group and the territorial assignment group. Continental United States is divided into nine territorial areas, to each of which is allocated the organization of certain units. The organization of the territorial group units is progressing steadily, along with the organization of the tactical units of the line and other staff departments in these areas.

In a general way, the purpose of this office is to organize suitable hospital units, specialists groups, supply units and other Medical Department units in leading universities, hospitals, supply centers and business organizations of civil communities. In the selection of personnel for these organizations, the utmost freedom is left to the university, hospital or business organization which is delegated to provide the unit. It is not expected that this organization will strip the parent organization of the university, hospital or other organizing factor of its essential staff. On the contrary, the purpose is to have an organization selected which will enable the parent staff to continue its operations without difficulty. A complete organization is not necessary in the formation of hospital units. The enrolment of enlisted personnel and nurses is not required, nor is any uniform or other equipment necessary. The university or hospital nominates the commander, who must receive the approval of the War Department; other members of his staff are nominated and approved from time to time as suitable persons are found by the organizing personnel of the unit.

The medical profession of America met the need of the country in the World War in a most wonderful manner. It is now called on to meet the requirement of the country for national preparedness.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Aug. 4, 1923.

Cancer Research

At the annual meeting of the Imperial Cancer Research Fund, the director, Dr. J. A. Murray, presented his report on the results of the investigations of various workers under the fund. Dr. Cramer's work on vitamin deficiency had been brought to a conclusion. Repeated experiments had failed to show any inhibitory effect on cancer even when deficiency of vitamins was so severe as to be incompatible with life. Dr. Drew's tissue culture work has added considerably to our knowledge both of normal and of cancer cell life. He showed that differentiation is absent in cultures of normal tissues when the parenchyma cells are grown without connective tissue. But the addition of a pure culture of connective tissue to one of kidney epithelium or squamous epithelium is quickly followed by differentiation, convoluted tubes with swollen bulblike extremities being produced. Similarly, when the undifferentiated mammary carcinoma of the mouse is grown with connective tissue, typical adenomatous structure is produced. When the connective tissue is removed, the undifferentiated condition returns. Drew concludes that the loss of differentiation, which has played so large a part in the theoretical discussion of cancer, is merely a superficial character. In another set of experiments, Drew threw some light on the nature of malignant transformation. It is known that while embryonic tissues and tumors grow without delay when placed in a suitable culture medium, adult tissues grow only after a considerable time. If an extract of minced kidney, which has been incubated with the fluid used for extraction for one or two hours, is added to the culture medium, growth begins at once; but without incubation the delay is as long as if the addition had not been made. When a similar extract is made from a rapidly growing transplantable tumor, growth is as energetic as with incubated kidney. These experiments seem to suggest that malignant cells produce growth-activating substances which normal tissues produce only in response to injury. This helps to explain the part of chronic irritation in cancrogenesis. The irritants which lead to cancer are relatively mild and do not cause rapid destruction. The sudden onset of malignancy after a long period of irritation seems to be due to change in the protoplasm by which activating substances are produced.

Eleventh International Congress of Physiology

The eleventh International Congress of Physiology has been held in Edinburgh under the presidency of Sir Edward Schäfer. In his address he especially associated the name of Lister with the gathering, partly because he was for several years professor of surgery in the university, but chiefly because the researches that preceded his great discovery were researches in pure physiology, and were inspired by that great teacher William Sharpey, who migrated in 1836 from Edinburgh to London. Incidentally, it was interesting that both Sharpey and Harvey—the greatest of British physiologists—were born in the same town, Folkestone, though at an interval of 200 years. The honorary degree of Doctor of Laws was conferred on F. Bottazzi, Naples; W. Einthoven, Leyden; W. H. Howell, Baltimore; J. E. Johansson, Stockholm; A. Kossel, Heidelberg; H. H. Meyer, Vienna; Ivan Pawlow, Petrograd, and C. Richet, Paris. Prof. J. J. R. Macleod read an exhaustive paper on insulin. Professor Richet, in a paper which he termed revolutionary, dealt with the borderland of physiology and psychology, endeavoring to prove by the experimental method that there were other channels than the normal sensory ones. It was generally thought that we could not comprehend reality by other means than the five senses. He suggested that the events of the external world could actuate us in some other way which was not at present understood, by a hidden form of sensibility which he termed "cryptesthesia." In considering such possibilities, investigators should not let themselves be prejudiced by the credulity of the spiritualist. The facts, which depended on observation, should be investigated experimentally. Pawlow read a paper on inhibition, dealing with the conditioned reflexes. He raised the important question whether the highest nervous activity—that is to say, individual perfection—might be of use to the next generation. Was it hereditary? He had tried to answer the question by experiments on white mice. He established in them the conditioned food reflexes, using the sound of an electric bell. With the first set of wild white mice it was necessary to repeat the combination of ringing the bell and feeding 300 times in order to establish the reflex. The next generation formed the reflex after 100 repetitions, the third after three, the fourth after ten, and the fifth after five.

Fellowship in the Royal Society and Clinical Research

In a letter to the *Times,* Sir Berkeley Moynihan claims that clinical research and toilsome discoveries of new technical methods are as fully entitled to the term "scientific" as any of the good work done in laboratories. The complexities of clinical research are so intricate, and, because of the human material on which they are conducted, are so bewildering, as perhaps to surpass all forms of laboratory research in difficulty. They call for qualities of insight, imagination, patience and intellectual integrity to a no less considerable degree. The practice of clinical medicine and surgery makes a further heavy demand on the qualities of temperament and character which are little exercised in the cloistered tranquillity of the laboratory. Yet, according to Sir Berkeley, the rewards open to the clinical investigator by the only scientific body competent to give them, the Royal Society, are consistently withheld. The present president of the society is a medical man whose life has been spent in the laboratory, with the result that physiology and general medicine have been enriched by his labors. But there are physicians and surgeons whose lives have been spent in the wards and operation theaters whose contributions to "scientific" medicine are entitled to rank even with his. To this it might be rejoined that the very few clinicians whose work might be compared in value with that of Sherrington have received the F.R.S. Sir Berkeley Moynihan's letter seems to be based on a misapprehension of the reason for which the F.R.S. is conferred—outstanding original contributions to science. On this point most of the admirable qualities which he describes are irrelevant. At the top of the medical profession are very able men, keen diagnosticians, skilful operators, able expositors and excellent observers. It is only by the last—original observation—that a clinician could qualify for the distinction of F.R.S. But original observations, and even important ones, are constantly being made by many clinicians and certainly deserve the adjective "scientific." However, he Royal Society confers its fellowship, here as elsewhere, only on those who have done original work of the highest importance. After all, medicine is far from being an exact cience, and it is not difficult and allows scope for a great deal of important work which is far from scientific in the highest sense. Moreover, there are many good workers in he exact sciences whose work, to say the least, is scientifically on a level with those whom Sir Berkeley describes, and they do not receive the F.R.S. for exactly the same reason: their work is not of first class scientific importance. No doubt he work of the leaders of the medical profession for the relief of human suffering can be claimed to be more useful than theirs, but utility is irrelevant to the question. Moreover, medical workers obtain social distinction, which minor scientists do not, and these are the fitting reward for the qualities described.

The Smallpox Epidemic

The Gloucester epidemic has begun to decline, thanks to the energetic measures of the ministry of health. To those who disbelieve in vaccination the following figures should give pause: total admissions to the Gloucester Smallpox Hospital, 350; unvaccinated, 319; vaccinated so long ago as to be unprotected, eighteen; vaccinated during incubation period, thirteen. During the past week, two fresh cases have been admitted, compared with seventy in the previous week. There are now 104 cases in hospital.

Seamen and Venereal Disease

A bill is being passed through the House of Commons to prevent concealment and neglect of treatment of venereal disease among seamen. Under the existing law a seaman suffering from venereal disease at a foreign port has his pay stopped and must pay for his treatment in a hospital and later find his way home at his own expense. The bill provides for free treatment and conveyance home of distressed British seamen suffering from venereal disease. The cost is to be collected from the ship owners, as in the case of any other disease or accident.

The Work of the Ministry of Health: Vital Statistics

In the House of Commons Mr. Neville Chamberlain, minister of health, made an important statement on the work of his department. Among the insured population in 1922, 19,500,000 weeks were lost by sickness. The vital statistics were encouraging, especially considering the exceptionally hard conditions of the last three or four years. The death rate in the first ten years of the century was 15.4 per thousand; in the next ten it fell to 14.3, and last year it was 12.8. In the five years from 1910 to 1915 the infant mortality rate was 111 per thousand births; in the next five, 90; in 1921 it was 83; in 1922, 77. A baby born today could expect to live twelve years longer than its grandfather lived. Many thought that the most fatal diseases were tuberculosis and cancer; but respiratory diseases, such as pneumonia and bronchitis, came first. This high mortality was to be attributed to the congested conditions and polluted atmosphere of the large towns. He hoped to introduce legislation to help the campaign for the cleansing of the atmosphere. Next in fatal effect were diseases of the heart, and third, those of the nervous system. Cancer now caused ninety-six per thousand of all deaths and there was no doubt that deaths from it were increasing. In 1900 the rate per million of population was 829; ten years later, 967, and in 1921, 1,215. The figures were very disquieting, despite allowance for better diagnosis and the fact that more people reached the "cancer age." The position with regard to tuberculosis was more encouraging. The deaths per million last year were only 855, as compared with 2,653 in 1867. Venereal disease was fairly rapidly on the decline, a fact which he attributed largely to the setting up of clinics. There were now 191, and he hoped to increase them. Referring again to infant mortality, the satisfactory figure of 77 per thousand for 1922 still meant the death of 60,000 infants under one year. Besides the saving of life, there was an improvement in the general health of children. He ascribed this in great measure to the establishment of infant welfare centers, of which there were now 1,950. There was need, however, for more centers, more prenatal clinics, more free medical attendances, more health visitors, and improved practice of midwifery. Results already achieved proved that the expenditure of more money in these directions would be well worth while.

PARIS

(From Our Regular Correspondent)

July 27, 1923.

Transfers of Practice

French jurisprudence has always refused to recognize contracts covering the transfer of practice, it being held that the practice of a physician, based mainly on the confidence of the patients in their physician which presupposes the freedom of choice, cannot be the subject of a commercial transaction. But a recent decision of the Court of Appeals of Paris establishes that a physician is entitled to contract with a confrère with respect to "obligations to do or not to do certain things." For instance, he may agree to present a successor to his clientele, to cede to him his leasehold, or to sell him professional equipment, or he may agree not to practice medicine for a given period of time or within a given radius. Such obligations are enforceable under the law and must be respected by the physician who entered into them, even though the agreement should be improperly referred to by the parties to the contract as a transfer of practice.

Again, the ruling quoted shows that lack of success on the part of the physician who took over the clientele cannot be pleaded as a valid reason for annulling the contract. Such lack of success may be due to manifold causes, often of a personal nature; and may be entirely the fault of the grantee.

Unwholesome Propaganda

Dr. Cazeneuve has called the attention of the Academy of Medicine to an advertising poster displayed in most of the omnibuses and street-cars, which, through the illustration and the tone of its language, tends to discredit breast feeding in favor of artificial feeding of infants. Since breast feeding constitutes the main safeguard of the new-born, Cazeneuve has requested the academy to pass a resolution recommending that all forms of propaganda discrediting breast feeding shall be prohibited by law. Pinard requested that the academy take advantage of the opportunity to pass a resolution favoring the bill that he has filed with the chamber of deputies looking toward the prohibition of the sale of "pacifiers" for infants.

The Immense Profits of Certain Branches of the Alcohol Industry

A banking house that is "promoting" the sale of stock of a company manufacturing fine liquors and so-called hygienic wines gives interesting inside information on certain branches of the alcohol industry. It would seem that the distilling industry in general, and, more particularly, the manufacture and sale of liqueurs, has always been a prosperous investment. The bank gives some conclusive illustrations: a certain liqueur paid every year a dividend in excess of the capital stock; namely, 700 francs on shares of 500 francs; a certain "wine of cinchona" yielded 10 per cent. on 100 franc shares. Veritable fortunes are thus being made from the exploitation of "fine" alcoholic beverages.

Court Decision to the Effect That a Hotel Keeper Has Not the Right to Refuse to Admit a Physician to His Establishment

A curious action has recently been decided by the civil tribunal of Nice. The case concerned a physician who had been called to treat certain foreign guests occupying rooms in a hotel in Nice. The proprietor refused to allow the physician to enter his establishment. The physician made three successive attempts to respond to the appeal of those who requested his aid, but was denied entrance each time. The physician accordingly instituted an action for the recovery of damages against the proprietor of the hotel. The hotel proprietor, in turn, filed a counterclaim for damages which he alleged the physician had caused him by using his influence with his clients to induce them to leave his hotel and take up their quarters in another establishment in which the physician was financially interested. The court, however, did not sustain the validity of the hotel keeper's attempted justification of his conduct in refusing to admit the physician to his hotel:

> Under no circumstances, may a physician be prevented from rendering aid to a patient. A person who takes up his residence in a hotel has the right to the tranquil possession of the lodging he has engaged, in accordance with the conditions established by local usage. The proprietor of a hotel has no right to restrict arbitrarily such usage.

The hotel keeper was sentenced to pay the physician 100 francs in settlement of damages, and also the cost of the suit.

Subscription to Establish Memorial for Delage

An international subscription has been opened to secure funds for the erection of a monument at Roscoff in memory of Dr. Yves Delage, under the auspices of M. Léon Bérard, minister of public instruction; M. Paul Appell, rector of the University of Paris; M. Picard and M. Lacroix, perpetual secretaries of the Academy of Sciences, together with numerous men of science and learning. Delage was a professor at the Sorbonne, and director of the biologic station at Roscoff.

Honorary Doctorates Granted by the University of Strasbourg

The University of Strasbourg, in accordance with the recommendation of the assembly of the medical department, has conferred the title of doctor *honoris causa* on Drs. William Maddock Bayliss and Ernest Henry Starling, professors in the University College of London; John Newport Lengley, professor in the University of Cambridge; Simon Flexner and Jacques Loeb, members of the Rockefeller Foundation; William H. Welch, director of the school of hygiene and public health at Baltimore; Edward L. Ehlers, professor at the University of Copenhagen; Jules J. B. Bordet, professor at the University of Brussels; Edoardo Perroncito, professor at the University of Turin, and Santiago Ramon y Cajal, professor at the University of Madrid.

A Reform in Favor of the Medical Personnel of Hospitals

A recent decision of the superior council of the Assistance publique regulates satisfactorily the question of the risks incurred by the medical personnel of hospitals in the exercise of their duties (The Journal, April 7, 1923, p. 1017). Physicians, surgeons, specialists, roentgenographers, interns and externs will henceforth have the right to free hospital care and treatment in case they contract disease or suffer injuries ascribable to their hospital service. A system of direct or mutual combined health and life insurance will make it possible to allow them an indemnity if they remain incapacitated or will indemnify their heirs and assigns if they lose their lives in the line of duty.

Death of Dr. Alexander Marmorek

The death of Alexander Marmorek has been announced. Being an Austrian subject, Marmorek was obliged, at the outbreak of the war, to leave Paris, where he had been a collaborator at the Pasteur Institute.

Fifth Congress in the Interest of Hospital Interns

The fifth congress in the interest of hospital interns was recently held at Lille under the chairmanship of Professor Le Fort of Lille. Among the questions that came up for discussion, one of the most important was that of the protection of interns and, in a general way, of all the medical personnel in case of disease or accident arising in line of duty. Provisions have been adopted recently, with this purpose in view, by the Assistance publique in Paris, but it remains for these measures to be applied to all the hospitals of the country.

Dr. Bonnefous of Toulouse presented a plan of compulsory internship applicable to all students of medicine, but his plan was not approved by the congress. The majority of the members present remained loyal to the present system of selecting interns on the basis of competitive examinations and after a special period served in the capacity of extern, which appointment is also obtained through competitive examination.

The congress adopted a resolution demanding that provisions be made with a view to allowing all interns who finish their studies to spend a period of three months in the service of their choice. Attendants at the congress expressed unanimously the desire to have the cross of the Legion of Honor bestowed posthumously on Turano, the intern of Algiers who lost his life recently while on duty. It was decided that henceforth the congress in the interest of interns shall be held in the same city and at the same time as the Congress of Medicine.

In Honor of Pasteur

The Paris branch of the Franco-Mexican Association has presented to the Pasteur Institute a replica of the medallion likeness of Pasteur that was hung on the walls of the department of medicine of the University of Mexico on the occasion of the centennial celebration. The bestowal of this work of art took place in the crypt of the institute, at the entrance to the tomb of Pasteur, the presentation speech being given by M. Honnorat, former minister and honorary president of the French section of the Franco-Mexican Association. Dr. Roux, director of the Pasteur Institute, expressed his thanks to the association for the gift and the honor accorded to the memory of Pasteur.

BERLIN

(From Our Regular Correspondent)

July 21, 1923.

Experiences with Insulin

Insulin, which, starting with the University of Toronto, Canada, has quickly made a name for itself throughout the world, has been tested for some time in Germany, as mentioned briefly in my preceding letter. Until recently, no reports of the results secured had been published. A few days ago, Professor Umber, an authority on metabolism and director of the Westend Hospital in Charlottenburg (Berlin), gave an address on insulin before the Berlin Medizinische Gesellschaft. He agreed with observers in America, England, Denmark and Austria that injection of insulin reduces the sugar content of the blood and the excretion of sugar, and that it increases sugar combustion. He emphasized the fact that the remedy does not effect a cure of diabetes, since the excretion of sugar begins again as soon as the injections are stopped. Its chief importance lies in the immediate help it gives in coma and in cases in which surgical intervention becomes necessary. Umber reported also the interesting fact that, shortly before the war, Zuelzer of Berlin, whose investigations on hormones and, more particularly, hormone therapy have attracted considerable attention, discovered a substance that was found to exert an influence on the excretion of sugar. But as the by-effects of the experiments were rather marked, his researches were discontinued, although the war, which called Zuelzer from his laboratory to the battle front, no doubt also exerted an influence on his decision.

In the course of the discussion, Kraus called attention to the fact that experiments are being made in Germany to derive the substance from onions. An assistant of Umber also stated that a preparation had been produced from yeast, the effect of which is identical with that of insulin.

In the current number of the *Deutsche medizinische Wochenschrift*, Biedl, director of the institute for experimental pathology in Prague and one of the pioneers in the field of internal secretions, has published a noteworthy article on insulin. In his opinion, the action of insulin will throw light on and possibly decide the mooted question whether the pancreatic secretion is conveyed to the blood or to the lymph. His experiments lead him to believe that it is carried to the lymph, and he thinks that it has been adequately demonstrated that the active substance contained in the islands of Langerhans is produced intra vitam. He plans to continue his experiments on the hormone content of the lymph of the pancreatic duct. Furthermore, it seems to Biedl that experience with insulin has decided another question; namely, whether in diabetes a diminished utilization of sugar occurs or whether an increased formation of sugar takes place. Biedl thinks that the action of insulin supports the latter assumption. If this assumption could be definitely proved, it would have not only great theoretical value but also a marked practical significance; for, as he points out, restriction of the calory intake, more particularly of the proteins, which have been shown to exert the greatest influence, has brought about a fundamental change in diabetes therapy. In view of this fact, he warns against regarding insulin mainly as a substance that will whip up the alleged slow or reduced combustion of carbohydrates, and thus overlooking the fact that the curative value of insulin lies doubtless rather in the diminution of sugar production, which, owing to pathologic causes, has been going on unchecked.

School for Health Culture

In collaboration with the Augusta Victoria House, which is a federal institution for combating the high mortality among infants and young children, the merger formed of all societies carrying on state-wide activities in the field of social hygiene has established a school for the propagation of health culture. Its main purpose will be to train public welfare workers who will serve wherever they may be needed, but more particularly in the rural sections. In this training the main emphasis will be placed on those features that are of practical importance and are most widely needed. Furthermore, the school will endeavor to meet the general demand for short training and continuation courses for nurses, welfare workers, deaconesses and administrators in social welfare. This school, which will be called the *Gesundheitsfürsorgeschule*, will offer therefore two main courses: (1) an eighteen months' course in health culture, to be followed by six months supervised practical work. Graduates from this two-year course will receive a state diploma, and, as far as possible, will receive state recognition by way of employment or otherwise; and (2) training and continuation courses in the various branches of health culture and welfare work in general. The general public will also be admitted to lectures on theoretical subjects.

Death of Professor Wiedersheim

Prof. Dr. Robert Wiedersheim, who for many years occupied a chair in anatomy and was director of the anatomic institute at the University of Freiburg, has died at the age of 75. Wiedersheim's reputation was based mainly on his textbook on the comparative anatomy of vertebrates, and his valuable work on anatomy and the theory of evolution, "Bau des Menschen als Zeugnis für seine Vergangenheit." He was, however, not only an eminent anatomist but also a very capable and inspiring teacher. A few years ago he published a volume of "Reminiscences," which contains many interesting references to men who have been eminent in medicine during recent decades, and throws many sidelights on the study of medicine during the generation just past.

Death of Professor George Meyer

After a long period of suffering, Prof. Dr. George Meyer, who has won well deserved recognition for his work in the organization of the emergency and ambulance services in our large cities, has died at the age of 64. When, at the close of the last century, the emergency service of Berlin was organized under the energetic supervision of Ernst von Bergmann, Meyer became the medical director of the Aerzteverein des Berliner Rettungswesens, which post he retained until in 1914 the emergency service was taken over by the municipal government. During his long period of service, he watched over the emergency stations in Berlin with great zeal and prudence. He also aided in establishing the first life-saving station at Müggel Lake. Meyer was also instrumental in founding the German executive committee for the investigation and treatment of cancer, on which committee he served for many years as general secretary. He likewise aided in the organization of the German Samariterbund. Together with Paul Jacobsohn and Georg Liebe, he published the "Handbuch der Krankenversorgung and Krankenpflege," and in collaboration with Ministerial Director Kirchner, Dr. Bumm, president of the central public health bureau, Geheimrat Dietrich and Geheimrat S. Alexander, he edited the "Archiv für Rettungswesen."

Marriages

Le Grand Haven Hardy, Salt Lake City, to Dr. Susanne Edwards Schuyler Haigh of New York, at Summit, N. J., July 9.

Lester J. Gilroy, Pawtucket, R. I., to Miss Helen Marie McCaffrey of Attleboro, Mass., June 4.

E. Albert Aisenstadt, Picher, Okla., to Mrs. Minnie Lee Spencer of Long Beach, Calif., recently.

Charles Harkness Willets to Miss Ethel Armstrong, both of Philadelphia, in New York, July 21.

Charles Allen Pryor, Huntington, W. Va., to Miss Augusta Keene of Beckley, June 19.

Howard Ernest Carruth, Portland, Ore., to Miss De Rosa Denham of Topeka, Kan., June 14.

Rexwald Brown to Miss Mabel Claire Johnson, both of Santa Barbara, Calif., recently.

Roger V. Walker, Detroit, to Miss Helen F. Reade of Escanaba, Mich., August 15.

George V. Vandevert, Bend, Ore., to Miss Olda Marie Paulsen of Astoria, June 27.

Hugh Hay Adams, Issaquah, Wash., to Miss Gertrude Jane Lackie of Seattle, August 4.

Arley Doyne Cathey, El Dorado, Ark., to Miss Ida Neumann of Stuttgart, recently.

Frank L. Richards to Miss Julia Craig, both of Huntingdon, Pa., at Altoona, recently.

Adolph A. Walkling, Philadelphia, to Miss Marian Ware of Salem, N. J., August 11.

James Wooley Morgan to Miss Esther Chapman, both of Modesto, Calif., July 15.

Fred D. West, Beaumont, Calif., to Miss Helen Mossberg of Long Beach, July 13.

Gerald Raap, Miami, Fla., to Miss Margaret Plough of Greensburg, Pa., July 5.

Aubrey B. Webster to Miss Charlotte W. Lachlan, both of Philadelphia, August 9.

William Floyd Deal, Edmon, Kan., to Miss Arda Wallace of Goodland, June 24.

Heinrich Gruener, Speyer, Germany, to Miss Eva Eid of Cincinnati, July 24.

Elmer E. Wells to Miss Frances Bull, both of Ironton, Ohio, June 13.

Walter T. Anderson to Miss Emily Canby, both of St. Paul, in June.

Louis Bernstein to Miss Sarah Mentz, both of New York, July 4.

Deaths

David Bovaird ⊕ Clifton Springs, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1892; formerly attending physician to the Presbyterian, the New York City Children's and the Seaside hospitals, and St. John's Guild, New York; served in U. S. Army in France during the World War with the rank of lieutenant colonel; at the time of his death superintendent of the Clifton Springs Sanatorium; member of the American College of Physicians; the American Pediatric Society, the New York Pathological Society, the American Association for the Advancement of Science and the Harvey Society; aged 56; died, August 10, following a long illness.

Edward Buckland Moseley ⊕ Brig.-Gen., U. S. Army, retired, Los Angeles; University of Pennsylvania School of Medicine, Philadelphia, 1868; died, August 5, aged 77, following a long illness. General Moseley served in the Civil War, in the campaigns against the Sioux, Cheyenne and Ute Indians, and in the Philippine Islands, where he was in charge of the Santa Monica Military Hospital, Manila, and the Second Reserve Hospital, Southern Luzon. He was chief surgeon of the Department of Colorado at the time of his retirement, for physical disability, May, 1907.

Thomas Archibald MacKenzie, Miles City, Mont.; University of Edinburgh, Scotland, 1903; served with the British Army in 1915, and with the U. S. Army in 1918, in Mesopotamia and France during the World War; aged 46; died, July 29, following an operation for strangulated hernia.

William A. Kimmet ⊕ Oak Forest, Ill.; Northwestern University Medical College, Chicago, 1892; specialized in surgery; assistant superintendent to the Cook County Infirmary and Tuberculosis Hospital; aged 51; died, August 12, following an appendectomy.

Richard May Counterman, Stigler, Okla.; University of Tennessee College of Medicine, Memphis, 1897; president of the board of medical examiners of eastern Oklahoma, 1903; formerly health officer of Haskell County; aged 54; died, July 30, in St. Louis.

George Arthur Winters, Montreal, Canada; University of Toronto Faculty of Medicine, Toronto, 1902; served with the Canadian Army Medical Corps during the World War; aged 46; died suddenly in Toronto, July 3, of diabetes mellitus.

Charles Bernard Rentz, Sanborn, Iowa; Rush Medical College, Chicago, 1901; served with the M. C., U. S. Army, in France during the World War; aged 45; died recently at the government sanatorium, Springfield, Ill., of tuberculosis.

George Edgar Benson ⊕ Minneapolis; University of Minnesota Medical School, Minneapolis, 1901; member of the American Academy of Ophthalmology and Oto-Laryngology; aged 46; died, July 31, of endocarditis.

Daniel H. Prunk, Indianapolis; Eclectic Medical Institute, Cincinnati, 1856; College of Physicians and Surgeons of Indiana, Indianapolis, 1876; Civil War veteran; aged 94; died, August 2, of bronchopneumonia.

Henry B. Myers, Ewing, Ky.; Hospital College of Medicine, Medical Department Central University of Kentucky, Louisville, 1898; member of the Kentucky State Medical Association; aged 57; died, July 26.

David Woolfolk Barrow ⊕ Lexington, Ky.; University of Michigan Medical School, Ann Arbor, 1908; aged 40; died, July 27, at St. Joseph's Hospital, of injuries received in an automobile accident.

William L. Case, Mount Gilead, Ohio; Cleveland University of Medicine and Surgery, 1877; member of the Ohio State Medical Association; aged 72; died, July 31, following a long illness.

C. R. Ward, Northome, Minn.; Hahnemann Medical College and Hospital of Chicago (The General Medical College), 1880; aged 68; died, May 30, at the St. Olaf Hospital, Austin, Minn.

Flora Cecil Maclean, San Francisco; California Medical College, Los Angeles, 1899; aged 48; died, July 29, at St. Francis Hospital, of heart disease, following a hysterectomy.

Joseph Alphonsus Underhill, Larchmont, N. Y.; Medical Department of the University of the City of New York, 1888; aged 57; died, July 30, of arteriosclerosis and heart disease.

Ernest Linwood Clough ⊕ Pickering, La.; Kentucky School of Medicine, Louisville, Ky., 1897; aged 56; died, recently at the Hotel Dieu, Beaumont, Texas, following an operation.

George Irwin Campbell, Grand Valley, Ont., Canada; University of Toronto Faculty of Medicine, Toronto, 1897; aged 55; died recently of chronic nephritis and heart disease.

Charles A. Zeller ⊕ Dalton, Pa.; Medico-Chirurgical College of Philadelphia, 1896; president of the school board, and the Dalton Board of Health; aged 50; died, July 23.

Albert Osburn, Tacoma, Wash.; College of Physicians and Surgeons, Keokuk, Iowa, 1880; member of the Washington State Medical Association; aged 68; died, July 26.

Clarence Everett Brent, Philadelphia; Howard University School of Medicine, Washington, D. C., 1910; on the staff of the Mercy Hospital; aged 38; died, July 28.

George Marshall Lewis ⊕ Brockton, N. Y.; College of Physicians and Surgeons, Kansas City, Kan., 1898; aged 51; died, July 13, of septicemia and diabetes.

Joseph Simpson Turney, Hartselle, Ala.; Vanderbilt University Medical Department, Nashville, Tenn., 1882; aged 65; died, June 14, following a long illness.

Daniel Hamilton, Harriston, Ont., Canada (years of practice); practitioner in Harriston for more than sixty years; aged 86; died, June 2, of senility.

William Alexander Wilson, Radford, Va.; University of Virginia Department of Medicine, Charlottesville, 1874; aged 71; died, June 22, of senility.

Samuel Lamb Rowan, Wesson, Miss.; Vanderbilt University Medical Department, Nashville, Tenn., 1904; aged 44; died, July 17, in Atlanta, Ga.

Jeremiah Kelley Vincent, Greenwood, Ind.; Medical College of Ohio, Cincinnati, 1852; aged 92; died, June 24, following a fracture of the hip.

Harry Thomas Dunn, Doon, Iowa; State University of Iowa College of Medicine, Iowa City, 1920; aged 30; died, August 3, of tuberculosis.

John M. Frazee, Maysville, Ky. (years of practice); served in the Confederate Army during the Civil War; aged 85; died, July 31, of senility.

Joseph Wood Ferguson, Kansas City, Mo.; College of Physicians and Surgeons, Keokuk, Iowa, 1880; aged 63; died, July 30, of myocarditis.

Francis Romaguera, New Orleans; University of the South Medical Department, Sewanee, 1908; aged 41; died, July 27, of chronic nephritis.

Anthony B. Shelby, Huntsville, Ala. (licensed, Alabama, 1878); aged 77; Confederate veteran; died, August 2, following a long illness.

William Isaac Whitaker ⊕ Flint, Mich.; Michigan College of Medicine and Surgery, Detroit, 1898; aged 60; died, August 2, of tuberculosis.

William B. Pryor Jones, Petersburg, Va.; Hahnemann Medical College and Hospital of Philadelphia, 1884; aged 63; died, July 14.

Albert A. Phipps, Greensboro, N. C. (years of practice); veteran of the Civil War; aged 92; died, June 19, of cerebral hemorrhage.

Arthur Johnson McDonald, Bedford, Ind.; Louisville (Ky.) Medical College, 1882; aged 63; died, July 30, of cerebral hemorrhage.

Henry M. Featherstone, Prescott, Ont., Canada; Trinity Medical College, Toronto, 1895; aged 51; died recently in Brockville.

John H. Bogart, Clinton, Ind.; University of Michigan Medical School, Ann Arbor, 1868; aged 78; died, August 5, of senility.

John Boyd Hayes, Nashville, Tenn.; University of Tennessee College of Medicine, Memphis, 1890; aged 68; died, June 14.

Elmer E. Evans, Lititz, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1885; aged 61; died, August 2.

Henry T. Hoople, Vale, Ore.; University of Oregon Medical School, Portland, 1897; aged 42; died, June 11, at Los Angeles.

Orrin Arthur Clark, Long Branch, N. J.; Baltimore Medical College, 1894; aged 55; died, July 29, of malarial cachexia.

Orlando C. Wilson, Ottawa, Ohio; Cleveland Medical College, 1877; aged 73; died, July 26, of peritonitis.

Frederick Falk, Indianapolis (licensed, Indiana, 1897); aged 53; died, May 15.

The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other General Material of an Informative Nature

ALBARGIN NOT ACCEPTED FOR N. N. R.

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report. It declares Albargin inadmissible to N. N. R. because (1) it is an unessential modification of silver nitrate and (2) the therapeutic claims are unwarranted.

W. A. Puckner, Secretary.

Albargin is a product of Farbwerke, vorm. Meister, Lucius and Bruening, Hoechst. a. M., Germany. The claim is made that it is a compound of silver nitrate with gelatose, containing 15 per cent. of silver. Albargin was formerly described in New and Nonofficial Remedies. In 1919, after Sollmann (*Jour. Am. Pharmaceutical Assn.*, Vol. 7, p. 77) had shown that, contrary to the claims advanced for it, Albargin contained silver ions, precipitated chlorids and albumin and produced irritation, the Metz Laboratories (the American distributors) were informed of these facts. They were advised that the continuance of Albargin in New and Nonofficial Remedies was conditioned on a thorough revision of the claims. The Metz Laboratories withdrew the advertising then in use and agreed to revise the claims when further advertising was issued. On this agreement Albargin was retained. Subsequently, however, it was omitted because it was off the market.

Manufactured by Farbwerke vorm. Meister Lucius & Brüning Hoechst a/M Germany
ALBARGIN
TRADE MARK REG. U.S. PAT. OFFICE
1 Ounce
T Z
H. A. METZ LABORATORIES, INC.
LAB
122 Hudson St.
New York, N. Y.

Albargin being again available, the Metz Laboratories requested its reacceptance for New and Nonofficial Remedies. They submitted an advertising leaflet in which were reiterated the claims for non-irritation and absence of pain to which objection had been made in 1919, omitting only the claim for non-precipitation of albumin and chlorids.

For example, the present advertising contains such claims as:

> "Albargin combines the advantages of albumin compounds of silver and of silver nitrate."
>
> "Dialyses through animal membranes, thus possessing an invaluable therapeutic advantage."
>
> "Because of its dialysing properties, Albargin possesses far greater power than other albumin compounds of silver to penetrate living membranes and tissues."
>
> ". . . Produces neither irritation nor pain."

The Metz Laboratories were asked for the details of the experiments which formed the basis for the claim that Albargin dialyzes through animal membranes. Attention also was called to the fact that the present advertising contained claims that had been objected to in 1919, and that experiments had shown that Albargin contained about one-fifth as much ionic silver as does silver nitrate.

As evidence that Albargin dialyzes through animal membranes, the firm sent references to the literature, including a report by P. G. Unna and Golodetz (*Dermatol. Wochenschrift,* 1917, No. 20), and of C. Cronquist, Malmoe (*Therap. Monatschr.* April, 1909). A number of abstracts and reprints of clinical papers were also submitted.

An examination of specimens of Albargin shows that its antiseptic activity, determined by a modified Dreser yeast method, is exactly the same as that of a silver nitrate solution of equal silver content, the silver content by this biologic method being 14.55 per cent. An independent chemical determination made in the A. M. A. Chemical Laboratory on the same specimen demonstrated that it contained 14.4 per cent. of total silver. This correspondence shows that all of the silver in Albargin is in ionic form and none in the colloidal form. In other words, the silver of Albargin is not combined with gelatose but is in the same condition as the silver of silver nitrate. That the silver is in ionic form is confirmed by the dialysis of Albargin according to the papers of P. G. Unna and Golodetz and of C. Cronquist, cited by the Metz Laboratories as evidence. The silver of Albargin dialyses readily, which would not be the case if it were combined with the gelatose. It is the silver nitrate that dialyses and not the "Albargin."

There remained the theoretical possibility that the gelatose might mitigate the irritant action of the silver nitrate by acting as an indifferent demulcent. To determine this point, a 0.5 per cent. solution of Albargin was compared with a 0.1 per cent. solution of silver nitrate. The two solutions had approximately the same silver content. The irritant action was tested on the nose and mouth by two persons who had experience in such comparison. Neither could detect a notable difference.

The clinical abstracts and papers that were submitted agreed in affirming the efficiency of Albargin in the treatment of gonorrheal infections, but did not claim that it is more efficient than silver nitrate solutions of equal silver content. In these it is claimed that Albargin is not seriously irritant in therapeutic concentrations, but in none is it stated that the actual comparisons have been made with silver nitrate solutions of equal silver content. They contain the claim—evidently erroneous—that Albargin does not precipitate proteid, but without having tried the experiment.

The evidence forces the conclusion that solutions of Albargin act in every way like solutions of silver nitrate of the same silver content and that the action of Albargin is due solely to the silver nitrate it contains. As the gelatose serves no useful purpose, its presence in Albargin is unscientific.

In view of these facts the Council declares Albargin inadmissible to New and Nonofficial Remedies because (1) it is an unessential modification of silver nitrate and (2) the therapeutic claims are unwarranted.

Correspondence

"THE INTRACUTANEOUS GUINEA-PIG TEST FOR HUMAN SUSCEPTIBILITY AND IMMUNITY TO DIPHTHERIA"

To the Editor:—May I refer to the correspondence between Dr. Zingher and myself, begun with his letter in The Journal, April 7, p. 1023, criticizing my article in The Journal, March 17, 1923, p. 748? I had thought that the matter was closed with my answer (The Journal, May 12, p. 1399). Dr. Zingher's subsequent letter (The Journal, June 23, p. 1867) requires further reply, and I shall endeavor to be brief.

Dr. Zingher certainly has not given my method a trial; if he had, he could not claim as he does that the intradermal guinea-pig test is subject to error. In his latest letter he quotes me as saying that "Zingher perpetrated the same fault as Römer in his modification." What I really said was: "Zingher's was in some respects better, but he *perpetuated* the same fault." Again he quotes me as saying "simplicity, practicality, accuracy and originality of merit." What I actually said was "simplicity, *practicability* and originality of application."

To return to the essentials — my claims are briefly as follows:

1. In Dr. Zingher's modification of Römer's method, one cannot possibly have more than $\frac{1}{1000}$ minimal lethal dose of free toxin in the injection which contains the amount of antitoxin tested for (i. e., $\frac{1}{100}$ unit per cubic centimeter).

2. One one-thousandth minimal lethal dose of toxin is not sufficient to produce necrosis, as claimed by Dr. Zingher. (This is proved not only by gross appearance but also by histologic examination of the lesion.)

3. Intracutaneous doses of toxin may vary considerably in their percentage differences from each other, without any regular variation in the lesions produced, *so long as the doses all remain definitely under the necrosing dose.* Hence the uncertainty of readings with Zingher's method; differences of less than one-half unit of antitoxin per cubic centimeter in the serum tested are not clearly shown, owing to the fact that there is not sufficient free toxin in the critical test dose to give a definite and uniform reaction; the free toxin in the mixture is so far under the necrosing dose that reactions are indefinite.

4. The preceding statement is easily verified by attempting to repeat the experiment detailed in Dr. Zingher's original article, represented by Guinea-Pig 5 (*J. Infect. Dis.* **19**:561 [Oct.] 1916). The reactions obtained simply cannot be read by any criterion described in the paper.

5. In my modification, the quantity of free toxin in the dose which establishes the strength of the serum is precisely sufficient to produce a definite, unmistakable reaction, just short of necrosis. This amount is such that if the amount of antitoxin in the test serum is reduced by so little as $\frac{1}{100}$ unit per cubic centimeter, unmistakable necrosis results (not only evident to the eye of the inexperienced, but demonstrable by section), whereas, if the antitoxin is increased by so little as $\frac{1}{100}$ unit per cubic centimeter, no reaction results. (The toxin should contain about 25 minimal lethal doses per L+ dose.)

6. I claim that:

(*a*) My test is a distinct improvement in technic, it utilizes a totally different criterion of reaction from previous tests, and it detects (in serums containing small amounts of antitoxin) variations of $\frac{1}{100}$ unit of antitoxin per cubic centimeter.

(*b*) Neither Zingher's nor Römer's test is as sensitive or can be as accurately read.

(*c*) The use proposed for it by me, namely, the testing of individuals for their immune status, by this method instead of by the Schick test, is a distinctly new application of the principle.

7. Dr. Zingher's claim that he proposed his test for this purpose is not substantiated by a perusal of his article.

8. Studies of the true immune status of persons subjected to the Schick test prove that we cannot satisfactorily read reactions in persons who are protein sensitive. In this group the error is frequently as high as 50 per cent. This statement applies to the most experienced operators.

9. The "safe" use of the Schick test requires such an amount of experience, and the commercial distribution of Schick toxin is so subject to deteriorating influences, that it should be used only by those having occasion to apply it to large numbers of children. When protein reaction occurs, no reading should be attempted by any one.

10. The remedy for this state of affairs is the adoption of the new method by laboratories, and the submission of blood specimens by physicians who have only a few tests to make. Guinea-pigs are plentiful and comparatively cheap, and eight

ests can be placed on one animal. Any reasonably qualified aboratory worker can carry out the test, and false positives r negatives do not occur.

Wilfred H. Kellogg, M.D., Berkeley, Calif.
Director, California State Hygienic Laboratory.

"A MULTIPLE ELECTRICAL STETHOSCOPE FOR TEACHING PURPOSES"

To the Editor:—I was much interested in reading Dr. ͨchard Cabot's communication (The Journal, July 28). t may be of interest to know that this idea had its inception n the laboratory of physics of Purdue University. Prof. ?. B. Abbott of that department had been working with the ame idea in view and finally perfected the instrument, which ıe demonstrated first to the summer school of Purdue Uni-ersity in 1922. Oct. 27, 1922, he demonstrated the apparatus o the Tippecanoe County Medical Society; November 3, to he faculty of Purdue University, and November 10, to the tudent body of Purdue University. In each instance the arge lecture room in the physics building was used. It seats 50 persons, and each was able to hear heart beats even hough the auditors were in the distant corners of the room.

Professor Abbott makes phonographic records with this ıstrument. These he can broadcast with the same radio pparatus great distances so that they may be heard in oston or in San Francisco. This he does with the apparaus direct also.

His instrument has been in use in the hospital of the Uni-ersity of Iowa for some time. It is used there to demontrate the fetal heart beat. The University of Illinois also as one. The department of obstetrics of the University of lichigan is constructing one according to his instructions. he professor has a patent pending to cover the transmitter, hich is the essential part of the apparatus. A description f the apparatus appeared in the *Physical Review,* February, 923. Priority of invention must go to Professor Abbott, for ıe reference, in the article mentioned, to the demonstration f the apparatus, is really to his presentation of the idea to ıe American Physical Society, Dec. 1, 1922.

George F. Keiper, M.D., La Fayette, Ind.

WHISPERED BRONCHOPHONY IN EARLY TUBERCULOSIS

To the Editor:—During the past year I have been greatly ıterested in the several articles that have appeared in The ournal concerning the diagnosis of early tuberculosis of the ıngs. Not a few of these articles have dealt with the sub-ct by laying special emphasis on the physical signs exhibed by the patient at examination—and rightly so. It has ırprised me, however, to observe that in several instances mention has been made of the transmission of the whisred voice sound over the infected area. Inspection of the ıest during respiration, tactile fremitus, supraclavicular pressions, percussion, and auscultation from the point of ew of râles have been adequately discussed. Whispered onchophony or a high pitched whispered voice sound is of ılue in diagnosing both types of early tuberculosis in the ıest (i. e., the adult type of apical lesion, and the glandular fections of the young).

As a rule, the infant and the child will have either the ute miliary or the glandular type of infection. The miliary pe is easy of diagnosis, and I will not discuss it further. he glandular type, which has its focus in the tracheoonchial lymph nodes, is frequently overlooked by many actitioners who are not overfamiliar with chest examinaons in the child. Most of these physicians either fail to try a d'Espine sign or do it incorrectly. In order to obtain a positive d'Espine sign we must have high pitch whisper audible over the spinous processes of the vertebrae below the seventh cervical vertebra. Like most other things in medicine, this sign is not pathognomonic of hilum tuberculosis, nor is it always found when these glands are enlarged. Other conditions will give a positive d'Espine sign. But if a positive d'Espine sign is present, a roentgenogram is indicated always. This, in connection with a good history and careful clinical observation, will establish the correct diagnosis. The d'Espine test should always be made; for, even if it is not infallible, what other physical signs of value are there in tracheobronchial adenopathy?

In the adult type of infected lung apex in which a focus has started up actively, one of our first pathologic changes is consolidation of an area, however small it may be. Eventually, when this is large enough, we may expect signs of consolidation. Whispered bronchophony is one of these signs, and may occur alone or in connection with others. If a focus is present, we are likely to get a high pitched whisper appearing to be rather far from the ear if the lesion is small, because it will be faintly heard. As the lesion becomes larger, our whispered voice will grow more intense and of higher pitch. The mechanics of this is simple. It is a case of consolidated area transmitting the whisper, audible in the bronchi, to the chest wall better than the alveoli will do when filled with air. The consolidation also raises the pitch of the sound. Theoretically, undoubtedly, the râles will appear first, but they do not always do this. I have seen numerous cases, both in my army service and in private practice, in which whispered bronchophony was present before any râles were audible, and this sign in a lung led me to suspect that an infected area was present, which later was confirmed by roentgen-ray examination and by the clinical progress of the case.

H. C. Tooker, Ph.B., M.D., Springfield, Mass.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

COATING FOR PILLS TO RESIST GASTRIC JUICE

To the Editor:—Please let me know a coating that resists the action of normal gastric juice, for such pills as are intended for absorption only in the intestine. Is not salol very desirable on account of its final liberation of phenol? Will certain capsules serve the same purpose?

C. L. Tung, Ann Arbor, Mich.

Answer.—The attempt to prepare pills, tablets or capsules which will pass the stomach unchanged but which will disintegrate in the intestine has not proved very successful. In the main, the attempt has been to coat such pills, tablets or capsules (*a*) with keratin, (*b*) with gelatin rendered insoluble by treatment with formaldehyd, and (*c*) by mixing the drug with wax, solid fats or paraffin. An examination of keratin as a means of coating pills was made in the A. M. A. Chemical Laboratory, and was the subject of a report of the Council on Pharmacy and Chemistry in 1911. The examination demonstrated that the keratin on the market was 98.73 per cent. digestible in acid-pepsin solution, and was therefore unfit for the production of "enteric coated pills." The use of phenyl salicylate (salol) for the coating of pills has the objection that the coating is brittle and the method is adapted, therefore, only for extemporaneous preparations. Another objection is that its use requires the administration of a considerable dose of phenyl salicylate. A method for the hardening of gelatin by formaldehyd was published by Ballenger and Elder (The Journal, Jan. 17, 1914, p. 197). The difficulty inherent in this process is that the treatment by formaldehyd must harden the gelatin sufficiently so that it will not be attacked by the gastric juice, but not enough to prevent its disintegration by the intestinal fluid. A study of the production of "formaldehyzed" capsules was made by Scoville (*J. Am. Pharm. A.* 4:1241, 1915). He found that by immersing the filled gelatin capsules in 1 per cent. formaldehyd solution for thirty seconds and allowing them to stand two weeks, a coating resulted which was suitable for enteric purposes for about a year and a half. After that the capsules gradually became less soluble in alkalis and became unfitted for use.

The use of fatty excipients was reported by Ballenger and Elder in the article in which they described their experiments with the hardening of gelatin by means of formaldehyd. They state that "an even more satisfactory method of carrying through the stomach such remedies as sodium carbonate, potassium iodid, sodium salicylate, etc., is obtained by combining the desired remedy with mutton-suet and paraffin." N. S. Davis (The Journal, Oct. 14, 1916, p. 1160) incorporated drugs such as sodium iodid, guaiacol and oil of sandalwood with a mixture composed of one part of beeswax and three parts of castor oil previously melted together, and enclosed the pills produced in this way in gelatin capsules.

QUANTITATIVE DETERMINATION OF BISMUTH

To the Editor:—I should greatly appreciate information as to whether there exists a method for the quantitative determination of minute amounts of bismuth in small quantities of body fluids after the administration of that element. Where can such a method be found, or where should it be looked for? Is any discussion of the relative merits of several methods available in the chemical literature?

M. D., New York.

Answer.—According to S. Fränkel's Praktikum der medizinischen Chemie (Berlin, Urban & Schwarzenberg, 1918, p. 357), the detection of bismuth in urine is as follows: "The urine is evaporated to one-fifth its volume, and then treated with concentrated hydrochloric acid and a gram or so of potassium chlorate, and warmed on a water bath until the odor of chlorin has disappeared. It is treated with sodium bicarbonate until the solution is only weakly acid; then, without filtering, the bismuth is precipitated by means of hydrogen sulphid. The bismuth sulphid is filtered off and dissolved in the least amount of hot concentrated hydrochloric acid." Instead of then making the qualitative test as the author describes, the bismuth may be determined according to one of a number of analytic methods given in standard textbooks.

We have on file no record of a discussion in chemical literature of the relative merits of the various methods. In Sollmann's Textbook on Pharmacology, reference will be found to literature considering the absorption and elimination of bismuth. This work was before the introduction of bismuth in the treatment of syphilis.

MAGNESIUM SULPHATE AS ANALGESIC—USE OF GLYCERIN AND PHENOL IN OTOLOGY

To the Editor:—1. When used in a cold, saturated solution, does magnesium sulphate (Epsom salt) as a topical application on unbroken skin surface possess analgesic properties to any marked degree? 2. How much magnesium sulphate must be added to 1 ounce of glycerin to obtain a saturated solution? 3. Does glycerin, in any appreciable degree, neutralize phenol (as is done by alcohol)? 4. Is a 10 per cent. solution of phenol in water more destructive of tissue (the ear drum) than the same strength solution in glycerin? 5. If there is a difference, which has the greater pain relieving properties, a 10 per cent. solution of phenol in water, or 10 per cent. solution of phenol in glycerin?

M.D., Kansas.

Answer.—1. No.

2. About 1 gm.

3. Neither glycerin nor alcohol neutralizes phenol (carbolic acid). They merely act as better solvents, which tend to remove the phenol from the tissues.

4. Yes.

5. The aqueous solution is somewhat more efficient.

REMOVAL OF ADHESIVE PLASTER

To the Editor:—In The Journal, July 7, Dr. H. F. Zoller recommended the use of ethyl acetate for the removal of adhesive plaster. Since it is next to impossible to obtain ethyl acetate at ordinary (country) drug stores, and at many drug stores in small cities, I suggest a mixture of ether, 15 c.c.; alcohol, 15 c.c.; tincture of iodin, 4 c.c., and acetic acid, 4 c.c. If the adhesive strips are moistened lightly by daubing with a bit of cotton on the outside, the plaster will instantly come away, leaving hair and skin intact without the least pain.

John E. Stinson, M.D., Chickasha, Okla.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Alaska: Juneau, September 4. Sec., Dr. Harry C. De Vighne, Juneau.

Arizona: Phoenix: October 2-3. Sec., Dr. W. O. Sweek, 404 Heard Bldg., Phoenix.

Florida: Tallahassee, October 9-10. Sec., Dr. W. M. Rowlett, Tampa.

Georgia: Atlanta, October 9-11. Sec., Dr. C. T. Nolan, Marietta.

Idaho: Boise, October 2. Dir. Mr. Chas. Laurenson, Boise.

Illinois: Chicago, October 9-11. Supt. Mr. V. C. Michels, Springfield.

Kansas: Topeka, October 9. Sec., Dr. Albert S. Ross, Sabetha.

Massachusetts: Boston, September 11-13. Sec., Dr. Charles E. Prior, Room 144, State House, Boston.

Michigan: Lansing, October 9. Sec., Dr. Beverly D. Harison, 707 Strch Bldg., Detroit.

Minnesota: Minneapolis, October 2-4. Sec., Dr. Thomas S. McDavitt, 539 Lowry Bldg., St. Paul.

Montana: Helena, October 2. Sec., Dr. S. A. Cooney, 205 Power Bldg., Helena.

New Hampshire: Concord, September 13-14. Sec., Dr. Charles Duncan, Concord.

New Jersey: Trenton, October 16-19. Sec., Dr. Alexander MacAlister, State House, Trenton.

New Mexico: Santa Fe, October 8-9. Sec., Dr. W. T. Joyner, Roswell.

New York: New York, Albany, Syracuse, Buffalo, September 24. Sec., Dr. William D. Cutter, Albany.

Porto Rico: San Juan, October 2. Sec., Dr. Jorge del Toro, 1 Olimpe St., San Juan.

Arkansas May Examination

Dr. J. W. Walker, secretary, State Medical Board of Arkansas, reports the written examination held at Little Rock, May 8-9, 1923. The examination covered 12 subjects and included 120 questions. An average of 75 per cent. was required to pass. Twelve candidates, including one undergraduate, were examined, all of whom passed. Thirteen candidates were licensed by reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
University of Arkansas	(1903) 79, (1906) 79, (1911)	80
George Washington University	(1908)	75
Tulane University of Louisiana	(1922)	75, 75
Memphis Hospital Med. Coll.	(1902) 83, (1903) 79, (1910)	78
University of Nashville Medical Department	(1906)	79
University of Tennessee	(1893)	78
Undergraduate		*

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
College of Physicians and Surgeons, Little Rock	(1910)	Oklahoma
University of Georgia	(1904)	Georgia
Loyola University	(1918)	Tennessee
University of Illinois	(1922)	Illinois
Hospital College of Medicine, Louisville	(1897)	Mississippi
Kentucky School of Medicine	(1889)	Mississippi
Tulane Univ. of Louisiana	(1907) Alabama, (1907), (1915)	Louisiana
Washington University Medical Department	(1922)	Missouri
Chattanooga Medical College	(1909)	Tennessee
Memphis College of Physicians and Surgeons	(1910)	Louisiana
Baylor University	(1921)	Texas

* No grade given.

Georgia May Examination

Dr. C. T. Nolan, secretary, Georgia State Board of Medical Examiners, reports the written examination held at Augusta, May 29-31, 1923. The examination covered 10 subjects and included 100 questions. An average of 80 per cent. was required to pass. Eleven candidates were examined, all of whom passed. Nine candidates were licensed by reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
University of Georgia	(1923, 10)	89, 89, 89, 91, 92, 92, 93, 94, 94, 94
Meharry Medical College	(1915)	87

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Atlanta Medical College	(1914)	S. Carolina
Atlanta School of Medicine	(1908)	S. Carolina
University of Louisville	(1914)	Texas
Baltimore Medical College	(1906)	New Hamp.
Johns Hopkins University	(1914)	Maryland
Harvard University	(1920)	New Hamp.
Jefferson Medical College	(1906)	Nebraska
Meharry Medical College	(1916) Kentucky, (1922)	Tennessee

IS THERE AN ALARMING SHORTAGE OF DENTISTS?

ALFRED OWRE, D.M.D., M.D., C.M., A.B.
Dean, University of Minnesota College of Dentistry
MINNEAPOLIS

There has been in recent years much loose criticism, both poken and written, of dentists, dentistry and dental educaon. Some of it is constructive and disinterested; much of it obviously biased. A larger percentage still seems based n insufficient knowledge of the facts. Perhaps the most disırbing statement, and the most frequently met, is that there an appalling shortage of dentists. This is usually cited as n objection to any advancement of educational standards nd requirements for the dentists. It was suggested to me ıat a state-wide dental survey, like that recently conducted y Dean Lyon of Minnesota in regard to the distribution of hysicians, might yield some interesting facts. In conducting ıis I followed Dean Lyon's plan of sending a return post-card f inquiry to the 504 post-office villages of the state with a pulation of from 100 to 1,000. These were canvassed to arn (1) the number of whole-time dentists, (2) the number f part-time dentists, and (3) whether the dental service was ıfficient. There were 454 replies, or a little over 90 per cent.

Summary of Replies

Population of Place	Replies Not Received	Number of Replies	Dentists		Sufficient Service Indicated	Insufficient Service Indicated	Dental Service Requested
			Resident	Part-Time			
rom 100 to 199	25	75	2	5	27	43	15
rom 200 to 399	17	195	19	44	68	110	67
rom 400 to 499	3	47	29	10	33	14	9
rom 500 to 749	3	79	57	6	68	11	7
rom 750 to 999	2	58	47	2	51	1	2
	50	454	154	67	247	179	100
ıcertain as to the authoritativeness of the reply						4	18
ertain						175	82

From the tabulated summary of replies it will be noted at in the group of towns of from 400 to 499 population, only urteen indicate insufficient service, while only eight (posly nine) ask for dental service. (In general, a smaller wn, unless it is situated in an exceptionally prosperous and ıll-settled farming community, could hardly support a full-ne dentist.) In the group of 750 to 1,000, only one town licates insufficient service. These figures, as a whole, rdly bear out the statements of the local alarmists.

Analyses of other communities might, and doubtless would some cases, show other and less gratifying results. There an important feature of the general situation, however, erlooked in this often superficial criticism. This is the *ality* of the dentists now supplied. Many of them are aduates of schools whose system worked not for proficiency t for profit to the owners. This type of man naturally ıders inefficient service. Still worse, recent research has own much of his work to be absolutely harmful. There y be an alarming shortage of *good* dentists.

A constructive attitude toward the whole question involves change throughout. We must first produce a type of ıtist who can meet the demands made on him by modern ence, that is, an oral specialist, with the same fundamental ining as any other specialist. We must also train large nbers of skilled technicians who, under the direction of the cialist, will perform all the needed technical work. This l involve a reorganization of the present educational tem; but, contrary to the alarmist's view, it will not olve greater expense to the state or to the patient. The cialist's training will be somewhat longer than the present ırse, the technician's much shorter.

uch a readjustment might in the end benefit the smaller nmunities of less than 500 population, which now report insufficient service. President Pritchett of the Carnegie Foundation suggests in his annual report for 1921 that such communities organize, on a cooperative basis, a medical center where their needs can be met by adequately trained specialists, with proper hospital and laboratory facilities. Such a center would automatically include an oral specialist with the necessary number of trained assistants. With present telephone and automobile facilities, no community under such a plan need lack for any branch of medical service.

CLASSIFICATION OF DENTAL SCHOOLS IN THE UNITED STATES

The following classification of dental schools in the United States has been prepared by the Dental Educational Council of America and has been corrected to July 1, 1923:

Class A

University of Southern California College of Dentistry	Los Angeles
Chicago College of Dental Surgery	Chicago
Northwestern University Dental School	Chicago
University of Illinois College of Dentistry	Chicago
State University of Iowa College of Dentistry	Iowa City
University of Louisville College of Dentistry	Louisville, Ky.
Harvard University Dental School	Boston
Tufts College Dental School	Boston
University of Michigan College of Dental Surgery	Ann Arbor, Mich.
University of Minnesota College of Dentistry	Minneapolis
St. Louis University School of Dentistry	St. Louis
Washington University School of Dentistry	St. Louis
Creighton University College of Dentistry	Omaha
University of Buffalo College of Dentistry	Buffalo
Western Reserve University Dental School	Cleveland
Thomas W. Evans Museum and Dental Institute, School of Dentistry, University of Pennsylvania	Philadelphia
University of Pittsburgh School of Dentistry	Pittsburgh
Vanderbilt University School of Dentistry	Nashville, Tenn.
Baylor University College of Dentistry	Dallas, Texas
Marquette University College of Dentistry	Milwaukee

Class B

University of Denver School of Dentistry (Formerly Colorado College of Dental Surgery)	Denver
Georgetown University Dental Department	Washington, D. C.
Howard University Dental College	Washington, D. C.
Atlanta-Southern Dental College	Atlanta, Ga.
Loyola University School of Dentistry	New Orleans
Tulane University of Louisiana School of Dentistry	New Orleans
University of Maryland School of Dentistry (Baltimore College of Dental Surgery was merged with it, June 15, 1923)	Baltimore
Kansas City-Western Dental College	Kansas City, Mo.
University of Nebraska College of Dentistry	Lincoln, Neb.
Ohio State University College of Dentistry	Columbus, Ohio
North Pacific College of Dentistry	Portland, Ore.
Temple University Dental School (Formerly Philadelphia Dental College)	Philadelphia
Meharry Dental College	Nashville, Tenn.
University of Tennessee College of Dentistry	Nashville, Tenn.
Medical College of Virginia School of Dentistry	Richmond, Va.

Class C

Cincinnati College of Dental Surgery	Cincinnati
Texas Dental College	Houston, Texas

Unclassified

University of California Dental Department	San Francisco
College of Physicians and Surgeons of San Francisco	San Francisco
Indiana Dental College	Indianapolis
Columbia University School of Dentistry (Incorporation of the College of Dental and Oral Surgery of New York, and reorganization of the united schools, in progress)	New York
New York College of Dentistry (Merger with New York University in process of negotiation)	New York
Ohio College of Dental Surgery (Affiliated with the University of Cincinnati on July 1, 1923; early complete merger in prospect)	Cincinnati

Any further information may be obtained by writing to Dr. Albert L. Midgley, 315 Butler Building, Providence, R. I.

Book Notices

War Blindness at St. Dunstan's. By Sir Arnold Lawson, K.B.E., M.D., F.R.C.S., Senior Ophthalmic Surgeon and Lecturer on Ophthalmic Surgery, Middlesex Hospital. Cloth. Price, $2.50. Pp. 148. New York: Oxford University Press, 1922.

In 1910, Sir Arthur Pearson retired from business because of approaching blindness. When the war came he devoted his fortune to building an institution for the care and education of the war blind. This book records the work done at St. Dunstan's by Lawson, who had under his care 825 persons totally incapacitated by blindness. The book is divided into three parts: (1) traumatic blindness; (2) nontraumatic blindness; (3) pensions and reeducation of the blind. There were 407 traumatic cases: 72 caused by bullets passing through the orbits, 17 of fracture of the occipital portion of the skull, 12 of fracture of the skull other than occipital, 16 of concussion blindness without direct wound or penetration of the globe, and 289 miscellaneous cases of blindness from premature explosions of bombs, explosive bullets, aeroplane accidents and burns. There was a notable absence of sympathetic inflammation. There were 417 cases of nontraumatic blindness, a review of which led to some conclusions concerning enlistment. In the examination of men for military service, those who have had disease of the uveal tract of both eyes should be rejected. When only one eye is involved, as the result of traumatic uveal inflammation, the man should not be accepted. A careful ophthalmologic examination should be made to rule out congenital disease, such as retinitis pigmentosa, or some chronic disease, such as chorioretinitis, thus saving the state much money in pensions. Interstitial keratitis and other varieties of inflammatory disease were found in 138 cases, of which 47 were interstitial. There were 109 cases of primary optic nerve disease, of which 62 were positively the result of syphilis and 18 more were clinically so classified. Secondary optic nerve degeneration gave 44 cases due to syphilis, cerebral tumor and meningitis. Blindness due to detachment of the retina was found in 29 cases; family atrophy, in 17; glaucoma, in 11; cataract, in 7; traumatic neurasthenia, in 4; bilateral embolism of the central retinal artery, in 2, and pituitary disease in 3. There was one each of recurrent retinal hemorrhage, exophthalmic goiter, retinitis proliferans and meningitis. Syphilis as a cause of nontraumatic blindness in the war is well shown by this review. The third part deals with pensions and the reeducation of the blind. The author well contends that men blinded by disease brought on by unfavorable conditions in the war should be pensioned. The question of syphilis and war blindness was finally settled so that men were given pensions who had loss of vision due to a syphilitic lesion, acquired or congenital, with or without a positive Wassermann reaction. That section of the book dealing with reeducation is brief, and gives an accurate picture of the difficulties and problems of this phase of the work among the war blind which ought to be known by every ophthalmologist.

Traité pratique de cystoscopie et de cathétérisme urétéral. Par G. Marion, Professeur agrége à la Faculté, Chirurgien de l'Hôpital Lariboisière, and M. Heitz-Boyer, Professeur agrégé de chirurgie des voies urinaires à la Faculté, Chirurgien de l'Hôpital St.-Louis. Second edition. Cloth. Price, 100 francs, net. Pp. 480, with illustrations. Paris: Masson et Cie, 1923.

This work now appears in one volume, for the sake of convenience. Slight changes have been made, but the fundamental idea and plan of the first edition is the same with the addition of some new material. All of the illustrations of the first edition have been retained, and some new ones have been added. The chapter on optics has been considerably altered. The author has given particular attention to urethrocystoscopy, which he considers of the utmost importance in many cases and a real advance. He points out that the method was developed in the United States, and he gives credit to Buerger for having popularized it. In the second part of the work he has devoted more attention to pyelography. The chapter on functional tests has been entirely rewritten, and the portion dealing with operative cystoscopy has been greatly enlarged. The increasing field of usefulness of high frequency treatment is emphasized. Some new apparatus and instruments are described, and some new ideas are presented concerning the treatment of cystitis. Other changes in this edition concern cystic dilatation of the intervesical end of the ureter, ureteral calculi embedded in the terminal portion of the ureter, and papillomas of the ureter. A unique feature of this portion of the work, which is a magnificent atlas of cystoscopy, is the fact that opposite each illustration the legends are presented in French, English, Italian, Spanish and German.

Gonorrhea and Impotency: Modern Treatment. By Edwin W. Hirsch, S.B., M.D. With an Additional Lecture on Ultra-Violet Radiation. by A. J. Pacini, M.D. Cloth. Price, $3.50. Pp. 172, with illustrations. Chicago: The Solar Press, 1922.

This small volume is a sketchy, compend-like account of the venereal diseases. It deals with each subject in the usual way, omitting much detailed information of importance. The etiology, symptoms and pathology are treated hurriedly, without sufficient detail. The treatment at times is excellent so far as it goes, and shows that the author really understands his subject. Much space is given to ultraviolet therapy and diathermy, and but little to other forms of treatment. The author slights widely accepted and long used methods practiced by urologists. This is particularly true in his treatment of the determination of cure in gonorrhea. As an exposition and advocacy of light therapy and diathermy the book has some value, giving detailed descriptions of the indications and methods of application of these forms of therapy.

Atlas typischer Röntgenbilder vom normalen Menischen ausgewählt und erklärt nach chirurgisch-praktischen Gesichtspunkten, mit Berücksichtigung der Varietäten und Fehlerquellen, sowie der Aufnahmetechnik. Von Dr. med. Rudolf Grashey, a. o. Universitätsprofessor an der chirurgischen Klinik in München. Fourth edition. Cloth. Price, $5. Pp. 235, with 595 illustrations. München: J. F. Lehmanns Verlag, 1923.

This excellent atlas, now in its fourth German edition, presents, first, a brief consideration of the technic of roentgenology from the construction of the apparatus to the taking of the picture and the development of the plates. This preliminary consideration is illustrated by 167 outline drawings. The remainder of the book consists of 206 roentgen-ray reproductions, together with fully detailed illustrative legends. As a guide to the interpretation of roentgenograms, the book should be exceedingly useful.

The Anatomy and Physiology of Capillaries. By August Krogh, Ph.D., LL.D., Professor of Zoö-Physiology, Copenhagen University. Cloth. Price, $3. Pp. 276, with 50 illustrations. New Haven: Yale University Press, 1922.

The important investigations of Krogh and his assistants concerning capillaries were embodied in the Yale Silliman lectures of 1922. The lectures are now available in this very presentable volume, a welcome addition to the library of the anatomist, physiologist and biologist. Krogh distinctly disavows any claim that the book is a monograph with a complete presentation of the subject; he offers only his own views based on the researches of his own school. Repeated references to the work of others, however, with a choice bibliography make the volume approach more nearly the type of a monograph than the author modestly asserts. In discussing the anatomy of capillaries he lays stress on the importance of quantitative anatomic studies. He impresses on one the enormous number of capillary channels in the body. The Rouget cells in the capillary wall are regarded as the equivalent of the unstriped muscle fibers of the arteriole. The innervation of capillaries is fully considered, with experimental proof of the importance of local nervous mechanisms in the control of capillary contraction and dilatation. The variations in caliber are physiologically such as to meet the demands of an increase in function, e. g., in a contracting muscle. A hormone is of great importance in controlling much of this capillary action. To the supreme function of the capillaries, a function that lifts them to a plane above that of the heart, arteries or veins, the exchange of substances through the capillary walls. Krogh devotes two inter-sting and stimulating chapters. Finally, he touches briefly n some applications of the physiology of capillaries to com- lex processes in health and disease. One marvels at the atience of the investigator, the ingenuity in devising experi- ients with delicate and complicated apparatus, the resource- ulness of the mind that conceives the plan of research, and ie soundness of judgment that reaches conclusions that are ogical and not extravagant. In fact, at times one is inclined wish, though knowing the author is right in his self- estraint, that he were not so often induced to say that the ivestigations are still incomplete, confirmation is necessary, r that capillaries in other organs or in other animals must e studied. As a matter of fact, one has to realize that much f this work is of pioneer character, and that this investi- ator is merely blazing the trail for subsequent explorers. Ve quote the concluding paragraphs of the book, feeling iat the author's hope has been realized:

> Until quite recently the word vasomotor was used as synonymous ith *arteriomotor.* We have realized now that beyond the well-known teriomotor we have certain *capillariomotor* mechanisms and, though c systematic study of the capillaries and their reactions is still in its rly infancy, it is quite safe to predict that it will show a vigorous owth both as a branch of pure science and with regard to its direct id indirect applications for the benefit of mankind, and be recognized timately as of equal importance with the study of the heart and the terial system.
>
> It is my hope that these lectures may help in some measure to promote e growth of this young branch of physiology and to arouse an active terest in a study which, by revealing more and more the beautiful rrelation of activities in the organism, will further the purpose for iich the Silliman Memorial Lectures were established.

Kurzes Lehrbuch der Kinderkrankheiten. Von Dr. Heinrich hndorff, Privatdozent für Kinderheilkunde an der Universität in icn. Second edition. Paper. Pp. 276. Vienna: Josef Safár, 1922.

In this small volume the author attempts to cover the dis- ses of the new-born, infancy and childhood. As may be pected, many subjects must be neglected or, to say the least, indled in an indifferent manner. The care and feeding of emature infants is given one page, while tetanus neo- itorum covers one and one-half pages. While only twelve ges are devoted to the whole subject of breast and artificial eding of infants, the material is well assembled. Another ample of the shortcomings of the work is seen in the apter on typhoid fever—the subject is covered in one and e-half pages, with five lines devoted to diet. While the ok averages well with similar condensed volumes covering iny subjects, as in all of them it fails to meet the practical eds of the class of physicians most likely to use it.

Rhus Dermatitis from Rhus Toxicodendron, Radicans and versiloba (Poison Ivy): Its Pathology and Chemotherapy. By mes B. McNair. Cloth. Price, $4. Pp. 298, with 15 illustrations. icago: University of Chicago Press. 1923.

There are few plants about which so much misinformation s been disseminated as is current in the general beliefs icerning poison ivy and poison sumac. The nature of the ison, its methods of transmission, how it produces its toxic ects, and the treatment of the skin inflammation which it ises have been the theme of countless myths, miraculous ries and fanciful theories for three hundred years. The magazines and even some medical works have shown a k of discrimination in their discussions of these plants. s refreshing, therefore, to come upon a work by an investi- or who has made deep researches into this puzzling subject l who has contributed perhaps more than any other toward settlement of its baffling problems. The book consists of rints of papers published by McNair in botanic, chemical l medical journals, a chapter not previously published, and appendix containing case histories and a comprehen- e bibliography. Most of McNair's studies have been made *Rhus diversiloba,* while other workers have investigated *vernicifera, R. vernix* and *R. toxicodendron.* The subject considered from the standpoints of anatomy and morphol- , region and occurrence of the poison, its transmission m plant to person, the chemistry of the poisonous principle, pathology of rhus dermatitis, individual immunity, reme- s, and chemotherapy and treatment. A great amount of lence on all phases of the subject has been reviewed, and author's own investigations recorded. It seems to be generally agreed that the toxic constituent in the several species of *Rhus* is identical or nearly so, that the poison exists only in the cell sap of the plants, and that poisoning can take place only by contact with this juice. The poison is not contained in the pollen, trichomes (plant hairs), epidermis, cork, xylem or epidermis. The toxic substance is an aromatic, unsaturated, nonvolatile, phenolic compound which is composed of carbon, oxygen and hydrogen and which is neither a protein nor a glucosid. The flowers and green fruits are poisonous, but not the ripe fruits. The toxic principle was called toxicodendrol by Pfaff, but McNair uses the term lobinol. Absolute immunity to the poison in man does not exist, although individual susceptibility varies. The production of immunity by administration of small but increasing doses of the poison, as advocated by Ford and by Strickler, does not receive endorsement. A list of about 250 suggested remedies has been compiled from the literature. McNair recommends the de Sandfort treatment with paraffin, as for burns. In absence of this, frequent washing with a dilute solution of ferric chlorid is useful. All traces of the poison must be removed by washing with 75 per cent. alcohol or other solvent to prevent successive attacks. Practitioners, toxicologists and the general reader would do well to consult this book, as it is by far the most comprehensive and authoritative exposition of the subject that has appeared.

Traité technique d'hématologie, morphologie, histogenèse, histophysiologie, histopathologie. Par J. Jolly, Directeur du laboratoire d'histologie de l'École des hautes etudes au Collège de France. Two volumes. Paper. Price, 70 francs. Pp. 1129, with 744 illustrations. Paris: A. Maloine et Fils, 1923.

This is one of the most thorough and complete treatises on the blood that have appeared. It deals especially with the formed elements in the blood under normal as well as pathologic conditions, and covers also the structure and functions of the marrow, the spleen, the thymus and the lymph nodes. The book will be of great value to the student and investigator because it in reality is a work on comparative hematology, and includes a great deal more about the blood of different animal species than any other book in its class. The illustrations are original; they are clear, well reproduced, and of much value and interest. There are complete subject and author indexes. The book is recommended without reservation to all who wish to have a recent, comprehensive and reliable work on the blood.

The Aetiology and Pathology of Rickets from an Experimental Point of View. By V. Korenchevsky, M.D. Medical Research Council, Special Report Series, No. 71. Paper. Price, 4 shillings, net. Pp. 172, with 47 illustrations. London: His Majesty's Stationery Office, 1922.

This interesting monograph is one of the most comprehensive studies of rickets and osteomalacia published to date. The text is well illustrated. The author undertook twenty-three experimental studies, in each of which he gives the conclusions from his findings. He ends his work with a general summary. He has made an extensive review of the literature bearing on his experiments. His conclusions differ, as to their exact relation to diet, from some of the conclusions drawn by American investigators. The work is recommended to all interested in the progress being made in the solution of our every-day problems in infant and child nutrition.

Lições de Emmenologie Clinica. Por J. Adeodato, Professor cathedratico de clinica gynecologica na Faculdade de Medicina da Bahia. Paper. Pp. 292. Bahia: Romualdo dos Santos, 1923.

This is a careful study or, rather, a review of menstruation and its anomalies, in connection with general and local physiology and pathology. The subject matter was furnished by the lectures on clinical gynecology given by the author to his Bahia pupils since 1911. There is therefore little original material. It fulfils, however, its purpose of bringing together information of value to students, and even physicians, on a function—or rather, if we may believe Pinard, an accident—the importance and bearing of which are often neglected to the patient's detriment. The book is well printed in large type. There are no illustrations and no index.

Miscellany

SMALLPOX, GLOUCESTER AND PAMPHLETEER HADWEN

Dr. W. R. Hadwen of Gloucester, England, came to this country last year in the interest of the opponents of experiments on animals. The Journal stated at that time that Dr. Hadwen was not qualified to speak for the medical profession, and that he was discredited in his own country by those whose scientific opinion amounted to anything. We quote below from the *Medical Officer*, London, a recent opinion of Dr. Hadwen. The *raison d'être* was a smallpox epidemic in Dr. Hadwen's own city.

"Among the lesser lights of our profession, Dr. Walter R. Hadwen, a justice of the peace of the ancient city of Gloucester, shines with some distinction. No smallpox epidemic can be considered to be really satisfactory or complete without some of the brilliant pamphlets of this scintillating doctor; and now that smallpox has appeared in his own city, it is not to be expected that the worthy justice should hide his light under a bushel. Two most entertaining and humorous pamphlets, the results of his able pen, are being distributed free in the city. . . . At the head of one leaflet is a picture of something which we are told in the letterpress is a calf strapped down to a table. The joke in the picture probably is that the calf appears to be wearing a white waistcoat with spots on. . . . Continuing the reading below the picture, you discover that the calf's abdomen has been shaved, and that it really isn't wearing a waistcoat at all. This is first score for Dr. Hadwen. Then you find that the 69 spots represent '100 incisions, each about an inch long.' So you count the spots again and Dr. Hadwen scores a second time; for he has persuaded you to look at the pretty picture more often than you intended. . . . On the next page you read that 'Jenner was a product of his time'; and, having wondered if Dr. Hadwen is a product of his time or a throwback, you screw up the paper and use it to light a cigarette. . . . The other little pamphlet is—well not half so jolly. There's no calf picture on it and the title is most depressing: 'Scaremongering in Gloucester. Who Blackened the City?' After careful reading of this sad leaflet we are not able to answer the question. The answer to the riddle 'Who Blackened the City' might be anything. It might be . . . the Gloucester *Citizen*, which refused, we are told, to publish this rumbling of Dr. Hadwen . . . it might, of course, be Jenner! That was a good guess; but no, he isn't mentioned. Could it be Dr. Hadwen? Surely not. Then probably the answer is 'a lemon' and Dr. Hadwen has scored again. The presence of smallpox can hardly be the blackening agent, for Dr. Hadwen denies in that little leaflet that smallpox is in the city. . . . When Dr. Hadwen wrote so definitely that smallpox did not exist in Gloucester on 11th June, he must have forgotten that he read a paper on 3rd May at a sessional meeting of the Institution of Sanitary Engineers in which he said, 'In the last two months we have had about a dozen cases of smallpox.' And he must have forgotten that at the smallpox hospital, three or four miles outside Gloucester, there are several cases of severe smallpox, and a couple of hundred or so cases of mild smallpox in which the diagnosis has been verified by scores of expert medical officers, specialists in diagnosis. . . . If Dr. Hadwen specializes in pamphleteering, of which he is so able an exponent, it might be thought that he would leave others, who also are able, to conduct their businesses in which they are skilled. It may be that he is a unique genius and expert in all the arts and sciences, that he teaches law to his attorney and pastry-making to his baker. He gives good advice perhaps to his tailor and clockmaker, to his fishmonger and butcher. . . . He may give good advice to the parson, to the architect, and indeed to all the world, and be, as we said, a light . . . in our profession. We shall hear of him next delivering a lecture upon 'The Earth is Flat and Einstein is Wrong' before the Royal Astronomical Society, or on 'Pigs in Clover' before the Society for the Abolition of Self-advertisers. . . . But such erudition carries with it a responsibility to mankind which cannot altogether be evaded by asking questions after the manner of 'Why is a raven like a writing desk?' or 'Who Blackened the City?' . . . The search for the elemental ideals of beauty, truth and righteousness does not succeed along the little paths of pamphleteering and petty abuse of authority; and if ever Dr. Hadwen has the courage to survey his own mind he may find an answer to his own question."

POISONING BY HYDROGEN SULPHID

The Pittsburgh experiment station of the Bureau of Mines has established the fact that acute poisoning can be produced by low concentrations of hydrogen sulphid, which result in respiratory paralysis and death. Hydrogen sulphid is sometimes present in mines, railroad tunnels, sewers, and marshes; in various stages in the manufacture of sulphuric acid, and in the distillation of petroleum, also about some gas wells, gas plants and smelters. It is a colorless gas, which, in mines has been termed stink damp. In seven parts of air a mixture is formed, which, when ignited, explodes with violence. Wherever hydrogen sulphid exists, there is a possibility of poisoning. Its toxicity is comparable to that of hydrocyanic acid gas.

A study of the degrees of asphyxia caused by inhalation of the gas shows that when complete there is almost immediate unconsciousness. Frequently death follows before rescue can be even attempted. When rescue can be accomplished the victim usually recovers quickly. Headache and nausea may exist for several hours. In some cases men have been unconscious, but were able to return to work in two or three hours. In subacute cases, irritation of the eyes and respiratory tract are found. The degree of poisoning varies with the concentration of gas and the length of exposure. In experimental studies of hydrogen sulphid gas, made by the Interior Department at the Pittsburgh experiment station, a 1,000 cubic foot gas chamber was used for making exposures. Canaries, white rats, guinea-pigs, dogs, and a goat were used as subjects. A few experiments were made on men, using low percentages of hydrogen sulphid. The conclusions of investigators are that hydrogen sulphid is an industrial poison, the toxicity of which has not been fully realized. Cases of poisoning have occurred in relatively large numbers and vigilance is required to prevent accidents. The exact low limit of hydrogen sulphid concentration at which it ceases to be a poison has not been determined, but is evidently below 0.005 per cent. The treatment of acute cases consists in immediate removal from the toxic atmosphere, and the immediate administration of artificial respiration.

THE PYROTANNIC ACID METHOD FOR DETERMINATION OF CARBON MONOXID

The Department of the Interior has announced an improved method for the quantitative determination of carbon monoxid in blood and air. It is a modification of Sayer and Yant's test (The Journal, June 3, 1922, p. 1745) in which a tannic-pyrogallic acid mixture was employed to hasten a color reaction. The improvement consists of making permanent color standards, of remodeling the equipment and arranging it in a pocket case, 3 by 7 by 1¼ inches. The technic is so simple that a qualitative determination can be made in three minutes and a quantitative in fifteen. The finger is punctured and the pipet filled to the 0.1 c.c. mark with blood, then to the 2 c.c. mark with water. The diluted blood is discharged into a tes tube and a small amount of a mixture of equal parts of tannic and pyrogallic acid added. The tube is inverted to mix it contents and allowed to stand from ten to fifteen minutes when its color is compared with color standards. The amoun of carbon monoxid in a specimen undergoing examination i determined directly from the standard which it matches most closely. Thus the procedure is simpler than blood counting and is adapted to the bed side, the laboratory or the field.

Medicolegal

Roentgenograms Taken of Wound of Person Under Arrest

(State v. Casey (Ore.), 213 Pac. R. 771)

The Supreme Court of Oregon, in affirming a judgment of onviction of the defendant of murder, says that certain khibits of roentgenograms were received in evidence over ie objection that they were incompetent, irrelevant and nmaterial. The defendant had a gunshot wound of the rist, and it was urged in his brief that these pictures show-g the wound on his arm were taken while he was under rest, and that for that reason it was error to admit them as idence into the record of this case. However, the plates ere competent and relevant. The pictures disclosed by them ere a marked aid to a correct understanding of the oral stimony. There was nothing in the record showing that e roentgenograms were taken against the will or without e full consent of the defendant. There was no suggestion the record that the officers or any one else compelled the fendant to have the wound photographed, or that they icked him into having the roentgenograms made, or that e officers or any one else did anything toward requiring e defendant to supply evidence against himself. It is a esumption of law, disputable, however, that official duty is been regularly performed. It cannot be presumed, in the sence of evidence to the contrary, that the officers of the w violated the rights of the defendant, or that they were ilty of wrongdoing in procuring the roentgenograms of his ounded arm.

Adjudication of Lunacy Imports Total Disability

(Forbes v. Welch (U. S.), 286 Fed. R. 765)

The Court of Appeals of the District of Columbia says at Mrs. Welch petitioned for a writ of mandamus to com-l defendant Forbes, director of the Veterans' Bureau, to te her husband as totally and permanently disabled to ter or fill any gainful occupation, and for allowance of mpensation under the war risk insurance act. The petition t forth that Welch had been adjudged a lunatic and that e petitioner had been appointed committee of his person d estate. The defendant answered that the Veterans' ireau had recognized this adjudication and was paying the titioner on a rating of partial disability. He denied that rating of total disability was the only correct rating for person adjudged a lunatic, and set out examinations which d been made by physicians of the condition of the peti-ner's ward, resulting in a finding of temporary partial ability of 55 per cent., and that compensation had been owed on that basis. The petitioner demurred to the defen-nt's answer, and the lower court sustained the demurrer, t that judgment is here reversed and the cause remanded th instructions to dismiss the petition.

The single question involved was whether or not man-nus would lie to control the discretion of the director of veterans' bureau and compel the finding of total dis-lity. By the provisions of the war risk insurance act he accorded wide jurisdiction in determining the question of ability, except in certain specified cases. As lunacy is where defined in the act as constituting permanent dis-lity, the extent of disability arising therefrom is subject the determination of the director. The director having ided, his decision could not be reviewed in this proceed-. Nor could this court say that he acted arbitrarily, since decision was based on evidence adduced in a matter left law to his discretion.

his court was not impressed by the contention that the udication of lunacy was binding and conclusive on the ector. The issue of the extent of Welch's disability, or consideration or interpretation of the war risk insurance was not before the court. But the decree of lunacy was na facie evidence of the actual insanity of the person reby placed under guardianship, and established a status that individual which was notice of the incapacity of the d to all the world. It did not establish as against strangers or as between a party, or privy, and a stranger the form of the insanity of the ward, its transmissible character, or any evidentiary fact on which the ultimate adjudicated fact was grounded. Nevertheless, the decree had evidential bearing on the question of total disability. It was a dominant fact, too important to be totally ignored. By virtue of the decree, the ward was restrained from pursuing any gainful occupation. His disability, regardless of the degree of insanity, or mental or physical disqualification, was complete. It was therefore difficult to understand just how, in the face of the adjudication of lunacy, the director could justly find other than total disability. This case appeared to be one demanding the closest scrutiny and investigation in order that the petitioner might not be deprived of her rights. This court was powerless, however, in this proceeding to review the decision of the director, or to compel such an investigation.

Malpractice in Diagnosis—By Chiropractors

(Kuechler v. Volgmann (Wis.), 192 N. W. R. 1015)

The Supreme Court of Wisconsin, in this action to recover damages from a chiropractor for alleged malpractice, reverses an order that sustained a demurrer to the complaint, and remands the case with directions to overrule the demurrer and for further proceedings according to law. The complaint stated, among other things, the employment of the defendant, who negligently undertook the treatment of the plaintiff on the misapprehension that he was suffering from some derangement of the stomach with resulting nervousness and headache, and after eight months advised him to go West for relief, whereas the plaintiff afterward learned from a physician that he had been suffering from a tumor growing in his head—but he learned that too late to have anything more done than to have a large portion of his skull removed to relieve the intracranial pressure.

The trial court sustained the demurrer on the ground that the complaint, having alleged that the defendant treated the plaintiff according to the methods used by members of the defendant's profession, namely, by chiropractors, it negatived negligence and lack of skill, since the rule is that a physician is required to exercise only that degree of care, diligence, judgment and skill which other physicians of good standing of the same school or system of practice usually exercise in the same or similar localities under like or similar circumstances, having due regard to the advanced state of the medical profession at the time in question. Such, the supreme court says, is undoubtedly the rule of law in Wisconsin; and, were the complaint grounded on a lack of skill or care, or on negligence, in treatment only, the trial court came to the right conclusion. But the supreme court construes the gravamen of the complaint to charge a lack of skill and care in diagnosis, in the failure of the defendant to discover the nature of the ailment from which the plaintiff suffered. Malpractice may consist in a lack of skill or care in diagnosis as well as in treatment. A woman may be in the early stages of pregnancy. A physician may diagnose it as an ovarian tumor, and may operate. There may be no lack of skill or care in the operation, but there may be in the diagnosis. In the complaint in this case, the pleader said that through a lack of skill and care the defendant negligently undertook to treat the plaintiff for a malady from which he was not suffering, and that, had the defendant possessed ordinary skill or ability in treating disease, he would, by the exercise of ordinary care, have known the true cause of the ailment. It was also alleged that the plaintiff was informed and believed that, if the defendant had used ordinary care and skill in diagnosing the affliction of the plaintiff, he would have known that the plaintiff was afflicted with a tumor and that an operation on the plaintiff at the time when the plaintiff first consulted the defendant would have effected an immediate and permanent cure. That expressly charged lack of care and skill in diagnosis, with resultant damages.

That chiropractors, who by the provisions of Section 1435 e, Wisconsin Statutes of 1921, are permitted to practice without a license in Wisconsin, are required to exercise care and skill in diagnosis, if they undertake to diagnose, there can be no doubt. Section 1435 i directly so provides and makes them liable for malpractice. It is clear from the allegations of the complaint that the defendant undertook to diagnose as well as to treat the disease. Diagnosis is ordinarily assumed and performed by licensed medical physicians. But it may be assumed by others; and it is held that the practice of chiropractic is the practice of medicine. The fact that chiropractors abstain from the use of words like "diagnosis," "treatment" or "disease" is immaterial. What they hold themselves out to do and what they do is to treat disease, and the substitution of words like "analysis," "palpation" and "adjustment" does not change the nature of their act. Hence, when the defendant assumed to perform that duty, he must exercise the care and skill in so doing that is usually exercised by a recognized school of the medical profession. This the complaint alleged he failed to do, and the demurrer admitted the allegation. For these reasons the supreme court reaches the conclusion that the trial court erred in sustaining the demurrer.

When Limitations Begin Running in Malpractice Cases

(Sly v. Van Lengen (N. Y.), 198 N. Y. Supp. 608)

The Supreme Court of New York, Motion Term, Onondaga County, says that the complaint alleged the plaintiff's employment of the defendant to treat her; that on Nov. 30, 1918, he performed an operation on her for the removal of a tumor from the abdomen, but negligently left a gauze sponge in her body; that he continued to treat her until Sept. 28, 1921, during all of which time he negligently permitted the foreign substance to remain in the plaintiff's pelvic cavity; and that by reason of his closing the incision with the sponge inside the plaintiff's body, and by reason of his permitting it to remain during the time he continued to treat her, she suffered the injuries of which she complained. The plaintiff commenced this action, Feb. 17, 1923, to recover damages. For the action to be maintained it was necessary, under the civil practice act of New York, that it be brought within two years after the cause of action accrued. Was that done? The defendant insisted that his malpractice, if any, occurred at the time of the operation, when the incision was made and subsequently closed without removing the sponge, and, since that act occurred more than four years before the commencement of this action, he made a motion for a judgment dismissing the complaint on the ground that the cause of action set forth did not accrue within the time limited by law for the commencement of an action thereon. But that motion is denied, with costs.

If it should appear on the trial that the injury from which the plaintiff is suffering was inflicted at the time of the operation, and was not occasioned in any manner by the subsequent treatment of the plaintiff, nor by any neglect on the part of the defendant after the operation, a different situation would arise. On the decision of this motion, however, it is unnecessary, and would be improper, to anticipate what the evidence on the trial will show. The motion must be determined solely on the allegations of the complaint. They must be assumed to be true, and the plaintiff is entitled to the most favorable inference which can properly be drawn therefrom. It will be noted that the complaint alleged that the injuries complained of were occasioned, not only because the defendant closed the incision without removing the sponge from the plaintiff's pelvic cavity, but also because the defendant negligently allowed a foreign substance to remain in the plaintiff's body from day to day for upward of two and one-half years, while he continued to treat her. Accepting the allegations of the complaint as true, the plaintiff's cause of action accrued as much by reason of the alleged continuous breach of duty on the part of the defendant in treating the plaintiff up to September, 1921, and in failing to remove the sponge, as it did because of the alleged negligent act of the defendant on the day of the operation, when he sewed up the opening without removing the foreign substance. According to the complaint, the tort was a continuing one; and where the tort is continuing, the right of action is also continuing.

This precise question seems to have been decided in favor of the plaintiff's contention by the Supreme Court of Ohio in *Gillette* v. *Tucker,* 67 Ohio St. 106, 65 N. E. 865, in an action similar in all respects to the one at bar. In that case, the defendant operated on the plaintiff for appendicitis, and closed the incision without removing one of the sponges used in the operation. The defendant continued to treat the plaintiff, but neglected to remove or to attempt to remove the foreign substance. The Ohio statute provided that an action for malpractice must be commenced within one year after the cause of action accrued. The action was commenced more than one year from the date of the operation, but less than twelve months after the defendant ceased to treat the plaintiff. It was held that the limitation did not begin to run against the plaintiff's right to maintain the action until the case had been abandoned by the defendant, or the professiona relationship terminated.

Drunkenness from Liquor of Own Prescription

(Johnson v. Commonwealth (Va.), 115 S. E. R. 673)

The Supreme Court of Appeals of Virginia does not agree with the contention that, because defendant Johnson, who was charged with shooting a man with intent to kill, was drunk at the time from having taken liquor to relieve a toothache his drunkenness was involuntary and negatived specific intent The court says that the law has always jealously guarded the effect of drunkenness as a defense in criminal cases; and even with all the restrictions surrounding it, the doctrine is a dangerous one and liable to be abused. The rule has for ages been regarded as necessary for the safety of society, and its preservation and enforcement was never more important than under present conditions. The country is full of "bootleg" liquor, much of it impure and calculated to produce a state of wild intoxication. Provision is made by the law for procuring on prescriptions from reputable physicians a reasonable amount of pure whisky for medicinal purposes When people undertake, as the defendant in this case did, to prescribe for themselves and to select their own supply, they must be held responsible for the consequences.

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, Washington D. C., Oct. 15-20. Dr. Luther C. Peter, 1529 Spruce St., Philadelphia Secretary.
American Association of Obstetricians, Gynecologists, and Abdomina Surgeons, Philadelphia, Sept. 19-21. Dr. James E. Davis, 111 Josephin Avenue, Detroit, Secretary.
American Association of Railway Surgeons, Chicago, Oct. 17-19. Dr L. J. Mitchell, 29 E. Madison St., Chicago, Secretary.
American Child Hygiene Association, Detroit, Oct. 15-17. Dr. Phili Van Ingen, 125 East 71st St., New York, Secretary.
American Public Health Association, Boston, Oct. 8-11. Mr. A. W Hedrich, 370 Seventh Avenue, New York, Secretary.
American Roentgen Ray Society, Chicago, Sept. 18-23. Dr. W. W Watkins, Goodrich Building, Phoenix, Ariz., Secretary.
Association of Military Surgeons of the United States, Carlisle Barracks Pa., Oct. 4-6. Col. James Robb Church, Army Medical Museum Washington, D. C., Secretary.
Colorado State Medical Society, Glenwood Springs, Sept. 4-6. Dr F. B. Stephenson, Metropolitan Building, Denver, Secretary.
Delaware State Medical Society, Middletown, Oct. 8-9. Dr. W. O La Motte, Industrial Trust Building, Wilmington, Secretary.
Indiana State Medical Association, Terre Haute, Sept. 26-28. Dr Charles N. Combs, Terre Haute, Secretary.
Kentucky State Medical Association, Crab Orchard, Sept. 17-20. Dr A. T. McCormack, 532 West Main Street, Louisville, Secretary.
Medical Association of the Southwest, Kansas City, Mo., Oct. 4-8. Dr E. H. Skinner, Rialto Building, Kansas City, Mo., Secretary.
Michigan State Medical Society, Grand Rapids, Sept. 11-13. Dr. F. C Warnshuis, 410 Powers Building, Grand Rapids, Secretary.
Minnesota State Medical Association, St. Paul, Oct. 10-12. Dr. Carl B Drake, Guardian Life Building, St. Paul, Secretary.
Mississippi Valley Medical Association, Hot Springs, Ark., Oct. 9-11 Dr. John L. Tierney, University Club Bldg., St. Louis, Secretary.
Missouri Valley, Medical Society of the, Omaha, Sept. 20-21. Dr Charles W. Fassett, 115 East 31st Street, Kansas City, Secretary.
Pennsylvania, Medical Society of the State of, Pittsburgh, Oct. 1-4. Dr W. F. Donaldson, Jenkins Arcade, Pittsburgh, Secretary.
Vermont State Medical Society, Bennington, Oct. 11-12. Dr. W. C Ricker, St. Johnsbury, Secretary.
Virginia, Medical Society of, Roanoke, Oct. 16-19. Mr. G. H. Winfrey 104½ W. Grace St., Richmond, Secretary.
Wisconsin, State Medical Society of, Milwaukee, Oct. 3-5. Mr. J. C Crownhart, 558 Jefferson St., Milwaukee, Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

merican Journal of Medical Sciences, Philadelphia

165: 781-836 (June) 1923

ubcutaneous Fibroid Nodules in Rheumatism. E. Bronson, E. M. Carr and W. A. Perkins, San Francisco.—p. 781.
initis Plastica: Report of Two Cases. A. F. R. Anderson, Brooklyn.—p. 799.
cute Perforations of Stomach and Duodenum: Report of Sixty Cases. C. L. Gibson, New York.—p. 809.
reatment of Spastic Constipation. C. D. Aaron, Detroit.—p. 816.
iagnosis and Treatment of Intestinal Obstruction. A. McGlannan, Baltimore.—p. 822.
nappreciated Findings in Lungs of Normal Children. C. R. Austrian and F. H. Baetjer, Baltimore.—p. 831.
leuropulmonary Reflex: Its Etiology, Prevention and Treatment. B. P. Stivelman, New York.—p. 836.
tudies in Renal Function and Metabolism in Case of Diabetes Insipidus. D. S. Hachen, Cincinnati.—p. 846.
plenic Anemia: Clinical and Pathologic Study of Sixty-Nine Cases. W. C. Chancy, Rochester, Minn.—p. 856.
lephantiasis: Clinical Review and Attempt at Experimental Reproduction. G. D. Mahon, Rochester, Minn.—p. 875.
tudy of Urinary Output and Blood Pressure Changes Resulting in Experimental Ascites. J. M. Thorington and C. F. Schmidt, Philadelphia.—p. 880.
ignificance of Wildbolz Auto-Urine Reaction in Tuberculosis: Report of 100 Cases. M. S. Lewis, New York.—p. 890.

Subcutaneous Fibroid Nodules in Rheumatism.—In thirty-ght rheumatic cases seen by Bronson and Carr, fibroid subtaneous nodules were present in seventeen. Of those tients having nodules, six died during the observation riod of two years. In only one instance did death occur a patient not having nodules. Of the thirty-eight cases, venteen were grouped as having serious cardiac damage. these seventeen, thirteen had nodules.

Acute Perforations of Stomach and Duodenum.—The results tained by Gibson in this series of cases confirm his belief the desirability of aiming simply to close the perforation, ving remote and problematic after-results to be taken care as necessity arises. The mortality of the series was 16.6 r cent., 6.6 per cent. occurring in the first eighteen hours. the patients giving a history of long standing gastric disbance 30 per cent. were gastric, 70 per cent. duodenal. Of patients giving a history of no previous trouble, 65 per t. were gastric, 35 per cent. duodenal. The mortality from te gastric perforation is almost double that of duodenal foration, namely, 21 per cent., as against 12 per cent. odenal ulcers give a maximum of conditions requiring ther operation, seven out of the eight reoperated cases ng duodenal. Of the five cases of pyloric stenosis found reoperation, four were duodenal.

reatment of Spastic Constipation.—In the treatment of stic constipation, Aaron says the first care is to provide sical and mental relaxation for these patients, who are ally in an overstrung nervous condition. Complete rest bed or a fresh-air treatment is often sufficient to induce mal defecation. The principal point, however, is the scription of a suitable diet. The indications point to a mically acting dietetic regimen exclusively; all kinds of hanically irritating foods are to be forbidden absolutely. many cases it may be necessary occasionally to administer etables and boiled fruit in puree form. A diet should be cted that will make but slight demands on the intestine. thing, antispasmodic foods should be administered, while use of water and foods acting mechanically to increase stinal motility should be excluded. No laxative should given. Glycerin enemas and glycerin suppositories are ctly to be prohibited. The dietetic therapy may often be bined advantageously with certain medicaments. Large unts of fat are capable of acting in a beneficial manner, lering the feces soft and smooth. Atropin or belladonna he sovereign medicinal remedy.

alue of D'Espine's Sign.—D'Espine's sign, indicative of rged tracheobronchial lymph nodes, is regarded by Aus- and Baetjer as being of little value. A careful anamnesis with special reference to all infections is necessary if diagnostic errors are to be avoided. With a proper appreciation of the widest variations that the normal may present from the ideal, the informed clinician is better able correctly to understand the findings of the roentgenologist, and each, cooperating with the other, is less liable to error.

Pleuropulmonary Reflex.—Stivelman reviews his experience gained from pleural punctures in the course of therapeutic pneumothorax. Among 162 primary punctures, pleuropulmonary reflex was encountered in seven patients, in three of whom the attacks recurred on subsequent attempts to enter the pleural space. The most severe and outstanding symptom during the attacks was cardiorespiratory embarrassment. It was present in all. This distressing symptom was of the vago-inhibitory type in three cases and vasomotor in seven cases, the former being characterized by slowing of respiration and decreased frequency and increased force of the pulse, the latter by rapid, shallow and arrest of respiration, and rapid, feeble and ultimately imperceptible pulse and heart beat. Among 1,824 punctures for refills, i. e., thoracentesis performed in those cases in which the pleural surfaces were widely separated from each other by pneumothorax so that the needle could not possibly injure the visceral pleura and underlying lung tissue, the accident occurred but twice. Stivelman believes that injury to the inflamed visceral pleura and lung tissue underlying the point of puncture is a definite factor in the causation of this symptom complex. When symptoms pointing to the reflex make their appearance, the needle should be withdrawn at once. If the cardiorespiratory failure is of the cardio-inhibitory type, reassurance of the patient and a little patience on the part of the physician is all that is necessary, although atropin may be given subcutaneously in severe cases, none of which, however, have proved fatal. If the cardiorespiratory failure is of the vasomotor type, epinephrin should be given subcutaneously at once and stimulation should be resorted to. Hot coffee per rectum, caffein and camphor subcutaneously, have been found most useful. The temporary paralysis and amblyopia, as a rule, clear up completely within a few days and require no special treatment.

Studies on Case of Diabetes Insipidus.—Two cubic centimeters of pituitrin "O," administered intramuscularly during a twenty-four hour period, decreased the polyuria in a case of diabetes insipidus. The specific gravity was raised and the percentage of salt and urea nitrogen was increased. The maximum concentration was reached within three hours after the injection of the pituitary extract. The drug produced its effect immediately (within ten minutes) and was only transient in its action; the effect of 1 c.c. lasting from eight to twelve hours. Pituitary extract injected hypodermically enabled the kidney to excrete a larger amount of phenolsulphonephthalein. The concentration of the urea nitrogen, uric acid, and sugar in the blood was almost doubled within three hours after the injection of 1 c.c. The blood figures before and after injection remained within normal limits. There was no apparent relation between the basal metabolism and the water excretion of the kidney before and after injection.

Changes in Spleen in Splenic Anemia.—The pathologic findings and clinical records of sixty-nine patients with splenic anemia are reported by Chaney. A composite picture of the pathologic findings in the spleen in splenic anemia was found to be one of generalized fibrosis. There were no findings in the splenic tissue that would enable the pathologist to make a positive diagnosis of splenic anemia, yet the abnormality was as characteristic in this disease as in other diseases producing splenomegaly. The relation of the size of the spleen, as given by the clinical records, to the actual weight, and the fact that many adhesions were found at operation, suggested that the spleen of splenic anemia maintains its relatively normal position in the abdomen. Physical examination showed twenty-four enlarged livers, while at the operating table twenty-six showed a definite cirrhosis, and thirteen were larger than normal. In the sixty-nine patients the average erythrocyte count was 3,700,000; the hemoglobin, 53 per cent., and the leukocyte count, 4,990. The coagulation time and the fragility test were normal, and the Wassermann tests and the stool examinations were negative.

Elephantiasis.—Believing that the hypertrophy and edema which characterize elephantiasis is caused directly by the action of pathogenic bacteria, Mahon attempted to prove it by experiments on dogs. Streptococci grown from tissue taken from the leg (elephantiasis) were injected intravenously and subcutaneously. In some of the experiments neither the operative procedure nor the injected bacteria produced any noticeable effect. In many instances the removal of the lymphatics, and particularly the ligation of the venous return, produced edema of the leg for a variable period. The edema did not persist for any great length of time and a condition resembling elephantiasis never occurred. The effect attributable to the bacteria was obtained. The results of the experiments were negative with regard to the production of elephantiasis.

Experimental Ascites.—It is suggested by Thorington and Schmidt that the loss of tonus in the abdominal musculature occurs as a means of compensating for ascitic collections which would otherwise raise abdominal venous pressure sufficiently to cause urinary suppression. It is suggested further that, since the rise of venous pressure resulting from the presence of an ascitic collection in the abdomen is limited to the venous circulation below the diaphragm, this may be a factor in the comparative limitation of the peripheral edema to the lower extremities in cases of inferior vena cava obstruction.

Wildbolz Auto-Urine Reaction in Tuberculosis.—A careful study of 100 cases has convinced Lewis that Wildbolz auto-urine test for active tuberculosis has very little, if any, significance, in diagnosis. In forty-four cases of active tuberculosis, twenty-six resulted in a positive reaction; four of the cases were classed as inactive or arrested; three acted positively to the auto-urine test. Fourteen of twenty-four nontuberculous pulmonary cases gave a positive reaction. Eleven apparently healthy persons also gave a positive reaction.

American Journal of Physiology, Baltimore

65: 1-222 (June) 1923

Effect of Experimental Rickets on Weights of Various Organs in Albino Rats. C. M. Jackson and R. Carelton, Minneapolis.—p. 1.
Does Epinephrin Affect Metabolism of Surviving Skeletal Muscles of Frog? F. R. Griffith, Jr., Boston.—p. 15.
Electrical Studies in Mammalian Reflexes. III. Immediate Changes in Flexion Reflex After Spinal Transaction. A. Forbes, S. Cobb and H. Cattell, Boston.—p. 30.
Conditions Favoring Maturation of Eggs of Asterias Forbesii. M. E. Brailcy.—p. 45.
Regulation of Renal Activity. VIII. Relation Between Rate of Urea Excretion and Size of Kidneys. F. B. Taylor, D. R. Drury and T. Addis, San Francisco.—p. 55.
Study of Reversal Effects Observed in Experiments with Sodium Citrate or Allied Salts and Autonomic Drugs. W. Salant and N. Kleitman, Augusta, Ga.—p. 62.
Weight of Ovaries in Albino Rat During Gestation and Normal Lactation: Also in Females Deprived of Their New-Born Litters. J. M. Stotsenburg, Philadelphia.—p. 77.
Effect of Digestive Enzymes on Pituitary Extract Action. M. H. Rees and R. W. Whitehead, Boulder, Colo.—p. 90.
Blood Elements in Complement Deficient Guinea-Pigs. L. B. Nice, A. J. Neill and H. D. Moore, Oklahoma City.—p. 101.
*Respiratory Exchange and Alveolar Changes in Man at High Altitudes. E. C. Schneider, Long Island, N. Y.—p. 107.
*Effect of Exercise on Vitamin Requirements. M. H. Keith and H. H. Mitchell, Urbana, Ill.—p. 128.
Inhibition of Erection by Decerebration. E. G. Martin and M. L. Tainter, San Francisco.—p. 139.
Effect on Metabolism of Breathing Pure Oxygen at Pressure of One Atmosphere. A. L. Meyer, Baltimore.—p. 148.
Diastolic Phases of Cardiac Cycle in Man. J. Burstein, Cleveland.—p. 158.
*Lesions of Corpus Striatum by Radium Emanation and Accompanying Structural and Functional Changes. D. J. Edwards and H. J. Bagg, New York.—p. 162.
Study of Relation of Afferent Impulses to Activity of Central Cardiovascular Nervous Mechanism. J. Tulgan, New York.—p. 174.
Studies on Renal Tubule Function. H. L. White, St. Louis.
I. Comparison of Plasma Concentrations and Rates of Excretion of Various Urinary Constituents.—p. 200.
II. Comparison of Plasma Concentrations and Rates of Excretion of Various Urinary Constituents.—p. 212.

Respiratory Exchange at High Altitudes.—The respiratory exchange was determined by Schneider throughout the period of acclimatization during a sojourn on Pike's Peak, altitude 14,110 feet, in men sitting at rest, during a moderate amount of work on a bicycle, and during walking at the rate of 4 miles an hour. Two subjects in rest experienced no change, or at the most only a slight increase, in their gaseous metabolism; while in a third subject the high altitude resting metabolism was above that of the low altitude for forty-eight hours, during which time the increase averaged for carbon dioxide 14.2 per cent. and for oxygen 17.6 per cent. After this he returned to his low altitude metabolism level. Physical exertion caused a higher rate of metabolism than was normal for the low altitude during the first days of residence at the high altitude. Mountain sickness was found to be most severe in the physically unfit and to be associated with a low alveolar oxygen tension. Some persons were more tolerant of a low alveolar oxygen than others. The changes in the alveolar carbon dioxid tension did not indicate an alkalosis of the blood during the period of mountain sickness. Because of this fact, it has been concluded that it is doubtful whether alkalosis is an important causative factor in mountain sickness.

Effect of Exercise on Vitamin Requirement.—The results obtained by Keith and Mitchell indicate that the amount of exercise employed by them did not uniformly affect the well-being of the rats on complete rations or of those on rations lacking in vitamin B. They indicate that the exercise did distinctly hasten the appearance of the symptoms of vitamin A deficiency and hasten the death of young animals receiving insufficient amounts of this vitamin. Apparently, vitamin A is involved in the metabolism incident to increased activity of the voluntary muscles.

Producing Corpus Striatum Lesions with Radium.—A method is described by Edwards and Bagg for producing lesions in the corpus striatum by means of buried radium emanation tubes. There was no tract degeneration in the spinal cord nor structural change in the liver and other organs. The destruction of large portions of the lenticular and caudate nuclei did not give rise to outstanding defects in the coordinated muscular activity of walking and jumping. Extensive bilateral lesions, simultaneously produced, have been attended by tremors and signs of hypertonia exhibited in an unusual bodily attitude, with subsequent return to normal—or apparently normal—condition.

American Journal of Public Health, Detroit

13: 531-624 (July) 1923

Public Health in Orient. W. W. Peter, Shanghai, China.—p. 531.
Cooperation Schick and Toxin-Antitoxin Plea. J. A. Ceconi.—p. 539.
Algae of Genus Chara and Mosquito Larvae. A. B. Vasconcelos, Mexico City.—p. 543.
Rural Health Work from National Viewpoint. W. F. Draper.—p. 547.
Sanitation of Bottled Beverages and Soda Fountain Drinks. J. P. Kilcourse, Chicago.—p. 550.
Relation of State to Sanitary Milk Supply. W. Levin, Topeka, Kan.—p. 557.
Relative Prevalence of Bacteria in an Imhoff Tank. M. Hotchkiss and T. J. Murray, New Brunswick, N. J.—p. 562.
Effect of Gentian Violet on Viability of Some Water-Borne Bacteria. E. W. Stearn.—p. 567.
Well Rounded County Health Department. G. W. Duvall, Owensboro, Ky.—p. 571.

Atlantic Medical Journal, Harrisburg, Pa.

26: 575-648 (June) 1923

*Operative Treatment of Suppurative Meningitis. W. P. Eagleton, Newark, N. J.—p. 575.
*Longevity of Plates and Other Foreign Bodies in Treatment of Fractures of Long Bones. M. Behrend, Philadelphia.—p. 585.
*Fractures Near Ankle: With Special Reference to Fracture of Posterior Margin of Lower End of Tibia. W. L. Estes, Jr., Bethlehem, Pa.—p. 592.
Myoclonic Attacks. E. E. Mayer, Pittsburgh.—p. 598.
Present Status of Endocrine Therapy. B. A. Cohoe, Pittsburgh.—p. 602.
Health and Nutrition Work Among Pre-School Age Children. E. P. Bacon, Philadelphia.—p. 606.
Significance of Bloody and Yellow Spinal Fluid. C. L. Palmer, Pittsburgh.—p. 611.
Our Present Knowledge of Etiologic Factors in Epidemic Influenza. S. R. Haythorn.—p. 612.
Disturbance of Isohemagglutinins in Blood of Three Fatal Cases of Bacteremias. G. R. Lacey.—p. 613.

Subarachnoid Irrigation in Suppurative Meningitis.—In suppurative meningitis any attempt at continuous drainage of the cerebrospinal fluid circulatory system, Eagleton states, is physiologically illogical and mechanically impossible. The term subarachnoid irrigation in meningitis is a misnomer. What is accomplished by the subarachnoid irrigation is not the washing away of infection from the cerebrospinal fluid system, but the removal of an altered toxic cerebrospinal fluid from the parts of the system which are not directly infected, and its replacement by a fluid of the same temperature and a similar consistency as the normal cerebrospinal fluid, the altered and toxic fluid being forced out by pressure from behind. Subarachnoid irrigation to be effectual must be instituted at an early stage in meningitis. It promises most in those cases in which there is reason to believe that the patient is suffering principally from cerebral toxemia. Subarachnoid irrigation is a highly technical procedure, requiring at least four specially trained operators; consequently, all cases of suppurative meningitis should be delegated to a special surgical service, as should all intradural operations.

Longevity of Plates Used in Fixation of Fractures.—Behrend asserts that metal plates, nails or other foreign materials used in reuniting fragments of fractured bones may remain in situ indefinitely under favorable circumstances.

Fractures Near Ankle.—Fracture of the posterior margin of the tibia in Estes' opinion is a fracture that deserves wider recognition and is a serious and usual complication of posterior dislocation of the ankle. It may occur with abduction and external rotation fractures of the second degree. As an isolated lesion, it is probably an extension-compression fracture and is of more frequent occurrence than reports indicate. There is little or no displacement of the fragment. Following recognition and simple immobilization, recovery is usually prompt and complete. In one case here reported, slight permanent disability persists.

Boston Medical and Surgical Journal

189: 1-44 (July 5) 1923

Present Mode of Roentgen-Ray Therapy in Deep-Seated Lesions. F. W. O'Brien, Boston.—p. 1.
"Boston Tins." H. Cushing, Boston.—p. 8.
Preservation of Mental Health in Children. D. A. Thom, Boston.—p. 12.
Schick Toxin-Antitoxin Activities of Boston Health Department. J. A. Ceconi, Boston.—p. 21.

Canadian Medical Association Journal, Toronto

13: 379-468 (June) 1923

Problems of Obstetric Practice. W. W. Chipman, Montreal.—p. 379.
The Foot. J. A. Nutter, Montreal.—p. 387.
Dermatomyositis. F. G. Finley, Montreal.—p. 391.
Series of Cases of Purpura Hemorrhagica and Aplastic Anemia Due to Chronic Benzol Poisoning in Canning Plant. H. B. Anderson, Toronto; J. S. Boyd and A. B. Jackson, Simcoe.—p. 395.
Four Cases of Volvulus of Small Intestine. F. J. Tees, Montreal.—p. 400.
Evidence of Organic Heart Disease. K. A. MacKenzie.—p. 406.
Immunity in Tuberculosis. C. H. Vrooman, Vancouver, B. C.—p. 411.
Psychology of Neuroses. E. D. MacPhee, Edmonton.—p. 414.
Antipyretic Measures. H. Barbour, Montreal.—p. 420.
Direct Measurement of Venous Pressure in Man. F. A. Young, Winnipeg.—p. 423.
Malnutrition. F. W. Tidmarsh, Halifax, N. S.—p. 426.
Modern Epidemiology. T. H. Whitelaw, Edmonton.—p. 428.
Methylene Chlorid in Anesthesia. W. Bourne and R. L. Stehle, Montreal.—p. 432.
Postoperative Recurrent Appendicitis. R. O'Callaghan.—p. 434.
Aneurysm of Arch of Aorta Associated with Aneurysm of Common Carotid Artery. M. Rady, Winnipeg.—p. 435.
Gonococcal Arthritis in New-Born Male Infant. S. G. Ross, Montreal.—p. 437.

Cause of Volvulus of Intestine.—Tees believes that there need for a revision of current teaching that volvulus of the nall intestine can occur only in the presence of adhesions or ther structural abnormalities of the intestinal tract. Greater nphasis must be placed on disordered peristaltic action, ading to a relative antagonism between adjoining segments f bowel, unequally filled. The four cases cited by Tees have n common that in each case there was a distal bowel inactive om one cause or another, with the proximal bowel thrown nto unusual peristaltic activity, thus producing an antagonism hich would appear to provide ideal conditions for the evelopment of the torsion.

Antipyretics.—Among the coal tar products, Barbour says, is an old story that antifebrin (acetanilid) and phenazone (antipyrin) exhibit a greater collapse producing tendency than do acetphenetidin and the salicyl derivatives. Among the latter acetylsalicylic acid appears to be the surest antipyretic, but its irritating properties appear to be underrated. In dogs acetylsalicylic acid, given in large amounts, produces gastric ulceration. It should be taken only with abundance of water. This is to be remembered especially in acute rheumatic fever where large doses are requisite. The tendency to gastric and duodenal ulcers has been associated by some writers with the occurrence of acute rheumatic fever. Barbour wonders whether this might be due to medication with concentrated salicylate. The cinchophen (atophan) group of drugs has recently been found to possess a high degree of antipyretic and antirheumatic efficiency. Of these tolysin (ethyl ester of paramethyl atophan) is made on the phenol salicylate principle, so that the acid radicle is not liberated in the stomach. Furthermore, it possesses little or no toxicity, because it is but slowly absorbed from the intestine. Lozinsky and Barbour were unable to kill dogs with doses of tolysin up to 5 per cent. of their own body weight, although they could prove the complete absorption of therapeutic doses both by their absence from the intestinal tract and their marked, although slow, antipyretic action. Acute rheumatic fever cases have been treated successfully by this drug.

Methylene Chlorid Anesthesia.—Bourne and Stehle report observations on the value of methylene chlorid as an anesthetic. In human subjects a stage of anesthesia not seen with other agents was observed, that is, between the so-called first and second stages a period ushered in by analgesia occurs, which is characterized by anesthesia without loss of muscular power. This stage is followed by one of severe excitement if the administration is continued. The limits of clinical application are, therefore, restricted to those effects which occur prior to the violent muscular activity. The desired stage can be attained by administering methylene chlorid to a point at which consciousness is lost. Administration of the drug is then discontinued, but on the first sign of return of consciousness it is renewed, so that by a process of intermittent administrations the pain of many procedures may be alleviated. The authors recommend its use for the relief of the pains of labor in which the contractions of the uterus do not seem to be impaired, for the induction of anesthesia prior to the use of other less agreeable anesthetic agents, in all minor surgical procedures, for painful dressings, and particularly in dentistry for the extraction of teeth and the preparation of painful cavities.

Gonococcus Arthritis in New-Born Child.—Ross' patient developed an acute gonococcal arthritis eighteen days after birth. The father had gonorrhea just before marriage. The mother, who had previously been healthy, developed a vaginal discharge during this, her first pregnancy. One week postpartum she developed a multiple arthritis which was diagnosed as gonococcal. The infant was healthy at birth. It was reported that the eyes were treated with silver nitrate. On the fifth day there was a mucopurulent discharge from the right eye, with slight conjunctivitis. This was treated by boric acid irrigations and cleared up within a week. On the eighteenth day the temperature rose to 101 F. at 8 a. m. The infant cried loudly, especially on being moved, and on this day the temperature rose to 101.2 F. It was noticed that the right wrist and hand were definitely swollen. The overlying skin was hot, tense and slightly cyanotic, and on palpation there was definite tenderness especially in the metacarpal region. No fluctuation was present. On the following day, the hand was more swollen especially along the tendon sheaths in the metacarpal region. There was also swelling of the left knee joint with definite fluctuation, especially in the suprapatellar bursa. The skin over the knee was reddened and hot. The temperature was normal. The knee joint was aspirated in the suprapatellar region and several cubic centimeters of frank greenish pus was obtained. A smear of this showed numerous pus cells, but no organisms. The pus was cultured. The bacteriologist reported that a gram-negative diplococcus of the morphology of the gonococcus had been grown from the pus. The organism was later proved to the gonococcus by its cultural characteristics. Later it became necessary to open the knee joint. Recovery ensued eventually.

Johns Hopkins Hospital Bulletin, Baltimore

34: 173-204 (June) 1923

Increasing Significance of Permeability Problems. H. J. Hamburger, Groningen, Holland.—p. 173.
*Distribution and Excretion of Arsphenamin After Intravenous Injection. A. C. Kolls and J. B. Youmans, Baltimore.—p. 181.
*Carcinoma of Cervix Uteri. Relative Malignancy of Neoplastic Process as Indicated by Predominant Type of Cancer. K. H. Martzloff, Baltimore.—p. 184.
Phrenic as Nerve of Motor Innervation of Diaphragm. K. Schlaepfer, Baltimore.—p. 195.
Blind End-to-End Anastomosis of Sigmoid. Modified Halsted Operation. New Instrument. C. Y. Bidgood, Baltimore.—p. 197.
Study of Influence of Chemicals on Erythrocyte Membranes by Changes in Corpuscular Volume. B. S. Neuhausen and J. E. Breslin, Baltimore.—p. 199.

Fate of Arsphenamin After Intravenous Injection.—Kolls and Youmans found that approximately three fourths of the arsphenamin injected leaves the blood stream in a few minutes after the completion of the injection. The remaining portion is rapidly reduced in amount, but traces may be found twenty-four hours later. The drug is stored in the liver, spleen, kidneys, lungs, cardiac and skeletal muscle. There is evidence that the alteration or excretion (or both processes, perhaps) has appreciably reduced the amount of the drug three hours after injection. The liver is a more important excretory organ for arsphenamin and neo-arsphenamin than the kidney. The brain shows a much lower concentration of drug in the experimental animal than does any other organ. The cerebrospinal fluid, during the first twenty-four hours, if it contains the drug at all, does so only in minute concentration, which is too low for accurate estimation.

Carcinoma of Cervix Uteri.—Martzloff's study is too detailed to be abstracted, but a few points may be selected for emphasis. The vaginal mucosa was involved in over 50 per cent. of all carcinomas of the cervix in this series, irrespective of the extent of the cervical involvement. Secondary involvement of the corpus uteri in cervical cancer occurred in 41.3 per cent. of the cases in which the entire length of the cervix was involved. One third of all patients seen during the first six months of symptomatic disease, with the exception of those suffering from the spinal cell type of cancer, had extension of the neoplastic process to the broad ligament. Less than 10 per cent. of the patients with broad ligament involvement lived more than one year after operation. The first symptom of disease in almost 85 per cent. of the cases studied was some form of unusual vaginal discharge (either bleeding or leukorrhea) was the primary symptom. The incidence of "cures" is almost twice as frequent in the cases treated by abdominal panhysterectomy as compared with those in which a vaginal panhysterectomy was performed. The incidence of so-called "five year cures" is 26.6 per cent.

Journal of Experimental Medicine, Baltimore

38: 1-115 (July) 1923

*Bacteriostasis by Mixture of Dyes. J. W. Churchman, New York.—p. 1.
Mutation Among Hog Cholera Bacilli. M. I. Orcutt, Princeton, N. J.—p. 9.
Pathogenesis of Ocular Lesions Produced by Deficiency of Vitamin A. A. M. Yudkin and R. A. Lambert, New Haven, Conn.—p. 17.
*Changes in Para-Ocular Glands Accompanying Ocular Lesions Which Result from Deficiency of Vitamin A. R. A. Lambert and A. M. Yudkin, New Haven, Conn.—p. 25.
Microbic Virulence and Host Susceptibility in Paratyphoid-Enteritidis Infection of White Mice. I. L. T. Webster, New York.—p. 33.
Id. II. L. T. Webster, New York.—p. 45.
*Effect of Sodium Chlorid on Chemical Changes in Blood of Dog After Pyloric and Intestinal Obstruction. R. L. Haden and T. G. Orr, Kansas City, Kan.—p. 55.
Soluble Specific Substance of Pneumococcus. M. Heidelberger and O. T. Avery, New York.—p. 73.
Immunologic Relationships of Cell Constituents of Penumococcus. O. T. Avery and M. Heidelberger, New York.—p. 81.
*Influence of Suprarenal Cortex on Gonads of Rabbits. I. Effects of Suprarenal Injury (by Removal or Freezing) on Interstitial Cells of Ovary. H. L. Jaffe and D. Marine, New York.—p. 93.
*Id. II. Effects of Suprarenal Injury (by Removal or Freezing) on Tubules and Interstitial Cells (Leydig) of Testis. H. L. Jaffe and D. Marine, New York.—p. 107.

Bacteriostasis by Mixture of Dyes.—Churchman established by experiments with a mixture of gentian violet, which has a predilection for gram-positive organisms, and acriflavine, which has a predilection for gram-negatives, that it is possible to mix two dyes of opposite selective bacteriostatic powers and obtain a mixture which combines the powers of the two components. The weakness of each dye, when used alone, is thus, in the mixture, fortified by the strength of the other. If the two dyes, gentian violet and acriflavine, be mixed together in equal quantities in a mortar and dissolved in water in a strength of 1 : 2,000 of the mixture, a plum-colored solution results. This solution is absolutely nonirritant for inflamed human mucous membranes (urethral). In laboratory experiments it is bacteriostatic for all the common aerobic organisms. From the clinical tests on a small series of cases of genito-urinary infections in which the mixture has been used it seems probable that greater success can be obtained from it than from either dye alone.

Ocular Lesions Caused by Deficiency of Vitamin A.—Lambert and Yudkin present evidence suggesting that the ophthalmia which results from a deficiency of vitamin A is secondary to some change outside the eyes, and that this change may lie in the para-ocular glands. In rats these glands consist of the lacrimal, with its watery secretion, the harderian, with a probable fatty product, and the meibomian glands. A histologic study of these structures shows questionable changes in the lacrimal and meibomian glands, and marked changes in the harderian gland. The changes demonstrated indicate a serious disturbance in the secretion of the harderian gland, such as may conceivably render the conjunctiva susceptible to infection.

Effect of Sodium Chlorid on Blood in Intestinal Obstruction.—Experiments to determine the effect on the toxemia of pyloric and intestinal obstruction by furnishing an ample supply of sodium chlorid are reported by Haden and Orr. A fall in blood chlorids is the first and seemingly most significant change to take place. The chlorid is apparently utilized by the body as a protective measure against the primary toxic substance. Two dogs with pyloric obstruction were given 50 c.c. of a 10 per cent. sodium chlorid solution subcutaneously daily. One dog lived three days, the other four days. The blood showed little change, except a marked terminal rise in chlorids. Animals given a like amount of distilled water, or 25 per cent. glucose solution, showed the changes typical of untreated animals. The obstruction of the pylorus was released in six dogs from forty-eight to seventy-two hours after the initial operation. Two dogs died within twenty-four hours after the second operation with a high nonprotein nitrogen blood content. Two dogs survived but showed a high level of nonprotein nitrogen and a high nitrogen excretion in the urine, low blood chlorids and a marked alkalosis. One dog in such a state died on the thirteenth day. Dogs given an abundant supply of distilled water died more quickly than untreated control animals. Solutions of glucose have no specific value, and sodium bicarbonate solutions prolong life only a short while. Good therapeutic results have been obtained with very concentrated sodium chlorid solutions, and with dry sodium chlorid given by mouth. It seems evident that sodium chlorid has a specific action in preventing and possibly in controlling the changes produced by the toxic body. Apparently sodium chlorid is a valuable therapeutic agent in pyloric and high intestinal obstruction.

Effect of Suprarenalectomy on Interstitial Cells of Ovary.—Moderate or marked ovarian enlargement has been observed by Jaffe and Marine in 76 per cent. of rabbits which survived double suprarenalectomy more than thirty days. The ovarian enlargement consists essentially of an hypertrophy of the interstitial cells. This hypertrophy is a compensatory reaction and adds further data to the functional interrelation between the suprarenal cortex and the interstitial cells.

Effects of Suprarenalectomy on Testis.—Double or partial suprarenalectomy in rabbits produces no specific changes either in the tubules or in the interstitial cells of the testes. This is in sharp contrast with the marked hypertrophy of the interstitial cells of the ovary which usually occurs in rabbits surviving double suprarenalectomy thirty days or more.

These facts, Jaffe and Marine assert, indicate that the interstitial cells of the testis and ovary are not functionally homologous.

Journal of Industrial Hygiene, Boston

5: 81-108 (July) 1923

Results of Limited Mercantile Industrial Work. D. C. Parmenter.—p. 81.
Metal-Fume Fever. F. Koelsch.—p. 87.
Relation Between Labor Turnover and Industrial Accidents. H. D. Kitson and C. Campbell.—p. 92.
Tests for Hydrocyanic Acid Gas in Air. S. H. Katz and E. S. Longfellow.—p. 97.

Laryngoscope, St. Louis

33: 401-482 (June) 1923

Roentgen-Ray Study of Intubation. E. Giddings and D. E. Ehrlich, New York City.—p. 401.
Giant Cell Sarcoma of Auditory Canal Complicating Mastoiditis. W. Herbert, Brooklyn.—p. 415.
Ethmosphenoidal Sinusitis. J. H. Harter, Seattle.—p. 417.
Bacteriology of Infected Nasal Accessory Sinuses. W. E. Cary and E. McGinnis, Chicago.—p. 424.
Case of Status Lymphaticus with Necropsy Findings. C. L. Stone, Brooklyn.—p. 426.
Case of Ivory-Like Osteoma Originating from Os Planum and Invading Orbit. H. H. Vail, Cincinnati.—p. 428.
Throat and Ear Symptoms in Rheumatic Cases. D. MacFarlan, Philadelphia.—p. 436.
Blood Clot Dressing in Mastoidectomy. G. E. Davis, New York.—p. 442.
Surgical Control of Bleeding Following Tonsillectomy. J. J. Rainey, Troy, N. Y.—p. 446.
New Suction Tongue Depressor. W. M. Hunt, New York.—p. 454.
New Pharyngeal Suction Tube. M. C. Myerson, Brooklyn.—p. 455.
Tonsil Needle. L. M. Hurd, New York.—p. 456.

New York Medical Journal and Medical Record

117: 721-780 (June 20) 1923

Immunologic Classification of Common Hay-Fever Plants and Trees. W. Scheppergrell, New Orleans.—p. 721.
Bronchial Asthma and Hay-Fever, with Special Reference to the Treatment of Nonspecific Cases. M. A. Ramirez, New York.—p. 727.
*Bronchial Asthma Due to Mice. W. Lintz, Brooklyn.—p. 729.
Psychology of Hay-Fever. J. P. De River, San Francisco.—p. 730.
Tonsillectomy: Electric Coagulation and Desiccation. A. M. MacWhinnie, Seattle, Wash.—p. 731.
Industrial Eye Injuries. F. Allport, Chicago.—p. 733.
*Analysis of Twenty-Nine Cases of Uremia. H. M. Feinblatt, Brooklyn.—p. 737.
Standard Treatment for Malaria. C. C. Bass, New Orleans, La.—p. 740.
Retinitis Associated with Disease of Cardiovascular System. W. L. Benedict, Rochester, Minn.—p. 741.
Subacute Bacterial Endocarditis. J. Barsky, New York.—p. 746.
Hypertension with Especial Reference to Prognosis. J. T. Ullom, Philadelphia.—p. 753.
Examination of Heart for Life Insurance. F. W. Price, London.—p. 754.
Miraculons Herbs: Psychologic Problem in Ethnology. J. Wright, Pleasantville, N. Y.—p. 758.

Bronchial Asthma Due to Mice.—Lintz reports a case of ronchial asthma in which a mouse caused the attacks. The istory was typical and the findings characteristic of this isease. While it was easy to establish the diagnosis, it was xceedingly difficult to establish the cause. All laboratory xamination, all cutaneous allergic tests proved negative. ne day while examining the patient's premises, Lintz was truck by the number of mousetraps scattered through the ouse and store. The place was infested with mice and rats. hen it occurred to Lintz that the patient's asthma might be ue to these rodents for the following reasons. (1) The ttacks of asthma occurred during the period from December March, when these rodents leave the fields and enter the ouse for food and warmth. (2) They occurred usually at ight, when the rodents prowl about. (3) When she stayed t her mother's home, a place free from rodents, she was ee from the attacks. When she returned to her own home, place infested with rodents, the attacks occurred. (4) If he lay down in her bedroom, she had an attack. (5) By xclusion, all other investigations were negative. All the utaneous tests were negative. Exposure to the odor of a ouse provoked a very severe and typical picture of asthma three minutes. After the removal of a few dead rats from eneath the boards of her bedroom floor, the patient was ee from attacks of bronchial asthma for three years.

Blood Chemistry of Uremia.—As regard blood chemistry, urea nitrogen was found by Feinblatt to furnish the most reliable index to the progress of these cases and to bear the greatest prognostic value. Increases to figures of 300 mg. per hundred cubic centimeter invariably portended death in a few days. Uric acid was very variable, and, while always increased, maintained no ratio with the urea nitrogen. Creatinin tended to rise in the same proportion with the urea nitrogen. The study of etiologic factors would indicate that heredity, sex, and occupation are not important predisposing causes. The most important underlying renal condition responsible for uremia was chronic glomerular nephritis, being present in twenty-two instances. Acute glomerular nephritis was accountable for only one case of uremia. Tonsilitis and scarlatina were the most frequent antecedent infections. The symptomatology revealed a surprising similarity to nephrectomized animals and to instances of total deprivation of renal function in man. Drowsiness, gradually merging into coma, vomiting, edema, dyspnea, increased tendon reflexes, restlessness, and headache stood highest in frequency. Concurrent cardiac decompensation is undoubtedly responsible for the edema and dyspnea in many instances. Eclamptic evidences were infrequent. Convulsions occurred only three times and always just before death. The urine showed evidence of nephropathy in every case. A moderate grade of secondary anemia was present in the majority of cases. The Wassermann reaction was positive in only three of the twenty-three cases. Cardiac hypertrophy was positively determined in eighteen cases; arteriosclerosis, in eight. The average systolic blood pressure was 168; diastolic, 108. Myocardial insufficiency was the most important complication. It was directly responsible for death in three cases.

Oklahoma State Medical Association Journal, Muskogee

16: 180-211 (June) 1923

Forward Look in Medicine. H. T. Ballantine, Muskogee.—p. 181.
Radium as an Adjunct to Surgery in Uterine Conditions. W. P. Fite, Muskogee.—p. 182.
Dermatologic and Radiologic Observations. C. H. Ball, Tulsa.—pp. 185.
Case of Chronic Intestinal Obstruction. D. D. Paulus, Oklahoma City.—p. 187.

Public Health Journal, Toronto

14: 243-290 (June) 1923

Certain Features of Child Welfare Not Sufficiently Emphasized. A. Brown.—p. 243.
Fundamentals in Planning Small Community Hospitals. B. E. Parry.—p. 250.
Health Work Among Students. G. D. Porter.—p. 261.
Psychanalysis. J. W. Bridges.—p. 272.
Mental Defect as Factor Instability. G. Hamilton.—p. 279.

Rhode Island Medical Journal, Providence

6: 83-98 (June) 1923

Tuberculosis of Upper Air Passages. L. B. Porter, Providence.—p. 83.
Pyorrhea: Its Cause and Treatment. M. L. Mullaney, Providence.—p. 86.
Convergent Squint in Children. J. W. Leech, Providence.—p. 90.

Southwestern Medicine, Phoenix, Ariz.

7: 185-220 (June) 1923

Present Status of Surgery of Gastrodudenal Ulcer. A. B. Cooke.—p. 185.
Paroxysmal Tachycardia. G. Werley, El Paso, Tex.—p. 187.
Cardiac Arrhythmia. D. B. Hamilton, Kansas City, Mo.—p. 191.
Use of Epinephrin and Pituitary Extract in Proctoclysis. R. A. Hernandez, Tucson, Ariz.—p. 198.
Hernia Under Local Anesthesia. B. F. Stevens, El Paso, Tex.—p. 200.
Roentgen-Ray in Diagnosis of Urologic Conditions. W. R. Jamieson, E. Paso, Tex.—p. 202.

Tennessee State Medical Association Journal, Nashville

16: 41-80 (June) 1923

Lesions of Stomach. E. S. Judd and J. H. Lyons, Rochester, Minn.—p. 41.
Relationship Which Should Exist Beetween Public Health Laboratories and Clinical Laboratories. W. Krauss, Memphis.—p. 46.
Hay-Fever. J. B. Hibbetts, Nashville.—p. 48.
Ten Cases of Tetanus. M. B. Davis, Nashville.—p. 55.
"Headaches" due to Closure of Outlet of Frontal Sinus. J. A. Hughes, Memphis.—p. 59.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London

20: 65-128 (June) 1923

Treatment of Acute Otitis Media in Children. T. B. Layton.—p. 65.
*Banti's Disease: Differentiation from Other Types of Splenomegaly and Relation to "Idiopathic" Nonalcoholic Progressive Hepatic Cirrhosis in Children and Young Persons. F. P. Weber.—p. 78.
Classification of Blood Disease in Childhood. G. Ward.—p. 84.
*Case of Celiac Disease Showing Symptoms of Megalocolon with Necropsy. R. Miller.—p. 88.
*Localized Peritonitis Due to Intestinal Perforation in Paratyphoid Fever: Operation; Recovery. A. E. M. Woolf.—p. 91.
Meningeal Form of Typhus in Children. MM. Gratzosky, A. Stroe and E. Cocias.—p. 95.

Progressive Hepatic Cirrhosis in Children.—Under the caption "idiopathic nonalcoholic progressive hepatic cirrhosis" Weber describes a disease in which the liver is usually mainly affected, but in which splenomegaly may precede any sign of hepatic disease or both the spleen and the liver may early be enlarged. The "splenic" variety of this disease, in which the spleen is first and most obviously affected, he regards as being probably the same as "Banti's disease," if the latter term be restricted to the cases of chronic splenomegaly remaining after the exclusion of all other forms of splenic enlargement. Idiopathic nonalcoholic progressive hepatic cirrhosis, according to this view, is a disease which commences insidiously in childhood, but may not be recognized till much later in life, especially if the changes are almost confined to the liver. Ultimately, however, edema of the ankles, ascites, and possibly attacks of hematemesis, jaundice and signs of hepatic insufficiency supervene. Weber suggests that some of the cases formerly were regarded as alcoholic "essential" group. He suggests, further, that in children some of the cases of splenomegaly with recurrent jaundice ending in hepatic cirrhosis and ascites are really examples of the same disease, but with early splenic predominance—even when a positive Wassermann reaction is obtained; the positive reaction, however, in such cases suggests that the splenic and hepatic changes may be "on a basis of congenital syphilis." In most cases both the spleen and the liver are early enlarged; in some cases the spleen more than the liver, in other cases the liver more than the spleen. The cases of Hanot's "biliary type" of hepatic cirrhosis in children and young persons, which are sometimes associated with great splenomegaly and are occasionally accompanied by general infantilism, may be examples of the same idiopathic hepatic cirrhosis, in which the cirrhotic change especially affects the minute bile ducts. Very rarely more than one member of a family has been affected by hepatic cirrhosis in childhood of Hanot's biliary type or of the ordinary type. If this view of nonalcoholic progressive hepatic cirrhosis be correct, splenectomy can be expected to be of use only in cases in which the morbid process is located mainly in the spleen (the cases of "splenic predominance") that is, in the cases of "splenic anemia" or "Banti's disease," in which, apparently, it has repeatedly been found of great value.

Celiac Disease with Symptoms of Megacolon.—Miller relates the case of a boy who died at the age of 6 years, who was admitted to hospital as an ordinary case of celiac disease. His stools were typical, and on an ordinary diet contained 36 per cent. of fat. At that time it was specially noted that the colon was greatly distended, but that no peristalsis was visible. He was put on a modified low fat diet, but his diarrhea continued. Two months later he was readmitted, and for a period of six weeks very marked peristalsis of his colon was observed. The bowel appeared greatly distended: it held 75 ounces of saline solution without discomfort and by skiagram an opaque enema showed that the sigmoid loop passed right across the lower abdomen to the right iliac fossa. He was treated by lavage of the colon. Later he was admitted for a third time. The colon was then much distended, but no peristalsis was observed. His stools contained 60 per cent. of fat, dropping to 36 per cent. At this time he developed urinary obstruction due to a calculus impacted in his urethra, and thereafter showed infection of his urinary tract. Three months later, he was readmitted unconscious and dyspneic, and died in a few hours. The necropsy disclosed omental fat in large quantities. The intestines appeared heavy, due partly to fat and partly to edema. The colon was of normal size throughout, with the exception of one portion about 2½ inches in length which was dilated to a width of a little more than 2 inches. No chronic enteritis nor other organic cause for the chronic fatty diarrhea could be found. Miller suggests that this condition may be originated by the fat indigestion of celiac disease, in which disorder the distention may reach such a grade as to produce partial obstruction by kinking with consequent peristalsis.

Perforation of Intestine in Paratyphoid Fever.—Woolf is of the opinion that this is the first case of paratyphoid B fever perforation. The diagnosis was confirmed serologically. The perforation occurred in the lower end of the ileum. The omentum was brought over the site of the perforation and a tube was inserted. Recovery was uneventful.

British Journal of Ophthalmology, London

7: 305-352 (July) 1923

Binocular Choroidal Tuberculosis with Detachment of Retina in Two Kittens. J. B. Lawford and H. Neame.—p. 305.
Cases of Ophthalmologic Interest from Postmortem Records of St. George's Hospital. R. R. James.—p. 313.
One Hundred Cases of Cataract Removed Under Subconjunctival Bridge. C. Killick.—p. 320.
Experiment on Visual After-Sensation in Reference to Illumination in Coal Mines Carried out by National Institute of Industrial Psychology. E. Farmer.—p. 328.
Vision of Railway Servants. J. Barrett.—p. 329.

British Medical Journal, London

2: 1-50 (July 7) 1923

*Experimental Inquiry into Causes of Cancer. A. Leitch.—p. 1.
Surgery of Hepatic and Common Bile Ducts. W. J. Mayo.—p. 7.
Cases Illustrating Methods of Diagnosis in Renal Surgery. F. S. Heaney.—p. 8.
*"Defatting" of Acid-Fast Bacilli of Leprosy and Tubercle by Injections of Chaulmoogrates and Morphuates. L. Rogers.—p. 11.
*Fifty Cases of Carcinoma of Cervix Treated with Radium. M. Donaldson.—p. 12.
*Tongue Symptom in Abdominal Sepsis. P. C. Fenwick.—p. 16.
Treatment of General Paralysis by Tryparsamid: Penetration of Drug into Cerebrospinal Fluid. F. W. Mott.—p. 24.

Cause of Cancer.—Leitch discusses several different agents which have been shown to be capable of producing cancer in animals; all are of an irritating nature, being foreign to the cells of the body, and invoking in them the familiar response—proliferation and increased cellular activity. Evidence derived from experimental inquiry into the causes of cancer has not only brought support to the doctrine that cancer follows chronic irritation, but has also very considerably narrowed the issues by demonstrating that certain irritants are very potent agents in producing tumors, whereas others have not been found to possess carcinogenic properties, the term Leitch has devised. The irritant is, therefore, in a sense specific; it evokes a response in the cells which is at first similar to that aroused by other stimuli, but later, on account of its peculiar nature, leads to the anarchic and progressive proliferation termed cancer. The evidence is that certain irritants easily produce cancer, while others do not. A second fact which the experimental study of cancer has brought to light is that the specific irritant produces cancer only in certain animals, and only in the susceptible tissues of these animals. Another important fact made clear by the experimental studies Leitch passes in review is that a considerable space of time may elapse between the action of the irritant and the appearance of the neoplasm. A careful study of human cancer has often failed to reveal any recent antecedent irritation, but sufficient consideration has not been given to the possibility that a bias toward malignancy may be imparted to cells by some previous, and even long previous, irritation. Experiment has shown that cancer is not essentially a disease of ageing tissue; the reason why it occurs more frequently with advancing years is capable of another explanation than that the cells are manifesting senile changes. The essential point may be the length of time the causal agent is in operation. Since in most instances this requires a protracted period, it becomes obvious why cancer is usually a disease of middle or old age. To the pathologist it is of great interest to notice that after the application of paraffin to mice, in some cases carcinoma and in other cases sarcoma developed in approximately the same time. Thus, two very different kinds of tumor can be produced by the same agent, according to whether the irritant substance affects chiefly the epithelial or connective tissue cells. All that is claimed for these tumor producing agents is that they bring about a pathologic state of the tissues, and that on this prepared soil the undetermined causal agent of cancer can then exert its action. The fact that after a tar epithelioma has been extirpated from a mouse, subsequent applications of tar do not induce further tumor is an observation which may prove to be of great practical importance. This suggests that the occurrence of one form of cancer in an individual "protects the body in some way against the occurrence of another." Leitch warns against hasty conclusions from these experiments.

"Defatting" of Acid Fast Bacilli.—Rogers has made studies on the subject of the blood lipases of lepers, some who were and some who were not treated with chaulmoogrates and morrhuates. Results obtained in leprosy appear to support the view that this class of preparation acts by increasing the blood lipase, which, in turn, dissolves the fatty coating of the acid-fast bacilli of leprosy, and probably also of tuberculosis, setting free the antigens, with resulting production of immunity in leprosy, and possibly also in tuberculosis. In the latter disease, however, it is more difficult in pulmonary affections at any rate to control the process with sufficient accuracy to prevent too great liberation of toxins. In other words, Rogers appears to have obtained in leprosy, and possibly in surgical tuberculosis, "defatting" of the causative bacteria in vivo.

Radium Therapy of Carcinoma of Cervix.—The clinical experiences of Donaldson and Canti in this field are in accord with the general experience of others in recent years, that in the majority of cases patients suffering from carcinoma of the cervix cease to have hemorrhage, vaginal discharge, and ulceration after treatment with radium. Further, that in some of those cases which are inoperable, life is prolonged. It would be premature at the present juncture to talk of cures. The preliminary application of radium in those cases which are operable causes the disappearance of fungating growths of ulcers, so that the risk of infection and implanting new growth from the cervix at the time of incising the vaginal wall is markedly diminished. There is no doubt that the application of 173.6 mg. of radium element for twenty-four hours is more efficient in bringing about this result than the same amount applied for eight hours, even when the latter is given on as many as three occasions.

Tongue Symptom in Abdominal Sepsis.—A definite odor from the tongue, not from the breath, is regarded by Fenwick as a positive sign of pus in the abdominal cavity. The smell varies from the distinct smell of pus to an actual fecal odor. This sign is interpreted as an indication of the rapidity of absorption from the peritoneum.

Edinburgh Medical Journal

30: 233-264 (June) 1923

Lupus Erythematosus. F. Gardiner.—p. 233.
Osteogenesis Imperfecta Affecting Two Generations. H. J. C. Gibson.—p. 237.
Dislocation of Semilunar Bone. H. A. Lediard.—p. 244.
Some Ancient Mineral Wells in Scotland. W. G. A. Robertson.—p. 246.
Osteochondritis Deformans. Juvenile Schlatter's Disease and Other Allied Conditions. J. N. J. Hartley.—p. 254.

Indian Medical Gazette, Calcutta

58: 241-286 (June) 1923

Glucose Tolerance Tests and Their Interpretation. J. P. Bose.—p. 241.
Plea for Inception of Mental Hygiene Movement in India. O. A. R. B. Hill.—p. 242.
Cholelithiasis and Its Significance. V. N. Whitamore.—p. 244.
Obstetric Impressions. J. M. Dass.—p. 246.
Virtreous Escape in Intracapsular Extraction of Cataract in Prominent Eyeballs or Fat Patients. H. Shanker.—p. 251.
Gonorrhea of Female Genital Organs and Its Management. T. J. Doederlein.—p. 251.
Use of Germinated Pulse and Beans in Natural Dietary of Burmese. G. G. Jolly.—p. 255.
*Value of Essential Oils in Prevention and Treatment of Cholera. J. W. Tomb.—p. 257.
Improvement of Poona Water Supply by Simple Storage. J. L. Pinto.—p. 259.
Myiasis of Frontal Sinus. R. E. Wright.—p. 259.
Case of Raynaud's Disease. S. L. Sarkar.—p. 260.
*Case of Absence of Left Lung. K. S. N. Muhamed.—p. 262.
Five Consecutive Cases of Tetanus Ending in Recovery. R. S. Tembe.—p. 262.
Case of Hydatid Cyst of Liver. S. Banerjea.—p. 263.
Case of Abdomen Punctured by Broken Bottle. L. W. Hefferman.—p. 264.

Essential Oils in Treatment of Cholera.—The mixture used by Tomb consisted of spirits of ether, 30 minims, oil of cloves, oil of cajuput and oil of juniper, 5 minims of each, and aromatic sulphuric acid, 15 minims. The dose was 1 dram, in one-half ounce of water, every half hour, until vomiting and purging ceased. For contacts, 1 dram in water, was given once (or twice) daily for one or two days. The mixture has been administered to several hundreds of contacts, and in none has cholera developed. The mixture possesses considerable advantages over cholera vaccine as a prophylactic from an administrative point of view, for whereas vaccination is costly and unpopular, the mixture is both cheap and pleasant to take. The curative value of the mixture, in all stages of the disease short of collapse, is also not to be lost sight of, the death rate of those treated being 16.6 per cent.

Absence of Left Lung.—In Muhamed's case the right lung covered the heart and extended to the left side of the chest. A very thick pleura, about one-third inch thick, lined the upper part of the left side of the cavity of the chest, but there was no left lung. The trachea entered the right lung directly without division. A bilobular glandular structure on the left side of the cavity was found on microscopic examination to be the thymus gland, but there was also present a prominent second thymus gland in its usual place in the anterior mediastinum. The woman had lived for nineteen years with only one lung, and appeared to have suffered no inconvenience.

Indian Medical Record, Calcutta

63: 141-172 (June) 1923

Dysenteries in Bengal: Their Diagnosis and Treatment. P. Ganguli.—p. 141.
Vaginal Plugging in Antipartum Hemorrhage. J. C. Chatterjee.—p. 144.
Mycetoma of Right Foot. D. N. Ghosh.—p. 144.
Rôle of Vitamin in Health and Disease. A. K. M. A. Waheb.
Dyspepsia and Its Self-Treatment. J. Ganguli.—p. 147.
*Prevention and Treatment of Plague. P. Gupta.—p. 153.

Iodin Treatment of Plague.—During a recent plague epidemic, Gupta inoculated 503 persons with plague vaccine. Out of these, nine persons were attacked with plague, and seven recovered. The two deaths were of persons who received the preventive inoculation too late. The treatment employed by Gupta consisted of the use of brandy, musk, etc., internally; belladona locally for inflamed glands, and the intravenous injection of tincture of iodin, 10 c.c. of a 10 per cent. aqueous solution.

Lancet, London

2: 1-52 (July 7) 1923

Diagnosis and Treatment of Cerebral Syphilis. G. Riddoch.—p. 1.
Secondary Operations on Biliary System. B. Moynihan.—p. 4.
*Stone in Common and Hepatic Ducts. J. Sherren.—p. 7.
*Glandular Fever and Infective Mononucleosis: Account of Epidemic. H. L. Tidy and E. C. Daniel.—p. 9.
*Trauma as Possible Cause of Brain Tumor. E. S. Reynolds.—p. 13.
Two Cases of Lethargic Encephalitis with Scarlatinal Desquamation. J. Lumb.—p. 14.
Helminth Survey of Gurkha Battalion. R. C. Watts.—p. 15.
*New Word for "Defatted" Vaccines. G. Dreyer.—p. 40.

Stone in Common and Hepatic Ducts.—Sherren does not believe that stones, except certain rare pigment calculi associated with disease elsewhere, form primarily in the ducts. They may, however, increase in size and in number when infection is present and extend in a continuous column from the ampulla of Vater to the liver and even fill the intrahepatic ducts. It follows, therefore, that if stones are found in the common duct after a previous operation for gallstones, they must have reformed in the gallbladder, if this was left, or have been overlooked. Treatment consists in removing the stones and carrying out cholecystectomy to prevent further stone formation. In cases of obstructive jaundice and cholangitis, it is unwise to operate in this stage unless forced so to do. The patient should be watched for a day or two, except in those cases with rigors, when immediate operation is necessary. While waiting, saline and glucose should be given per rectum. If the jaundice persists, making operation imperative, it is well to do it in two stages; it is safer and stones are less likely to be overlooked. If the gallbladder is distended and the cystic duct patent, cholecystotomy should be carried out; if not, temporary drainage of the common duct, with removal of such stones as present, is indicated. At the second operation cholecystectomy is done, the stones are removed, and the ducts are thoroughly examined in a way that is unwise in deeply jaundiced, ill patients.

Glandular Fever.—Tidy and Daniel had an opportunity to study twenty-five cases of glandular fever occurring during an epidemic in a boy's school. They are convinced that glandular fever is a clinical entity and that it and the condition described as infective mononucleosis are identical. Recovery is permanent, and there is no relation to leukemia, Hodgkin's disease, or tuberculosis. There is no evidence that sepsis is a cause of absolute lymphocytosis.

Trauma as Cause of Brain Tumor.—Reynolds reports two cases of brain tumor in which there had been a trauma previous to the development of tumor symptoms. One man had a fall on the back of the head while skating; he was stunned for a time, but not definitely unconscious. Two years afterward he began to experience pain at the back of the head with some giddiness. Then his right foot would not quite respond to his will and he could not write as well as usual. He became unsteady in gait and had acute pain at the back of the head; then found a difficulty in pronouncing words and in clear articulation. He had no vomiting. A diagnosis of tumor of the middle lobe of the cerebellum was made. A soft myxoglioma, the size of an average walnut, was found in the middle lobe of the cerebellum, three fifths of it being to the right and two fifths to the left of the middle line. The second patient had been knocked down by a motor car and received bruises on the right hip and right side of the head; he was stunned but able with assistance to get home. He complained of tingling and numbness of the left side of the body and limbs with some headache. A full examination, including the optic disks, revealed no abnormal physical signs and no loss of sensation could be detected. The left hemiplegia slowly became worse with hemi-anesthesia, immobile pupils and double optic neuritis. A soft gliosarcoma was found in the right optic thalamus and invading the internal capsule.

Diaplyte Vaccines and Antigens.—Dreyer proposes to substitute for the term "defatted" vaccines a more appropriate one, "diaplytes." He proposes to speak of "diaplyte vaccines" or "diaplyte antigens" and in the process of their preparation he describes the acetone used as being the "diaplytic agent."

Medical Journal of South Africa, Johannesburg

18: 247-256 (May) 1923

Case of Intra-Ocular Cysticercus Cellulosae. A. Verwey.—p. 250.
General Anesthesia in Relation to Dental Surgery. B. Weinbren.—p. 252.
Disseminated Sclerosis with Intercurrent Congestive Attack, Probably Result of Arterial Spasm. O. K. Williamson.—p. 255.

South African Medical Record, Cape Town

21: 241-264 (June 9) 1923

Diffraction in Biologic Structures. I. Structure of Colonies of Coli-Typhoid Group. A. Pijper.—p. 243.
Tumor of Pituitary. J. C. G. MacNab.—p. 248.
Mental Disorders Which May Be Regarded as Preventable. J. M. Moll.—p. 252.

Annales de l'Institut Pasteur, Paris

37: 443-545 (May) 1923

*Vaccine Virus and Cancers. C. Levaditi and S. Nicolau.—p. 443.
Typhoid Infection and Vaccination in Fowls. C. Truche.—p. 478.
Contagious Pustular Stomatitis in Lambs. M. Aynaud.—p. 498.
*Search for Antibodies in Caterpillars. S. Métalnikov.—p. 528.
*The Teeth as Portal of Entry for Tuberculosis. J. Mendel.—p. 537.
*Vaccination Against Rabies. J. Viala.—p. 543.

Vaccine Virus and Neoplasms.—The experiments with transplantable rat and mouse cancers inoculated with vaccine virus showed that the embryonic origin of the tumor determined whether the virus was to be destroyed or not. Sarcomas killed it more or less completely.

Antibodies in Caterpillars.—Métalnikov remarks that immunization phenomena are not restricted to animals. He reports research on the caterpillar *Galleria mellonella,* which showed that it was incapable of developing antibodies in its blood after injection of colon, typhoid or certain other bacilli, killed by heat, although extraordinarily resistant to massive doses of micro-organisms. Very active bacteriolysins for cholera vibriones were found, and, on two out of ten occasions, complement fixation was positive with tubercle bacilli.

The Teeth as Portal of Entry for Tubercle Bacilli.—Mendel's experiments on monkeys and rabbits confirmed his assumption that a cavity in a tooth offers peculiarly favorable conditions for contamination and generalization of tuberculous infection. The disease runs an exceptionally rapid and virulent course, comparable in all respects to clinical pulmonary tuberculosis. The glands may or may not be involved. He warns of the danger of superposed infection from this source, even in persons already tuberculous.

Vaccination Against Rabies.—The report for 1922 of the Pasteur Institute at Paris has no mortality to record among the 754 applicants for treatment. This is the fifth year with no mortality; the first was 1910.

Annales de Médecine, Paris

13: 289-389 (April) 1923

*Ventricular Fluid. Cestan, Riser and Laborde.—p. 289.
*Histological Study of Bile Pigments. M. Popper.—p. 315.
*Artificial Glycuronuria as Liver Function Test. F. Schmid.—p. 328.
Tuberculous and Nontuberculous Sputum. E. Palier.—p. 359.
*Syphilis in Etiology of Diabetes. M. Labbé and H. Touflet.—p. 367.
Roentgenologic Signs of Cancer of Spine. J. Sicard et al.—p. 383.

Physiology of the Cerebral Ventricles in Man.—Cestan, Riser and Laborde describe their technic for aspiration of fluid from the ventricles. Aspiration is necessary, since the fluid has normally no pressure in the horizontal position of the subject. Potassium iodid, sodium nitrate and methylene blue do not penetrate from the blood into the fluid, unless the choroid plexus is injured, or the secretion is strongly increased by a lumbar puncture. Ventricular fluid contains less albumin, fewer cells and more glucose than the spinal fluid. It may have a normal composition even when the cerebrospinal fluid is greatly changed (hyperlymphocytosis, hyperalbuminosis, strongly positive Wassermann reaction).

Histologic Study of Bile Pigments.—Popper studied histologically different sorts of icterus in men and animals. He found that Kupffer's cells start the formation of biliary pigments. The substances which they contain may be differentiated histologically from the pigment which appears later in other cells of the liver. The end-product, however, is contained in the small biliary ducts.

Artificial Glycuronuria as Liver Function Test.—Schmid gives the history, reviews the literature and reports his own experiences on the value of synthesis and elimination of combined glycuronic acid in affections of the liver. His opinion is unfavorable. He was able to eliminate most of the inconveniences of the test by substituting menthol for the camphor used to provoke glycuronuria. Yet the menthol test was always positive—even in severe affections of the liver, which may also happen, if the original test is used.

Rôle of Syphilis in Etiology of Diabetes.—Labbé and Touflet review and discuss the question of a syphilitic origin of diabetes. They conclude that such cases are extremely rare.

Archives des Maladies du Cœur, Paris

16: 241-320 (April) 1923

Complementary Ventricular Complexes with Partial Branch Block. R. Lutembacher.—p. 241.
Dextrocardia. P. Meyer.—p. 249.
*Action on Blood Pressure of Suprarenal Antiserums. Bru.—p. 256.

Hypotensive and Hypertensive Action of Suprarenal Cortex and Medulla Respectively.—Bru injected dog suprarenal medulla tissue and cortex tissue intraperitoneally into rabbits. He then injected the serum of these rabbits intravenously into dogs. The effects appeared in four to five minutes and lasted for more than ten minutes. Injection of 10 c.c. of anticortex serum caused a slight lowering, injection of antimedulla serum a slight rise in blood pressure.

16: 321-400 (May) 1923

New Types of Extrasystoles with Prolonged Interval. J. de Meyer and A. Wilmaers.—p. 321.
*Orthostatic Auriculoventricular Dissociation. V. Gallemaerts.—p. 332.
*Local Formation of Lymphocytes in the Tissues. H. Bonnin.—p. 344.
Acute Malignant Endocarditis. A. Hanns and L. Masson.—p. 365.

Orthostatic Auriculoventricular Dissociation.—Gallemaerts describes a case of auriculoventricular dissociation provoked by the upright position. Atropin had no effect on the phenomenon.

Local Formation of Lymphocytes in the Tissues.—Bonnin finds that lymphocytes in the tissues are partly hematogenous, partly formed locally from indifferent mesodermic cells situated near the blood vessels. They do not change into other cells, especially into fibroblasts. He publishes pictures and an extensive bibliography.

Archives de Médecine des Enfants, Paris

26: 265-328 (May) 1923

*Sequelae of Epidemic Encephalitis in Children. Collin and Réquin.—p. 265.
Meningeal Form of Heine-Medin's Disease. Condat.—p. 279.
Acute Leukemia in Children. Condat.—p. 286.
Tumor of Liver in Infant Aged 14 Months. Condat.—p. 293.
*Pseudoleukemic Anemia and Hereditary Saturnism. P. Auban.—p. 297.

Psychic Sequelae of Epidemic Encephalitis in Children.—Collin and Réquin found that the typical psychic sequela after encephalitis in small children is mental backwardness, which may be as severe as idiocy. Disturbances of character are not marked. Children who were about 7 years old, have also arrested mental development and disturbances of character. Older children (up to 17 years) suffer from insomnia, and stereotypical actions. Mental deterioration though almost constant, is less pronounced than the changes of character.

Pseudoleukemic Anemia and Inherited Saturnism.—Auban describes a case of pseudoleukemic anemia in an infant whose mother had tried to secure abortion by taking liquor plumbi subacetatis.

Bulletin de l'Académie de Médecine, Paris

89: 547-570 (May 22) 1923

*Diagnosis of Multiple Sclerosis. C. Achard.—p. 553.
*Endoseptal Access to Sella Turcica. E. V. Segura.—p. 561.
Influence of Religions on Natality. R. Martial.—p. 565.

Diagnosis of Multiple Sclerosis from Cerebrospinal Fluid.—Achard obtained a positive reaction to the benzoin test of the cerebrospinal fluid of a woman who had had multiple sclerosis for nine years, and in twenty other cases out of a total of twenty-five, under his own or others' observation. The Wassermann test was constantly negative in all. The benzoin reaction was pronounced in some of the cases in which the clinical picture was far from complete at the time. It may prove instructive to supervise the benzoin reaction during a course of treatment, especially with spirillocidal drugs, to gage the effect. The spirochete found by Pettit and by Guillain in several cases of multiple sclerosis was never discovered outside the nervous system, even at necropsy. In discussing Achard's communication, Guillain stated that he had obtained a positive reaction to the benzoin test in the spinal fluid in 6 out of 10 cases of multiple sclerosis, but the colloidal gold and mastic reactions were positive also. It ndicates a progressive lesion, and becomes negative as the progressive wave subsides.

Access to Sphenoidal Sinus and Sella Turcica Through Nose.—The six fine illustrations which accompany Segura's communication show the danger to the retrobulbar optic nerve from even slight congestion in the sphenoidal sinus. Opening the sinus may be the only means to ward off blindness. With slowly progressing retrobulbar neuritis, simple coryza aggravates the ocular disturbances. On the other hand, opening the sinus always improved the optic neuritis except when the disk had been irremediably damaged. After submucous resection of the nasal septum, he resects through a broad speculum the protruding wall dividing the two sphenoidal sinuses and the wall separating each from the nasal cavity, after detaching the mucosa. As the speculum is withdrawn, the two sheets of mucosa fit together again. In wenty-six of thirty-eight patients with retrobulbar neuritis thus treated in Argentina and seven cases in Paris the results were excellent.

89: 593-634 (June 5) 1923.

Proposed Regulation of Midwifery. Committee Report.—p. 595.
*Treatment of Detachment of the Retina. Sourdille.—p. 621.
Preponderant Rôle of Physicians in Peaceful Subjugation of Morocco. M. Desnos.—p. 624.

Treatment of Detached Retina.—Sourdille aims to induce an inflammatory reaction in the retina and choroid, after the retina has been replaced, which will anchor it in place and prevent recurrence. In sixteen patients with recent detachment treated by puncture of the retina and injection of a mercurial salt solution or puncture with the actual cautery, 6 per cent. were improved and 62 per cent. were cured entirely. In 18 cases of detachment of long standing, 22.2 per cent. were only temporarily improved but 50 per cent. were cured. The interval since has been from one to two years.

Bulletin Médical, Paris

37: 673-700 (June 9) 1923

*Cardiovascular Disease. A. Coury.—p. 679.

Present Status of Cardiovascular Disease.—This is a postgraduate lecture on hypertension, aortitis, arteritis and phlebitis.

Bulletins de la Société Médicale des Hôpitaux, Paris

47: 833-863 (June 8) 1923

*Chronic Rheumatism in a Syphilitic. Carnot and Blamoutier.—p. 833.
*Plastic Linitis. C. Achard, J. Mouzon and G. Marchal.—p. 835.
Tuberculous Meningitis Simulating Epidemic Encephalitis. M. Léon-Kindberg and J. Lermoyez.—p. 838.
Thrush in Mouth and Vulva of Adult. A. Chauffard, P. Brodin and M. Wolf.—p. 841.
Histologic Findings in Rat-Bite Fever. G. Delamare and A. Mouchet.—p. 845.
Herpes Zoster with General Eruption. Dargein, Oudard and Pervès.—p. 847.
*Tachycardia in Ex-Soldiers. Brelet.—p. 851.
Prevalence of Syphilis in 1922. Renaud and Maréchal.—p. 853.
Infectious Sore Throat with Transient General Enlargement of Lymph Glands and Mononucleosis. de Lavergne and Pilod.—p. 856.

Chronic Rheumatism in a Syphilitic.—Carnot and Blamoutier refer to a case of chronic polyarthritis with marked improvement under bismuth. They here report another case in which a woman, aged 35, long suffering intensely in every joint, was restored to a comparatively active life by arsenical treatment and massage.

Plastic Linitis.—The supposed cancer of the rectum, involving the peritoneum, proved to be a focus of plastic linitis. The linitis had developed along the digestive tract at all points where the contents move more slowly.

Irritable Heart in Ex-Soldiers.—Brelet states that tachycardia still persists in twenty-four men, notwithstanding three years of return to ordinary life, and no signs of cardiovascular or pulmonary lesions. There is nothing to indicate a thyroid origin.

Journal de Chirurgie, Paris

21: 529-672 (May) 1923

Operative Treatment of Fracture of the Malleolus. G. Picot.—p. 529.
*Modes of Access to the Pituitary. R. Leriche and Wertheimer.—p. 543.

Access to Pituitary Region. — Leriche and Wertheimer describe, with thirteen illustrations, the technic for access by the frontal or frontotemporal route and also by the submucous route through the nose and sphenoidal sinus. This last opens up a broad horizontal passage to the sella turcica. One woman thus treated was able to be up the next day. She had no headache, and soon resumed work as a seamstress. The interval since has been twenty-two months.

Journal de Radiologie et d'Electrologie, Paris

7: 97-152 (March) 1923

Radioscopy of Changes in the Humerus. Belot and Lepennetier.—p. 97.
Radiographic Pelvimetry. Chassard and Lapiné.—p. 113.
Radiography of the Cervical Spine. A. Feil.—p. 125.

Journal d'Urologie, Paris

15: 337-416 (May) 1923

*Pain in Pelvic Ureter. Rochet and Thévenot.—p. 337.
*Postoperative Hemorrhage in Kidney. A. Jianou.—p. 350.
*Urethrocele in Women. M. Lebrun.—p. 359. Conc'n.

Cancer in Kidney with Hydronephrosis and Calculi. Marion.—p. 377.
*Conservative Treatment of Phimosis. V. Doiteau.—p. 379.

Chronic Pain in Pelvic Ureter.—Rochet and Thévenot report a case in which relics of puerperal adnexitis three years before had entailed neuritis with paroxysms of pain in the pelvic ureters. The recurring spastic contraction of the ureters backed up the urine into the kidneys, and the pain induced various reflex phenomena, so that fatal uremia was impending. The right ureter was found red, with intense and repeated vermiform contractions; but it seemed to be normal otherwise. The nerve fibers on the surface, from the preureteral loop to the origin of the principal ureteral nerve, were detached from this surface with curved scissors and were resected. The relief from pain was immediate and complete. After an interval of nearly six months, the same operation had to be applied to the left ureter. The woman, aged 27, has been in good health during the three years since.

Postoperative Renal Hemorrhage.—Jianou discusses the conflicting views on the causes of hemorrhage after nephrotomy. In his experience, he could always trace them to a severed intrarenal vessel from which the clot loosened when the ligature became separated. He was always able to arrest the hemorrhage by ligating the bleeding vessel, but prefers systematic prevention. For this, he takes a series of U stitches, the small Reverdin needle passed in turn through the capsule and the mucosa of the pelvis, corresponding to the columns of Bertin. Each U stitch is tied separately. Those who hesitate to do this as a routine, may find it useful when hemorrhage occurs. Although small infarcts form, on account of the U sutures, there is no hemorrhage as hemostasis is perfect. In the case illustrated, eight U stitches had been taken on one side.

Urethrocele in Women.—Lebrun compares three personal cases with thirty-eight from the records, with operative correction in most of the cases.

Conservative Treatment of Phimosis.—Doiteau has applied the technic of which he gives an illustrated description in a number of cases in the last five years. It always proved successful; the line of suture is invaginated out of sight.

Paris Médical

13: 373-388 (April 28) 1923

Resection of Knee. F. M. Cadenat.—p. 373.
*Radiosensibility of Epithelial Cancers. A. Lacassagne.—p. 376.
*Bacterial Content of Tuberculous Suppurations. Dumont.—p. 380.
*Intraspinal Injections of Antitoxin. Benhamou et al.—p. 382.
Syphilitic Stricture of Rectum. G. Friedel.—p. 384.

Histologic Estimation of Radiosensibility of Cutaneous and Membranous Epithelial Cancers.—Though admitting in general the sensibility of basocellular and the resistance of spinocellular cancers, Lacassagne emphasizes the complexity of the problem and the exceptions from the rule. After describing some morphologic signs of diminished vitality of cells, he concludes that radiosensibility is due to the physiologic condition, but not to the morphology of the cell. Increased metabolism and reproduction cause increased sensibility. As a rule, one should give the maximal dose possible without injuring the healthy tissue. The extension of the cancer and the skill of the radiologist are two other important factors in prognosis.

High Bacterial Content of Some Tuberculous Suppurations.—Dumont publishes two cases, in which examination of the pus revealed an unusually high number of tubercle bacilli. The pus may resemble macroscopically the common infections, though it contains only tubercle bacilli.

Intraspinal Injections of Diphtheria Antitoxin in Malignant Diphtheria.—Benhamou, Camatte and Flogny report several favorable results from intraspinal injections of 20-40 c.c. of antidiphtheric serum in malignant diphtheria. They were aimed against the intoxication of medullary centers. Intramuscular injections of high doses of serum were used in addition.

Presse Médicale, Paris

31: 573-580 (June 27) 1923

Fracture of Base of First Metacarpal Bone. L. Imbert and Cottalorda.—p. 573.
Hexamethylenamin Not a Diuretic. B. Saad.—p. 577.

31: 581-592 (July 4) 1923

*Depression and Neurasthenia. M. de Fleury.—p. 581.
*Intraspinal Anesthesia. P. Guibal.—p. 583.

Depressive States and Neurasthenia.—De Fleury deplores the confusion prevailing in regard to neurasthenia, and the blunders in treatment which this entails. A minor psychosis with depression usually requires sedatives and other soothing measures. When it is mistaken for neurasthenia, and treated with tonics and the patient is told to "brace up," the condition grows steadily worse. The soil for neurasthenia is sluggish metabolism; the onset is gradual; generally after some disease, physical overexertion or worry, with hypotonia of the muscles and insufficiency of the endocrine system, circulation, digestion, etc., with tendency to ptosis. Recovery may be counted on under purely physical measures, but psychotherapy is useful toward the last. The mind works sluggishly, and there is a tendency to indecision and worry, but the hypochondria does not have deep roots. True neurasthenia is rare, and does not recur after recovery. A tendency to a depressive psychosis calls for sedative treatment; stimulants aggravate the condition.

Intraspinal Anesthesia.—Guibal protests against the intra-arachnoid injection of caffein which some have been advocating to ward off mishaps with intraspinal anesthesia. He used the caffein in fifteen cases recently, and in five there were severe bulbar symptoms, fatal in two, in one after three weeks of paraplegia. Paralysis, anesthesia, eschars and sphincter disturbances followed in a number of cases. These mishaps in twenty-five days with the caffein outnumbered, and were more severe than anything of the kind encountered before in 3,500 applications of intraspinal anesthesia in the last twelve years. The caffein evidently had a destructive action on the spinal cord, and did not ward off bulbar disturbance, as anticipated. He adds that intraspinal anesthesia should be considered only when general anesthesia is contraindicated.

Revue de Chirurgie, Paris

60: 553-632, 1922

*Resection of the Sympathetic. R. Leriche.—p. 553.
*How to Modify Pressure in Cerebrospinal Fluid. P. Wertheimer.—p. 570.
Habitual Dislocation of Patella. E. Chauoin and J. Liautard.—p. 594. Conc'n p. 679.

Sensory Effect of Resection of the Sympathetic.—Leriche asserts that in all his extensive experience with periarterial sympathectomy, he has only once discovered any modification of the sensibility in peripheral regions thereafter. In this one case, however, as vasomotor function improved, the sensibility improved. The brachial nerve had been severed by a bullet and sutured in 1915; the periarterial sympathectomy followed a year later; sensibility returned to all fingers fifteen days later, as the contracture of the fingers gradually subsided. This single case is not conclusive, but it suggests that sympathectomy might possibly prove a useful adjuvant to an operation to reconstruct a severed nerve.

How to Modify the Pressure in the Cerebrospinal Fluid.—Wertheimer reports ten cases which confirm the feasibility of reducing or increasing the intracranial pressure at will. He prefers a 30 per cent. solution of glucose, 20 c.c. given by the vein, repeated twice in six days. Or 40 gm. of glucose in 80 or 100 c.c. water can be taken by the mouth twice in twenty-four hours. This is kept up for six days. To relieve hypotension, distilled water is used for the injection, injecting 20 c.c. at two day intervals three times. Or subcutaneous injection of physiologic salt solution could be used. He comments on the wide field for this indirect means for influencing intracranial venous and cerebrospinal fluid pressure.

60: 633-719, 1922

*Laceration of Bladder with Fracture of Pelvis. G. Miginiac.—p. 633. Cont'd.

Laceration of the Bladder with Fracture of the Pelvis.—Miginiac gives summaries of ninety-two cases of fracture of the pelvis from contusion. The list includes some unpublished cases in his own experience. He expatiates on the advantages of an exploratory laparotomy and cystostomy in all such cases.

Annali d'Igiene, Rome

33: 153-240 (March) 1923

Bactericidal Action of Copper Vessels on Water Kept in Them. I. Sacchetto and M. Savini.—p. 153.
Survival for Ten Years of Typhoid and Colon Bacilli Kept in Blood or Ascitic Fluid. V. Puntoni.—p. 165.
Conservation of Virulent Danysz Mouse Virus for Destruction of Field Mice. A. Alessandrini.—p. 169.
Cultivation of Anaerobic Germs in Presence of Air in Blood and Serum Culture Mediums. M. Carpano.—p. 180.

Archivio Italiano di Chirurgia, Bologna

7: 221-328 (May) 1923

*Diversion of the Urine. F. Putzu.—p. 228.
Primary Osteosarcoma of Adductor Magnus. C. F. Bianchetti.—p. 233.
*Stenosis from Abnormal Position. S. Solieri.—p. 253.
Anomalies of the Dorsalis Pedis Artery. A. Catterina.—p. 269.
*Operations on Dog Vas Deferens. Anglesio and Baroni.—p. 277.
Cystic Kidney in Young Pregnant Woman. A. Angeli.—p. 299.
Reconstruction of Pelvic Diaphragm After Abdominal Hysteropexy. C. Licini.—p. 311.

Diversion of the Urine.—Claim for Italian priority.

Stenosis of Ileum from Abnormal Position.—Retraction of the ileoceco-appendicular fold is an easily corrected cause of partial or complete ileus. Solieri's examination in 1,300 operative cases of appendicitis disclosed that this fold varies in shape and position in different persons, and its causal importance is liable to be overlooked. The ileum is drawn tight against the cecum; there is no sharp kink, but a gentle curve, the concavity above, with more or less axial torsion. The retraction may be congenital or acquired. In appendicitis operations this fold should be severed to prevent cicatricial retraction.

Autoplastic Operations on Vas Deferens.—In seventeen dogs, Anglesio and Baroni implanted a segment of the femoral vein over the stumps of the severed vas. The vein tissue was always absorbed, leaving a stout shell of connective tissue in its place. The continuity of the vas deferens was thus insured, but there was always so much proliferation of the epithelium, in the mucosa of the stumps of the vas, that the lumen was invariably obstructed.

Policlinico, Rome

30: 281-336 (June 15) 1923. Surgical Section

Surgical Treatment of Megacolon. G. Giordano.—p. 281.
Suppurative Arthritis of Pubic Symphysis in Young Parturient. S. Solieri.—p. 298.
*Operative Grafts of Cancer. G. Villata.—p. 306.
*Nitrogen Retention in Kidney Disease. G. Nicolich, Jr.—p. 319.

Operative Grafts of Cancer.—Villata reviews the recorded clinical and experimental experiences in this line, and reports a case in which a large mucous adenocarcinoma of ovarian type had developed in the laparotomy incision, ten months after removal of a papilliferous cystoma in the right ovary. The cystoma had shelled out intact, with no escape of contents; contact with the pedicle must be incriminated for the recurrence.

Disturbances in Elimination of Nitrogen in the Diagnosis and Prognosis of Kidney Disease.—Nicolich summarizes articles on this subject in The Journal and elsewhere, commenting on the valuable information to be derived from the type and degree of retention of nitrogen.

Riforma Medica, Naples

39: 529-552 (June 4) 1923

*Familial Cirrhosis of the Liver. A. Bolaffi.—p. 529.
*Present Conception of Arthritism. G. Cuneo.—p. 535.
Lymphatic Routes Connecting Intestine and Lung. G. Moscati.—p. 539.
The Mediastinal Syndromes. I. Jacono.—p. 541.

Cirrhosis of Liver in Two Brothers.—The men were 26 and 36, and both developed slowly progressing cirrhosis, with hypertrophy and jaundice, toward the close of their service in the World War. Bolaffi compares these with the few similar familial cases on record.

The Constitutional Predisposition to Joint Disease.—Cuneo's research on sluggish metabolism, the gouty tendency, the arthritic diathesis, or uricacidemia as it is variously called, has demonstrated that the normal balance between the nitrogen and the calories is upset in these conditions. By studying the changes in the metabolism in the light of the law of this balance, we can control the pathologic production of uric acid. Each of the arthritic diseases (gout, heart and valvular disease, and urate deposits in skin, kidneys and joints) has a different origin, and calls for different dietetic management. This, he says, should not be based on isolated tests for urea or uric acid but on the multiple changes revealed by the proportions between the nitrogen and the calories.

Anales de la Facultad de Medicina de Montevideo

8: 291-444 (April) 1923

Cancer in Ampulla of Vater. D. Prat.—p. 291.
Cancer in Hepatic Duct. Id.—p. 294.
*Reduction of Old Dislocation of Shoulder. D. Prat.—p. 301.
*Chagas' Disease in Uruguay. A. Gaminara.—p. 311.
*Influence of Ions on Glycolysis. Varela Fuentes and Rubino.—p. 360.
Dextrocardia with Heterotaxia in Girl. E. Portu Pereyra.—p. 377.
The Lungs After the Throat Has Been Cut. Zamora and J. May.—p. 387.
*Electric Phenomena in Muscles. H. J. Rossello.—p. 396.
Urea in the Blood After Operations. J. C. del Campo.—p. 400.
Present Status of Treatment of Diphtheria. J. Bonaba.—p. 407.

Dislocation of the Shoulder.—Prat comments on the ease with which he corrected the luxation by the Mothe-Kocher technic in the three cases described. The dislocation had occurred from five to six weeks before.

Chagas' Disease in Uruguay.—Gaminara's profusely illustrated article was awarded the faculty Gallinal prize in 1921. The reduvida bugs that transmit the disease have been found extensively in Uruguay, and 25 per cent. were infested with what seemed to be the trypanosome of Chagas' disease, and produced the disease in animals. The trypanosome has not been found in man, but a number of chronic cases of Chagas' disease have been encountered. They represent the pluriglandular, the cardiac or the nervous form as described by Chagas. The acute forms had not been recognized in Uruguay to date of writing. The triatoma bugs can live for two years, and can harbor the flagellates from the larval stage till death.

Research on Glycolysis.—The research was on the influence of hydrogen, calcium and mercury ions on glycolysis in the blood.

Physiology of the Muscles.—Rossello presents evidence to show that every muscle subjected to traction, even without excitation or contraction, generates electric phenomena.

Archivos Latino-Amer. de Pediatría, Buenos Aires

17: 321-400 (May) 1923

*Rectal Cancer in Boy. E. P. Lasnier.—p. 321.
Prophylaxis of Diphtheria. M. Ponce de León.—p. 335.
*Intracranial Hypertension. S. E. Burghi and V. Escardó y Anaya.—p. 346.
*The Nem System. A. Olaran Chans.—p. 359.
*Ascending Myelitis in Acute Poliomyelitis. J. M. Estapé.—p. 384.

Rectal Epithelioma in Boy.—Lasnier reports that the round-cell carcinoma in the boy, aged 13, ran its fatal course in fourteen months. The diagnosis had been obscured by concomitant amebic dysentery. The yearly mortality of cancer in Uruguay averages 1,000, in a total population of 1,500,000.

Sella Turcica Sign of Intracranial Hypertension.—The roentgen outline of the pituitary fossa was characteristically abnormal in the eight cases of intracranial hypertension described. This seems to be a reliable sign of hypertension, of at least three months' duration, in children after closure of the fontanels to the age of 12. The cerebellopontile hydatid cyst in one case had developed without other symptoms than this peculiar shape of the sella turcica. In another case, the normal outline testified against the assumed brain tumor, and the child recovered spontaneously.

The Nem System in Feeding.—Pirquet's system was described in The Journal, Nov. 12, 1921, p. 1541, and was reviewed editorially recently, Aug. 4, 1923, p. 394.

Ascending Spinal Paralysis in Acute Poliomyelitis.—The diffuse myelitis of the Landry type in the boy, aged 12, developed ten days after the onset of acute poliomyelitis. The disease ran a protracted course, and there was still some right facial paralysis and paresis of the left foot at the end of the fourth month.

Brazil-Medico, Rio de Janeiro

1: 287-296 (May 26) 1923

Leptospira Couvyi N. Sp. Found in Case of Dengue. Gomes de Faria.—p. 287.
Foreign Bodies in Esophagus. D. Sanson.—p. 288.
Paraspecific Potency and the Avidity of Antitoxic Antivenins. R. Kraus.—p. 289.
Need for Welfare Work for Infants. M. Lopes de Castro.—p. 290.

1: 297-312 (June 2) 1923

*Curative Action of Staphylococcus Bacteriophage. Nelson Barbosa.—p. 297.
*The Bacteriophage in Therapeutics. J. da Costa Cruz.—p. 298.
Granuloma in Horses. C. Magarinos Torres, C. da Fonseca and A. E. Arêa Leão.—p. 301.

Curative Action of Staphylococcus Bacteriophage.—Nelson Barbosa used a staphylococcus bacteriophage obtained from Brussels, and states that the lytic action on staphylococci from patients at Rio with furuncles, abscesses, and pyelitis was pronounced. Of the product thus obtained, he injected 0.5 or 1 c.c. subcutaneously in two women with pyelitis and staphylococci in the urine. The disease had resisted other measures for twenty-three and ten days, but the general symptoms subsided completely by the second day and the sixth hour after the injection, and the urine was soon sterile. In a third case, the bacteriophage product was applied locally to a suppurating wound; prompt improvement followed, the pain disappearing after a single application.

The Bacteriophage in Therapeutics.—Da Costa Cruz gave bacteriophage by the mouth in twenty-four cases of bacillary dysentery. Marked benefit followed in every case, in some within four or five hours. Some recovered after one or two doses (2 c.c.); in two others, the symptoms returned on suspension of treatment, but disappeared permanently on resumption. The work issues from the Instituto Cruz.

Repertorio de Medicina y Cirugía, Bogotá

14: 247-294 (April) 1923

The Mysterious Fever at Bucaramanga. J. M. Montoya and J. Manrique.—p. 247.
Electrocoagulation in Treatment of Tumors and Skin Disease. J. Rico.—p. 250.

Revista Médica del Uruguay, Montevideo

26: 125-188 (April) 1923

*Thrombophlebitis from Otitis. M. Armand Ugón.—p. 125.
Classification of Gastro-Intestinal Disturbances in Infants. J. A. Bauzá.—p. 129.
Invagination in Acute Enterocolitis. N. Leone Bloise.—p. 137.
Pityriasis Simulating Pigmented Syphilids. J. May.—p. 141.

Thrombophlebitis from Mild Otitis Media.—The infant, aged 11 weeks, developed mild rhinopharyngitis, followed by convulsions and thrombophlebitis of the sinuses, fatal in ten days. Necropsy revealed pus in the antrum on both sides, with pneumococci, although there had been no symptoms suggesting mastoiditis. On account of the convulsions, paracentesis had been done early in both ears, and repeated, although nothing but a redness of the membrane in one ear suggested possible otitis media. The terminal phase was a pneumococcus septicemia with profuse intestinal hemorrhages.

Revista Mexicana de Biología, Mexico, D. F.

3: 135-178 (April) 1923

*Hematology in Mexican Table Land. F. Ocaranza.—p. 136.
*Venom Apparatus of Snakes. I. Ochoterena.—p. 148.
Research on Sterility. F. Castillo Nájera.—p. 159.
Neo-Arsphenamin in Amebic Dysentery Refractory to Emetin. E. Pous Cházaro.—p. 168.
Common Forms of Malaria in Torrid Zone of Mexico. Id.—p. 171.

Hematology of the Indigenous Races of Mexico.—The Indians of the central table land of Mexico have lived for uncounted generations at this high altitude. Ocaranza cites their polycythemia as confirmation of his theory that an abnormal number of erythrocytes is a manifestation of adaptation to altitudes. The slight shifting of the Arneth groups was to the right.

Histology of Poison Glands of Vipers.—Ochoterena's photomicrograms are of *Crotalus scutulatus,* and of the venom tooth of vipers. They illustrate the dictum, "Ontogenesis recapitulates phylogenesis."

Archiv für Gynäkologie, Berlin

119: 1-162 (June 21) 1923

Color of the Corpus Luteum. H. H. Escher.—p. 1.
Hemorrhage from Rupture of Corpus Luteum. H. Zacherl.—p. 18.
*Annulling Action of Human Serum on Placenta Toxin. T. Hayashi.—p. 29.
Cholesterol Metabolism in Pregnancy and Childbirth. E. E. Pribram.—p. 57.
*Nature of Eclampsia. I. Obata.—p. 69.
Blood Sugar in Eclampsia. I. Obata and T. Hayashi.—p. 80.
Tuberous Endometritis of the Decidua. E. Kehrer.—p. 97.
*Tearing Loose of Tissues Around External Os Uteri. H. Füth.—p. 102.
Blood Platelet Count in Women. N. C. Louros.—p. 110.
*Vaginal Flora as Term Approaches. R. Apel.—p. 115.
*Sedimentation Speed in Diagnosis. P. Schumacher and W. Vogel.—p. 127.
Ecchymosis in Skin in Congenital Syphilis. O. Neumann.—p. 136.
*Congenital Hydrops. H. Reinhard Eichelbaum.—p. 149.

Antitoxic Action of Serum on Placenta Toxin.—Hayashi found that the substance in human serum which neutralizes placenta toxin is contained in the fluid of the dialyzed serum and not in the sediment. It is not identical with the hemolytic complement, and it loses its potency when heated to 60 C.

Nature of Eclampsia.—Obata presents evidence to the effect that insufficiency of the liver is the cause of loss of the power of the serum to neutralize placenta toxin. The loss of this power seems to be the causal factor in eclampsia. He always found this toxin-annulling action of the serum materially reduced in eclampsia, but it gradually returns in from three to five days after the last convulsion. Experiments on animals showed that only the liver seemed to have an influence on this toxin-annulling power.

Spontaneous Expulsion of Vaginal Portion of Uterus.—The large flap torn loose at delivery measured 9.5 by 12 cm. and was 1 or 2 cm. deep. The head had become impacted and prevented the dilation of the os.

The Vaginal Flora at Term.—Apel's research has demonstrated that only 50 per cent. of the women have a normal vaginal secretion during the last few weeks of pregnancy.

Sedimentation Curve of Erythrocytes in Diagnosis of Gynecologic Disease.—Schumacher and Vogel state that with normal temperature and leukocyte count any considerable change in the speed of sedimentation, in cases of ovarian tumors, is a sign of inflammatory changes or of softening and resorption of tumor tissue. They recommend the test as a more reliable index of inflammation than the leukocyte count. Negative findings are particularly instructive as they testify that there is no appreciable inflammatory process in the body at the moment. German exchanges refer to this test as the B. K. S. (blutkörperchensenkungsgeschwindigkeit).

Congenital Hydrops.—Eichelbaum discusses the connection between this erythroblastosis in the new-born and icterus neonatorum.

Archiv für klinische Chirurgie, Berlin

124: 565-746 (June 23) 1923

*The Stomach Channel. K. H. Bauer.—p. 565.
Fifty-Three Perforated Gastric and Duodenal Ulcers. H. Steichele.—p. 630.
Carcinoid of Small Intestine with Metastasis. Schnebel.—p. 652.
*Rare Complications of Perforating Gastric Ulcers. A. Lehrnbecher.—p. 661.
Case of Adamantinoma. A. Schlosser.—p. 679.
*Structure and Pathology of Goiter. A. Troell.—p. 700.
Hockey Accidents. E. Glass.—p. 742.

What Is the Stomach Channel?—The term *magenstrasse* is applied to a roadbed along the lesser curvature which is formed by a special lengthwise arrangement of the larger folds in the mucosa. The tendency of ulcers to locate in the course of this channel gives it special importance, and Bauer now announces that in structure, function and pathology it is the survival in man of the gullet (*schlundrinne*) in the lower animals. Like all such rudimentary survivals, the tissues are not so resistant as organs of older phylogenetic development. This conception suggests the advisability of resecting the whole of this channel in operating for ulcer.

Complications of Gastric and Duodenal Ulcer.—In Lehrnbechers' first case, the hard gastric ulcer had entailed thrombophlebitis of the portal vein, suppuration in the liver, and embolism in the brain of the man, aged 47. In another man a duodenal ulcer had led to a subphrenic gas abscess.

In a third case an ulcer on the posterior wall of the stomach perforated into the pancreas, with suppuration extending to involve the thoracic duct. He cites numerous recorded cases of other unusual and fatal complications of these ulcers.

Structure of Goiter, Especially the Exophthalmic Type.—Troell's monograph is accompanied by sixty-eight photomicrograms in eight large folding plates, some colored. His sixty-two case reports were published in the *Svenska Läkaresällskapets Handlingar*, and were mentioned in these columns, May 27, 1922, p. 1674. The anatomopathologic findings are so characteristic that from them alone we can distinguish the thyrotoxic cases.

Deutsche medizinische Wochenschrift, Berlin

49: 569-600 (May 4) 1923

Wandering of Epidemics. K. Kisskalt.—p. 569.
Theory or Experiment on Models for Explanation of Electrobiologic Currents? R. Beutner.—p. 571.
Cesarean Section in Modern Obstetrics. W. Benthin.—p. 572.
*Early Diagnosis of Tuberculosis of Kidneys. A. Hübner.—p. 574.
Quinidin in Auricular Fibrillation. Arjeff.—p. 576.
Chemotherapy of Malignant Tumors. R. Roosen.—p. 577. Conc'n.
Sedimentation of Erythrocytes in Tuberculous Children. Dehoff.—p. 578.
Diabetes Insipidus in Acromegalia. R. F. Weiss.—p. 580.
Case of Malignant Edema After Therapeutic Injection. Kemkes.—p. 581.
Method of Determination of Sedimentation Speed. G. Katz.—p. 585.
Lecithin in Relation to General Anesthesia. K. Tittel.—p. 585.
Treatment of Enuresis with Thermopenetration. I. v. Büben.—p. 586.
Clearing House System for Practitioners' Accounts. Graf.—p. 587.

Early Diagnosis of Tuberculosis of Kidneys.—Hübner finds that the value of demonstrating bacilli in the urine is overestimated. Inflamed kidneys are permeable to tubercle bacilli without being infected. The progressive tendency of the process is an important sign. The bladder is early affected. Cystoscopy is therefore very important. He finds that the points of predilection in early cases are in the ostium, vertex and in the mobile parts of the bladder, but not in the trigone, as in advanced cases.

Deutsche Zeitschrift für Chirurgie, Leipzig

179: 1-144 (April) 1923

*The Prognosis Before Prostatectomy. Grauhan.—p. 1.
*Immune Biology of Surgical Tuberculosis. W. Drügg—p. 65.
Embryonal Mixed Tumor of Kidney in Man of 59. W. Baumann.—p. 102.
*Healing of Wounds in Diaphragm. T. Naegeli.—p. 109.
*Tardy Roentgen Ulcers. K. Grasmann.—p. 115.
Hydronephrosis of Nonmechanical Origin. H. Boeminghaus.—p. 129.

The Prognosis Before Prostatectomy.—Grauhan has analyzed the causes of death in cases of hypertrophy of the prostate, comparing the outcome with the clinical findings before and during treatment. The kidneys determine the prognosis, and this we are able to estimate before intervention, as the obstruction to the flow of urine almost invariably early modifies the production of urine. Among 506 patients with hypertrophied prostate the majority who have died, with or without operative treatment, voided less than 1 liter of urine within four hours of the Volhard water test (ingestion of 1.5 liters of water). The largest half hour portion was far below the normal 500 c.c. The concentration of the urine in the following twelve hours reached only 1.010 or 1.014 or less in 6 of the 7 fatal cases among 60 tested. Complete loss of the power of adaptation to large or small intake of fluids indicates danger, but improvement may follow. The nonprotein nitrogen in the blood was above normal but moderate; in the fatal cases the range was from 40 to over 80 mg. In the fatal cases the freezing point for the blood was —0.65; —0.61 definitely forbids prostatectomy. Of the 25 with a pressure of 150 mm. to 200 mm., 7 died after a palliative operation and 2 after prostatectomy. The high blood pressure increases the danger not only of hemorrhage but also of the shocklike sudden drops in pressure which are liable to damage the kidneys severely. Recent reexamination of 22 patients of the two-stage group failed to reveal any contraction of the bladder from pericystitic processes. Four patients cystostomized within three years are content and refuse further intervention.

Immune Biology in Surgical Tuberculosis.—Testing patients with the separate elements of the tubercle bacillus, separates them into groups according as they react to these separate elements. Drügg tests each patient with four concentrations of the four elements. The test is repeated from four to six weeks later as a guide to further treatment, combining medical and surgical measures according to the responses.

Wounds of the Diaphragm.—Naegeli's experiments on dogs confirmed the smooth healing after suture of a transverse slit in the diaphragm. The constant peril of hernia after a wound of the diaphragm should compel suture of the slit, access being secured either from above or below.

Tardy Roentgen Burn.—The exposures of the ovaries were made in 1916 in treatment of bleeding uterine myomas. Four years later a typical roentgen ulcer developed in the field of exposure in the right buttock. There have been no further disturbances since this field was resected. In a second case, the tardy roentgen ulcer healed in two months under an airtight rubber dressing. Resection had been contraindicated in this case by extensive hard infiltration around the ulcer.

Klinische Wochenschrift, Berlin

2: 957-1004 (May 21) 1923

*Extrahepatic Bile Ducts in Cholelithiasis. L. Aschoff.—p. 957.
Problem of General Paresis and Tabes. Raecke.—p. 958.
*Physiology of Palpation. Goldscheider.—p. 961.
Schizophrenia as Systemic Psychic Affection. Kleist.—p. 962.
Sclerema of Adults After Influenza, with Changes in Cutaneous Nerves. E. Hoffmann.—p. 963.
*Action of Roentgen Rays on Catalyzers. Ellinger and Landsberger.—p. 966.
*Response of Growths to Roentgen Rays. G. Schwarz.—p. 969.
Immediate Reaction with Intracutaneous Serum Injections. Biberstein and Jadassohn.—p. 970.
Neurogenous Heterochromia of Iris. F. Kauffmann.—p. 971.
*Lowering of Blood Pressure Under Electric Treatment. Peemöller.—p. 973.
Charcot-Leyden Crystals in Pleuritic Exudate. A. Arnstein.—p. 976.
Determination of Bilirubin in Urine. B. Zins.—p. 978.
"Superinfection in Experimental Syphilis." Buschke and Kroó. p. 978.
*Metabolism in Muscles and Heat Regulation. Freund and Janssen.—p. 979.
Pleural Pressure. F. Rohrer and K. Wirz.—p. 979.
Severe Case of Ascariasis. H. K. van Winterfeld.—p. 980.
Arteriosclerotic Kidney Disease, and Treatment. Guggenheimer.—p. 981.
Income and Cost of Living in Kiel 1914-1922. Schütz.—p. 985.

Orthology and Pathology of Extrahepatic Bile Ducts in Their Relation to Cholelithiasis.—Aschoff gives an outline of the conditions which may cause formation of stones in gallbladder and ducts.

Physiology of Palpation.—Goldscheider reports some experiments which he made together with P. Höfer. They found that superficial sensibility is very important for the deep sensations of pressure. They also experimented to explain the phenomenon discovered by Hausman, that we cannot feel the pulse with the tongue.

Mechanism of Catalytic Component of Cell Breathing and the Action of Roentgen Rays on It.—Ellinger and Landsberger found that roentgen irradiation of different substances may increase or inhibit their catalytic action. The change lasts longer than the action of the roentgen rays. This was especially distinct in ferric chlorid, and is due to its induced phosphorescence. Late effects of roentgen rays in the organism may be due to a similar process.

An Apparently Constant Difference of the Behavior of Benign and Malignant Growths Toward Roentgen Rays.—Schwarz finds that normal tissues have an equal or increasing sensitiveness toward repeated roentgen irradiations. The sensitiveness of malignant tumors decreases under similar conditions. This is true especially of the recurrences after irradiation. The increased malignancy of these tumors may be due also to a certain selective action of the former irradiations.

Lowering of Blood Pressure by Artificial Light and Apparatus of High Potential and Frequency.—Peemöller reviews the new literature, which shows that the real cause of lowering of the blood pressure after use of d'Arsonval's apparatus and similar electric devices, is the formation and inhalation of gas generated by the apparatus (nitrous oxid).

Metabolism in Muscles and Heat Regulation.—Freund and Janssen found that muscle metabolism is regulated from the thermic center through the periarterial nervous plexus. Contractions, tonus or hormones are not essential for chemical thermoregulation.

Medizinische Klinik, Berlin

19: 635-670 (May 13) 1923

Paranephritic Abscess. R. Dittrich.—p. 635.
*Deaths After Insufflation of Gas. A. Bingel.—p. 637.
*Increase of Secret Prostitution. M. Gumpert.—p. 640.
*Mediastinal Syndrome with Gastric Ulcers. Marcovich.—p. 642.
*Relation of "Roentgen Jag" to Irradiation of Liver. J. Borak and A. Kriser.—p. 644.
Treatment of Obesity with Sodium Sulphate Waters. E. Pflanz.—p. 645.
Fever in Ulcers of Stomach. E. Jacobs.—p. 647. Conc'n.
Gradually Getting Patients on Their Feet. Schmidt and Weisz.—p. 649.
A Rare Arsphenamin Injury. H. Sieben.—p. 650.
A New Rational Gastroscope. W. Sternberg.—p. 653.
*Action of Hexamethylenamin and Determination of Formaldehyd in Body Fluids. W. H. Crohn.—p. 654.
Rectovaginal Fistula. E. Runge.—p. 658.
Survey on Diseases of Heart and Blood Vessels. E. Edens.—p. 659.

Deaths After Insufflation of Gas Into the Spinal Canal and Ventricles of Brain.—Bingel surveys the fatal results of insufflation of gas into the lumbar region of the spinal canal or the ventricles of the brain. Most of these patients suffered from tumors. He asks more publications of untoward results.

Increase of Secret Prostitution.—Gumpert finds a parallel between increase in uncontrolled prostitution and cost of living.

Syndrome in Mediastinum Accompanying Gastric Ulcer.—Marcovich confirms Kraemer's, Holler's and Veczler's findings in gastric ulcers. The clinical signs in the mediastinum of gastric ulcers are: interscapular dulness, and pain, spinalgia, a hyperalgetic zone and d'Espine's phenomenon.

Relation of Acute Roentgen Poisoning to Irradiation of Liver.—Borak and Kriser found that disturbances of the liver cannot be the cause of the "roentgen jag," since irradiation of the liver did not cause subjective or objective changes.

Action of Hexamethylenamin and Determination of Formaldehyd in Body Fluids.—Crohn examined sixty-three samples of urine, blood and cerebrospinal fluid after intake of hexamethylenamin. He found formaldehyd only exceptionally.

Monatsschrift für Kinderheilkunde, Leipzig

26: 1 96 (April) 1923

Asthenic Children. Schiff.—p. 1.
*Serum Treatment of Epidemic Meningitis. K. Lewkowicz.—p. 17.
Neuralgia in Children. A. Reiche.—p. 34.
Late Meningeal Bleeding from Birth Injury. A. Schele.—p. 43.
*Cerebrospinal Fluid in Hereditary Syphilis. O. Tezner.—p. 49.
*Constitutional Eczema of Infants. E. Gartje.—p. 57.
Action of Juice from Vegetables on Calcium Metabolism in Rachitis. D. H. Kozitschek.—p. 65.
*Diabetes Mellitus and Jaundice. A. Koleczek.—p. 68.
Lethal Bleeding from Arrosion of Vessel by Thrush. O. Riemschneider.—p. 71.

Technic for Antiserum Treatment of Epidemic Meningitis in Narrowing of Ventricles of Brain.—Lewkowicz found by means of the precipitation reaction that the antiserum injected into the ventricles of the brain disappears sometimes in twelve or even eight hours, if the ventricles are narrow. He believes that several intraventricular injections during the day are necessary to get therapeutic results in severe cases.

Examination of Cerebrospinal Fluid in Hereditary Syphilis.—Tezner reports on his findings in the cerebrospinal fluid of 25 syphilitic infants. This makes, together with his previously published material, 83 children with positive findings in 43.3 per cent. Among his patients 41 were infants (56.1 per cent. positive). Wassermann reaction was positive in these cases 11 times (6 times as the only pathological change present).

Hypersusceptibility of the Skin in Certain Cases of Constitutional Eczema of Infants.—Gartje injected milk fat and other substances intracutaneously in children suffering from eczema. He found that children who are not stout and who present a dry eczema are oversensitive to milk fat. The affection is influenced favorably by a fat-free diet. Cod liver oil has an unfavorable influence, like any other fat.

Diabetes Mellitus and Jaundice.—Koleczek reports the history of a boy, aged 6, who developed symptoms of severe diabetes with acidosis immediately after recovery from a catarrhal icterus and an excess in sweet food. The condition of the patient became gradually better, until he was able to consume 147 gm. of carbohydrates without glycosuria.

Münchener medizinische Wochenschrift, Munich

70: 553-586 (May 4) 1923

Puncture of Sinus and Injections of Arsphenamin in Syphilitic Infants. W. Schönfeld.—p. 553.
Puncture of Sagittal Sinus in Infants. A. Salomon.—p. 554.
*Treatment of Typhoid Bacilli in Carriers. G. Wagner.—p. 555.
*Roentgen Injury After Irradiation of Neck. E. König.—p. 558.
*Roentgenologically Visible Ulcer of Stomach. J. Büscher.—p. 559.
*Cantharidin Blister Test. E. Thomas and W. Arnold.—p. 561.
Skin Temperature Over Tuberculous Joints. C. Mau.—p. 562.
*Tortuous Course of Arteries. R. Geigel.—p. 564.
Tuberculin Reactions in Diagnosis and Prognosis. C. Moewes.—p. 564.
*Poisoning by Sodium Chlorid. Heinz and Haas.—p. 565.
Prophylactic Treatment with Arsphenamin. Görl and Voigt.—p. 567.
Simple Artificial Foot Adjustable at Three Points. Baeyer.—p. 567.
Self-Holding Clamp for Compression of Aorta. H. Becker.—p. 567.
Mercuric Chlorid Poisoning from the Vagina. Thoret.—p. 569.
Suprasternal Dislocation of Clavicle. H. Berger.—p. 569.
Post Partum Hemorrhages. Opitz.—p. 570.
Medical and Statistical Data from Russia. Weissenberg.—p. 572.

Lowering of Virulence of Typhoid Bacilli in Carriers.—Wagner found that the virulence of typhoid bacilli cultivated from carriers may decrease to one-fourth, if the carrier is treated with a vaccine. After some time (six months) the virulence increased again.

Roentgen Injury After Irradiation of Neck.—König reports a case of severe injury of the larynx due to irradiation of a patient with actinomycosis. He emphasizes the necessity of publishing unfavorable results, and finds that the radiosensitivity of cartilage is underestimated.

Roentgenologically Visible Ulcer of Stomach and Its Treatment.—Büscher recommends internal treatment in smaller visible ulcers of the lesser curvature. Ulcers which are larger than a hazelnut, those which are causing a marked hour-glass contracture, and pyloric ulcers with impairment of evacuation should be operated on.

Foreign Substances in the Cantharidin Blister as Index of Permeability and of Dermotropism.—Thomas and Arnold produced blisters on the inner side of nondepilated rabbits' ears with a few drops of a 0.4 per cent. solution of cantharidin in equal parts of collodium and ether. They report their results after injection and ingestion of fluorescein, sodium salicylate, acid phosphates, and potassium ferrocyanid.

Cause of Tortuous Arteries.—Geigel finds that the elongation of arteries which causes the well known tortuous outline in arteriosclerosis is not due to blood pressure. It is caused by the blood stream; the flowing blood pushes the artery along with it as the walls become less elastic.

Poisoning by Sodium Chlorid.—Heinz and Haas report on the poisoning of poultry by table salt mixed with the food. Lethal poisoning has been observed also in man. One hysterical woman died after taking 250 gm. of salt in one dose.

70: 587-618 (May 11) 1923

Malaria and Its Abortive Treatment. G. Baermann.—p. 587. Cont'd.
*Action of Hormones on Capillaries in Man. W. Redisch.—p. 589.
Ovary as Source of Intraperitoneal Bleeding. R. Hornung.—p. 592.
*Boyksen's Diagnostic Reaction for Carcinoma. H. Eggers.—p. 594.
Abderhalden's Reaction. A. Gersbach.—p. 596.
Diphtheria of Nose in Infants. P. Schugt.—p. 598.
Scoliosis from Muscular Traction After Empyemas. A. Müller.—p. 601.
Triatoma Flavida in Cuba. W. H. Hoffmann.—p. 603.
A Substitute for Dextrose in Culture Mediums. P. Keim.—p. 603.
*Diagnosis of Anaphylactic Diseases. W. S. van Leeuwen et al.—p. 604.
Milk Pump. P. Kuliga.—p. 604.
Venereal Diseases in the Occupied Rhine Provinces. L. v. Zumbusch.—p. 605.

Action of Hormones on Capillaries in Man.—Redisch found in two cases of diabetes a more intensive contraction of capillaries after injection of epinephrin, than in healthy persons. The contraction lasted twice as long as usual. Injection of ovarian extract caused in these cases a broadening of the capillaries and lowering of blood pressure. The two hormones showed a certain antagonistic action.

Boyksen's Diagnostic Reaction for Carcinoma.—Eggers finds that Boyksen's reaction in carcinomas is uncertain.

Diagnosis of Anaphylactic Nature of Diseases.—The Journal summarized Feb. 10, 1923, p. 443, the diagnostic test described by Storm van Leeuwen, Bien and Varekamp. They have since found that danger from using dandruff from the hairdressers to make the extracts can be averted by dialyzing the extracts. Dialysis usually renders the toxic extracts from dandruff suitable for the intracutaneous test reaction.

Zeitschrift für Kinderheilkunde, Berlin

35: 207-329 (June 7) 1923

*"Initial Diarrhea." H. Davidsohn and S. Rosenstein.—p. 207.
Blood Coagulation Time in Jaundice of the New-Born. W. Greuter.—p. 210.
*Scarlet Fever in Infants and Young Children. W. Scheffer.—p. 227.
The "Extinction Phenomenon" in Rubeola. W. Scheffer.—p. 239.
*Scurvy in the Breast Fed. H. Pogorschelsky.—p. 244.
*Pluriglandular Atrophy from Deficiency Diet. B. Schick and R. Wagner.—p. 263.
Erythroderma Desquamativa (Leiner). J. Wittmann.—p. 275.
The Puffer Potency of Cow's Milk. F. Müller.—p. 285.
*Protecting Action of Cholesterol. H. Beumer.—p. 298.
Epinephrin Diabetes. H. Beumer.—p. 305.
Etiology of Still's Disease. G. Iseke.—p. 315.
Opisthotonus with Pylorospasm. H. Putzig.—p. 322.
*Congenital Stridor. Id.—p. 322.
Change in Sensibility of Skin After Vaccination. Id.—p. 323.
*Ether in Treatment of Whooping Cough. J. Bedö.—p. 325.

"Initial Diarrhea."—Davidsohn and Rosenstein present evidence to confirm the direct connection between pathologic fermentation in the large intestine and the clinical picture in "initial diarrhea." In tests of 237 specimens of stools from ifteen infants, the stools usually showed abnormally high acidity. In 33 per cent. this was the first sign of the morbid condition. Change to food that tends to check fermentation and promote constipation is the most effective means for arresting the disturbances in their incipiency. A chart is given recording the initial diarrhea on two-thirds milk, and he prompt return to normal conditions when small amounts of concentrated albumin milk with 20 per cent. sugar were added. The first sign of recovery in 33 per cent. of the ases was the increase in weight.

Scarlet Fever.—Scheffer relates that of fifteen infants with varicella in one ward, eight developed scarlet fever within wo weeks. It was complicated in six cases with suppurative otitis media, and in four with swollen glands, but there were no symptoms from the kidneys. The facts observed in these ases suggest that the varicella rash needs further study, as lso the application of the Schultz-Charlton extinction *auslösch*) phenomenon in the diagnosis of varicella.

Scurvy in Breast-Fed Infants.—Pogorschelsky concluded rom serial roentgen-ray findings that the multiple small bscesses in the bones of a young breast-fed infant were manifestations of severe scurvy. The poverty of the family ad excluded butter fat and milk from the table, but there was abundance of vegetables. The child had thrived till the ge of 10 weeks. It improved with addition of lemon juice nd tomato juice, and improved still more rapidly when the mother was given butter and fat. The child died suddenly in its fifth month. The clinical picture was not that of classic scurvy, but the resemblance to this was greater than to any ther known affection. He has compiled twenty-four recorded cases of scurvy in the breast-fed. The circumstances demonstrate, he says, that the causal trouble is a lack of fat soluble itamin as well as of the antiscurvy vitamin C.

Pluriglandular Atrophy in Young Children.—In this second communication on this subject, Schick and Wagner describe he outcome in their two previously published cases, and report three new instances. Necropsy in two cases confirmed e extreme atrophy of the thymus and thyroid, suprarenals nd pancreas, of the tongue, and of the mucosa of the entire testine. The ductless glands atrophy more and more. reatment should aim to stimulate and exercise these glands ther than to spare them. One child, aged 9, had been peatedly underfed in treatment of digestive disturbances, nd had been brought to the clinic as a hopeless case of cerative enteritis and peritonitis, although tuberculin tests ere negative; the stools were of the diarrheic fat and fermentation type. Under mixed feeding with suitable calory nd vitamin content, the child began to thrive at once. In e two fatal cases in infants, there was pronounced xerophalmia, edema and a hemorrhagic tendency. Probably many ses of cachexia and hemorrhages in the past, ascribed to her causes, were in fact deficiency disturbances from lack vitamins. The tongue was atrophic, smooth and red in eir five cases. The condition has been described as "celiac ease," and "digestive disturbances beyond infancy," but the avitaminosis sets up a vicious circle which results in actual starvation.

Protective Action of Cholesterol.—Beumer has demonstrated that guinea-pigs fed with egg lipoids become exceptionally resistant to chloroform and diphtheria toxin.

Epinephrin Diabetes.—Beumer injected 0.5 c.c. of epinephrin solution in fasting infants with and without preceding injections of salts, and recorded the fluctuations in the sugar content of blood and urine thereafter. The epinephrin induced a transient diabetic acidosis, with hyperglycemia, glycosuria and ketonuria. Sodium bicarbonate did not ward it off, even when given in amounts large enough to make the urine alkaline, but ammonium chlorid checked the action of the epinephrin, reducing the resulting glycemia, glycosuria and acetonuria.

Congenital Stridor.—At necropsy of a young infant, the supposed "thymus death" was explained by a malformation of the trachea with stenosis. The thymus was apparently normal.

Ether in Treatment of Whooping Cough.—Before any publications on ether in treatment of whooping cough had been published, Bedö had been impressed by the coincidence that pertussis had been apparently entirely cured in two children given a general anesthetic for an operation. He has been treating whooping cough systematically with intramuscular injections of ether to a total of 5 c.c. It is painful, but the symptoms of the pertussis rapidly subside. In future he would restrict the treatment to severe cases and to infants.

Zeitschrift für Krebsforschung, Berlin

20: 125-210 (June 15) 1923

*Cancer in the Young. M. Roth.—p. 125.
*Cancer in Fish. N. Anitschkow and E. N. Pawlowsky.—p. 128.
*Cancer in Greenland. J. Fibiger.—p. 148.
Histogenesis of Ovarian Tumors in Fowls. O. Seifried.—p. 188.
*Free Microscopic Service. J. Fibiger.—p. 200.
*Pulmonary Cancer in Miners. Committee Report.—p. 209.
*Cancer in Cadavers at Dresden. Committee Report.—p. 209.

Carcinoma in the Young.—Roth reports three cases. The patients were aged 11, 18 and 21; the oldest and youngest were girls. He suggests that possibly they belong to one of the so-called cancer families in which the cancers appear at an earlier age and in a more virulent form in succeeding generations. The growth was on the buttocks, lower lip and tongue in his cases, and nothing was known of the progenitors.

Growths on the Skin of Fishes.—Anitschkow and Pawlowsky found tumors of different types on three fish of the Gobius family.

Cancer in Eskimos.—The cancer commission of the Danish Medical Association gives the results of ten years of collective inquiry as to cancer in Greenland. All physicians of the country cooperated, and also the American physicians with exploring parties. Fourteen cases were reported, and specimens were sent to the committee from some of the cases. They show that the nature, course and prevalence of malignant disease are approximately alike in all lands. One of the three cases of uterine cancer was at Cape York, the nearest to the pole of any inhabited point. The parotid gland, the neck and the humerus were the sites in the four men; the parotid, the breast, uterus or skin in the ten women. Fibiger suggests that the absence of visceral cancer in such people is due to the low life expectancy; they seldom live to reach the digestive-tract cancer age. The difficulty of diagnosing internal cancer also aids in its escaping detection. Even in Berlin, in 22 per cent. of 711 cases, the cancer had escaped detection; at Copenhagen in 7.6 per cent. of 196 cases, and in Sweden only the necropsy cleared up the dignosis in 122 of 749 cases. The survey in Denmark in 1908 disclosed 0.43 cancers per thousand inhabitants, and this survey in Greenland, with a population of 12,510, shows that cancer is as prevalent there as in any other country. Fibiger discusses further the 127 nonmalignant tumor cases reported, of twenty-four different types.

The Free Microscopic Service of the Danish Cancer Committee.—Fibiger relates that between 1909 and 1921, 6,800 specimens were received from 340 physicians and sixty-one hospitals. Only 2,300 specimens revealed malignant disease.

The Schneeberg Lung Cancers.—This is the report of a special committee that has been investigating lung cancer in coal miners in Saxony, and the unusual prevalence of cancer of the lungs at Dresden. The Schneeberg cancers seem to develop from an occupational predisposition, but there is no uniformity in the structure.

Zeitschrift für Tuberkulose, Leipzig

38: 1-80 (April) 1923

*Toxic Tuberculoid Structures. Guillery.—p. 1.
*Relation Between Side Affected and Prognosis. Aoyama.—p. 22.
Should Every Tuberculous Person be Treated? C. Kraemer.—p. 28.
Comment on "Analysis of Pulmonary Tuberculosis." Maendl.—p. 33.

Toxic Tuberculoid Structures.—Guillery introduced little sacs containing tubercle bacilli intraperitoneally in rabbits. He found marked changes in the omentum and liver remote from the sac, tuberculoid structures at a distance, from toxic action alone.

Relation Between the Side Affected and the Prognosis in Pulmonary Tuberculosis.—Aoyama found in 141 cases that death from tuberculosis occurred earlier in patients with tuberculosis of the left lung. He discusses the possible causes.

Zentralblatt für Chirurgie, Leipzig

50: 793-824 (May 19) 1923

Abdominosacral Operation in Vaginal Cancer. J. Philipowicz.—p. 793.
Treatment of Traumatic Pneumothorax. Feller.—p. 795.
Spontaneous Evacuation of Clamp in Abdomen. Cohn.—p. 798.
*Use of Anesthetics. E. Baumann.—p. 800.
Nephro-Ureterectomy: Complete Petrification. Philipowicz.—p. 803.
Technic of Perineal Amputation of Rectum. K. Nather.—p. 804.
Modification of Measuring Compass. K. v. Dittrich.—p. 807.
*Removal of Stomach Contents in Gastric Operations. C. Neck.—p. 808.

Use of Anesthetics.—Baumann emphasizes the need of chemical tests of anesthetics before using them, and asserts that a large percentage of the fatal accidents arising in connection with the use of anesthetics is due to the spoiled condition of the drugs. Anesthetics must always be used fresh from the original bottle, and remnants must not be poured together, or saved for use the following day in bottles the seal of which has been broken. Secondary decomposition is more marked in ether than in other narcotics. It is not quite so marked in ether-chloroform mixtures and is still less noted in chloroform and ethyl chlorid. Baumann gives the technic for several simple tests, and refers to his larger work for further details.

Removal of Stomach Contents in Gastric Operations.—Neck states that, after lavage of the stomach, he brings the patient into a steep Trendelenburg position and then slowly withdraws the stomach tube. Thus, in all suitable cases, he is able to evacuate completely the stomach contents before the stomach is opened.

Zentralblatt für Gynäkologie, Leipzig

47: 705-736 (May 5) 1923

Serodiagnosis of Syphilis in the New-Born. Esch.—p. 709.
*Incipient Incarceration of Gravid Uterus. Unterberger.—p. 714.
*Interrelationships Between Genital Organs and Mammary Function. B. Schweitzer.—p. 717.
*Cutaneous Striae During Pregnancy. P. Sfameni.—p. 720.
*Albuminuria and Infarct Formation. H. v. Ravenstein.—p. 727.
*Freund-Wertheim Radical Operation. F. Süssmann.—p. 729.

Treatment of Incipient Incarceration of the Retroflexed, Gravid Uterus.—Unterberger describes an extremely simple procedure that he has employed in recent years in three cases of retroflexion of the gravid uterus with beginning incarceration. After establishing the diagnosis "total retroflexion of the gravid uterus" (end of the fourth month), the bladder was evacuated in all three cases with a male catheter. The patient then, having laid aside her heavier outer clothing, was placed on the operating table, strapped on tight, and raised into a very steep Trendelenburg position, in which she was allowed to remain for from ten to fifteen minutes. The position was not found to be uncomfortable as is often the genupectoral position, sometimes employed under like circumstances. A successful result was usually secured by one treatment, but frequently several repetitions of the treatment are required to confirm the result. In each case a normal position of the uterus was secured, and pregnancy was preserved, whereas by other methods abortion is often induced. However, one must be sure of his diagnosis and not mistake a retro-uterine hematocele for retroflexion of a gravid uterus.

Interrelationships Between the Genital Organs and the Mammary Function.—Schweitzer recalls that swelling of the mammary glands is frequently associated with the menses; even a slight secretion of the mammary gland is occasionally present during the menstrual period, but an actual flow of a milklike secretion at the time of the menses, such as occurred in his patient, a girl aged 21, he thinks must be extremely rare. It may have some significance that menstruation set in at the age of 11. It had been regular, but lasted from six to eight days, and had been attended by rather marked loss of blood and severe abdominal pains. Three or four days before the onset of the menses there was a swelling of the breasts together with a painful feeling of tension. For the last six months, however, a whitish fluid had automatically flowed from the breasts during the whole course of the menstrual period. Schweitzer examined the secretion microscopically and found it contained chiefly milk globules, with only a few colostrum bodies. He diagnosed the abnormal condition as a disturbance of internal secretion; hence prescribed tablets of ovarian substance three times a day during the next interval between the menstrual periods. As a result, the next expected menses did not occur; nor was there any trace of secretion from the breast glands. The patient felt no bad effects. The ovarian preparation was omitted and in three months the menses returned, at first with no milk secretion, but soon the old condition reappeared. Soon after, the patient left the city, and was lost sight of.

Origin and Diagnostic Value of Cutaneous Striae During Pregnancy.—Sfameni's researches lead him to conclude that cutaneous abdominal striae are dependent on three conditions: (1) distention of the abdominal walls, through the increase in volume of the contents of the abdomen; (2) the deposition of fat in the subcutanous cellular tissue, and (3) the simultaneous action of both factors within a short time. Striae of the breast depend on the deposition of fat and hypertrophy of the milk glands. Striae of the breast and abdomen are almost exclusively associated with the pregnant condition, and have therefore considerable medicolegal significance for the diagnosis of pregnancy.

Albuminuria in Relation to Infarct Formation.—Ravenstein refers to Haffner's researches to discover the relationships, if any, between placental infarcts and the albuminuria of pregnancy. The result of Haffner's investigations was negative. Ravenstein examined 260 placentas, 72 per cent. of which showed macroscopically infarct formation. Albuminuria was infrequent, only 14.6 per cent. of the examined cases presented albumin in the last week of pregnancy or at childbirth. Haffner's findings were thus confirmed.

Primary Mortality in the Freund-Wertheim Radical Operation.—Süssmann reports what he maintains is the lowest percentage of mortality on record for the Freund-Wertheim operation in cancer of the uterus. Between 1913 and 1922 he performed in 168 cases the extended Freund-Wertheim operation with a primary mortality of six patients, or 3.57 per cent. The best previous records were a 6.4 per cent. mortality in Kubinyi's series, and 6 per cent. in Bumm's series. In endeavoring to discover the causes for his low mortality, he could think of only three factors that may have had a favorable influence: (1) carrying out the operation in lumbar anesthesia by means of a 10 per cent. solution of tropacocain, which did away with lung injuries and the frequent vomiting and nausea after the operation. (By the frequent postoperative vomiting different portions of the intestine are brought in contact with the operative area, which may transfer into the peritoneal cavity cancer cells from the peritoneum); (2) comparatively short duration of the operation (from forty-five to fifty minutes), and (3) the elimination of assistants. Shortly before beginning the laparotomy he cleanses the cancer well with a disinfectant solution. Then the curet is applied. Afterward the crater is disinfected with alcohol and tincture of iodin and then mopped clean with vioform gauze.

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“ETIOLOGY UNKNOWN”[*]

MARCUS HAASE, M.D.
MEMPHIS, TENN.

I doubt seriously whether there is a more humiliating ioment in the life of a medical man, either as teacher r practitioner, than when asked by a student or patient, What is the cause of this?” and he is forced to say, I do not know.”

While it is true that few diseases of the skin end atally, they not infrequently play havoc with the lives f the afflicted. I recall the case of an otherwise beauful woman whose life was devoted to social service ork among the handicapped, the blind and the rippled, who gave up her work and is now living in eclusion because of the marring effect of vitiligo. In nother instance, one of the most brilliant young lawers of our community was forced to withdraw from a romising career in both law and politics, for the same eason. And I have never been able to satisfy myself hat the suicide of a young woman whom I knew was ot due, to some extent, to an intractable psoriasis.

There are no more earnest, devoted, painstaking men medicine than the dermatologists. As clinical diagosticians, they are not excelled in any branch, and our bility as nosologists is frequently the cause of friendly haffing by men in other specialties. It is true that ur nomenclature is crowded with fine distinctions, but wonder whether this ability, of which we all are so istly proud, has not been gained at the expense of the ore profound study of etiology.

Is this knowledge of such great importance?

Some years ago, and this may still be true, there was orderly in St. Louis Hospital in Paris, whose clinical agnostic ability and remembrance of previously shown ses was rarely excelled by the best of the consultants.

It is gratifying to be able to distinguish the Jadashn from the Juliusberg type of scaly erythrodermias, t general medicine would be more grateful for the owledge of the causative factor, which is, no doubt, e same in the two.

White,[1] in his chairman's address before this section 1912, named eleven diseases in which the etiology is unknown—he might have mentioned more, but he ed only those occurring ten or more times among new tients. The list included eczema, alopecia furfuracea, pecia areata, hypertrichosis, psoriasis, hyperhidrosis, pruritus and pityriasis rosea, and these are just a few with etiology unknown that are observed almost daily by all of us.

One must pay tribute to Ormsby and Mitchell for their pioneer work in this country in mycology which removed from the eczema group a number of dermatoses, the etiology of which was still in doubt. But, aside from this, the work done on this group has been limited.

Except the work done by Schamberg, Kolmer and Raiziss on psoriasis in 1913, no serious research work has been reported in this disease since this address was presented.

An article that appeared only recently in one of our best journals shows how little we know of the etiology of alopecia furfuracea. The author attempted to ascribe to definite organisms the several types of the disease. All of the organisms mentioned in the article have been obtained from follicles of sebaceous glands of apparently normal skins.

Nothing new, worthy of serious consideration, has been published in many years as to the cause of alopecia areata; and to consider it simply a “nervous disturbance,” as do many authorities, seems to me unworthy of scientific men. The cases occurred in adults under my care. The condition rapidly became generalized, and the patients subsequently died of visceral cancer. This may have been only a peculiar coincidence, but it is certainly worthy of note.

Sutton,[2] in his chairman's address in 1914, said, “In dispensaries and hospitals having an annual registry running into thousands, not a single good piece of investigative work has been done in years.” This is a serious charge and was possibly overstated, but it contained, and still contains, sufficient truth to make one a trifle anxious as to the future development and progress of dermatology.

The Year Book is a fair index of all that is new, and a careful review of it for the last ten years forces one to the conclusion that very little has been accomplished in etiology, especially in those diseases suggesting internal pathologic changes; and this is more marked in the last five years than in the preceding five.

Except for the recent work done on syphilis and mycology, a textbook published in 1918 is almost as useful as one written yesterday.

How much the neglect of research investigation during the last few years was due to the war, it is hard to say, but, regardless of the cause, we have certainly failed to arouse ourselves from the lethargy that now seems to possess us.

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[*] Chairman's address, read before the Section on Dermatology and hilology at the Seventy-Fourth Annual Session of the American dical Association, San Francisco, June, 1923.

[1] White, C. J.: The Shortcomings of Dermatology, J. A. M. A. : 1915 (June 22) 1912.

[2] Sutton, R. L.: The Future of Dermatology in America, J. A. M. A. **63**: 133 (July 11) 1914.

I feel that the remedy for this condition is the thorough recognition that dermatology is nothing more, and certainly nothing less, than a highly specialized branch of internal medicine.

I wonder how many have listened to, or have read since it was published, Wende's address on a somewhat similar subject, thirteen years ago, in which he said, "Most diseases of the skin are nothing but symptoms or complications of constitutional or special morbid states," and that "we as dermatologists should make some effort to bridge the ever-widening separation between our specialty and the field of internal medicine." He pleaded for more cooperation between the dermatologist and the internist. Am I pessimistic when I say that, in my opinion, we are farther apart than we were at that time?

It might be possible, working alone in well equipped clinics and laboratories, ultimately to solve some of these problems; but I am convinced that it could be accomplished in much less time by cooperation with the internist, chemist and pathologist. Internal medicine has made rapid strides during the last few years, and the progress has been accomplished through cooperation with the chemist and the pathologist. I insist, with due humility, that, as a group, we have not kept pace with them. Every well equipped hospital today maintains full-time men in chemistry and pathology, and I have always found them not only willing but also anxious to assist in solving problems of this sort.

Wile's brilliant work on visceral syphilis, of which we as dermatologists have cause to feel a personal gratification, was no doubt made more pleasant through his daily, cordial contact with internist and pathologist.

Howard Morrow suggested treating patients with obscure eruptions in hospitals where they can be studied from all phases by many physicians, including the dermatologist, pathologist, chemist and internist. We will all agree that this would be a consummation earnestly to be desired but it is impracticable in many hospitals today on account of the crowded condition, especially those devoted entirely to medical relief; but in hospitals attached to institutions claiming to do research work, more beds should be allotted to dermatologic cases and every effort made to interest the internist and pathologist in these patients.

The young graduate seriously considering the study and practice of dermatology as his professional career should have at least one year in internal medicine and pathology.

I wish to commend for your serious consideration, and especially to the younger men, an editorial by Pusey[3] that appeared in a recent number of the *Archives of Dermatology and Syphilology* on "The Need for More Monographs and Fewer Books on Dermatology as a Whole," as no one could undertake this work without facing one or more of these perplexing questions.

CONCLUSION

In my judgment, the solution of these vexing problems is:

1. More cordial cooperation among the dermatologist, internist and pathologist.
2. The serious study of internal medicine and pathology by young men entering the field of dermatology.
3. More monographs on dermatoses of unknown etiology.

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[3] The Need for More Monographs and Fewer Books on Dermatology as a Whole, editorial, Arch. Dermat. & Syph. **7**: 637 (May) 1923.

CONDITION OF THE COMMON DUCT AFTER CHOLECYSTECTOMY *

E. STARR JUDD, M.D.
ROCHESTER, MINN.

As a result of the development of the surgery of the biliary tract to its present state, many problems are presenting themselves which require serious consideration. The first conception of disease of the biliary tract was associated almost entirely with gallstones, but it was soon realized that calculi were only a part of the trouble and that, in most instances, the infection is in the tissues. At first the infection was believed to be only in the walls of the gallbladder. Now it is realized that it must often be regarded as a pan-infection, since it extends to the hepatic and pancreatic tissues. During the quiescent state of the infection it is probably present in the gallbladder in a low state of virulence, while during the active state, when the infection is manifested clinically, it not only becomes more virulent in the gallbladder, but is distributed to the other parts of the biliary tract. The gallbladder seems to be the focus in which these infections are retained in an inactive state most of the time. Evidence is accumulating which will tend to reveal the infected gallbladder as a focus of infection which gives rise to symptoms in a remote organ, and there is every reason to believe that, in certain instances, it might be the source of a more or less general infection. These views with regard to inflammation in the gallbladder have advanced the indications for treatment to extirpation of the gallbladder. Whether the gallbladder is removed by operation or destroyed by inflammation, the results will be the same. It is the changes which occur as a result of the loss of the gallbladder that I wish particularly to discuss in this paper.

The gallbladder undoubtedly performs several functions, and yet it is by no means indispensable. When the gallbladder is sacrificed, several compensatory anatomic and physiologic changes occur and are more or less constant, which is proof that a normal gallbladder takes part in such functions.

The principal anatomic change, following cholecystectomy, is the dilatation that occurs in the extrahepatic ducts. The dilatation may vary in degree, but is always present, as has been proved by experiment and clinical observation. The dilatation begins at the surface of the liver, but does not affect the intrahepatic ducts. It extends throughout the hepatic and common ducts and the stump of the cystic duct. The intraduct bile pressure is maintained by the secretion of bile in the liver, the resistance to the flow of bile offered by the sphincter muscles at the ampulla, and also by such outside influences as intra-abdominal pressure. Great changes in bile pressure have been noted during the act of vomiting. The fact that the bile ducts dilate after the gallbladder has been sacrificed would seem to support the contention that one of the functions of the gallbladder is that of a tension bulb to equalize the bile pressure. With this tension bulb removed, the same inequalities in pressure occur in the common duct. As a result, this bile duct first dilates, and then the sphincter at the ampulla becomes incapacitated, resulting in the continuous flow of bile into the duodenum.

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* Read before the Section on Surgery, General and Abdominal, at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

The action of this sphincter muscle seems to be controlled by the character of the food in the lumen of the duodenum, so that when bile is needed, it is released, and when it is not wanted, the sphincter is closed. After cholecystectomy, the whole mechanism that controls the physiology of this part of digestion seems to be changed because of loss of the tone of the sphincter muscle. Bile flows continuously into the duodenum, and usually the bile from the liver is secreted under very little, if any, intraduct pressure. As a result of this rather marked change in the physiologic condition, there are very few clinical manifestations, and apparently no harmful results. Certain patients on whom cholecystectomy has been performed mention that at times they pass considerable bile from their bowels, independent of the normal bowel movements, and it is likely that this is the result of the continuous flow of bile through the ampulla.

TABLE 1.—*Recurrence of Symptoms After Cholecystectomy Possibly Due to Hepatitis and Pancreatitis*

Total number of patients	24
Males	7
Females	17
Average age of the 24 patients	45 years
Youngest	20
Oldest	69

Bile that remains in the gallbladder for any length of time becomes much more concentrated than normal bile. It is darker because of the proportionate increase in bile pigment. The importance of such concentration has not been shown. It may possibly indicate that the function of the gallbladder is that of storage, but because of its small size in comparison with the amount of bile secreted, it must concentrate the bile by the absorption of water, and in this way retain the active ingredients. The importance of such function has not been estimated, except that it is well known that there are no clinical signs of any change as a result of the oss of this function by cholecystectomy. It has been suggested that the common duct assumes this function of concentrating the bile when the gallbladder has been destroyed, but experimental evidence seems to show that this is not possible; it is more probable that, when he gallbladder is missing, this function is eliminated. So far as it has been determined, loss of the organ does not make any change in the life of the patient. It has been said that the concentrated bile is the cause of the frequent occurrence of calculi in the gallbladder and that after cholecystectomy stones will be more ikely to form in the common duct. Clinical studies and experimental evidence do not bear this out. The esults of removal of the gallbladder, in my experience, do not indicate that stones form in the common duct more frequently in these cases than if the gallbladder were present. Furthermore, experimental data seem o show that bile does not become concentrated in the ommon duct.

The results following most operations on the gallbladder and biliary ducts are satisfactory. However, ymptoms continue or recur in certain patients in whom ood results might have been expected. Since excision f the gallbladder has been generally practiced, I have oted that the recurrence of symptoms is most often ue to stones in the common duct. In some instances, t least, these stones formed, in all probability, after he removal of the gallbladder; but in most cases they recurred too soon after the operation for the formation of secondary stones, and undoubtedly these calculi had been overlooked at the time of the first operation. A certain proportion of the patients, especially those in whom the common duct was opened, have a few attacks of mild colic during their convalescence, which have been attributed to the passage of mucus or sloughs of tissue. It is difficult to prove whether the symptoms are due to these conditions or whether they are the last clinical signs of the infection in the hepatic or pancreatic tissue; but usually all signs of the trouble disappear in a short time.

There is still another group of cases in which the symptoms continue after a long interval and, because of their typical character and the continuation of the trouble, a diagnosis of stone in the common duct is made, yet at the second operation no calculi or other trouble in the duct is found and it is difficult to explain the cause of the symptoms. Of course, it is possible that there was a stone in the duct that passed; but the duct, although always dilated, is thin walled and without the usual signs of inflammation revealed in the cases of common duct stone. It is assumed that in cases of gallstone there is usually infection involving the liver, pancreas and regional lymphatics, and I believe that some inflammation remains in the tissues when the symptoms continue or recur after the usual operation in which neither calculi nor infection are found in the ducts. One year ago, one of my assistants (Dr. Burden), at my suggestion, began a clinical study of this group of cases. He found that we had reoperated in twenty-four cases in which the meager pathologic lesion disclosed did not explain the symptoms. At the present time some of these cases would undoubtedly be classified as hepatitis or pancreatitis, although it is often difficult to interpret the chronic changes in the liver and pancreas (Table 1). Of the twenty-four patients operated on the second time, seven were men and seventeen women. The youngest was 20 years old and the oldest 69; the average age was 45.

TABLE 2.—*Symptoms and Findings*

SYMPTOMS BEFORE THE PRIMARY GALLBLADDER OPERATION	
Shortest duration of symptoms	3 months
Longest duration of symptoms	15 years
Average duration of symptoms	43.5 months
Typical severe colic	22 cases
Upper abdominal pain, not colicky	1 case
Gastric symptoms of a reflex nature	1 case
Jaundice with the attacks	10 cases
Fever present with attacks	4 cases
FINDINGS AT THE ORIGINAL OPERATION	
Primary operation elsewhere	15 cases
Primary operation in our clinic	9 cases
Cholecystitis of varying degree	24 cases
Stones in the gallbladder	15 cases
Stones in the common duct	2 cases
Appendicitis	8 cases
TYPE OF ORIGINAL OPERATION	
Primary cholecystectomy	19 cases
Appendectomy, secondarily	13 cases
Cholecystostomy followed later by cholecystectomy	5 cases
Choledochotomy	1 case

SYMPTOMS BEFORE THE ORIGINAL OPERATION ON THE GALLBLADDER

The longest duration of symptoms was fifteen years and the shortest, three months, the average time being forty-three and one-half months. Typically severe hepatic colic occurred in twenty-two cases; upper abdominal pain, not colicky, in one, and reflex gastric symptoms in one. Jaundice was associated with attacks in ten cases and absent in fourteen; there was fever in four. The foregoing symptoms correspond with the usual history elicited from patients suffering from gallbladder disease.

FINDINGS AT ORIGINAL OPERATION

The primary operation was performed in the clinic on nine patients and elsewhere on fifteen. Detailed information was obtained with regard to the pathologic condition found in nine patients; the findings in the remaining fifteen were based on the information given the patients by their surgeons. In several instances the patients brought letters describing the findings at the original operation.

Table 3.—*Symptoms After Cholecystectomy and Findings at Second Operation*

SYMPTOMS AFTER CHOLECYSTECTOMY		
Onset of symptoms		few weeks to 4½ years
Symptoms appeared during convalescence		9 cases
Symptoms appeared at an average of 2 months in remainder		15 cases
Severe colicky type of pain		24 cases
Associated chills and fever		2 cases
Jaundice with the attacks		13 cases
Clay colored stools in 6 of the		13 cases
Duration of symptoms before reoperation		3 weeks to 7 years
Average duration of symptoms before reoperation		12.7 months
FINDINGS AT REOPERATION IN THE TWENTY-FOUR CASES		
Pancreatitis		17 cases
Grade 1	4 cases	
Grade 2	7 cases	
Grade 3	5 cases	
Grade 4	1 case	
Cholangcitis		3 cases
Enlargement of the liver		3 cases
Enlargement of the spleen		1 case
Small granulating mass at stump of cystic duct		2 cases
Regional adhesions of the usual type		18 cases
Common duct dilated in		24 cases
No actual pathologic changes demonstrable		2 cases
Appendicitis		5 cases

The gallbladder was found diseased in all of the twenty-four patients; it contained stones in fifteen. Stones were found in the common duct in two instances. Pancreatitis was an associated lesion in four, and there may have been other lesions of which there was no record. The appendix was diseased in eight. These are the usual pathologic lesions encountered in operations of this type.

TYPE OF ORIGINAL OPERATION

Primary cholecystectomy was performed in nineteen cases and appendectomy was performed secondarily in thirteen of these. Cystostomy, followed later by cystectomy, was performed in five. The common duct was opened in one.

SYMPTOMS AFTER CHOLECYSTECTOMY

The time of onset of symptoms after operation varied from a few weeks to four and a half years. In nine of the cases, the symptoms appeared during convalescence. In the remaining fifteen they appeared on an average of two months after operation. Severe colicky pain was present in all cases. Chills and fever were associated in two cases. Jaundice with the attacks was noted in thirteen cases, and in six of these the stools were clay colored. The duration of symptoms before reoperation varied from three weeks to seven years, the average being twelve and seven-tenths months.

In twenty-three cases a diagnosis of obstruction of the common duct due to stone or pancreatitis was made. This diagnosis was based on severe hepatic colic after cholecystectomy, which occurred in attacks, and was often associated with chills, fever, intermittent jaundice and, occasionally, clay-colored stools. Pancreatitis was diagnosed in one case; malignancy was suspected in one, and there was evidence of biliary cirrhosis in one.

FINDINGS AT SECOND OPERATION

The principal lesion noted was pancreatitis, which was present in seventeen of the cases. Undoubtedly, in most of these seventeen cases, some change in the pancreas existed at the time of the first operation, but it was not recognized. It is not likely that pancreatitis would develop as a result of removal of the gallbladder. The degree of involvement of the gland was graded on a basis of 1 to 4. Four cases were graded 1; seven cases, 2; five cases, 3, and one case, 4. The pancreatic lesions were determined by the palpating hand, and in a few instances by inspection of the gland. In no instance did the surgeon get the impression that the gland was malignant. The pancreatic lesions did not cause obstruction of the common duct, so far as could be determined at the time of the operation. The common duct was opened and explored in all cases; probes and forceps passed freely into the duodenum.

There was evidence of cholangeitis in three cases, of hepatitis in two; the regional lymphatic glands were enlarged in two, the liver was enlarged in three, and the spleen in one. The common duct was dilated beyond normal size in all the cases. In two cases small granulating masses were found in the stump of the cystic duct. A diseased appendix was found in five. Adhesions of the usual kind following operations on the gallbladder were present in eighteen, but none of these caused obstruction of the ducts and were not considered responsible for any of the major symptoms. In two cases no actual lesions were found, although common duct drainage was established for purely empiric reasons.

TYPE OF SECOND OPERATION

The common duct was opened and explored. In twenty-three of the twenty-four cases drainage of the ducts was established, usually by a Robson hepaticus drain. In two instances, the duct was closed tightly by suture after the exploration. Appendectomy was performed secondarily in five cases and excision of the stump of the cystic duct in two. In cases of drainage of the ducts, bile discharged through a tube, or through the fistulous tract, for from three to four weeks. One patient died in the hospital from hemorrhage, cholangeitis and biliary cirrhosis.

Table 4.—*Type and Results of Second Operation*

TYPE		
Cholecystostomy		22 cases
Cholecystotomy		2 cases
Excision of the stump of the cyst duct, secondarily		2 cases
Appendectomy, secondarily		5 cases
RESULTS		
Able to trace 22 of the 24 patients		3 deaths
Died in hospital from hemorrhage and cholangeitis	1	
Died, cause unknown	1	
Died, "general collapse" two years after operation	1	
Complaining of former symptoms		3 cases
Biliary cirrhosis	1	
Attacks severe pain and clay-colored stools	1	
Discomfort in epigastrium (not colicky in nature)	1	
Entirely relieved of all symptoms		16 cases

Follow-up letters were sent to all of the patients in an endeavor to learn their present state of health. Information was obtained concerning the ultimate result in twenty-two instances. Three patients are dead. One died in the hospital after the operation, one died of unknown causes after leaving the hospital, and one died from "general collapse" two years after the operation, but had been completely relieved of the symptoms for which the operation was performed. Three patients still complain of their former symptoms, one has biliary cirrhosis, one has severe attacks of pain associated with clay-colored stools, and the other, although still having pain and discomfort in the epigastrium, does not have the severe colics of which he complained before the operation. Sixteen patients have been entirely relieved of their symptoms, in most instances in from four to six weeks after the operation. One continued to have symptoms for one year and another for four years, but both are now in good health.

These results seem to justify the course of surgical treatment which has been carried out on this group of patients. As usual, empiricism has led the way; it remains for theory and experimentation to establish the correct explanation.

In all probability, the cause of the severe colics from which these patients suffered was not stones or other obstruction in the ducts, because at operation the ducts were carefully explored; bile flowed freely and was apparently normal, and scoops and probes could be passed easily down the ducts. Intrahepatic stones were not the cause, as none were found, and yet the patients were relieved by drainage of the ducts.

Table 5.—*Forty-Seven Cases of Stricture of the Bile Ducts*

Findings at primary operation:	
Stones in either the gallbladder or cystic duct	28 cases
Stones in the common duct	8 cases
Cholecystitis, only	12 cases
Empyema	5 cases
Primary stricture of the common duct	5 cases
Type of primary operation:	
Cholecystostomy followed by cholecystectomy	15 cases
Primary cholecystectomy	30 cases
Choledochotomy (stones in the duct in 7)	10 cases
Primary reconstruction common duct for stricture	5 cases
Total primary and secondary cholecystectomies	42 cases

The explanation appears to lie in the persistence of infection in the pancreas and liver, and, in a few instances, in the appendix. Two patients were completely relieved by removal of the diseased appendix, and the common duct, after being explored, was closed tightly by suture. In a considerable number of cases of cholecystitis the pancreas is involved, probably by ymphatic extension from the infected gallbladder. In most of these the pancreatitis subsides after the removal of the gallbladder. It is quite likely that, in a small percentage, the infection in the pancreas will persist. If the infection is primary in the pancreas, t would not, of course, be relieved by cholecystectomy. t is known that pancreatitis can cause jaundice without marked intraductal obstruction. In such cases the gallbladder and common duct are dilated, which is evidence of the fact that the gallbladder possesses an important unction as a tension bulb. These patients do not have pain. When the gallbladder is removed, the tension is emoved and temporary or transient swelling of the pancreas causes biliary obstruction; the back pressure and distention of the extrahepatic and intrahepatic ducts is the same as that caused by stones in the duct.

After reviewing the histories of these patients, we are convinced that an accurate diagnosis cannot always be made. The picture is that of intermittent biliary obstruction, and the usual cause is stone in the common duct. The surgeon should not be disappointed if he occasionally fails to find stone. Drainage of the ducts will relieve the symptoms in most instances.

STRICTURE OF THE COMMON DUCT

A continuation or a recurrence of the symptoms after the gallbladder has been removed may be due to stricture in the common duct; a series of attacks of colic, beginning a few days after the operation, are not uncommon in cases of cholecystectomy; these disappear at the end of about two weeks. In some instances, the symptoms probably indicate the passage of a small stone through the duct, or the fact that the duct was obstructed by the accumulation of mucus. The latter seems more likely, since it has been shown experimentally that mucus may accumulate in the duct in such a way as to cause obstruction (Rous). It is also possible that these symptoms may be the result of slight and temporary narrowing or stricturing of the common duct, resulting from a technical step in the operation. Inflammatory reaction around the duct and the formation of hematomas might cause these conditions. If the removed gallbladder had been completely destroyed by the inflammatory changes, then compensatory changes would have occurred; on the other hand, if the gallbladder had not been completely destroyed, then these changes would undoubtedly be completed after cholecystectomy. I believe that these colicky attacks, occurring so soon after the operation, were due to changes in the common duct. In this particular type of case there are frequently several attacks of severe pain with sudden onset, usually requiring morphin. The attacks are exactly like the original colics. There is usually no jaundice. In certain cases, however, the presence of inflammation in the pancreas and liver must be considered; not all of the difficulty should be attributed to changes in the common duct. Usually from one to three or four attacks complete the trouble and there is no further evidence of stone, stricture or inflammation.

Table 6.—*Forty-Seven Cases of Stricture of the Bile Ducts*

Symptoms* of stricture:		
Jaundice		40 cases
Intermittent	28	
Constant from onset but varying in degree	12	
Biliary fistula		14 cases
Constant	5	
Intermittent	9	
Severe hepatic colics		23 cases

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* The time of onset of the symptoms varied widely from a few days in two cases in which a stricture of the common duct was found at a second operation and probably existed at the time of the primary operation, to eight and one-half years. In one case in which the stricture was probably due to injury of the duct, the symptoms did not appear until four years later. Omitting the two extremes, nine weeks seemed to be a fair average for the time of appearance of the symptoms.

Table 7.—*Forty-Seven Cases of Stricture of the Bile Ducts*

Location of the stricture:		
Juncture of cystic with the common duct		27 cases
Common duct		17 cases
At the papilla		2 cases
Hepatic duct (might have been spasm)		1 case
Causes* of the stricture:		
Definite notation made in surgical records		16 cases
Injury	5	
Ulcerating stone cystic duct	3	
Stone in the common duct	8	
Cause of the stricture not stated		31 cases

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* It is very probable that in the twenty-seven cases in which the stricture was located at the juncture of the cystic with the common duct, the etiologic factor was injury at the time of the removal of the gallbladder. In seven cases, stones were found above the stricture.

A true stricture of the common duct is usually the result of error in technic at the time of the original operation on the gallbladder. While it is possible that a stone which has been in the common duct for a long time may cause necrosis of the mucous membrane, or even penetrate the common duct and allow bile to escape, nevertheless it is a fact that stricture of the common duct very rarely follows removal of stones from the duct. There may be narrowing of the duct at the point from which the stone was removed, but with removal of the stone and possibly slight dilatation of the duct a normal sized lumen is restored and maintained.

In the records of forty-seven cases of stricture of the common duct which Burden and I reviewed recently, we noted, in five cases, this suggestion of a stricture of the duct at the point of lodgment of the stone. By dilatation, and in some instances by severing the strictured tissue, the patients were permanently relieved. All but five of the strictures followed some type of operation on the gallbladder or ducts. In these five cases, the stone was present in the duct at the time of the first operation. There were stones in the gallbladder or cystic duct in twenty-eight of the forty-seven cases, cholecystitis in twelve, and empyema of the gallbladder in five. In only eight cases were there stones in the common duct; in only ten cases was the common duct opened at the time of the first operation. Stones were present in seven and absent in three of the ten cases. It is of interest that of forty-seven cases in which a stricture of the common duct occurred after operation on the gallbladder, in only fifteen was the duct operated on at the time of the primary operation. Undoubtedly, in some of these the duct was injured, but the injury was not recognized.

It is difficult to explain just what occurs in cases in which, to all appearances, the course is perfectly normal for from several months to a year following cholecystectomy, after which time symptoms recur and a strictured duct is revealed. As we have observed such patients, their symptoms consist of intermittent, colicky attacks accompanied by jaundice, with intervals of complete remission, although the jaundice persists for a long time after the pain subsides. This has occurred in cases in which no operation was performed on the duct primarily, and yet a stricture was found at the second operation. While it is possible that some inflammatory change occurred within the duct, it seems more likely that the stricture, even though occurring some time after the operation, was probably the result of inflammatory changes in the tissue around the duct, which, as it closed down, produced narrowing of the lumen of the duct. It was formerly the custom to place considerable drainage gauze, tubes or rubber tissue in the wounds in these cases, and it is reasonable to believe that all of this foreign material caused much reaction in the surrounding tissue. A dense scar might result, which, in contracting, might interfere with the bile duct. I have not observed stricture in cases in which no drain, or only a very small one, was inserted, and I am inclined to believe that strictures of the common duct would be less common or would not exist if no drain were used. Any scheme whereby stricturing of the duct can be avoided should be considered because of the seriousness of the complication and the risk in correcting it and also because of the fact that a recurrence of the condition often occurs in cases in which the immediate result was satisfactory. Some of these patients have been operated on several times for the stricture; thirteen of the forty-seven have been operated on more than once.

THE FORMATION OF STONES IN THE COMMON DUCT AFTER REMOVAL OF THE GALLBLADDER

The statement, so often made, that stones will form more readily in the common duct after the gallbladder has been removed, is, I believe, usually made on hypothetic grounds. It has been contended that if the concentration of bile in the gallbladder is a factor in the formation of stone, then the loss of the gallbladder transfers this function to the common duct. Experimental data seem to show that such concentration cannot occur in the bile duct, and the dark, heavy, concentrated bile often found in the gallbladder is not seen in the common duct.

The symptoms of stone in the duct often occur too soon after the first operation for reformation of calculi, and in most instances these stones must have been present at the time of the first operation. It seems to me that it is impossible to rule out the presence of stones in the intrahepatic ducts and that, in spite of all precautions, calculi may occasionally be overlooked.

Table 8.—*Forty-Seven Cases of Stricture of the Bile Duct* *

Types of operation:	
Dilation and incision	8
Excision, closure over tube or without tube	10
Plastic union of duct to the stomach or duodenum	15
Fistulous tract utilized (not satisfactory)	1
Hepaticoduodenostomy	13

* A second operation for a new stricture was performed in thirteen cases. The average time of appearance of symptoms in the thirteen was five and one-half months. Two patients had three operations.

Attempts have been made to trace patients from whom the gallbladder was removed a number of years ago. I hoped that the data obtained might enable us to arrive at some conclusion with regard to the proportion of cases in which stones do or do not form in the common duct after the gallbladder has been removed. These patients had all been operated on more than twenty years before; many who were old at the time of the operation have since died of intercurrent disease.

Follow-up letters were sent to the first 100 patients on whom cholecystectomies were performed in the Mayo Clinic (between 1896 and 1903). Cholecystectomy and choledochostomy were performed on thirteen patients. Five of these had cholecystitis and choledocholithiasis; seven had cholecystitis and cholelithiasis, and one had malignancy. Only one of the thirteen died, a patient with cholecystitis and choledocholithiasis. Nineteen of the eighty-seven cholecystectomies were performed for cholecystitis, with one death; sixty-seven were performed for cholecystitis and stones, with four deaths; one was performed for malignancy, and the patient died. The average mortality for the entire group of 100 patients was 7 per cent.

Thirty-two of the letters were answered either by the patient or by a relative. Information is available concerning thirty-nine patients, including patients who died as a result of the operation. Thirteen had died since leaving the hospital, at periods varying from two months to twenty-two years after operation. Eight of the thirteen had not had biliary symptoms after the operation; it was impossible to determine this point in four cases. One patient had had symptoms referable to the biliary system and four years after cholecystectomy a choledochostomy had been performed with he removal of seven stones from the common duct. So far as we know, this is the only patient who developed common duct stones after cholecystectomy.

Nineteen of the thirty-two patients are still living and were operated on from twenty to twenty-seven years ago; the youngest is now aged 46 and the oldest 77; the average age is 63 years. All but one of the patients report that they are in good condition; this patient has symptoms not referable to the biliary system. None of the nineteen patients has had symptoms suggestive of common duct stone or any other biliary disorder, and naturally they have had no further operations on the biliary tract.

The striking feature of this series is that, in spite of the long time that has elapsed since cholecystectomy, only one of the thirty-two patients traced later developed common duct stone.

SUMMARY

1. When the gallbladder is removed or destroyed, he remaining extrahepatic bile ducts generally dilate o several times their normal size, and the sphincter at he ampulla becomes incompetent. So far as can be estimated, the resultant physiologic changes are of ittle, if any, consequence.

2. One of the causes for the continuation or the recurrence of symptoms after the removal of the gallbladder is a stone in the common duct. Usually a stone in the duct can be located and removed, but occasionally one may pass up into the intrahepatic ducts and unavoidably be overlooked.

3. Symptoms may continue for a time after an operation on the gallbladder because of the accumulation of mucus in the ducts. Colicky attacks of this origin may occur for two or three weeks before they finally subside.

4. Changes in the bile ducts resulting from removal of a gallbladder which was not entirely functionless may be the cause of symptoms very similar to the original hepatic colic. It has seemed to us that some of the persistent symptoms following gallbladder operations may be due to such changes.

5. The continuation or the recurrence of symptoms n twenty-four cases in which we reoperated was probably due to infection in the pancreas or liver or both. The expectant diagnosis was common duct stone, but no stone was present and there was no evidence of one having passed. Most of these cases were permanently relieved by drainage of the duct.

6. In our review of forty-seven cases of stricture of he common duct we found only five in which the stricture may have been the result of necrosis or destruction of the mucous membrane of the duct, due o the presence of a stone. The gallbladder was operated on in all forty-seven cases, but the common duct was opened in only fifteen, so that a stricture of the uct resulted in the remaining thirty-two, following an operation on the gallbladder. In most instances, these trictures were probably due to technical difficulties nd scar tissue. This condition will not occur so frequently in the future as in the past, because less bdominal drainage is being used.

7. From a study of the end-results in operations on he gallbladder, we believe that stones very rarely form n the common duct after the gallbladder has been emoved. We have recently had reports from a considerable number of patients operated on more than wenty years ago, and in only one case is there any evidence that a stone occurred in the duct at any time after the operation on the gallbladder. In some of these cases stones were present in the ducts at the time of the original operation.

THE DIAGNOSIS AND MANAGEMENT OF STONES IN THE COMMON DUCT

REVIEW OF FIFTY CASES *

WILLIAM D. HAGGARD, M.D.
Professor of Surgery, Vanderbilt University Medical Department
NASHVILLE, TENN.

In 273 operations on the gallbladder and ducts on 271 patients from 1917 to 1922, seventeen, or 6.2 per cent., had stone in the common duct. We have a list of thirty-three other operations for stone in the common duct prior to 1917. The mortality of the fifty patients was 10 per cent.

The average age was 52 years. The oldest patient was 77 years of age, and the youngest, 27 years. All the women were married, and 57 per cent. had one or more children.

In the registration area during 1918 there were 2,458 deaths from biliary calculi, of which 72 per cent. were women.

In our series, 36 per cent. had a history of typhoid fever, and 18 per cent. were treated for what they called "typhoid malaria." All the women in the series who had not borne children had had typhoid fever.

The duration of the symptoms was fourteen and eight-tenths years. It is remarkable how long these patients suffer before they bring themselves to operation. The stone, of course, was not in the duct all this time. The shortest duration of symptoms was one and one-half years, and the longest, forty-one years.

The onset began with the characteristic colic in 90 per cent. of the cases. Eight per cent. began with indigestion only.

The attacks of pain varied from six to 100 and in some cases there were long periods during which the patients were free from symptoms. All had attacks of pain in the upper right quadrant at some time during the illness. There were 45 per cent. who described the pain as a colic; 27 per cent., as cramping in character; 18 per cent., as a dull aching pain; and 10 per cent. of the patients had a sharp, cutting, knifelike pain. The pain radiated to the back in 45 per cent., to the shoulder in 64 per cent., and to the chest in 53 per cent. of the cases. In one instance only was there no radiation of pain whatsoever, and in one other case the patient described the pain as without radiation, but stated that it cut off her breath. The pain radiated to one or more of these places in many instances. In 90.7 per cent. of the cases the pain was severe enough to require morphin hypodermically for relief.

There was a history of chills in 81.1 per cent. of the cases. The chills varied from three or four to as many as 100 or more. Many of the patients had been treated for malaria without any benefit.

Fever of some degree occurred in practically all of the cases. Not all of these presented the characteristic steeple chart temperature.

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Jaundice of varying degree, from one to many attacks, occurred sometime during the illness of nearly 90 per cent.

There were 90.3 per cent. who had soreness and tenderness in the right upper quadrant which varied from an exquisite degree to a very slight tenderness which was hard to elicit.

More than half of the patients complained of indigestion between spells. There were two thirds who had lost both weight and strength. The greatest loss occurred in a woman, aged 45, who had lost 50 pounds (23 kg.) in eight months; another woman, aged 27, had lost 40 pounds (18 kg.) in a few months. The important point about these two cases was the differentiation from cancer, by the inconstant jaundice, coming and going, and the typical chills and fever and occurrence and radiation of pain .

At operation, the common duct was sometimes enormously dilated and completely filled with stones. The duct was dilated in the great majority of cases. Courvoisier's law, i. e., a contracted gallbladder from long antecedent cholecystitis with stones, was borne out in more than 70 per cent. of the cases. In nearly half of the cases the gallbladder contained stones also, and was removed for pathologic conditions, such as adhesions and fistulas in more than half. In some instances the dilated cystic duct after the removal of the gallbladder was utilized as a means of draining the common duct.

In operating for stones in the gallbladder, it is wise, in view of the danger of stone and infection, to open and explore the common duct whenever it is markedly dilated, whether one can palpate a stone or not. It is surprising how frequently small stones and thickened bile that would in all probability cause stones later will not be found unless the duct is exposed and drained. In a number of cases, the presence of white bile in the common duct was noted. Obstruction had been in existence a long time. In chronic stagnation, the bile pigment is absorbed and is replaced by the mucoid secretion, which has a clear rather than white appearance, but has been given the name of "white bile."

Intolerance of the gallbladder starts the stone in motion toward the common duct. The stones may or may not make a pause. If the stone is not so large that it causes a collection of bile behind it, then it may remain as quiet as in the gallbladder, not only for weeks but for months. It may suddenly disclose itself by colics, jaundice and fever. Then, as in cases of stones in the gallbladder, the advent of infection determines the severity of the case. A single stone may be so tightly wedged in the duct that not a drop of bile can pass it; it may fit so loosely or irregularly that the bile can readily flow by.

Complete occlusion of the duct is rare. A stricture or growth within the duct or tumor from without often produces it with a distended gallbladder. An acute obstruction of the common duct by stone is always complete. The stone allows no passage of bile, and during this time the obstruction is absolute and jaundice occurs rapidly; and, after attaining its maximum intensity, it remains and has only a slight degree of variation for a number of days or weeks, when it frequently clears up. The occlusion of the duct by stone rarely lasts over three months. By or before this time there are changes that occur in the duct, as thinning of the wall from pressure and possibly infection. This allows the stone to become loose. Cholangeitis with stone is characterized by rigor often preceded by colic, followed by rapid elevation of temperature and as sudden and rapid a fall, then a deepening of the jaundice, and later a lessening of the tinge.

In the vast majority of cases in which the stone produces a partial block, when the stone becomes fixed the duct behind it dilates, and its lumen attains the circumference of the finger or a larger size. The bile flows by the stone, which floats about in the dilated duct. It then resembles a ball-valve, at times blocking the duct absolutely, at other times allowing a flow of bile. No operation should be concluded until a careful search is made of the entire duct where a single stone is found. The dilatation of the duct may be very considerable. There is a specimen in Guy's Hospital Museum in which the common duct formed a thick walled cyst, 6 inches in diameter.

In only about 13 per cent. of cases (Courvoisier) with stone in the common duct is there any distention of the gallbladder. The gallbladder is usually found contracted, shriveled, thickened and, in the majority of cases, buried in dense adhesions. It would be a physical impossibility to distend the gallbladder. Pressure on the common duct from the outside, as in cancer of the head of the pancreas, causes distention of the gallbladder.

The symptoms of stone in the common duct are often trivial and entirely wanting at times. Stones are found in the common duct when the symptoms are wholly lacking—the so-called silent stone. The stone may be small and fit so loosely in the duct that there may be no obstructions or cholangeitis. Occasionally, one finds a stone lying quietly in a diverticulum-like pouch of the duct.

The pain, when present, is either dull or colicky in character, occurring in spasmodic attacks, accompanied by a rigor or chill, followed by elevation of temperature that rapidly runs up to 102, 103 or 104 F., and as suddenly drops to normal. This temperature angle is quite characteristic, and has been designated as the "angle of a cholangic infection." It has a characteristic "steeple" form, as there is a rapid rise and fall with each attack. In the succeeding hours, jaundice appears which gradually deepens in its tinge. Following an attack, the patient feels well while the jaundice recedes; then the fever again appears. This syndrome, called the "intermittent hepatic fever of Charcot," is often incorrectly diagnosed as malaria. It is infectious and is produced by the movement of the stone, and is similar to the urethral chill and fever following instrumentation.

The variation of the jaundice is quite characteristic of chronic obstruction of the common duct. Thus, one finds naturally the stools at one time brown and at another time gray; the urine now dark then clear. If the attacks of jaundice increase, the skin assumes a grayish green tinge that is quite characteristic. Itching of the skin is most constant and sometime intolerable.

The complication of suppurative cholangeitis is a rare but often fatal one. Abscess or abscesses of the liver are denoted by a temperature that remains steadily high, with severe and uncontrollable chills.

The pain in obstruction of the common duct by stone is almost never absent. In obstruction by tumor, pain is rare, but we have been misled by pain and the presence of fever in two cases of malignancy. In obstruction by tumor, jaundice is very intense, dark, mahogany-like, seldom variable, and stools are constantly clay colored. Kehr says that his clinic attendant would often say: "There is a patient here with jaundice. He hasn't gall stone, only cancer." Painless jaundice that is intense, dark and unvarying in an elderly person, lasting over two months, is usually cancer of the head of the pancreas. It is almost constantly associated with a distended gallbladder. Catarrhal jaundice runs its painless course in six or seven weeks, and should be waited on without impatience. The duodenal tube (Lyons method) seems to add little that is practical to the other methods of examination. The importance of the roentgen ray as a method of detecting these stones is not inconsiderable. Ten out of our last series of seventeen patients were roentgenographed. In eight of the ten, the roentgen-ray report as to the presence of stones was found to be correct. This is a small roentgen-ray series, but the roentgen ray has a valuable corroborative method in obscure cases. All roentgen-ray reports must be taken, of course, in connection with the history and physical findings.

More and more the evidence points to the blood stream as the chief agent in infection in the bile passages. Judd called attention, some years ago, to the fact that the "strawberry gallbladder" is a type of cholecystitis seldom associated with calculi. Gallstones are not infrequently found in gallbladders that are normal in appearance, and cultures of the contents of the bladder are sterile; but a culture from the walls of the gallbladder may reveal *Streptococcus viridans*.

A small stone blocking the ampulla will divert bile and infection into the duct of Wirsung, and establish an acute hemorrhagic pancreatitis with its consequent fat necrosis, which is a mortal complication in the average case.

The common duct cases, then, are the late and neglected cases. The mortality is considerably greater, about ten times greater than for stones in the gallbladder. At the Mayo Clinic it was 8.6 per cent. In dealing with common duct cases one is dealing indirectly with the liver, whereas in gallbladder stone the liver is a thing apart.

An animal can live only a few hours after excision of the liver, at the longest eight hours. Crile and his co-workers have called attention to the very close relation between the brain and the liver. The brain cannot function in the absence of the liver. The cells in the brain rapidly disintegrate within an hour after excision of the liver; the electric conductivity of the brain is opposed to that of the liver; that is, when the electric conductivity of the brain is increased, that of the liver is decreased. The liver was found to have the highest temperature of any organ in the normal body. After complete ligation of the liver, the temperature of the brain begins to fall immediately and continues to fall until death. The length of life after excision of the liver was equivalent to the length of time an animal can live under ether anesthesia. Apparently the brain cannot function or survive after the liver ceases to function. In common duct stone, the liver function is necessarily interfered with. With jaundice there is back pressure on the liver and stagnation of bile. This means a circulatory congestion, a swollen liver with its internal respiration impaired. The same thing occurs in nephritis: the kidneys are swollen, congested and inflamed, and the internal respiration of their cells is damaged. In these cases, however, we have an accurate method of measuring and establishing the impairment of the vital renal function by means of blood chemistry, an estimation of the phenolsulphonephthalein output.

Recently, Rosenfield and Schneiders brought out a test for liver function. Phenoltetrachlorphthalein is the dye used intravenously. It is excreted in the normal individual almost entirely by the liver. The blood serum is examined, and the amount of dye estimated by means of colorimetry. Rosenthal demonstrated that, if the liver did not function, the dye would be found in the blood stream, which in color would equal 10 mg. of dye in 100 c.c. of water. This is the 100 per cent. standard. He has further shown, in a series of demonstrations in normal cases, that the liver will remove all but 3 to 7 per cent. of the dye in fifteen minutes, and in an hour the blood stream is free of the dye. This test of liver function, in a series of cases of toxemias of pregnancy, proved itself very efficient as an index of the vital liver function. In cases of common duct obstruction, it is of considerable importance as an indicator of how much surgery the patient will stand.

The management of common duct stone is a delicate and exacting matter, compelling all the surgeon's judgment, experience and intrepidity. Common duct obstruction is analogous to obstruction at the neck of the urinary bladder due to prostatic hypertrophy. In both cases there is a partial or complete obstruction to evacuation of vital secretions, which gradually impairs the functions of these organs on which life depends. It has been indubitably demonstrated, in cases of prostatic hypertrophy, that mortality in operations on the prostate is due to impaired renal function. This principle holds in common duct stone, namely, that a good or bad issue depends on the degree of impairment of liver function. The surgery of these two conditions is very similar. In advanced cases of both types the removal of the stone or the prostate is not of surgical importance, nor can it be done except with grave risk. On the other hand, the urgent requirement is the relief of obstruction. It is safer to do a two stage operation in these dehydrated and jaundiced cases of common duct stone in the first instance, simply draining the gallbladder or duct above the stone, as advocated by Crile, allowing the liver free drainage; and, when the jaundice has subsided and the congestion and swollen liver returned to normal, the second operation for removal of the stone can be safely done. This fractional method is applied to the acute group of cases of jaundice with infection of severe grade. When to use it depends on the operator's judgment. There are many factors that will enable one to decide the condition of the patient, the degree of jaundice and its duration, as well as the clotting time of the blood and the phenoltetrachlorphthalein test. Jaundiced patients are apt to bleed at any time after the operation for at least ten or twelve days, especially if clotting time is above nine minutes. The bleeding may occur from the wound, the gastro-intestinal tract, the nose or any mucous membrane. It generally takes the form of oozing. It may be most difficult to control The coagulability of the blood should be brought within as normal limits as possible prior to any type of operation.

Walters of the Mayo Clinic studied the causes of death in patients with obstructive jaundice at the time of operation. He found that more than 50 per cent. of the patients who died and who had obstructive jaundice at operation died of intra-abdominal hemorrhage, whereas, among those who were not jaundiced but died after operation, intra-abdominal hemorrhage occurred in only 6 per cent. It is essential also to determine the calcium time of the blood, which represents the time required for 1 c.c. of blood to clot in a test tube in the presence of 6 drops of a 5 per cent. solution of calcium chlorid. The calcium time will be lower than the time required for the blood alone to clot. Lee and Vincent have shown that the clotting time of the blood can be lowered to the calcium time by doses of calcium lactate taken by mouth each day for three days. Bile pigment in the blood is toxic to the patient, but it becomes less toxic when combined with calcium (King and Stewart). Calcium has its best effect when administered intravenously. It is not readily absorbed from the intestinal tract. Walters reports the intravenous injection each day for three days of from 5 to 10 c.c. of a 10 per cent. solution of calcium chlorid. The coagulation time of the blood is apt to rise in a few days after the operation and the patient bleed as a late complication. Large amounts of water are essential for the patient, and it has been found that carbohydrates preserve the proteins of the body during a state of toxemia. These patients should be fed large quantities of sugar.

Transfusion may also be done to lower the clotting time, to reduce the toxemia and to combat oozing.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. JUDD AND HAGGARD

Dr. Gatewood, Chicago: Among 500 consecutive cholelithiasis cases in which operation was performed, I found fifty-three, or 10.6 per cent., of common duct cases, a trifle higher percentage than Dr. Haggard reported. The mortality rate was 9.4 per cent., as compared with 10 per cent. in his series, and 8.6 per cent. in the Mayo series. Our oldest patient was 76, his 77; our youngest 23, his 27. Our typhoid and malaria statistics were not as high as Dr. Haggard's probably because he comes from a district in which these diseases are much more prevalent. It was a rather striking fact that, in nearly all of the common duct cases, the onset dated back a number of years. Almost all of our patients had been jaundiced at some time or other, although thirteen were not jaundiced at the time of operation. Dr. Haggard has so thoroughly covered the differential diagnosis that there is little to say. Exclusive of suggestive shadows which, taken in conjunction with the history, enable one to make a tentative diagnosis, only from 15 to 20 per cent. of our cases were positive from a roentgen-ray standpoint. We have often studied fluctuation of bile in the urine by placing single specimens in a row and noting the fluctuation from specimen to specimen. This fluctuation is even more important than the variation from day to day in differentiating malignancy with silent and ever increasing jaundice from gallstone obstruction. In regard to Dr. Judd's paper, it gives me considerable satisfaction to learn that other people have patients who have attacks of gallstone colic shortly after the removal of the gallbladder. I am inclined to attribute these attacks to an inflammatory process with spasm, though the possibility of a small stone being left behind must be considered. The rareness of the formation of stones in the common duct after cholecystectomy, which Dr. Judd mentioned, is very encouraging, because a number of men in the last few years have ceased to do cholecystectomy, believing that the resultant dilatation of the common duct was responsible for the later symptoms. The lesson to be learned is that early accurate diagnosis and treatment will reduce the mortality of common duct cases from 8 to 10 per cent. to from 1 to 3 per cent. that of cholecystectomy. Careful examination of the common duct should always be made at the time of cholecystectomy, regardless of the symptoms.

Dr. A. S. Lobingier, Los Angeles: The seriousness of permanent obstruction of the common duct was impressed on me seventeen years ago by a case of a fixed calculus in the ampulla of Vater, and another one midway in the pancreatic groove. Because I lost this patient, it brought forcibly to my attention the advisability of doing this operation in two stages in those cases in which there was retention of bile with intense cholemia. Ever since that time I have drained the gallbladder, eliminated the cholemia and then treated the condition in the common duct. Robson called attention twenty years ago to the marked inflammatory change in the liver, and especially in the pancreas, from obstructed flow of bile. Usually a cholecystitis is associated with it. It is obvious that we should consider this subject from the standpoint of infection of the liver itself, and we shall have to go back to some of the clinical observations of the older writers and older clinicians who used vigorous cholagogues to get adequate drainage of the liver. The principle involved is one of drainage; drainage of a congested and chronically infected liver with the intralobular spaces resembling microscopically the change found in impairment of the right heart. Years ago, Babcock wrote of the serious deterioration of the myocardium in chronic cholecystitis. In addition to placing emphasis on the common occurrence of myocarditis in gallduct and liver infection, I should like to call attention to the fact that the musculature of the alimentary canal suffers in these cases to such a degree that it and the cardiac complex offer additional reasons for draining the liver through the gallducts. I wish to suggest a method of drainage of the liver and bile ducts whereby the gallbladder is resected 1½ inches from the common duct and a good, firm drain, a No. 24 rubber catheter, is fixed with chromic catgut into this stump of the gallbladder, and maintained for four weeks, the operation being preceded by a course of cholagogues and followed by proper treatment to stimulate the activity of the liver. I believe that by this method of drainage, which is very simple, we may do this operation very quickly and effectively, and that we shall accomplish very much more than we have in the past by draining the gallbladder alone or removing it without drainage of the cystic duct. Obviously, this technic, which embraces both cholecystostomy and cholecystectomy, is not applicable when the cystic duct is occluded.

Dr. J. Shelton Horsley, Richmond, Va.: I suppose that all of us who have had experience in gallbladder surgery, particularly surgery of the common duct, have had the embarrassing experiences suggested by the authors; that is, our patients have colicky pains occasionally of a somewhat similar character to the pain they suffered previously to operation. In explanation of the pain, stricture and recurring and persistent stones must be included. There is, however, as Dr. Judd pointed out, a group of cases in which we cannot account for the symptoms. Many of these, or possibly all, may be accounted for, as suggested by Graham and others, by assuming that there is a hepatitis with cholecystitis and that there is an exacerbation of this hepatitis which may cause symptoms. As to drainage of the gallbladder, I feel more and more convinced that it is unnecessary to drain the stump of the gallbladder after removal. Murat Willis has called attention to that. There is a little technic in carrying out this principle that is sometimes important and that may make it applicable in more cases. If one attempts to bury the stump of the cystic duct under the peritoneum, it is more likely to leak because, among other things, there is a tendency of these ducts to dilate after the gallbladder has been removed, as pointed out by Dr. Judd and Dr. Mann. If two ligatures are placed on the cystic duct and the ends of the distal ligature are left long, passed through some peritoneal covered fat, sometimes a tag of gastrocolic omentum, or sometimes a tag of great omentum, and tied, this brings peritoneal-covered fat over the stump of the cystic duct. In one case in which the gallbladder was removed by another operator, there was a recurrence of symptoms. I operated and found nothing wrong so far as the previous operation was concerned, but the common duct was greatly dilated. The common duct was opened and no stone could be found. I made an incision of about three-fourths inch in the common duct and the adjacent duodenum and sutured them together with a double row of tanned catgut. This is comparatively simple when there is a dilated duct. This patient recovered satisfactorily.

Dr. R. C. Coffey, Portland, Ore.: The common duct practically always dilates to a greater or less extent when the gallbladder has been removed or has become so diseased that it ceases to function. The question arises, Why does that happen? It is possible and, indeed, very probable that the sphincter of Oddi has something to do with it, but we also know that this is not the only influence that has to do with the dilatation of the duct. For we know experimentally that when we implant the common duct directly into the intestine, the duct always dilates. We know, on the other hand, that if that duct is run along under the mucous membrane for a distance before it enters the lumen of the intestine, the duct does not dilate. As a fistula of the bile tract begins to close, the flow ceases in the daytime for some time before it ceases at night. Kehr called attention to this, and recommended feeding the patient frequently at night, to hurry up the closing of the duct. Terry has done the same thing to prevent dilatation of the common duct after cholecystectomy. Why is this? During active digestion, peristaltic waves are regularly passing down the intestine. In their wake is a relative lowering of pressure, permitting bile to go into the intestine intermittently. During the intervals of digestion, peristaltic waves are fewer and less vigorous, and static intra-intestinal pressure develops. Therefore, the outlet of the bile duct is more constantly closed when peristalsis is least. At least one important cause of the dilatation of the common duct is static intra-intestinal pressure during intervals of digestion.

Dr. E. Starr Judd, Rochester, Minn.: I want to mention one point particularly, and that is the cause of the dilatation of the common duct after the gallbladder has been removed. I think Oddi's sphincter is more of a factor than Dr. Coffey infers from his discussion. Years ago, in two series of experiments on dogs, we removed the gallbladder. In one of these series we removed the sphincter at the end of the duct in addition to doing a cholecystectomy. In none of these cases, uncomplicated by subsequent adhesions, did we get dilatation. I believe that the sphincter is a factor in the etiology of the dilatation that occurs after the gallbladder has been removed.

TREATMENT OF PULMONARY TUBERCULOSIS BY MEANS OF ARTIFICIAL PNEUMOTHORAX

OBSERVATIONS IN SIX HUNDRED CASES DURING TWELVE YEARS *

RAY W. MATSON, M.D.
RALPH C. MATSON, M.D.
AND
MARR BISAILLON, M.D.
Medical Directors, Portland Open Air Sanatorium
PORTLAND, ORE.

The results here recorded are based on the observation of 600 cases of pulmonary tuberculosis in which n artificial pneumothorax has been performed during he last twelve years, with more than 12,000 inflations.

According to the classification of the National Tuberulosis Association, the material consisted of eighty-five ases of moderately advanced and 515 cases of far dvanced pulmonary tuberculosis, no patients in the arly stages having been subjected to treatment. Thus, : will be seen that we have been very conservative in ur selection of material.

We have classified this material into eight main linicopathologic groups:

Group 1.—*Fibrocaseous tuberculosis.* This group consisted f 194 cases of a progressive character in which little or o excavation was demonstrable. Sixty-five cases were modrately advanced, and 129 were far advanced.

Group 2.—*Fibrocaseous cavernous tuberculosis.* This group onsisted of 177 cases of the advanced type of tuberculosis, in all of which cavities were demonstrable by physical diagnostic or roentgenologic procedures.

Group 3.—*Fibrocaseous cavernous tuberculosis with cavity manifestations in the foreground.* This group includes fifty-two cases wherein the cavity manifestations were in the foreground, enormous excavation of lung tissue having taken place, leaving cavities so large that one could not hope for closure by ordinary cicatricial contractions.

Group 4.—*Severe acute infiltrating type of tuberculosis, caseous-pneumonic and caseous bronchopneumonic forms.* This group includes thirty-nine cases of a very acute, rapidly advancing type of disease characterized by extensive invasion, associated with a violent symptom complex.

Group 5.—*Tuberculous pleuritis with effusion.* In this group, we have included twenty cases of exudative pleurisy wherein the clinical history and the physical and roentgenologic examinations clearly indicated an unquestionably tuberculous involvement of the underlying lung parenchyma. We withheld from pneumothorax treatment all patients with the simple exudative variety of pleurisy.

Group 6.—*Severe and uncontrollable hemoptysis.* In this group, we have included four cases in which a pneumothorax was necessitated primarily because of severe and uncontrollable bleeding. Our records show that seventy-nine patients had hemoptysis shortly before or immediately preceding treatment. In many cases the bleeding was severe, but we were able to classify the pathologic condition in all cases, except the four included in this group, because the critical condition of the patients precluded thorough examination, and the bleeding demanded a pneumothorax at once.

Group 7.—*Bilateral fibrocaseous cavernous tuberculosis.* In this group we have placed thirty cases which presented demonstrable cavities in both lungs.

There was a well founded reason for instituting pneumothorax in all of these cases, because of the possibility that a successful compression of the worse diseased side would offer the patient a better chance for improvement or recovery. Great caution was exercised in the selection of material in this group, and in each case the pneumothorax was delayed until activity in the opposite lung had largely subsided, leaving mostly only the presence of the cavity to fear. Of course, there always existed the danger of exacerbation of disease in the opposite lung, but the compression was carried out with this danger constantly in mind.

Group 8.—*Desolate bilateral or "ultimum refugium."* In this group, consisting of eighty-four cases, we have placed our desolate and most hopeless cases, in which a pneumothorax was instituted purely as a therapeutic procedure. In all these cases a pneumothorax was not performed with the idea of accomplishing a cure but rather for the purpose of controlling severe symptoms and prolonging life.

Few patients with pulmonary tuberculosis, diseased to the extent of demanding an artificial pneumothorax, are wholly free from invasion in the opposite lung. A study of our records reveals that out of 453 patients with the fibrocaseous and fibrocaseous cavernous types of disease, 356 had disease in the opposite lung, demonstrable by physical diagnostic or roentgenologic procedures. In 253 cases, the disease amounted to fibrocaseous infiltrations or disseminated bronchogenic extensions.

Estimation of the value of any procedure in the treatment of pulmonary tuberculosis must be based, not only on its immediate influence, but also on the ultimate result after the lapse of a reasonable length of time.

Obviously, it would be unfair to compare the number of patients alive today who were treated ten years ago with the number alive today who were treated two years ago, if for no other reason than that of the natural mortality of disease in general, and of tuberculosis in particular.

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* Read before the Section on Practice of Medicine at the Seventy-ourth Annual Session of the American Medical Association, San rancisco, June, 1923.

* Owing to lack of space, a table summarizing results has been nitted. The complete article appears in the transactions of the Section id in the author's reprints.

In order to reduce the error to a minimum and to enable us to compare the results of treatment of one period with that of any other period, we have divided our study into three epochs of four years each: 1911-1914, 1915-1918 and 1919-1922.

In referring to our summary of end-results, it will be noted that in comparing the number of patients "clinically well' in the epoch 1915-1918 with 1919-1922, our percentage of cures in the latter epoch is considerably smaller than in that of the former. This is explained because of the fact that no patients have been checked as "clinically well" in the 1919-1922 epoch who received treatment later than Jan. 1, 1921, as we have felt that the patient must have remained clinically well for at least one year before he can be so considered. For that reason, these cases have been designated only as arrested ambulant.

Realization of the notorious inaccuracy of statistics led us, at the very beginning of our work, to accumulate and record information regarding all pneumothorax patients. Throughout our work, we have endeavored to maintain contact with all cases, and this has been facilitated because of the fact that few were of the migratory consumptive type, the vast majority being permanent residents of the Northwest.

In order to complete our records, we sent questionnaires to all patients in this series concerning whom there was doubt regarding their present status. When no replies were received, their condition was tabulated as of the time of their disappearance, but none of them were given a better rating than "favorably influenced." Cases were excluded wherein the period of treatment or observation was so brief that reliable conclusions were impossible.

We have not made use of the term "apparently cured" in recording end-results, all cases of this type being considered only as arrested ambulant.

In our final analysis, we again reviewed in detail all records pertaining to each case, including the reexamination of approximately 5,000 roentgenograms and orthodiagrams. We feel, therefore, that these statistics are as accurate as it is possible for us to present.

The end-results of pneumothorax therapy are so intimately associated with, if not actually dependent on, the character of compression that we have tabulated our end-results according to whether the compression was satisfactory, partial or unsatisfactory, or no free pleural space was found.

By "satisfactory compression" we mean that a sufficient degree of compression of diseased lung tissue has been produced which, if maintained, according to our experience, would render the compressed lung, as a source of any symptom, improbable.

We prefer the term "satisfactory compression" to "total collapse" in defining the degree of compression for the reason that a satisfactory compression by no means involves a total collapse of the lung; for, in some instances, even though the lung is compressed only a few inches from the chest wall, it may nevertheless be a satisfactory compression.

Under the term "partial compression" we have placed all cases wherein a satisfactory compression was unattainable. Thus, it is seen that, even though an almost total collapse of the lung is produced, if we were unable thereby satisfactorily to compress diseased lung tissue or to close cavities because of the presence of adhesions, the case was placed in the "partial compression" group for the obvious reason that the degree of compression was not satisfactory.

In connection with "no free pleural space," no explanation is necessary except that cases have not been placed in this class until repeated attempts over all lobes of the lung proved the absence of free pleural space. We have included cases in which there was no free pleural space, since they serve as an excellent control because, aside from the fact that these patients received no compression, their treatment was identical to that given in the compressed cases.

Realizing the great importance of sanatorium education and observation, we have not accepted any patients for pneumothorax treatment unless they were willing to submit to an initial period of sanatorium care. The period of sanatorium treatment was reduced to the utmost minimum compatible with safety, patients being discharged to ambulant care at the earliest possible time. Ambulant treatment and observation in every case was carried on as long as possible, at times under the most unfavorable circumstances, as the vast majority of patients were compelled to early resumption of occupational activities.

DURATION OF PNEUMOTHORAX TREATMENT

It has been our policy to continue pneumothorax treatment as long as possible; and, while the most favorable results are associated with a satisfactory compression over a prolonged period, we have seen good results in cases wherein the period of compression was relatively short.

Of our satisfactory compressions:

Twenty-seven per cent. of the patients received pneumothorax treatment less than six months.

Fourteen per cent. received pneumothorax treatment less than one year.

Fifty-nine per cent. received pneumothorax treatment for one year or more, many of the latter having received pneumothorax treatment as long as five or six years.

Of our partial compressions:

Sixty per cent. received pneumothorax treatment less than six months.

Twenty-seven per cent. received pneumothorax treatment from six months to one year.

Thirteen per cent. received pneumothorax treatment for one year or more.

TOTAL DURATION OF OBSERVATION

Of our satisfactory compressions:

Twenty-nine per cent. were under observation less than one year.

Twenty-four per cent. were under observation from one to two years.

Forty-seven per cent. were under observation from two years to twelve years.

Of our partial compressions:

Sixty per cent. were under observation less than one year.

Twenty-five per cent. were under observation from one to two years.

Fifteen per cent. were under observation for two years or more.

Of our no free pleural space patients:

Fifty-eight per cent. were under observation less than one year.

Twenty-three per cent. were under observation from one to two years.

Nineteen per cent. were under observation for two years or more.

Of the 600 cases selected for treatment:

There were satisfactory compressions in 235.
There were partial compressions in 245.
There was no free pleural space in 120.

It will be noted that these figures bear the approximate ratio of 2:2:1. If this is borne in mind, it will greatly facilitate the study of the summary table.

Inflation was attempted or carried out on the right side in 300 cases and on the left side in 286 cases.

There were fourteen cases in which the compression was bilateral.

The reader is referred to Table 1 for a summary of end-results, as the text will not allow of a detailed discussion.

COMPARISON OF END-RESULTS UNDER THE DIFFERENT DEGREES OF COMPRESSION

Of our 600 patients, 149 are clinically well; eighty-four are arrested ambulant; 274 are dead. The remaining cases were either favorably influenced, temporarily improved or unimproved.

Of the 149 clinically well, 114 were satisfactory compressions; twenty-eight were partial compressions, and seven had no free pleural space.

Of the eighty-four arrested ambulant cases, forty-four were satisfactory compressions; twenty-nine were partial compressions, and in eleven there was no free pleural space.

Of the 274 fatal cases, fifty-two were satisfactory compressions; 142 were partial compressions, and in eighty there was no free pleural space.

Of the 235 patients who had satisfactory compressions, 114 are clinically well; forty-four are arrested ambulant, and fifty-two are dead. The remaining number were either favorably influenced, temporarily improved or unimproved.

Of the 245 patients who had partial compressions, twenty-eight are clinically well; twenty-nine are arrested ambulant, and 142 are dead. The remaining number were either favorably influenced, temporarily improved or unimproved.

Of the 120 no free pleural space (control patients), seven are clinically well; eleven are arrested ambulant, and eighty are dead. The remaining number were unimproved.

While a partial pneumothorax is not attended with entirely satisfactory end-results, it is productive of very beneficial influences, since it holds the disease in abeyance, and prevents extension. It is also of value in ameliorating or relieving troublesome symptoms. It might be inferred from a study of the end-results of partial compression that the procedure is of little permanent value; but a comparative study of the results in our control cases in which no free pleural space was found will show that a partial compression is of unquestionable value; for, against 15.5 per cent. clinically well in the partial compression group, there are only 5.5 per cent. clinically well in the no free pleural space group. Furthermore, a study of our records shows that our end-results from partial compression have been unfavorably influenced by reason of the fact that we have been obliged to include fifty-six partial compressions performed for therapeutic purposes only in the desolate bilateral group, of which forty-nine died. We have also included seventeen partial compressions in the severe acute infiltrating types of tuberculosis in which thirteen deaths occurred, and twelve partial compressions in the bilateral fibrocaseous cavernous tuberculosis group, in which seven deaths occurred.

INFLUENCE ON FEVER

In the 235 satisfactory compressions, 203 patients were febrile before treatment, and 152 patients became afebrile.

In 245 partial compressions, 224 patients were febrile before treatment, and seventy-eight patients became afebrile.

In the no free pleural space group, 110 patients were febrile before treatment, and thirty-four patients became afebrile.

INFLUENCE ON SPUTUM

Of 235 satisfactory compressions, 176 patients had positive sputum before treatment, and fifty-three had positive sputum after treatment.

Of 245 partial compressions, 227 patients had positive sputum before treatment, and 170 had positive sputum after treatment.

Of 120 no free pleural space (control cases), 111 had positive sputum before treatment, and ninety-four had positive sputum after treatment.

The striking influence of a satisfactory compression on positive sputum is apparent from a comparison with the control cases in which no free pleural space was found: After treatment in 218 cases, the sputum was negative after concentration. Of this number, 147 were satisfactory compressions, fifty-four were partial compressions, and in seventeen there was no free pleural space.

OBSERVATIONS CONCERNING THE STATUS OF THE CONTRALATERAL LUNG

In spite of the fact that many observers contend that a pneumothorax is contraindicated in cases presenting more than minimal traces of disease in the other lung, we feel certain that a study of Table 2 will, in part, dispel this belief. If all patients are denied pneumothorax treatment because of the mere presence of disease in the opposite lung, some of them will be deprived of a valuable procedure which offers in many instances the possibility of a complete cure or, at least, an arrestment of their disease.

Table 2.—*End-Results in Four Hundred and Twenty-Three Cases of Fibrocaseous and Fibrocaseous Cavernous Tuberculosis Tabulated in Accordance with the "Status of the Contralateral Lung"*

Status of Contralateral Lung	Character of Compression	Number of Patients	Clinically Well	Arrested Ambulant	Unimproved	Dead
Essentially negative, 97 cases	Satisfactory	56	29	11	3	8
	Partial	25	10	1	4	6
	No free pleural space	16	4	1	3	9
Deep peribronchial infiltration, 103 cases	Satisfactory	49	24	0	0	10
	Partial	33	3	6	6	20
	No free pleural space	21	1	8	8	8
Disseminated bronchogenic caseous infiltration, 40 cases	Satisfactory	15	4	2	2	5
	Partial	21	1	4	4	14
	No free pleural space	4	0	1	1	3
Active fibrocaseous infiltration, 134 cases	Satisfactory	50	24	11	5	11
	Partial	59	4	12	12	27
	No free pleural space	25	0	3	3	19
Quiescent fibrocaseous infiltration, 49 cases	Satisfactory	21	10	1	1	4
	Partial	16	4	4	4	6
	No free pleural space	12	2	4	4	4

Many types of pathologic change may coexist in the lung opposite the compressed side, but in this table, for statistical purposes, we have classified the contralateral lung according to the dominant type.

Our observation concerning disease in the lung opposite the compressed side has convinced us that fibrocaseous lesions involving the upper portion of the lung offer a more favorable prognosis than the disseminated bronchogenic extensions into the lower half of the lung.

Our records show that we have obtained some excellent results in many cases wherein active disease extended from the apex to the third rib in front and the spine of the scapula behind. This disease was characterized by the presence of abundant resonating or crackling râles either on deep inspiration or expiratory cough, and its presence was confirmed by roentgenograms. Yet, in spite of this disease, a compression of the worse diseased side has been accomplished, and we have noted a steady improvement, leading to complete recovery.

If one has to deal with a very active process in the contralateral lung, it is better to allow this activity to subside somewhat before instituting pneumothorax treatment; but this delay always involves the danger of adhesions forming, rendering a pneumothorax impossible. We have eliminated this danger in many of our cases by introducing only sufficient gas to separate the lung from the chest wall, and maintaining this very slight degree of compression, in the meantime observing the behavior of the opposite lung.

We cannot too strongly emphasize the importance of careful and constant observation of the contralateral lung during the whole course of pneumothorax treatment, in order to detect the earliest manifestations of progression of disease or fresh invasion.

OBSERVATIONS ON COMPLICATIONS AND CAUSES OF PNEUMOTHORAX FAILURE

No study of the end-results in the treatment of tuberculosis by means of artificial pneumothorax would be complete without due consideration of the actual causes of pneumothorax failure, as many deaths might be attributed to the therapeutic failure of a pneumothorax when, in reality, the failure of pneumothorax treatment was caused by other factors. In analyzing our records, we find that the 194 compression fatal cases fall into two groups, those which were improved but fatal, eighty-seven cases, and those which were progressively fatal, 107 cases.

In order to arrive at a decision regarding the cause of failure, we have made a careful analysis of each case record, and have ascribed failure to that factor which we considered the real and essential one.

The scope of this paper will not permit of a detailed analysis of the causes of failure or complications developing under treatment, but a summary can be procured from a reference to Table 1. It will be noted that very few patients are recorded as having developed tuberculous laryngitis, tuberculous enteritis, and extension or progression of disease in the contralateral lung during treatment.

It must be emphasized that complications recorded as developing under treatment apply only to those which developed during the actual period of pneumothorax treatment, and we therefore have not recorded those cases in which these complications developed after the termination of the pneumothorax treatment. This applies particularly to those cases of the favorably influenced, temporarily improved and unimproved groups in which treatment was abandoned. Many of these patients already had a tuberculous laryngitis or enteritis, and in others the period of pneumothorax treatment was so short that these complications had scarcely time to develop. Many patients undoubtedly developed a terminal progression or extension of disease after suspension of pneumothorax treatment, but they have also been excluded.

Since the "no free pleural space" patients received no compression, no complications are recorded as having developed under pneumothorax treatment except "pleural shock and gas embolism."

TUBERCULOUS LARYNGITIS, ENTERITIS AND OTHER TUBERCULOUS COMPLICATIONS

In spite of the fact that ninety-four patients on whom compression was performed had a well defined tuberculous laryngitis before treatment, it was the cause of pneumothorax failure in only one case. According to our experience, tuberculous laryngitis does not contraindicate pneumothorax treatment unless it is so severe as to interfere with the proper nourishment of the patient. On the contrary, improvement of a tuberculous laryngitis almost invariably takes place, along with improvement of the lung, and is often dependent on it. Tuberculous enteritis is a much more serious complication, and it is questionable whether any patient should be subjected to an artificial pneumothorax who has an enteritis so severe as to interfere with proper nutrition.

In seventy of our compression cases, a well defined symptom complex of tuberculous enteritis was presented, and its presence was confirmed by physical diagnostic or roentgenologic methods. In seventeen of our compression cases, it was a cause of pneumothorax failure.

GAS EMBOLISM AND PLEURAL SHOCK

In more than 12,000 inflations, we have had four cases presenting the symptom complex usually attributed to gas embolism, two of which were fatal. We have observed in fifteen cases the symptom complex usually attributed to pleural shock, none of which were fatal.

SEROUS EXUDATE

In eighty-three of our 480 compression cases, a serous exudate developed in amounts of 50 c.c. or more. We believe that nearly all patients develop an exudate at some time during their pneumothorax treatment, but the quantity may be so small as to escape recognition unless especially sought.

The exudate may fill only a portion of the pleural sinus; it may be transitory in character, lasting only a few days, and it may be productive of no clinical symptoms. Serous exudates may frequently follow the separation of adhesions. The mere presence of gas in the pleural cavity acting as a foreign body is sufficient to produce an exudate.

TUBERCULOUS EMPYEMA

There were fifty-nine cases of tuberculous empyema in our 480 compression cases. This number included some patients who presented themselves with a tuberculous empyema associated with a spontaneous pneumothorax, and also includes all those cases which early in our work we designated as "sterile empyema." Our observations during recent years have convinced us that nearly all of these purulent exudates are tuberculous in character, and we have been able to demonstrate this fact by animal inoculations. Tuberculous empyema usually arises from tearing a portion of the lung cortex in an effort to separate adhesions, from ulceration of a superficial caseated focus into the pneumothorax cavity, or from spontaneous pneumothorax into the pneumothorax cavity. It is important to aspirate a tuberculous empyema early and often, supplemented by irrigation, if necessary. Tube drainage should never be resorted to unless all other measures fail; and, in case of this necessity, the drainage should be air tight, and an effort should be made to expand the lung as quickly as possible.

SPONTANEOUS PNEUMOTHORAX

In our series of 480 compression cases, sixteen patients developed a spontaneous pneumothorax into the pneumothorax cavity, and it was a cause of pneumothorax failure in three cases.

Spontaneous pneumothorax or lung perforation into the pneumothorax cavity occurs with greater frequency than is generally recognized, for the reason that some cases are not productive of symptoms, and in others the symptoms are so mild that they are attributed to other causes.

The perforation may be so small as to permit of only a slow leak of air into the pneumothorax cavity, which may not cause any subjective symptoms. The symptoms are largely dependent on the size of the pneumothorax cavity, the presence or absence of adhesions or exudate, and the size and character of the perforation, i. e., whether of the valve type or not.

Lung perforation may arise as a result of any condition that suddenly produces a great increase in the intrapleural pressure, particularly coughing paroxysms or physical strain. Two of our patients ruptured the lung following coughing, and four during or after physical strain. Two of these ruptures occurred while the patient was straining at stool.

Of our fifty-nine cases of tuberculous empyema, we resorted to air tight tube drainage with constant suction under slight negative pressure in five cases, with two complete recoveries and three deaths. Three other patients who developed their empyema while away from our observation were operated on by the ordinary open method and died. Three additional patients were also operated on by other surgeons by the open method and are still living, but will require radical thoracoplastic procedures to obliterate the pneumothorax cavity.

HEMOPTYSIS

Hemoptysis was present preceding or shortly before pneumothorax treatment in eighty-two cases. It developed during treatment in ten cases. Aspiration tuberculosis, as a result of hemoptysis, followed in four cases, and it was a cause of failure in two instances.

Sudden death due to postpneumothorax hemorrhage was the cause of failure in one case, the source of the hemorrhage being unknown.

EXTENSION OF DISEASE IN CONTRALATERAL LUNG

We have employed the term "extension of disease" only with reference to invasion of the "essentially negaive" contralateral lung during compression of the other ide, whereas the term "progression of disease" is pplied to those cases wherein there was an exacerbation f disease already present in the contralateral lung. Thus, the former represents extension to the nondisased contralateral lung, and the latter, progression in he already diseased contralateral lung. Our records how that we designated the "status of the contralateral ung" as "essentially negative" in 107 compression ases. Extension of disease to the contralateral lung ccurred as a complication in four instances, but was ot a cause of failure in any case.

PROGRESSION OF DISEASE IN THE CONTRALATERAL LUNG

In 480 compression cases, 282 of the patients had emonstrable disease in the opposite lung; yet a proression of this disease took place in only thirty-five cases during the actual period of pneumothorax treatment. Undoubtedly, a minor progression took place in other cases, particularly early in the treatment; but the limitation of diagnostic procedures is such that it is not always possible to detect the minor or questionable degrees of progression in an already diseased area, particularly if it is deep seated. But in the thirty-five cases referred to, it was of such an unquestionable character that a discontinuance of pneumothorax treatment was necessitated, and it was a cause of pneumothorax failure in twenty-two cases.

Progression of disease undoubtedly took place in many cases after treatment was abandoned, particularly in the unimproved or progressively fatal group; but these cases are not included. The "no free pleural space" cases are excluded for the reason that no pneumothorax treatment was given.

Postpneumothorax progression of disease in the compressed lung was the cause of pneumothorax failure in three cases. All these patients had been in excellent condition for several years.

These cases are not to be confused with that type of progression which occurs as a result of one's inability to maintain compression, wherein progression takes place coincident with or shortly after reexpansion, as these patients seldom become more than favorably influenced or temporarily improved.

Postpneumothorax reactivation of disease in the contralateral lung took place in ten patients who had remained clinically well or arrested ambulant for periods varying from four to six years.

EARLY OBLITERATIVE PNEUMOTHORAX

Obliterative changes develop sooner or later in all compression cases under ordinary circumstances, the time required for its completion varying within a wide range. We have been successful in maintaining compression in some cases for periods in excess of six years.

A study of our records shows that of 245 partial compressions, in 149 the pneumothorax was maintained for less than six months; yet even these short periods of inflation have been productive of beneficial results. These cases are not, however, designated as early obliterative pneumothorax because the obliterative process took place in the usual manner. In twenty-one cases, however, it took place with such unusual rapidity that we have classed them as early obliterative pneumothorax. It was the cause of pneumothorax failure in two cases.

ADHESIONS

Adhesions proved to be the greatest obstacle in establishing a satisfactory compression. In 120 cases, the adhesions were of such a character that after repeated attempts we found no free pleural space. In 245 cases, we were able to establish only a partial compression on account of the presence of adhesions; and even in our satisfactory compressions, adhesions were encountered in a great majority of the cases; but their character did not prevent the establishment of a satisfactory compression.

As a result of our observations, we believe that no tuberculous lung, diseased to the extent of demanding a pneumothorax, is wholly free from adhesions. They are almost invariably present over cavities, attaching the diseased lung to the chest wall in varying degrees of fixation.

Adhesions may be encountered and cause interruption of compression at any phase of pneumothorax treatment, and it is impossible always to foretell their presence. The only absolute proof of their existence is the fact of having encountered them during the course of inflation or attempted inflation. When they are encountered and are preventing satisfactory compression, treatment should be energetically carried on by very frequent inflations, caution being exercised to avoid too high pressures. By this means, they are often separated or stretched, permitting satisfactory compression; or an obliterative pneumothorax is combated by maintenance of a sufficient pressure.

A careful study of roentgenograms shows that nearly all of our patients with upper lobe tuberculosis had apical adhesions. In many instances, we were able to effect a separation or to strech them into long bands, so that they did not interfere with a satisfactory compression; but in some cases they were so firm that separation or stretching could not be accomplished, and even though a good compression was apparently present, a study of stereoscopic plates revealed that the upper portion of the lung was only flattened against the upper mediastinum. Thus, cavities were only pressed into an elongated form, the apical adhesions not permitting of their contraction.

INTERCURRENT DISEASE

It is important that we include intercurrent disease in our causes of pneumothorax failure, since intercurrent disease or other extraneous causes not related to tuberculosis was responsible for twelve of our deaths. Most of these patients were clinically well. Nevertheless, we have been obliged to record them as dead, although by so doing it has influenced our pneumothorax end-results in an unfavorable manner, to the extent of twelve fatalities.

UNFAVORABLE SOCIAL AND ECONOMIC CONDITIONS

In the group of unfavorable social and economic conditions it was necessary to include twelve cases wherein an excellent pneumothorax result was accomplished during sanatorium treatment. These patients were afterward obliged to live under very unsatisfactory social and economic conditions, and for financial reasons they had to resume household or industrial activities long before they were able to do so.

VOLUNTARY ABANDONMENT OF TREATMENT

In the group in which treatment was abandoned voluntarily we have placed ten cases wherein an excellent pneumothorax result was being attained, which was defeated by reason of the fact that some of these patients discharged themselves from treatment, believing that they were cured. Other patients, because of their good general appearance, were convinced by friends or relatives that further treatment was unnecessary.

WIDESPREAD CHARACTER OF DISEASE

"Widespread character of disease" is an enticing term which one might employ with great satisfaction to cover up many causes of pneumothorax failure. We have ascribed only three of our failures in the improved but fatal group to this cause, although we were justified in many other instances in its use.

In the 187 progressively fatal cases, we attributed our pneumothorax failure to the widespread character of disease in fifty-eight instances, forty-two of which belonged to the desolate bilateral or ultimum refugium group, six to the bilateral fibrocaseous cavernous group, and seven to the acute infiltrating group.

CONCLUSIONS

The artificial pneumothorax method of treatment of pulmonary tuberculosis is an exceedingly valuable procedure.

The value of the method is demonstrated by comparing the results of treatment in satisfactory compression with those in which there is no free pleural space, the latter serving as controls, because the treatment was otherwise the same.

The success of the method is largely dependent on the character of compression.

The presence of disease in the opposite lung does not always contraindicate compression of the worse diseased side.

ABSTRACT OF DISCUSSION

Dr. F. M. Pottenger, Monrovia, Calif.: Had Dr. Matson only included in his report the cases which in his estimation had been treated as long as necessary, his results would have been even better. The method of reporting results in tuberculosis is very unfair. It includes in statistics patients who are treated only a short time; consequently, it does not show the curability of the disease. Pneumothorax should not be considered a cure for tuberculosis. I do not find it indicated except in a very small group of cases, but my patients are in an institution under ideal conditions, and most of them can remain sufficiently long to secure a result. Any patient who can get a result without pneumothorax is better off than one who has had his lung compressed. It is difficult to know when to let the lung expand; consequently, some lungs are kept compressed for several years. I consider the indication for pneumothorax treatment an advancing caseous process in spite of treatment that is being carried on, if confined to one lung—the other being in fairly good condition; or a cavity which fails to wall off sufficiently with ordinary treatment. Fibrosis interferes greatly with compression, and defeats the purpose in most cases of thick walled cavities. I am sure that many clinicians compress when compression is unnecessary. The late Dr. John B. Murphy stated that in early cases the lung should be compressed. I am emphatically opposed to this opinion. I believe that pneumothorax should be reserved for severe cases, and not cases in which the patient will recover without it. Such suggestion should be combated by all tuberculosis workers, because nearly all early cases will end in recovery without it if treated long enough and under proper circumstances. I do not believe that one can compare the cases that compress readily with those that do not compress readily. Normally, when destruction takes place, with contracting and lessening of lung tissue in one part, there is an enlargement of the lung in other portions to fill the chest cavity. Such compensation can take place freely only in case the lung is unbound by adhesions. When dense adhesions exist, compensation is thwarted and healing interfered with. There are certain accidents, such as pleural shock, pleural effusion, pleural infection, and rupture of cavity walls, which always interfere, to a certain extent, with the desirability of the procedure. One should give the tuberculous patient every chance to get well, using every means at hand that will help; and if, in spite of this, extension takes place, and it is confined largely to one lung, or if cavities continue forming, then collapsing should be tried.

Dr. William C. Voorsanger, San Francisco: I am an ardent believer in the efficacy of pneumothorax in a certain class of cases. My experience dates back to 1912. I am doing pneumothorax in 8 per cent. of my cases. The indications for pneumothorax should be fairly concise. We do not want to perform pneumothorax on any patient who is doing well. When a patient continues to have fever, and continues to expectorate and get worse generally, that diseased lung should be compressed, and within a few weeks, sometimes within a week there is a rapid improvement, attributable only to the compression. Compression is carrying out, to a high degree, rest of the lung. If a cavity has no adhesions around it, the compression is simple. But cavities are not always simple. When should compression be released? Dr. Matson has shown us cases in which compression was employed for years. At Santa Barbara one physician reported two compressions that lasted twelve years, but both those patients were physicians. I find it very difficult to keep patients over a certain length of time. But one can, even if one compresses only for a few months, often get a definite result. Sometimes it is good practice, when patients are clinically well to stop compressing and see what happens if that lung expands. If symptoms reappear, compression can be continued. As to partial compression: There is another form of partial compression for cases of infiltrated lung and numerous adhesions. If a certain amount of air can be injected into a certain space, and that lung is partially compressed, sometimes cessation of symptoms results. It is true that one cannot accomplish a cure in a case of that kind; but when the patient has been for a year getting worse, particularly with a cough and an accumulation of sputum, one can, by injecting 50 or 75 c.c. into the chest, separate a portion of the lung from the chest wall and compress, often accomplishing an excellent result, as far as the limitation of symptoms is concerned. As to the time to compress, I do not believe in too much compression. My own practice is to give a patient plenty of time to improve. He may do very well clinically. If he is progressing, there is no necessity to collapse further. If, however, he is not improving, collapse should be begun promptly and kept up.

Dr. Walter A. Griffin, Sharon, Mass.: I began to use this treatment in the first year that Drs. Floyd and Robinson brought it to the attention of the profession in Boston. I remember distinctly the first case. Shortly after the administration of the anesthetic, the patient felt the fear of death and became absolutely blanched. Whether that was due to a sensitive pleura, or whether it was due to some epinephrin gaining entrance to a vein, I cannot say. Another danger that I have never heard mentioned is this: We had a patient, a young woman, on whom we tried the ordinary dietetic treatment for two or three months, but with persistent elevation of temperature and marked lesion on the right side. We finally decided to do an artificial pneumothorax. Good compression was obtained and continued for two or three months. The patient was up and about and feeling very well. One day she reminded me that her time for compression was up, and I promised to give her a refill on the next day. Immediately after breakfast on that day the nurse asked me to see this patient. I found her sitting up in bed, gasping, spitting up a frothy, reddish sputum. Under vigorous stimulation, very little help was obtained. In desperation I put in a needle and drew off a small amount of fluid and a little gas, and although she felt somewhat better for a few minutes, she died within the hour. Dr. Frank Mallory performed the necropsy. The heart was perfect; the kidneys were perfect, but there was an acute edema of the lung. As to the time of stopping the refilling, there is no definite rule to guide us. I am continuing the refills much longer than I did at first, and I feel sure that some of my early failures would have been successes if I had continued for a longer period.

Dr. W. R. P. Clark, San Francisco: Dr. Pottenger stated that the percentage of compression cases in his practice was about from 1 to 3, and Dr. Voorsanger said 8 per cent. I should like to ask Dr. Matson what proportion of his cases he thinks require pneumothorax.

Dr. Ray W. Matson, Portland, Ore.: Dr. Pottenger has stated that he does not believe that an artificial pneumothorax should be tried until all other methods of treatment have been exhausted, and that if sanatorium treatment is carried out long enough the results would be equally good without subjecting the patient to an artificial pneumothorax. Early in our work, it was our practice to subject a patient to artificial pneumothorax treatment only after all other measures had failed; in other words, only as a last resort. All patients reported on in this series received sanatorium treatment, and many of them had been under observation for one year or more before it was decided to resort to artificial pneumothorax. The delay in treatment in many cases was very costly, because when we were obliged to resort to an artificial pneumothorax, we were unable to introduce gas because of the formation of adhesions. Of recent years, we have felt that if, after a brief period of observation, any doubt exists regarding the favorable outcome by ordinary hygienic and dietetic measures, the patient should immediately be subjected to pneumothorax therapy if no contraindications exist. Dr. Pottenger objected to pneumothorax therapy because of the inability to know how long the treatment should be continued. The same question naturally arises in any method of treatment of pulmonary tuberculosis. One must be guided by medical judgment and experience. In pneumothorax therapy, we continue treatment when possible until an obliterative pneumothorax ensues. Dr. Pottenger objected to the use of the "no free pleural space" cases as controls because of the assumption that their opportunities for recovery were already lessened by the presence of dense pleuritic adhesions, causing retraction of mediastinal contents, etc. However, cases of this sort were not used as a control for the reason that the examination alone would fairly definitely establish the uselessness of even attempting an artificial pneumothorax. Our "no free pleural space" cases represent that group of cases wherein neither the physical nor the roentgenologic examination established the presence of adhesions which would preclude the possibility of establishing a pneumothorax. Their presence was established only by the fact of having attempted to separate the lung from the chest wall and failed. In answer to Dr. Clark's question, I would state that the 600 cases reported represent the pneumothorax material selected from approximately 7,000 cases of pulmonary tuberculosis and represents, therefore, about 8.5 per cent.

SPIROCHETAL PULMONARY GANGRENE *

B. S. KLINE, M.D.
AND
M. A. BLANKENHORN, M.D.
CLEVELAND

Evidence is accumulating that pulmonary gangrene may be caused by spirochetes and fusiform bacilli aspirated from an unclean mouth, and that it may be prevented by proper oral hygienic measures. Furthermore, when the condition is once established, diagnosis can be made early by finding the organisms in the washed sputum, thus offering an opportunity for successful specific treatment with arsenic.

Little attention was paid to the possible etiologic relationship of spirochetes to bronchopulmonary lesions until 1906, when Castellani reported from India two cases of hemorrhagic bronchitis simulating pulmonary tuberculosis but caused by spirochetes. To the condition he gave the name bronchial spirochetosis. A year before, Rona, in Germany, in a report concerning spirochetes and fusiform bacilli, included a postmortem study of two cases of pulmonary gangrene; in one, numerous spirochetes and fusiform bacilli were found, and in the other, sections of the gangrenous lung showed many fusiform baccilli. In this communication Rona stated his belief that material from carious teeth reaching the bronchi can bring about pulmonary gangrene. Since the publication of these reports, considerable discussion has been raised concerning the specificity of the spirochetes in these cases. Many observers support Castellani and consider them different varieties of one species and believe that they inhabit only the deeper air passages. Others, however, since Rona's report, have felt that bronchopulmonary gangrene may be caused by various spirochetes together with fusiform

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* From the Departments of Pathology and of Medicine, of Lakeside Hospital and Western Reserve University.

bacilli aspirated from gingival, dental, tonsillar or other mouth lesions.

Since the publications mentioned above, many cases of bronchopulmonary spirochetosis have been reported from Europe and the tropics. In the United States, however, including four cases observed at Lakeside Hospital, Cleveland, and three studied previously,[1] only twenty-four cases of bronchopulmonary spirochetosis have thus far been reported.[2] Clinically, some of twenty-four cases in the United States were at first confused with tuberculosis, abscess, and bronchopneumonia or lobar pneumonia. The sputum in some was jelly-like and blood-tinged, in some hemorrhagic, in some purulent, and in others brown and foul smelling. In only one of these cases did the sputum show tubercle bacilli. It always contained, however, numerous spirochetes varying considerably in morphology and sometimes associated with fusiform bacilli. Recovery was reported in the majority. The disease occurred somewhat more frequently in males, the patients ranging in age from 4 to 76 years.

CASES OBSERVED AT LAKESIDE HOSPITAL

Case 1.—*Clinical Record.*—A man, aged 40, was admitted from the dispensary with a diagnosis of lung abscess, which had probably been present for about five weeks. The onset of the disease had been very gradual, and he had continued to work several days, although quite ill. He remained away from work only after he found he was so weak that he could hardly get home. The second day at home he began to cough and spit up a foul, yellow material, which later became profuse, darker in color, and fetid. He remained in bed two weeks, and then was up and about the house but unable to work. The week previous to admission his feet began to swell, and his physician sent him to the hospital for examination.

He had a normal temperature on admission, which promptly rose to 39 on the second day. The respirations were 20; the systolic blood pressure was 100; the diastolic, 60; the urine was negative. The leukocyte count was 10,000. A differential count showed 57 per cent. polymorphonuclears, 30 per cent. lymphocytes, 3 per cent. large mononuclears, and 10 per cent. transitionals. The sputum showed no acid-fast bacilli but many pus cells. There were few organisms, and no predominating one was determined. With Fontana stain a few fusiform bacilli and spirochetes were found. At the angle of the left scapula there was a small region of dulness, with high-pitched breathing and crepitant râles. Both lower extremities were edematous, but no satisfactory explanation for this edema was found. He continued to have a temperature ranging between 39 and 40 C. (102 and 104 F.) until his twentieth day in the hospital, when he died. The leukocyte counts were never below 10,000, and never above 23,000. Bronchoscopic examination, the day after admission, revealed pus coming from the main bronchus on the left side. No granulations or abscess cavity could be made out, and no quantity of pus was evacuated. On the seventh day of the disease it was seen that the dulness in the lower left lobe had increased in area, and the patient was in no way improved. A roentgenogram made at this time showed a large area of dense infiltration in the central portion of the left lung, with excavation in the center of the density, probably an abscess. At this time washed sputum with Fontana stain showed Vincent's spirilla and fusiform bacilli.

The patient was given neo-arsphenamin (January 27, 0.75 gm.; February 4, 0.6 gm.; February 8, 0.6 gm.; February 13, 0.6 gm.) and potassium iodid. Previously to this he had been having turpentine inhalations and creosote in capsules. He was forced to assume a posture suitable for draining the abscess four times a day, and blocks were also put under the foot of the bed for drainage of the abscess.

On the twenty-first day of the disease, the lung signs had changed but little except that there were diffuse râles all through the left lung. There were signs of excavation, but no single large cavity could be defined. The patient was unable to take food, had to be fed with a tube, and rapidly lost strength. On the eleventh day of the disease he had very distinct clubbing of the finger nails, which was more marked on the day of his death. He died apparently from exhaustion and intoxication.

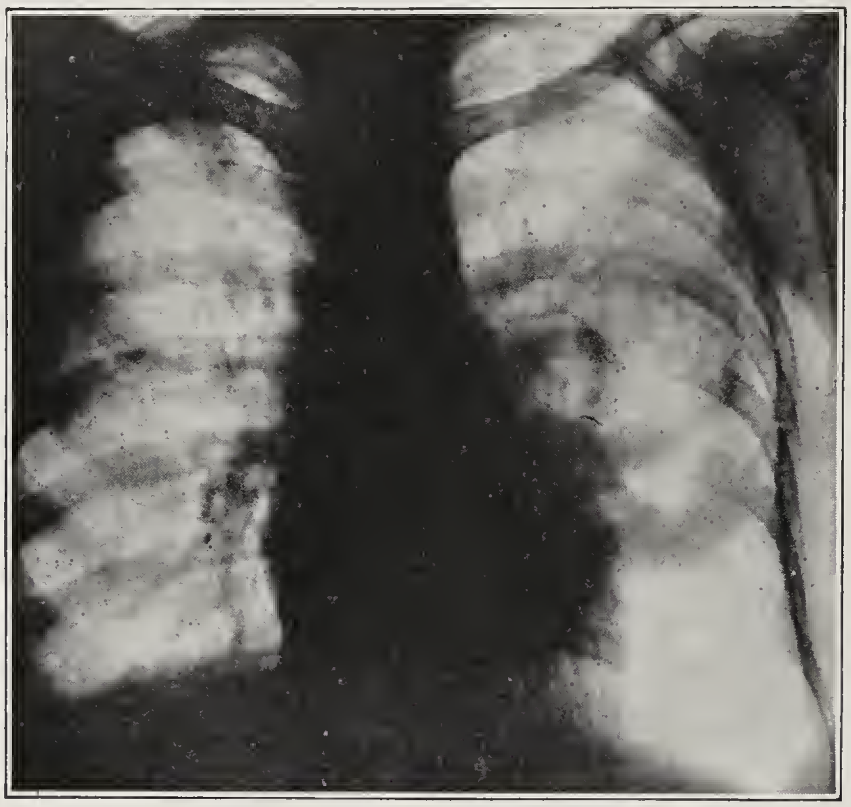

Fig. 1 (Case 1).—Signs of excavation in middle of left lung.

The correct diagnosis in this case was promptly made by finding spirochetes and fusiform bacilli in the washed sputum, with the Fontana stain. The specific treatment, although very vigorously employed, did not improve this patient, probably because the lesion was too far advanced when treatment was begun.

Pathologic Record.—The anatomic diagnosis was: pyorrhea alveolaris (spirochetes and fusiform bacilli the predominating organisms); aspiration pneumonia, left lower lobe (in part organized); spirochetal pulmonary gangrene with cavity in left lower and left upper lobe (12 cm. in diameter); scars in left myocardium; streptococcus (hemolytic) septicemia; cloudy swelling of the parenchymatous organs; cardiac dilatation right, moderate; terminal pulmonary edema, slight.

Of importance in the necropsy were: The buccal cavity. Several teeth were gone from the lower jaw; a number of those present showed erosions; the gums were covered by a moderate amount of slimy, cheesy material, smears from which showed innumerable spirochetes, fusiform bacilli and other organisms. The spirochetes varied considerably in morphology, but the majority were of the Vincent type.

Left lung. On section, there was a striking picture. Involving the upper portion of the lower lobe and the lower portion of the upper lobe, there was a cavity about 12 cm. in diameter, filled with penetratingly foul-smelling, thin, greenish-brown fluid. The wall of the cavity in the upper lobe was apparently composed of recently consolidated lung, which in places was distinctly necrotic and greenish. The wall of the cavity in the lower lobe was made up in part of firmer tissue, apparently chronic granulation tissue. The inner wall here, however, was apparently necrotic, in part yellowish and in part green. There were numerous tags of necrotic greenish lung tissue, with free ends in the cavity. A considerable portion of the upper lobe laterally was edematous, and toward the cavity apparently consolidated. The lower lobe below the cavity was fairly well aerated, the surface dry and pink. The bronchial branches terminated in the gangrenous cavity, and howed in the neighborhood swelling and injection of the mucosa, which in addition was brownish to green. Smears rom the fluid in the gangrenous cavity showed innumerable pirochetes, fusiform bacilli and other bacilli. Those made directly from the necrotic wall showed similar organisms. Histologically, the picture was that described in previous cases. The gangrenous tissue, stained by the Levaditi method, showed n places innumerable spirochetes.

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[1] Kline, B. S.: Spirochetal Pulmonary Gangrene, J. A. M. A. **77**: 1874 (Dec. 10) 1921 (reference to seventeen cases).

[2] Dick, G. F.: J. Infect. Dis. **12**: 191, 1913. Mason, V. R.: Bull. Johns Hopkins Hosp. **31**: 435 (Dec.) 1920. Davis, D. J., and Pilot, Isadore: Studies of Bacillus Fusiformis and Vincent's Spirochete, J. A. M. A. **79**: 944 (Sept. 16) 1922.

Case 2.—*Clinical Record.*—A man, aged 55, was admitted n the third week of his illness, which started from an injury ausing severe contusions of the thorax. He complained of cough, pain in the chest, fever and a profuse yellow sputum. His temperature was 39.5 C. (103 F.), with moderate dyspnea nd no cyanosis. The leukocyte count was 26,000. The sputum was not fetid but purulent, and contained a few organisms not definitely described. There was much dulness in the left lower chest, with greatly diminished breath ounds and fremitus, but no precise signs of fluid. On the hird day of hospitalization, n exploratory puncture revealed a few cubic centimeters of blood and pus, with numerous cocci. The diagnosis then was bronchopneumonia secondary to rauma. On the fifth day here were signs of a small pneumothorax without displacement of the heart, which might be interpreted as exavation with bronchial istula. Exploratory puncure on this day showed 50 c.c. of thin, watery fluid ontaining 200 cells per cubic millimeter, largely mononulear, with no odor and no organisms. On the eighth ay, signs of pneumothorax were present, and 500 c.c. of gassy fluid was obtained, which contained 500,000 cells per cubic millimeter, polymorphonuclears predominatng. Very large gramositive bacilli were present, nd a Fontana stained prepration showed numerous pirochetes and fusiform acilli. During this time the temperature fluctuated between normal and 39.5, and the sputum became more profuse and very fetid. The eighth day, on iscovery of this purulent fluid, a rib resection was performed nd a large amount of purulent material evacuated. From this me until the seventieth day, he was treated with hypochlorite irrigation in a large cavity at the base of the thorax. During ll this time he had profuse, purulent expectoration, and on he forty-eighth day developed bronchial fistula, which prevented further irrigation. On the fiftieth day he was found to ave signs of consolidation in the right anterior upper chest, ut on exploration with a good sized needle only minute mounts of thick, fetid pus could be recovered. On the ixtieth day, swelling was discovered under the clavicle, where the needle had been previously inserted, and a fluctuant, ir-containing cavity was found underneath the pectoralis. When he coughed, this cavity would distend and then empty self of air. The patient volunteered the information that, when this pouch emptied itself of air, there would be rainage from the resection wound. At this time he had a very septic temperature, ranging from 40 C. (104 F.) to ormal, and a leukocytosis of 20,000. On the seventieth day, tubercle bacilli were found in the sputum, and on the seventy-first day the patient died, apparently from sepsis with accompanying emaciation and exhaustion.

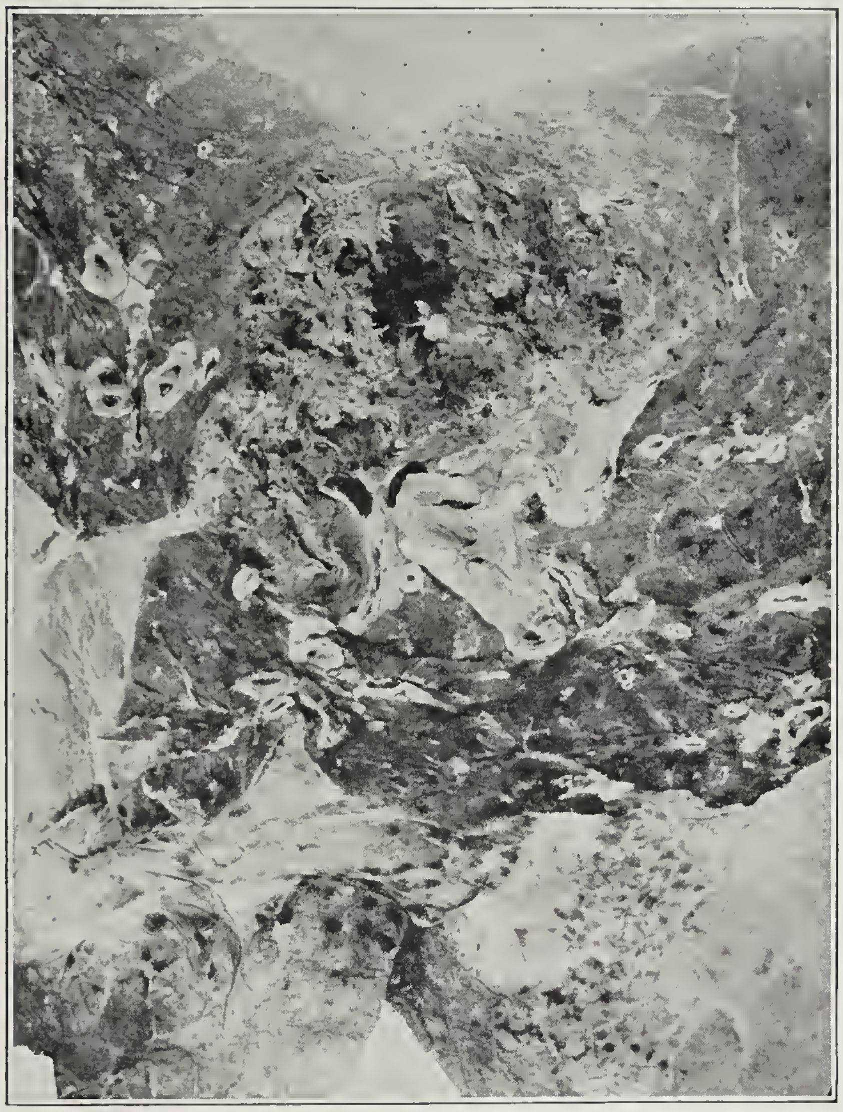

Fig. 2 (Case 1).—Pulmonary gangrene.

The spirochetes and fusiform bacilli were found in this case after the pleural fluid had become fetid. Diagnosis could have been made earlier, perhaps, if smears of the fluid had been stained by the Fontana method. It is also likely that infection of the pleura took place much earlier than was discovered—the physical signs were difficult to interpret early in the course of the condition. In this case the gangrenous process extended along the course of the paracentesis wounds as far as the subcutaneous tissues, a point to be remembered as an indication against puncturing the pleura in cases of this kind.

Pathologic Record.—The anatomic diagnosis was: dental caries (spirochetes and fusiform bacilli the predominating organisms); extensive peribronchial pneumonia and bronchopneumonia of the right lung, in part organizing, in part tuberculous, with gangrenous ulceration (spirochetal pulmonary gangrene), most marked in the right upper lobe; proliferative tuberculosis and gangrenous ulceration overlying pleura and chest wall from the second to the fourth ribs, inclusive; subacute bronchitis marked with old pleural and pulmonary tuberculosis, bilateral; thoracostomy wound, right; pyopneumothorax, right; anemia and emaciation, moderate; cloudy swelling of the parenchymatous organs; terminal cardiac dilatation, right.

Of importance in the necropsy were: The mouth. The teeth showed worn cutting edges, and a few were gone from each jaw. A few of the remaining teeth showed erosions and small cavities, with dark greenish, foul-smelling contents. This was especially true of one molar in the upper right jaw, which showed about half a dozen erosions and small cavities. A smear from material in these showed innumerable spirochetes and fusiform bacilli, together with other organisms. The spirochetes in general were of the Vincent type.

Right chest wall. When the skin of the right chest was stripped back, the intercostal muscles in the right upper anterior chest, between the second and fourth ribs, showed striking greenish-brown necrosis, and the tissue was penetratingly foul-smelling. A gangrenous process was observed extending through the chest wall, through the pleura into the lung. About 50 c.c. of thin, slightly viscid, brownish green fluid was expressed from several openings in the intercostal muscles. A smear of this fluid showed innumerable spirochetes, the majority of which were of the Vincent type, and fusiform bacilli.

Lung. The pleura of the right lung was greatly thickened, in places 5 mm. thick. Especially over the lower lobe there were irregular openings extending into the underlying lung. In these areas a thin, greenish fluid was observed. Section of this lung gave a striking picture. There was considerable coal pigment in all lobes, with almost adjoining firm gray areas, each several millimeters in diameter. In addition, there were several cavities in the upper lobe, the largest 4 cm. in diameter, the inner walls of each apparently necrotic, in places reddish, yellowish or greenish. In the cavities there was brownish-green necrotic material and fluid having a penetratingly foul odor. In places in the upper lobe toward the pleura, associated with dense scarring, there were numerous groups of yellowish flecks, which did not project above the general level. A smear made from a small cavity with a necrotic yellowish inner wall showed innumerable spirochetes (the majority of the Vincent type), fusiform bacilli and other organisms. In the upper lobe, some of the cavities communicated with one another; in places, they reached to the pleura. In the lower lobe there was much less ulceration, and most of this was toward the inferior surface. In all lobes on this side there were small, grayish yellow nodules suggesting tubercles and tuberculous lymph nodes. A smear from an area of consolidation in the right lung showed, in addition to a moderate number of spirochetes, fusiform bacilli and other organisms, a moderate number of acid-fast bacilli, apparently tubercle bacilli. Sections of gangrenous lung stained by the Levaditi method showed in places innumerable spirochetes. Histologically, in addition to the picture presented in the cases previously reported, there were areas of proliferative tuberculosis involving the lung pleura and the chest wall.

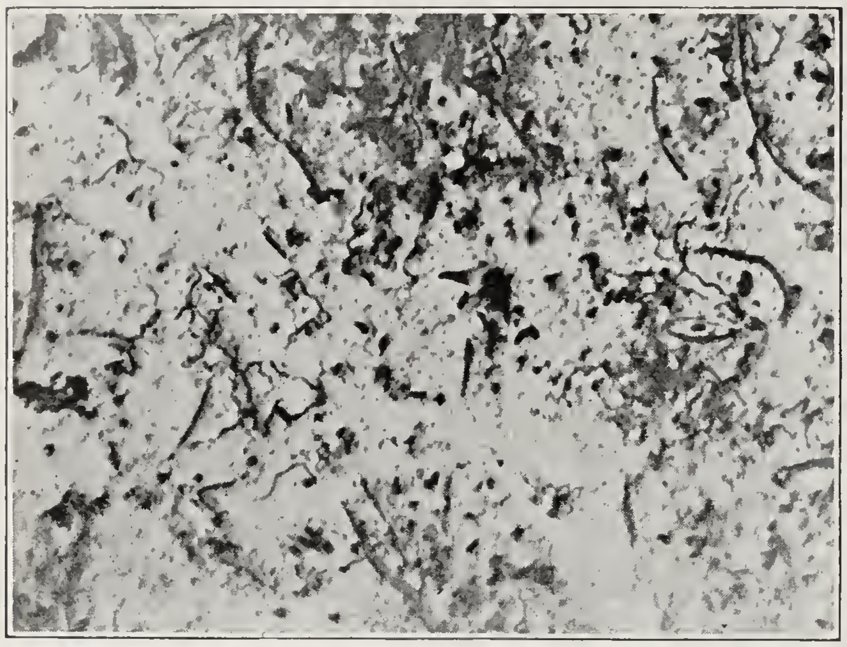

Fig. 3 (Case 1).—Spirochetes and fusiform bacilli in smear from pulmonary gangrene.

Case 3.—*Clinical Record.*—A man, aged 55, became ill in the midst of a "raisin jack" spree, but it was learned that he had been sick for five days, beginning with a chill and fever. He promptly developed cough and bloody sputum, and had pain in the chest. A physician who saw him on the fifth day diagnosed his condition as lobar pneumonia, and sent him to the hospital. His temperature was 39 C. (102.2 F.); the respirations were labored, 28 a minute, with an expiratory grunt. He was slightly cyanotic, and had a leukocytosis of 54,000. The sputum was bloody and somewhat rusty, and contained pus cells and numerous gram-positive diplococci. The urine was normal. A differential count was done two days after admission, when the leukocytosis was 32,000, and showed 78 per cent. polymorphonuclears, 16 per cent. lymphocytes, 2 per cent. eosinophils and 1 per cent. myelocytes. He was found to have consolidation of the entire right lower lobe and part of the middle lobe. Next day, there were numerous râles at the base on the opposite side, and evidence of a plugged bronchus on the side originally involved. The temperature gradually subsided, going below normal on the sixth day, but continuing at times above 38 C. (100.4 F.). It became practically normal on the eleventh day, and fluctuated between normal and 38 until his death on the thirtieth day in the hospital. On the sixth day, the sputum became brownish, developed a very foul odor, and when stained by the Fontana stain showed the predominating organisms to be a fusiform bacillus and spirochetes of the Vincent type. There was also present Friedländer's pneumobacillus, *Micrococcus catarrhalis,* and a very motile, gram-positive bacillus.

On the thirteenth day of the disease, the patient was given 0.4 gm. of neo-arsphenamin intravenously, another injection ten days later, and a third injection three days after that. He was also given during the entire time 1 grain (0.065 gm.) of sodium cacodylate three times a day, which developed a definite garlic odor in his breath. The man continued to be in remarkably good condition and apparently comfortable for thirty days. On the twenty-fourth day, definite signs of excavation could be made out in the right axillary region, but no large accumulation of fluid could be located. The roentgen-ray diagnosis was: hydropneumothorax with pleural adhesions in the right chest; partial collapse of the middle and lower lobe and consolidation of part, probably the middle lobe.

In spite of evidence of extensive destruction of the lung, severe cough and profuse purulent sputum, the man looked remarkably well until the thirtieth day of his disease, when he suddenly started to bleed profusely from the mouth while sitting up in bed, and died apparently from hemorrhage. Necropsy was not granted.

It is possible that this patient started his illness with true lobar pneumonia, and that this was promptly followed by a secondary invasion of spirochetes and fusiform bacilli and other mouth organisms which caused the gangrene. The appearance of a brown, fetid sputum suggested the true diagnosis, and Fontana stained preparations proved it.

Case 4.—*Clinical Record.*—A man, aged 33, was admitted on the first day of his illness, complaining of chills, fever, and pleurisy in the right chest. He gave a history of having had a cold for two weeks. On admission, he had a fever of 39 C. (102.2 F.) with rapid pulse, moderate cyanosis and cough, but no sputum. He had marked dental caries, and a few days later innumerable spirochetes and fusiform bacilli were found in a smear of a dental plug. There was consolidation of the right lower lobe. There was a leukocytosis of 22,000. The diagnosis on admission was lobar pneumonia.

The fever gradually diminished until it touched normal on the sixth day of hospitalization, but was at 39 C. or above every day previous to that. No sputum could be obtained and the blood cultures were negative, so that it was impossible to determine the type of pneumonia. On the eighth day of the disease he was found with signs of fluid, and an exploratory puncture was made, which yielded 100 c.c. of a fluid that was greenish, translucent and slightly turbid, with 528 cells per cubic millimeter, polymorphonuclears predominating. No organisms were discovered. On the thirteenth day of the disease there was evidence of a greater amount of fluid, and 150 c.c. of greenish, turbid, purulent fluid was obtained. Smears of this fluid, stained by the Fontana method, showed many spirochetes and innumerable fusiform bacilli. A rib was at once resected under a local anesthetic, and a large amount of thin, foul, watery pus was evacuated. He was equipped with a closed system of drainage, and irrigated with surgical solution of chlorinated soda (Dakin's solution). He had a normal temperature on the thirty-ninth day in the hospital, and was able to be up on the forty-ninth day. At his own request, on the one hundredth day of the disease, he was discharged with a small sinus.

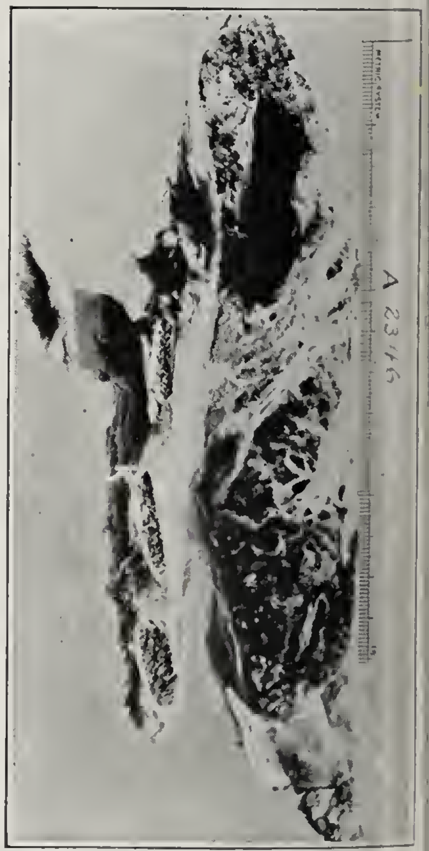

Fig. 4 (Case 2).—Gangrene of lung, pleura and chest wall.

It is not possible in this case to state with certainty in what way the pleura became infected by mouth organisms.

From the course of events, it seems reasonable to assume that the spirochetes and fusiform bacilli were aspirated into the lung from the mouth either with or after the organisms causing the pneumonia, and that they later gained access to the regional pleura.

COMMENT

In all probability there have been, and are, many unrecognized cases of bronchopulmonary spirochetosis in the United States. The fact that the organisms are poorly stained by the usual laboratory methods and do not grow in the usual laboratory mediums may account for the failure in the past to observe them. The condition is readily confused with tuberculosis, abscess, bronchopneumonia or lobar pneumonia. The most important single diagnostic sign clinically is the sputum. This varies considerably in gross appearance. It may be jelly-like and blood-tinged; it may be hemorrhagic, purulent, or necrotic and brown. Ordinarily, the sputum has a foul odor, which, when well developed, is suggestive of the true diagnosis. In all cases, preparations stained by the Fontana method show the characteristic spirochetes and fusiform bacilli. Furthermore, in these cases similar spirochetes and fusiform bacilli are found in lesions of the mouth, most commonly dental caries and pyorrhea alveolaris.

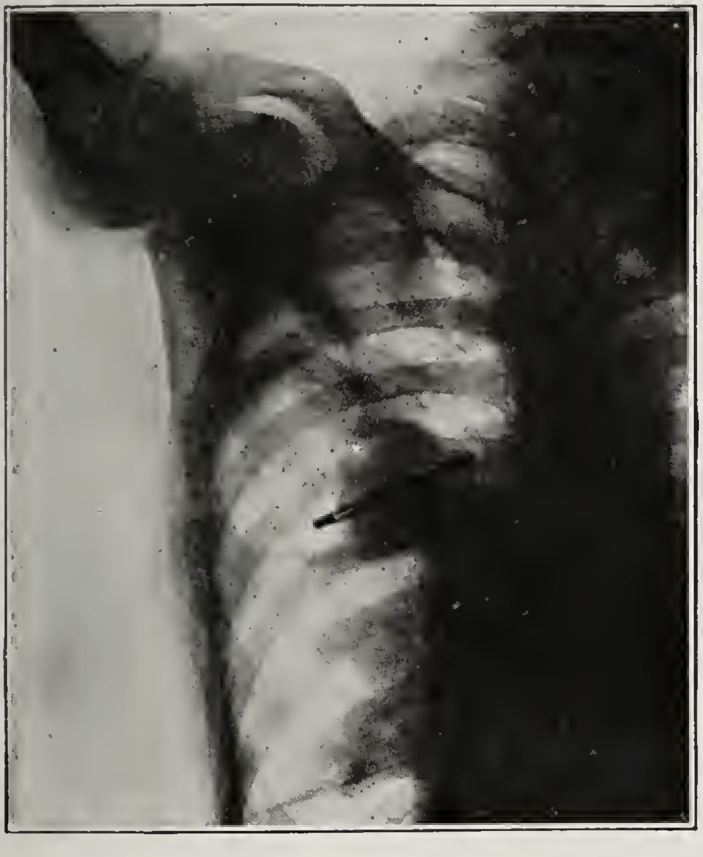

Fig. 5 (Case 3).—Patient in horizontal position, showing hydropneumothorax with pleural adhesions and small cavity of right lung.

The hypothesis that pulmonary gangrene may be brought about by spirochetes and fusiform bacilli aspirated from an unclean mouth acting on previously damaged lung parenchyma is further supported by the fact that the organisms in the sputum and in the human pulmonary lesion produce gangrene when injected into traumatized tissues of animals.[3]

Concerning the treatment, since the use of arsenic is usually so promptly and uniformly successful in superficial ulcerative lesions due to Vincent's spirilla and fusiform bacilli, it is indicated in cases of spirochetal pulmonary gangrene as soon as the condition is recognized. From the results of arsenic treatment in the cases reported above, however, the impression is gained that little benefit can be expected if lesions are far advanced when treatment is begun.

CONCLUSIONS

1. The presence in large numbers of spirochetes and fusiform bacilli in washed sputum of four cases of pulmonary gangrene suggests their etiologic relationship. These spirochetes vary morphologically, the majority, however, being of the Vincent type.

2. In all four cases, marked dental caries or pyorrhea alveolaris was present. Smears from these lesions showed organisms indistinguishable from those mentioned above.

3. These organisms, which are poorly colored by the usual laboratory stains, are readily demonstrated by the Fontana method in smears, and by the Levaditi method in tissues.

4. The chief and usually earliest diagnostic sign in these cases is the sputum, which varies somewhat in gross characters, usually being foul-smelling, and always containing spirochetes and fusiform bacilli.

5. From a study of these four cases, the impression is gained that they are extensive pneumonias caused by organisms from the unclean mouth in which gangrenous ulceration occurs because of activity of the aspirated spirochetes and fusiform bacilli.

6. If the foregoing explanation is correct, this type of spirochetal pulmonary gangrene may be prevented by proper oral hygienic measures.

THE EFFECT OF PASSIVE HYPEREMIA OF THE LIVER ON TUBERCLE FORMATION *

S. A. LEVINSON, M.D.
AND
WILLIAM F. PETERSEN, M.D.
CHICAGO

Clinicians have frequently observed that patients with a passive congestion in the lung due either to a heart condition, or resulting from a pulmonary condition, rarely develop clinical evidences of tuberculosis. A recent exposition of this view was put forward by Sewall,[1] who described patients with labile vasomotor systems as well as with symptoms of neurasthenia. On physical and roentgen-ray examination, these patients reveal slight sclerosis of the hilum lymph nodes and upper bronchial radiations. These findings, Sewall asserts, are due to a "subtle intoxication" by the tubercle bacillus; they are nonprogressive, and most of the subjects of this toxemia never develop clinical tuberculosis.

Passive congestion in the lungs may result from a variety of clinical conditions. Very commonly, pulmonary irritation may occur in the form of bronchitis due to a degeneration in some part of the circulatory system. The lung vessels become engorged and the surface epithelial cells infiltrated. In long standing irritation, especially in the more advanced cases of congestion, interstitial changes occur, taking the form of engorged capillaries, hemorrhagic infarctions, appearance of pigmented cells in the sputum, and the formation of fibrotic changes in the lung.

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[3] Kline, B. S.: J. Infect. Dis., to be published.

* Read before the Section on Pathology and Physiology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

* From the Laboratories of the Municipal Tuberculosis Sanitarium, and the Departments of Pathology and Physiological Chemistry, University of Illinois College of Medicine.

[1] Sewall, H.: Occult Tuberculosis, Am. Rev. Tuberc. 3: 665 (Jan.) 1920.

Extensive pulmonary changes which may be confused with pneumonia frequently follow infarctions, which may be the result of emboli from the heart and veins, or following abdominal or pelvic operations.

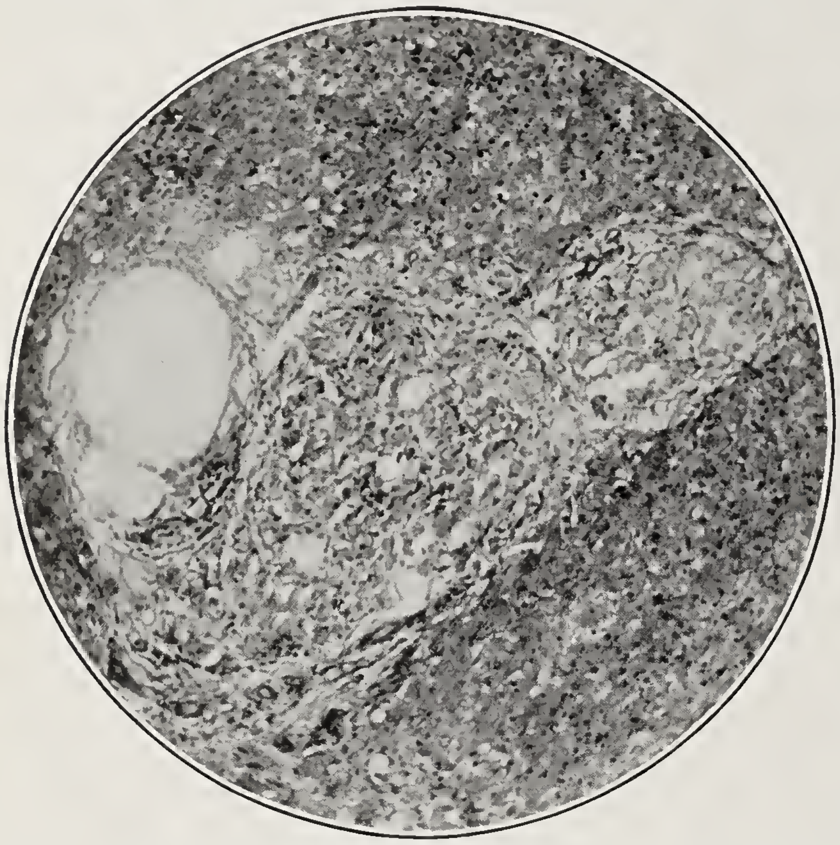

Fig. 1.—Liver of control animal, showing tubercle with beginning caseation (hematoxylin-eosin; slightly reduced from a photomicrograph of 130 magnification).

Depending on the demand and the strength of the heart muscle, a diminished circulatory force may cause lung alterations which vary from slight passive congestion to structural changes and edema. Pritchard and Mortensen[2] have observed that in mitral stenosis the pulmonary changes are marked, and it is in this particular type of case that the fibrotic changes are most likely to appear in pulmonary tuberculosis. With mitral insufficiency, the pulmonary changes are, as a rule, more insidious and more liable to go from the congestive stage to edema, omitting the fibrotic type of pathologic change.

Of the diseases which have at one time or another been considered predisposing to phthisis, those affecting the respiratory tract are nearly always mentioned, the most common being bronchiectasis, syphilis, actinomycosis, cancer of the lungs and chronic pneumonia, which prepare a favorable soil for the growth of the tubercle bacilli. Pure lobar pneumonia is hardly ever followed by phthisis and, in most cases in which it was said to have occurred, the probabilities are that the primary disease was an acute pneumonic phthisis which had subsided and followed the course of chronic tuberculosis.

The relation of pulmonary emphysema and asthma to pulmonary tuberculosis is of interest. Rokitansky was of the opinion that pulmonary emphysema and tuberculosis occupy a relationship of mutual exclusion. Brügelmann has observed that as long as one has asthma one is immune to tuberculosis. Hoffman[3] considers an emphysematous lung distinctly unfavorable soil for the development of tuberculosis. Fishberg is of the opinion that true bronchial asthma is only rarely complicated by pulmonary tuberculosis.

The reasons why asthma and emphysema are some protection against tuberculosis are not clear. Some of the opinions are that the atrophic condition of the pulmonary parenchyma renders it unfavorable for the growth of the tubercle bacilli, or that the inspiratory current is slow and inadequate, and the bacilli are prevented from entering the deeper portions of the lung. Fishberg[4] suggests that perhaps the venous hyperemia, which is present in most cases of emphysema, prevents the development of tuberculosis as certain forms of heart diseases do.

Diseases of the heart have more or less had some relationship to the development of tuberculosis. Thus it was observed that a large and hypertrophied heart appears to a certain extent a protection against the development of phthisis. Rokitansky[5] asserted that diseases of the heart and blood vessels producing passive congestion of the lungs are a preventive of phthisis; this condition is seen particularly in the cases of valvular diseases, especially of the left side of the heart. Traube and Fagge are of the opinion that only stenosis excludes tuberculosis, while in aortic diseases tuberculosis is occasionally encountered. Fagge's postmortem record shows four cases in the course of thirty years, while Kidd's statistics of the incidence of mitral stenosis is one case in 500. The postmortem statistics of the incidence of valvular heart lesions are numerous and cannot be gone into in detail in this paper.

Osler, among others, has observed that all forms of congenital heart disease predispose to tuberculosis, particularly stenosis of the pulmonary artery. Mitral stenosis, on the other hand, has a distinctly inhibitory influence on tuberculosis.

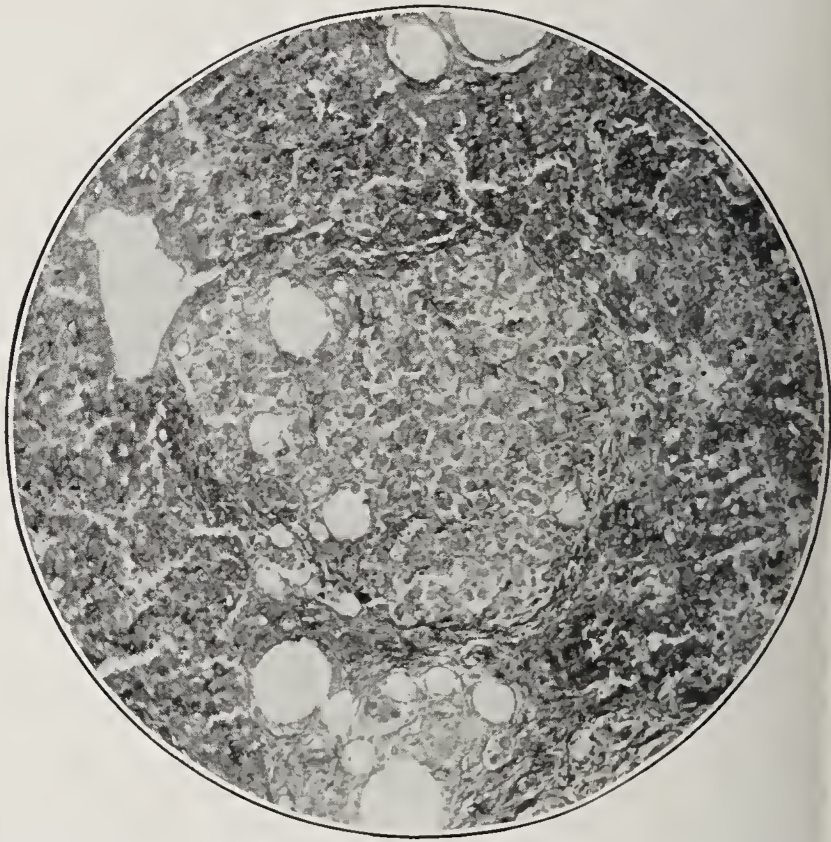

Fig. 2.—Liver of control animal, showing a very slight formation of fibrous tissue around the tubercle (Mallory stain; slightly reduced from a photomicrograph of 100 magnification).

Rokitansky attributed the apparent antagonism between mitral sclerosis and active tuberculosis to the venous stasis in the lungs, which appears to have an inhibiting effect on tuberculosis. Walsh[6] has observed that decompensation and active tuberculosis do not run concurrently; cases of tuberculosis of the lungs with marked arteriosclerosis show great resistance to the advance of tuberculosis, and, as a rule, great curative ability. Weiss[7] is of the opinion that in mitral stenosis pulmonary tuberculosis is infrequent, owing to the fact that the venous congestion in the lung affords a greater oxygen supply in the venous blood.

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[2] Pritchard, J. S., and Mortensen, M. A.: Pulmonary Findings Due to Circulatory Changes, Am. Rev. Tuberc. 4: 620 (Oct.) 1920.

[3] Hoffman, F. A., in Nathnagel's Practice, Diseases of Lungs, etc., 1903, p. 241.

[4] Fishberg, Maurice: Pulmonary Tuberculosis, Lea and Febiger, 1916.

[5] Rokitansky: Handbuch der pathologischen Anatomie 2: 520, 1844.

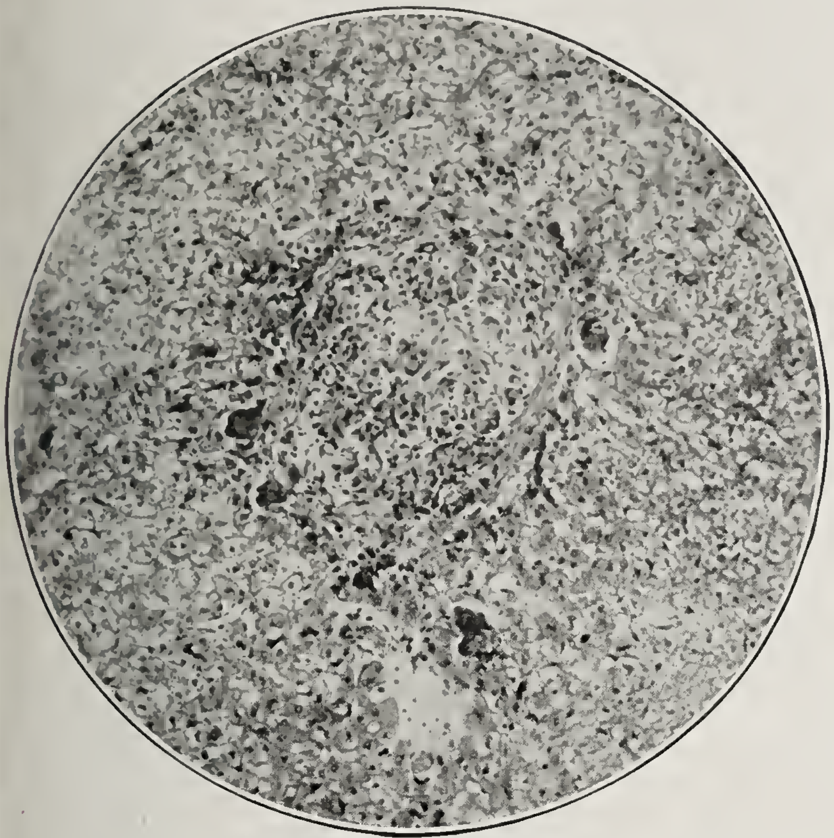
Fig. 3.—Liver of animal receiving liquid petrolatum after the injection of tubercle bacilli; there is evidence of beginning walling off of the tubercle (hematoxylin-eosin; slightly reduced from a photomicrograph of 140 magnification).

The mechanism of mitral stenosis in the prevention of pulmonary phthisis is explained by Fishberg in this manner: Mitral stenosis causes a mechanical impediment to the lesser circulation, thus creating congestion or plethora of the blood vessels of the lungs, and this has been offered as an explanation for the antagonism between this disease and phthisis. But it must be borne in mind that in compensated mitral stenosis the lungs do not have a larger quantity of blood than normally; it is only with the onset of decompensation that the pressure is lowered and the blood stream is slowed, thus favoring a larger quantity of blood in the lungs.

In the various forms of therapy that have been used in tuberculosis, heliotherapy has played quite an active rôle. The favorable results reported with this form of therapy have probably been due to the congestion resulting in the local and remote areas. Sersirous'[8] summary of the action of light rays within the body is stated thus: "By their power of decomposing and oxidizing, they destroy ferments, diastases, microbes and the toxins of microbes, in the same way as they destroy molds and mosses, and they are vasodilators and produce a passive congestion that greatly favors phagocytic action." The other forms of heliotherapy that have been used, such as the Finsen light, the quartz light, and sun and electric baths, have all as their fundamental basis the production of congestion. The latter effect has been greatly emphasized by Bier, in his application of passive hyperemia in the various forms of surgical and nonsurgical conditions.

All of the evidences enumerated above show that passive congestion in the lungs in some way inhibits the development of tuberculosis. Of the effect of passive congestion in the other organs, especially with relation to the development of tuberculosis, we have found no mention in the literature. The experiments reported here have been undertaken for the purpose of ascertaining the effect of passive congestion of the liver on tubercle formation.

EXPERIMENTAL OBSERVATIONS

We have found that the most simple and at the same time a reliable method for the production of passive congestion, primarily in the lungs, with secondary involvement of the abdominal viscera, is by the intravenous injection of small quantities of oil. This procedure was accomplished by injecting intravenously into the ear vein of rabbits 0.5 c.c. of liquid petrolatum, twice a week. The experiments have been repeated three times, so that the results are more or less uniform.

Three series of rabbits were used in each experiment, each group consisting of five rabbits. Of these, one group of rabbits received 0.5 c.c. of liquid petrolatum intravenously twice a week for a period of one month. Then the entire series of rabbits were inoculated with tubercle bacilli (bovine type) suspended in oil. The inoculation was in the portal vein or in a branch of the mesenteric vein. From ten to fourteen days later, the group that received oil prior to the injection of tubercle bacilli, and a second group of five rabbits again received liquid petrolatum intravenously, 0.5 c.c. twice a week. A third group was used as a control. The latter group of rabbits received no oil, merely being inoculated with the same dose of tubercle bacilli as the two other groups. Six weeks later, all the animals were killed, and the organs examined macroscopically and microscopically.

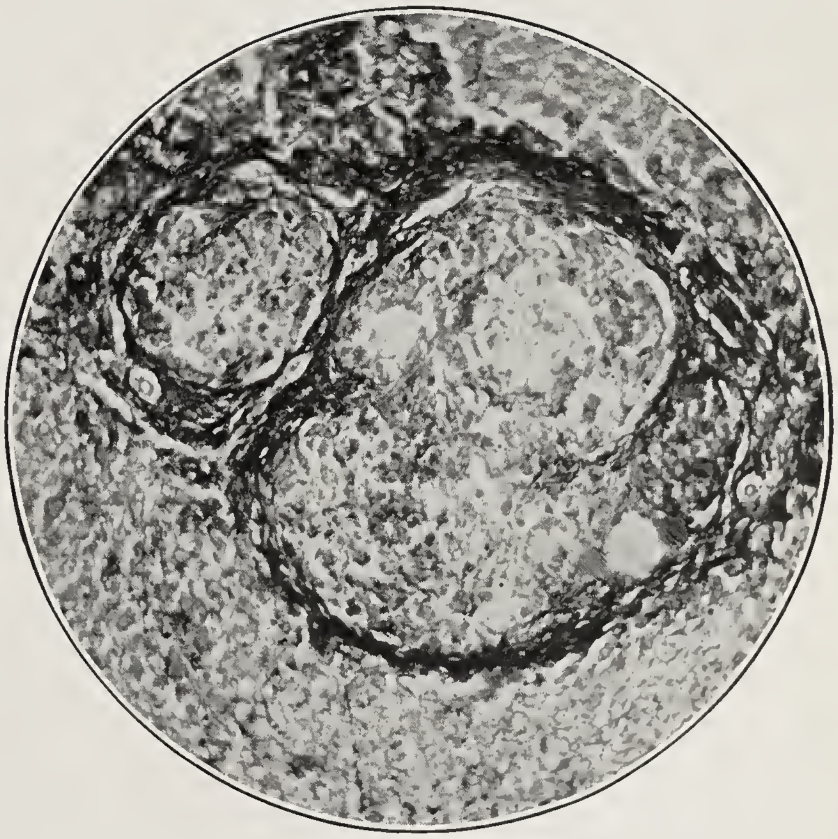
Fig. 4.—Liver of animal receiving liquid petrolatum after the injection of tubercle bacilli; there is a definite increase of fibrous tissue surrounding the tubercle (Mallory stain; slightly reduced from a photomicrograph of 100 magnification).

One hundred milligrams of a virulent strain of bovine tubercle bacilli (marked M. T. S. No. 3/30/18) was suspended in 50 c.c. of liquid petrolatum. In the first two experiments that were performed, 0.5 c.c. of this suspension was injected into the portal vein. When this experiment was repeated for the third time, a similar mixture was prepared, and 1 c.c. was injected into the portal vein. It must be remembered that the organisms must be freshly prepared before being used, for if the tubercle bacilli are permitted to remain in the oil suspension for any length of time, the virulency of the organism becomes lessened.

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[6] Walsh, J.: Am. Rev. Tuberc. 6: 975, 1922.
[7] Weiss, A.: Wien. klin. Wchnschr. 25: 697, 1912.
[8] Sersirous, quoted by Dinnan, J. B.: Heliotherapy in Tuberculosis, M. Rec. 97: 62 (Jan. 10) 1920.

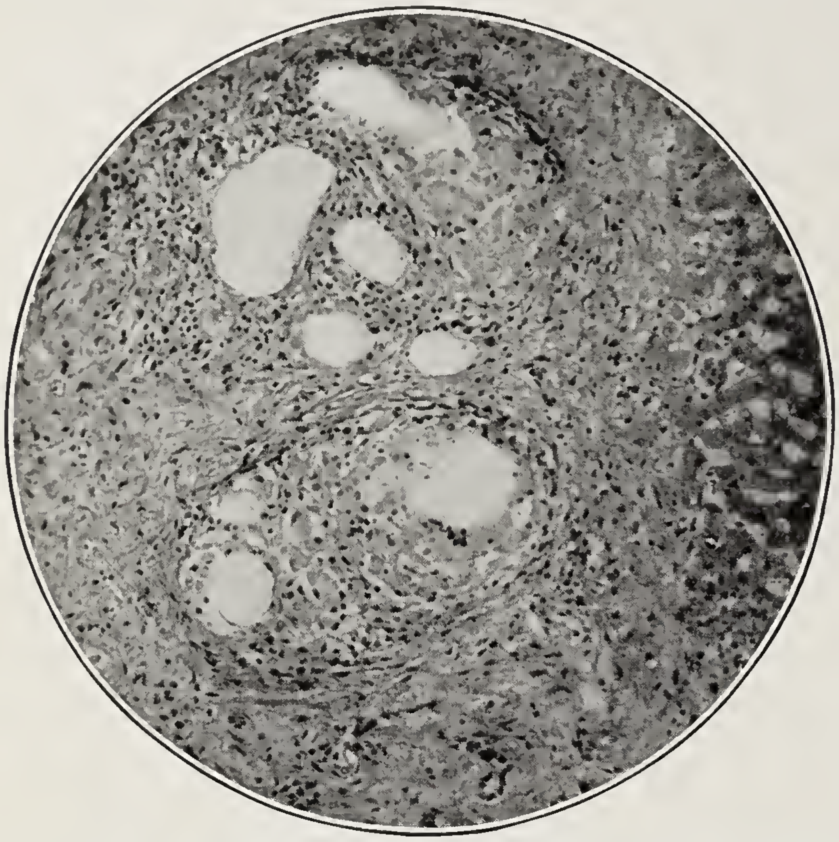

Fig. 5.—Liver of animal receiving liquid petrolatum before and after the injection of tubercle bacilli; there is a definite formation of fibrous tissue around the tubercle (hematoxylin-eosin; slightly reduced from a photomicrograph of 140 magnification).

In the first two experiments performed in which smaller amounts of tubercle bacilli were injected, we observed a very slight diminution in the number of tubercles formed in the livers of the animals that received oil before the injection of the tubercle bacilli, as contrasted to the number found in the control animals. The animals that received oil after the inoculation of tubercle bacilli showed no marked difference in the distribution of the tubercles in the livers than was observed in the control animals. The lungs of the control animals showed marked evidences of tubercle formation. The lungs of the animals that received oil prior to the injection of tubercle bacilli showed no gross evidences of tubercle formation. The lungs of the animals that received oil after the injection of tubercle bacilli showed a few scattered tubercles grossly, but not as much as was found in the control animals. The kidneys of the control animals showed gross evidences of tubercle formation. When the lungs and the livers of the animals of the entire series were examined microscopically, there was a distinct differentiation noted as to the deposit of fibrous tissue around and within the tubercles in the liver.

In the last experiment performed, in which 1 c.c., or twice the original dose, of bovine tubercle bacilli was injected into the portal vein, grossly no difference in the distribution or number of the tubercles could be observed in the livers. The microscopic examination of the tubercles in the liver showed that, in the control animals, the fibrous (Mallory stain) and connective tissue (van Gieson stain) was scanty in amount and found around the tubercle (Figs. 1 and 2). The histologic examination of the livers of the animals that received oil intravenously after the injection of tubercle bacilli showed a greater deposit of fibrous and connective tissue around the tubercle (Figs. 3 and 4). In fact, connective and fibrous tissue was also deposited within the tubercle. The microscopic examination of the livers of the animals that received oil intravenously before and after the injection of tubercle bacilli showed the greatest deposit of connective and fibrous tissue around and within the tubercle (Figs. 5 and 6), and this increased fibrous tissue could be seen surrounding the cells within the tubercle. The lungs of the control animals, however, showed evidences of tubercle formation which were observed to be fewer in number in the lungs of the rabbits that received oil after the injection of tubercle bacilli; the lungs of the rabbits that received oil prior to the injection of tubercle bacilli were relatively free from tubercle formation.

COMMENT

From the foregoing observations there appears to be no marked difference as to the degree of macroscopic distribution of tubercles in the livers of the treated and control animals. The microscopic examination of the livers of these animals shows that the amount of fibrous tissue formation around and within the tubercles is less in the control animals, that a greater formation takes place in the animals that received oil after tubercle bacilli injection and that the greatest formation is found in the animals that received oil before and after tubercle bacilli injection. Although the animals that received the oil before and after the injection of tubercle bacilli showed a marked degree of passive congestion, the latter effect evidently was not comparable to the effect in the organs that we see in cases of passive congestion in the lung with chronic heart disease and other complications. To begin with, when the oil was injected intravenously into the ear vein of the rabbit, the heavy oil droplet of the liquid petrolatum flowed into the smaller veins and capillaries of the lungs, thus blocking

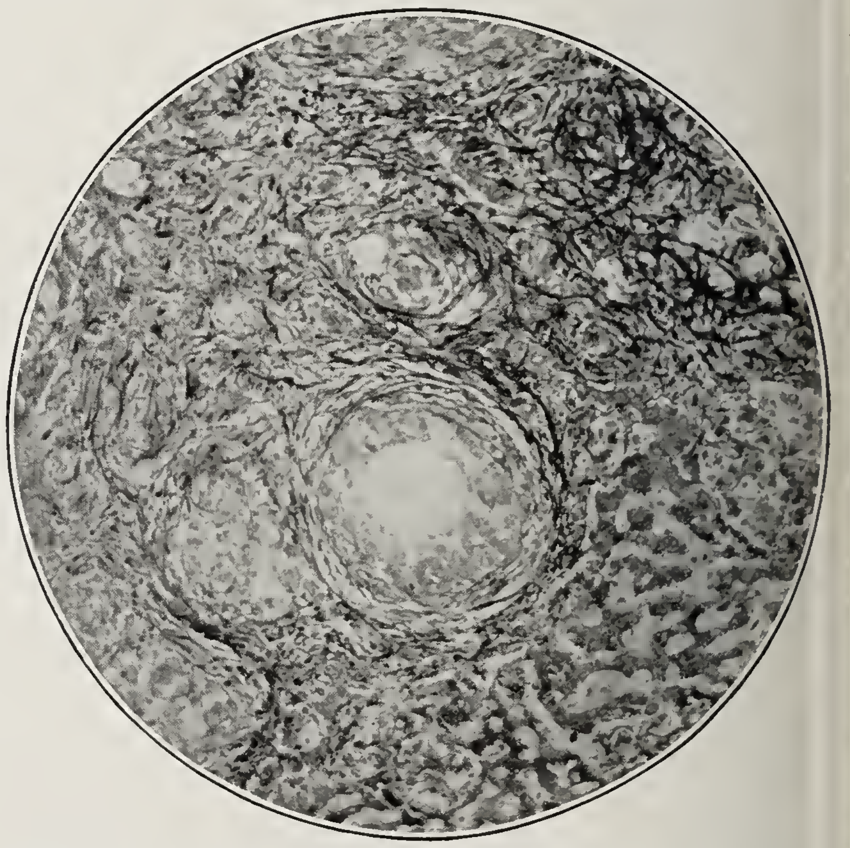

Fig. 6.—Liver of animal receiving liquid petrolatum before and after the injection of tubercle bacilli; there is a marked formation of fibrous tissue around and within the tubercle (Mallory stain; slightly reduced from a photomicrograph of 140 magnification).

hese vessels and producing a dilatation of the proximal portion of the vessel, with the resulting formation of a passive hyperemia of the lung. It is possible that some of the oil injected may have reached the smaller vessels and capillaries of the liver and produced a passive congestion of this organ. The more plausible explanation s that the liver became secondarily involved to the passive hyperemia produced in the lung, with a secondary dilatation of the heart. As was expected, the heart was enlarged in all of the animals that received oil injections. The abdominal organs, especially the abdominal vessels, were congested.

Another factor of importance in a consideration of he results of this experiment is the dosage of the ubercle bacilli injected. It was observed that the animals receiving the smaller dosage of tubercle bacilli showed different results than the animals receiving the arger dose. In the former, the animals receiving oil before the injection of tubercle bacilli and in which, herefore, a passive hyperemia had already been introduced at the time of inoculation, showed relatively fewer tubercles in the livers than was observed in the livers of the animals that received oil before being inoculated with the larger doses of tubercle bacilli.

Then, the mode of injection of the tubercle bacilli must also be taken into consideration. A virulent strain of bovine tubercle bacilli was suspended in oil and injected into the portal vein, the purpose being that the organisms suspended in the oil when injected into the portal vein would form emboli in the smaller vessels nd capillaries of the liver, and be foci for tubercle ormation. Occasionally, some of the organisms scaped through the vessels of the liver and became odged in the capillaries of the lung. This observation was noted in the lungs of the control animals.

The observations recorded on the biochemical changes f the blood in passive hyperemia were made in cases f passive congestion of the lung, and it is possible hat these chemical changes may be important in playing a rôle in the prevention of tubercle formation in he areas of passive hyperemia. Weiss advanced the heory that the low oxidation capacity of the lung etermines its vulnerability for tubercle bacilli. The amiliar fact that, with congenital pulmonary valve tenosis, pulmonary tuberculosis is common, and in mitral stenosis it is infrequent, is to be explained by he greater blood and oxygen supply in the latter, since n the lungs the venous blood is better oxygenated. urthermore, the resistance of the passive congestion ungs to tuberculosis may be equally well attributed o a high carbon dioxid content, as has been demonstrated by Corper, Gauss and Rensch.[9]

Whether or not a condition as to the oxidizing nd carbon dioxid content of the venous blood exists n the liver similar to that found in the venous blood uring congestion in the lung is problematic. This ossibly may account for the marked difference in the uantitative rate of development of tubercles in the liver s compared with the lung in cases of passive congestion of this organ. The other factor to be taken into onsideration, which requires more experimental study, the more detailed examination of the chemistry of he blood during this condition, with especial reference the carbon dioxid content, enzymes and lipolytic ower of the blood, together with a histopathologic and hemical study of the organs.

Although our results do not show any gross differences as to the quantitative distribution of the tubercles in the livers between the treated and control animals as compared with the favorable observations reported with passive congestion of the lungs and its relation to tuberculosis, they show that passive hyperemia must be associated with other conditions that favorably influence tuberculous lesions. Further studies along this line are being carried on.

CONCLUSIONS

In an experimentally produced passive hyperemia of the liver, no striking differences were noted grossly between the treated and control animals as to the quantitative distribution or size of tubercles in the liver.

The histologic examination of the livers shows a greater deposit of fibrous tissue around and within the tubercles in animals that received oil before and after being injected with tubercle bacilli, less in the animals that received oil after the injection of tubercle bacilli, and least in the control animals.

The lungs of the control animals, however, contained more tubercles than the lungs of the animals receiving oil after the tubercle bacilli injection. The lungs of the rabbits receiving oil prior to tubercle bacilli injection were relatively free from tubercles.

ABSTRACT OF DISCUSSION

Dr. H. J. Corper, Denver: About twenty-five years ago, Weber, on purely empiric reasoning and by correlating clinical facts, deduced that carbon dioxid played a part in the protective mechanism against tuberculosis during the existence of certain pathologic conditions affecting the lungs. About the same time, Bier was initiating his well known clinical studies on hyperemia or stasis treatment. Singularly, however, very few investigators have considered the experimental side of these conceptions in tuberculosis; hence, accurately controlled data are lacking to indicate just how far these conditions may influence this disease experimentally or clinically. In 1906, Baumgarten reported that stasis hyperemia retarded anthrax and staphylococcus infections, but one or two hours of stasis treatment daily for weeks had no effect on an experimental albus tumor of the knee joint. This dosage, however, can be considered insignificant only in view of present-day knowledge of the effect of carbon dioxid on the tubercle bacillus. Petersen and Levinson's work is an attempt to study the effect of a prolonged stasis on tuberculosis, and they report obtaining significant findings. Last week I reported before the National Tuberculosis Association findings obtained in rabbits when one ear was used as control and the other was constricted, thus producing a stasis which was maintained for twelve hours daily, initially, and finally continuously. The constricted ear contained about 20 per cent. more carbon dioxid than the nonconstricted control. Our experiments were complicated by an early ulceration of the intracutaneous tuberculous lesions and by tissue changes consequent to the stasis; but, when comparative reading of the lesions was possible, it was found that the development of the lesions in the stasis ear was distinctly retarded. I would especially emphasize that these experiments are to be viewed from a purely scientific and academic standpoint and are in no way applicable for clinical use, because the extreme stasis necessary experimentally at times became incontrollable and resulted in a sloughing of the stasis ear. It is hoped, however, that the results of experiments such as these performed by Petersen and Levinson and in our laboratory will eventually lead to chemotherapeutic possibilities.

Dr. Lydia DeWitt, Chicago: I have been very much interested in the carbon dioxid treatment of tuberculosis, if I may call it that, ever since it was first suggested, but have done no work along this line. I was going to suggest to Dr. Levinson what Dr. Corper already has suggested. The question of the distribution of tuberculosis in the treated as compared with the untreated animal can hardly be counted as a very marked consideration at all, because in any large set of animals we never get distribution at all alike.

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[9] Corper, H. J.; Gauss, Harry, and Rensch, O. B.: Resistance to uberculosis, a Nonimmunologic Chemical Factor Worthy of Consideration, J. A. M. A. 76: 1216 (April 30) 1921.

Dr. S. A. Levinson, Chicago: We did not notice any difference grossly as to the quantitative distribution of the tubercles in the livers of the treated and control animals. The histopathologic examination showed a difference between the treated and the control animals. We have experiments under observation now in which we are going to determine the carbon dioxid content of the blood in the treated and control animals in which we have produced a passive hyperemia of the liver.

AUSCULTATION IN THE PHYSICAL EXAMINATION OF THE ABDOMEN *

JOSEPH SAILER, M.D.
PHILADELPHIA

Auscultation is the least important of the methods of examining the abdomen. It can furnish, however, in certain cases, information that may be confirmatory, suggestive or definite. The sounds that can be heard are of greater variety than those audible in the thorax, but are, as a rule, more vague and unsatisfactory. The sounds may be either intrinsic, produced in the abdominal cavity, or extrinsic, heard over the abdominal cavity but produced in some other part of the body, always the thorax. The auscultation can be divided into (1) direct, produced with the ear alone; (2) indirect, with some form of stethoscope, and (3) modified, in which some additional procedure, such as percussion, stroking, the bubbling of air through a tube, or the vibration of a tuning fork, is used.

It is rather difficult to classify satisfactorily the sounds heard in the abdomen. Perhaps as good a classification as any is one based on the source. According to this the alimentary tract produces sounds from the esophagus, stomach and small and large intestines; special sounds are also heard at the cardia and pylorus.

The peritoneum produces chiefly friction sounds, heard particularly over the spleen and less frequently over the liver. It is possible that friction sounds may be heard in other parts, but they must be very rare, for I have found no direct reference to them nor have I heard them. If air should enter the peritoneal cavity, with fluid in the lower part of the air cavity, then metallic bubbling or tinkling can be heard. Sometimes a crepitant sound is heard in the epigastrium in association with carcinoma of the pylorus. In addition to the friction sound of perisplenitis and perihepatitis, crepitation in the hydatid cyst has been heard; once I noted crepitation in a gallbladder that was subsequently found to contain six small stones.

The vascular system gives rise to a variety of murmurs and hums, and sometimes to systolic sounds that may be of considerable intensity. Two sounds may be heard in a pregnant uterus: the fetal heart sounds, and the venous hum. Crepitus may also be elicited in some cases of fracture of the pelvic bones.

The extrinsic sounds transmitted are less numerous: (1) from the heart, rarely murmurs; (2) from the lungs, particularly râles, and (3) from the pleura, the succussion splash.

The recognition of the esophageal sounds is usually ascribed to Meltzer. The first sound is constant; the second sound is delayed in all forms of esophageal obstructions, and, if the obstruction is severe, it is lost. In cardia spasm, it is extremely variable, but always delayed or lost. This is a form of modified auscultation. The bell of the stethoscope is placed in the epigastrium immediately below the tip of the xiphoid cartilage, and the patient swallows about an ounce of water. The interval of time between the first and second sounds is measured; normally it is from six to eight seconds. If there is slight obstruction, it may be prolonged to from fifteen to thirty seconds. Bassler quotes with approval Revidtzev's statement that repeated swallowing movements after the second sound has been heard cause a repetition of the sound, if there is an esophageal stricture; but, even without these swallowing movements, the repetition occurs.

There are five important sounds heard in the stomach: a splash, a metallic dropping or tinkling, a loud gulping or roaring sound just before vomiting, a curious sound resembling the noise produced in a perforated rubber ball when it is squeezed, and a loud rumbling audible at a distance, that may be heard occasionally in young girls after meals.

The splash is the sound usually studied, and much stress has been laid on its significance. It is best elicited by placing the bell of the stethoscope in the upper part of the epigastrium to the left of the median line, and giving sudden dips with the hand placed to the left of the umbilicus. A splash can nearly always be elicited immediately after some liquid has been taken. It may be present at one time and not at another, even when the conditions are apparently the same. It is therefore not necessarily a sign of an organic lesion, or atony of the stomach. It is nearly constant in dilatation with delayed evacuation. This occurs sometimes in ulcer and sometimes in gastroptosis and usually in pylorospasm and partially obstructing carcinoma. Sometimes the spash is elicited only if one hand is placed below the ribs posterior and the other over the stomach; pressure is then made between them. This seems to have no special significance.

Metallic tinkling occurs particularly with acute gastric dilatation, as in alcoholism or an infectious dissease. It is a sign of serious disturbance. The gulping sound heard sometimes just before vomiting is of no significance in diagnosis.

The rubber ball sound is elicited in the same manner as the splash. It indicates a stomach moderately distended with air, that contains very little liquid. It suggests fermentation and some pylorospasm and is usually found in association with hypersecretion.

Concerning the loud borborygmi heard in young women, these seem to be produced by the contraction of the muscles of the abdominal wall. They do not indicate a lesion of the gastro-intestinal tract. A splashing sound synchronous with the heart beat is sometimes heard in marked atony. Hayem mentions it.

In the small intestines, peristalsis is the only important sound. It is usually a faint clicking nearly contინous, occasionally interrupted, sometimes loud or of a spurting, hissing or gasping character. I have never been able to diagnose any particular lesion, such as a stricture, by the character of the sound, and in one case in which there was a very tight stricture of the

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* Read before the Section on Practice of Medicine at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

eum just above the valve, with persistent, violent, isible peristalsis, only loud clicking sounds were eard. On the other hand, absence of peristalsis, ot as a rule difficult to determine, is almost pathogomonic of acute peritonitis. The converse is not ue, for a localized peritonitis may be present with ersistent peristalsis. I have observed several cases f this character, confirmed by operation, and all f them peritonitis due to perforation. It is possible at, in some rare instances, peristalsis may be absent the result of a functional lesion. A woman, aged 40, ith periods of constipation, was found to have cylinric intestinal shadows, with smooth outlines that oked, on the roentgenogram, as if they were simple ibes. On a subsequent occasion, part of the contents f a carmin capsule were washed through by transuodenal lavage three weeks after it had been swalwed, yet at no time were there symptoms of ostruction or inflammation. In this case, sometimes e peristaltic sounds cannot be heard.

The best place for ausculting the peristaltic sounds the right lower quadrant. Usually, the ear directly plied is better than a stethoscope. Peristalsis should t be regarded as absent unless auscultation has been ntinued for at least three minutes.

The sounds heard in the colon are of four varieties: ristalsis, splash, borborygmi and metallic tinkle. Of ese, the first is the most doubtful, for it is practically possible to distinguish between the peristaltic sounds the small and the large bowel. The splash is usually ard over the cecum, and the intensity varies. Somenes there is only a crepitation elicited by pressing th the bell of the stethoscope or stroking or dipping th the hand, or the dipping may cause a splash as aracteristic and loud as that heard in the stomach. usually is found in the atony that accompanies lanchnoptosis. It may also be found on either side there is dilatation of the colon to the proximal side a partial obstruction. Borborygmi, or loud gurgling, st heard with the stethoscope, are of little sigficance. They are found often in states of anxiety or prehension neuroses. Metallic tinkling is heard parularly on the proximal side of an obstruction, and I ve heard it only in organic strictures. It may be ard although there is no visible dilatation of the porn of the colon in which it occurs, and it is valuable locating the site of the stricture. In two cases, in ich there was no visible distention of the colon, it s possible correctly to locate the site of the lesion, l therefore to perform the colostomy at a favorable sition.

Sounds produced in the peritoneal cavity are rare. ey consist of friction sounds that are either extremely e or rarely recognized; of crepitation, of which the ne thing is probably true, and of metallic tinkle and cussion. My experience has been very slight. Fricn I have heard only once in a case diagnosed as isplenitis. This patient had pain and tenderness in splenic region, increased by breathing and greatly reased by strapping, together with fever and prostran. The friction was very loud, and heard best just eath the end of the eleventh rib on the left side. e patient recovered. In another case, the friction s heard over the liver; this was also febrile. No ration was done, and this patient recovered.

Crepitation is described as one of the physical signs hydatid cysts. It is produced by placing the bell of stethoscope over the suspected cyst and palpating in the neighborhood with the hand. Dieulafoy mentions this, but Hayem does not. Hydatid cysts are rare in this country. Crepitation may be heard by the same method in a few cases of multiple stones of the gallbladder. In one case, it was heard and felt before operation. I heard it once in a patient with carcinoma, which involved the region of the pylorus and the gallbladder. Before the exploratory operation, hydatid cyst was suspected.

Metallic tinkling occurs when there has been an intestinal perforation, and liquid and gas are encapsulated in the peritoneal cavity by adhesions. In the one case that I studied, traumatic rupture of the transverse colon caused an air pocket between the anterior surface of the liver and the abdominal wall. The metallic tinkling lasted throughout the course of the case.

Succussion splash is usually, but not always, obtained in subdiaphragmatic pyopneumothorax. In the cases that I have observed, it was not loud. It is only an accessory sign in reaching a diagnosis.

Auscultation may be rendered more valuable by a variety of methods. Of these, the simplest is auscultatory percussion. It may be performed either with a long stem single stethoscope, as Hayem prefers, so that no assistant is required, or with the usual binaural form. This requires an assistant either to hold the bell of the stethoscope or to percuss. It is most useful for the purpose of outlining the stomach; less useful to outline a distended colon, and of very little use for any other purpose. In place of ordinary percussion, one-handed percussion may be performed by trilling with the index and middle fingers. The fingers must be held stiff and straight, the whole palmar surface striking the abdomen. They should be held parallel to the edge of the organ that is being outlined, and the trill should be as rapid as possible. This method seems to be more delicate and precise than ordinary percussion. With the Bianchi phonendoscope or Bowles stethoscope, stroking the surface of the abdomen gives fair but unequal results. The instrument is rarely used. A whistle in the end of the stomach tube has also been employed, but I have never tried it. It is not likely that it is better than the method used by the late John H. Musser, who blew small jets of air through the tube introduced into the stomach, the loud bubbling produced changing distinctly in intensity as the bell of the stethoscope moved over the edge of the stomach.

By far the best method of aided auscultation is the combination with the tuning fork. This was first, I believe, suggested by Benedict of Buffalo. It is simple, requiring no assistance, very quick and, when compared with other methods of outlining the stomach, especially the roentgen ray, is accurate, provided the patient is in the same position for the two methods. The tuning fork is particularly useful for stomach and colon delimitation. To outline the stomach, the bell of the stethoscope is placed in the epigastrium just to the left of the median line and below the tip of the xiphoid. The tuning fork, held by the stem, is set in vibration by a gentle blow, and it is better if the vibrations are not audible. The stem of the tuning fork is placed on the wall of the abdomen below the suspected position of the greater curvature, and is moved upward. The point at which the hum becomes loud and clear is assumed to indicate the lower border of the stomach. By moving the stem of the tuning fork along various radii that converge at the bell of the stethoscope, one can obtain a complete outline, but only in unusual cases can a defect in the outline be demonstrated. The tuning fork is most useful if the patient is lying on the back, thus bringing the air bubble to the surface.

B. B. V. Lyon[1] has recently stated that if a loud hum is transmitted to the stethoscope when the stem of the tuning fork is placed over the liver, the existence of an adhesion between the liver and the stomach is indicated, and that, by varying the position of the tuning fork, the location and extent of the adhesion can be determined. I have not been able to substantiate this statement, but I have not had as large a number of controlled cases since I read the paper as Lyon reports. I feel sure that it is not correct in all cases; that is, in some cases the adhesions may be present and Lyon's sign fail, but in different cases conditions must vary so greatly that no sign could be expected to be constant.

Intrinsic abdominal sounds are also produced in the blood vessels. These consist of aneurysmal bruits, arterial sounds, vascular murmurs, either spontaneous or produced by pressure, and venous hums. Abdominal aneurysmal bruits are much rarer than abdominal aneurysms, and, as the diagnosis is not as a rule difficult, the presence of the murmur is easily explained. The bruit may be loud or faint, constant or interrupted; it is heard best in the epigastrium, and may sometimes also be heard in the left costovertebral region and sometimes along the left border of the lumbar vertebrae.

Systolic arterial sounds, the Traube sign, are heard in at least three conditions: (1) aortic regurgitation; (2) exophthalmic goiter, and (3) pernicious anemia. They are most frequently heard in aortic regurgitation, and are rare in the other two conditions. They are heard over the external iliac arteries, and also over the abdominal aota. In the latter position, they are sometimes confused with the accentuated first sound of mitral stenosis, which is also heard in the epigastrium. As the diagnosis of the three conditions in which these sounds occur rarely presents difficulty, excepting that during a partial remission of pernicious anemia the sound may persist, the reason for the presence of the sign is clear.

Systolic murmurs are found in six and possibly more conditions: 1. In arteriosclerosis, especially the advanced cases. The murmurs are often elicited only by pressure over the arteries. 2. In aortic regurgitation, also more likely to be heard if pressure is used. 3. In fevers, in which the murmurs are usually heard in the epigastrium and disappear as the fever subsides. I have suspected that they are caused by an endarteritis, but have never been able to prove that this is the case. These febrile murmurs are heard most frequently in typhoid fever. 4. In anemic conditions, usually heard best in the epigastrium, but rare even if the anemia is extreme. 5. In congestion of certain organs, particularly the kidney. These murmurs are rare and not at all certain. I have heard them in a case shown at operation to be acute congestion of the kidney due to temporary obstruction of the ureter. The murmur was systolic and heard in the right flank posteriorly. 6. In unexplained conditions. These murmurs are systolic in time, and are usually located in the epigastrium. They are transient and probably of little significance.

Concerning venous hums, I am very doubtful. I recall one case in which a persistent bruit with a systolic increase was heard in the right costovertebral angle. A number of men of the medical staff examined the patient and advanced various theories, but the postmortem examination supplied no explanation.

The auscultatory signs of subdiaphragmatic pyopneumothorax are similar to those of the supradiaphragmatic form.

The extrinsic sources of ausculatory signs in the abdomen are the esophagus (already described), the heart and the lungs.

The heart sounds are occasionally heard in the abdomen in apparently normal persons. If the heart is abnormal, particularly if there is hyperthyroidism with palpitation or mitral stenosis, the sounds are often clearly transmitted. I have endeavored in vain to discover some system or significance in this transmission. It is worth noting that the sounds of mitral stenosis are frequently heard most loudly in the left lower quadrant, but this is not invariable. A second sound is occasionally heard in the right upper quadrant, and heart murmurs are heard in the epigastrium. In one extraordinary case of tuberculous pyopneumopericardium, the loud crepitation sound produced by the churning action of the heart could be heard as far down as the umbilicus. Hayem also calls attention to the transmission of heart murmurs to the abdomen.

The interest in this subject has been greatly increased by an article of Aschner's.[2] This author asserts that in nearly all acute abdominal conditions with purulent or seropurulent exudate in the peritoneal cavity, the heart sounds and the inspiratory murmur can be heard over the abdomen. I have not been able to confirm this, but I have not had enough cases to assert that it never occurs. The converse, however, is not true, for the heart sounds may be heard although there is no peritonitis. The sign may be of some confirmatory value, but as a test it must always be regarded as uncertain.

Of all the pulmonary sounds heard, the harsh crackling of pulmonary edema is most constantly, indeed almost invariably, audible in the abdomen. The distribution is diffuse and the transmission loud. Bronchial breathing may also be heard in the upper abdomen on the same side as the affected lung. Râles, if loud, as in asthma, are often audible below the ribs. The succussion splash of a pyoneumothorax can also be heard. Friction rubs are rarely transmitted, at least I have heard them only a few times when the pleural friction was very loud. Hayem, however, mentions them.

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[1] Lyon, B. B. V.: A Clinical Method of Determining Adhesions Between the Stomach and the Gall Tract, Surg., Gynec. & Obst. **35**: 232-233 (Aug.) 1922.

[2] Aschner, P. W.: Auscultatory Sign Observed in Acute Abdominal Diseases, Am. J. M. Sc. **162**: 712 (Nov.) 1921.

The Modern Physician.—With the emergence of medicine from the mysterious, no less a revolution has occurred in the practitioner of medicine. While a good bedside manner is still a valuable asset, and will so remain in so far as it connotes a sympathetic and human attitude towards the sick and suffering, and while from a business point of view a good shop-front no doubt has its value, no longer are the doctor's brains assessed by the sheen of his tall hat or the length of his frock coat. Like medicine, the doctor has become less mysterious, less aloof from and superior to his fellow men. Knowing more he has become less omniscient. Standing on surer ground he has become less pretentious. The medical priestcraft, reminiscent of a time when the medicine man was more priest than physician, and more charlatan than either, has disappeared or is disappearing. This is all to the good, and tends to a more enlightened confidence between doctor and patient.—Childe, C. P.: Environment and Health, *Lancet* **2**:155, July 28, 1923.

RESPONSE OF PERSONS VACCINATED WITH TRIPLE TYPHOID VACCINE *

WALTER V. BREM, M.D
LOS ANGELES
AND
BERTHA M. CHALLIS, A.B., M.A.
PASADENA, CALIF.

The object of this report is (1) to record the clinical reactions of 134 persons vaccinated with the "triple vaccine" to immunize them against the typhoid group of diseases; (2) to record the titrations of the serums of 110 of the vaccinated persons, and (3) to report some phenomena observed during the work.

Rawling's strain of *B. typhosus* was used. For the culture of this strain and, also, for the cultures of *B. paratyphosus* A and B, we are indebted to the California State Hygienic Laboratory. These strains were used both in the preparation of the vaccine and in titrations of serums.

The vaccine was prepared so that 1 c.c. contained of the agar grown, heat killed (60 C.) organisms *B. typhosus*, 500,000,000; *B. paratyphosus* A, 250,000,000, and *B. paratyphosus* B, 250,000,000. The vaccine was given by three subcutaneous injections at ten-day intervals, the quantities being, respectively, 0.5, 1 and 1 c.c.

CLINICAL REACTIONS

Only general reactions were recorded. Satisfactory records were obtained from 120 of the 134 persons receiving the first injection of vaccine; from 122 receiving the second injection, and from 110 receiving the third injection. The persons to be vaccinated were segregated into four groups according to the histories given of previous vaccination against typhoid fever or a past attack of typhoid fever, or both.

Table 1 may be thus summarized: No reactions: first injection, 52 per cent.; second injection, 49 per cent.; third injection, 78 per cent. Mild reactions: first njection, 43 per cent.; second injection, 45 per cent.; third injection, 21 per cent. Severe reactions: first njection, 5 per cent.; second injection, 6 per cent.; third njection, 1 per cent. Chills: first injection, 16 per cent.; second injection, 14 per cent.; third injection, 3 per cent. There was no striking difference between he reactions of the four groups. The evidence indiates, therefore, that neither previous vaccination nor a past attack of typhoid fever influences materially the linical reactions to subsequent vaccination. The most triking phenomenon brought out is that the third injecion caused a much smaller percentage of mild and evere reactions and chills than did the first and second njections. Two injections, therefore, seemed to prouce a definite relative tolerance for the toxins of the accine.

We observed a phenomenon parallel to that menoned above in a rabbit that had received repeated ntravenous injections of heat killed typhoid bacilli. Neither a febrile nor an apparent general reaction ould be induced by the intravenous injection of heat illed organisms from the whole twenty-four hour rowth on two agar slants. A severe reaction, however, was induced by the living organisms from one gar slant. The same strain of typhoid organisms caused marked febrile reactions in rabbits not previously inoculated when the heat killed organisms of one-half the growth on one agar slant were injected intravenously.

Craig [1] and Davison [2] also have reported that the clinical reactions from the third injection of triple vaccine were less numerous and less severe than those after either the first or the second injection. In Craig's series, however, the negative or mild reactions after the second injection were more numerous than after the first, while in ours they were approximately equal.

AGGLUTINATION TESTS

Tests to determine the agglutinating power of the serums of 110 of the vaccinated persons were made on approximately the tenth day after the third injection of the vaccine.

Antigen.—During previous work on the agglutinins of rabbits inoculated with *B. typhosus,* we observed that agar cultures of organisms grown at a low temperature (on top of the incubator) were agglutinated far more readily than incubator-grown cultures at 37 C. We repeated this observation many times with typhoid and paratyphoid bacilli, testing them with both rabbit and human serums. After determining that the room-grown cultures were not agglutinated by normal serums, we introduced their use in the preparation of typhoid and paratyphoid antigens for routine agglutination tests. The eighteen to twenty-four hour agar culture was suspended in physiologic sodium chlorid solution and diluted so that 1 c.c. contained approximately 1,000,000,000 organisms. The agglutinability of these antigens has been compared with Dreyer's [3] formaldehyd-killed standard antigen made from both incubator and room-grown organisms. The agglutinability of the two antigens was found to be approximately the same. Dreyer's antigen made from room-grown organisms seemed a little more sensitive than one made from incubator organisms, though no striking difference was observed.

Table 1.—*General Reactions to "Triple Vaccination"*

	Per Cent. of Reactions* to First Dose, 0.5 C.c.					Per Cent. of Reactions to Second Dose, 1 C.c.					Per Cent. of Reactions to Third Dose, 1 C.c.				
	No. of Records	None	Mild	Severe	Chills	No. of Records	None	Mild	Severe	Chills	No. of Records	None	Mild	Severe	Chills
1. Not previously vaccinated and no history of typhoid.........	69	58	39	3	16	75	57	39	4	12	69	78	20	1.5	4.3
2. Previously vaccinated; no history of typhoid	31	42	48	10	16	29	38	55	7	28	27	81.5	18.5	0	0
3. History of typhoid; not previously vaccinated...........	14	43	50	7	21	12	42	50	8	0	11	73	27	0	0
4. Previously vaccinated and history of typhoid	6	50	50	0	0	6	17	67	17	0	3	67	33	0	0
Totals........	120	52	43	5	16	122	49	45	6	14	110	78	21	1	3

* "None" indicates temperature under 99 and no malaise; "mild," temperature 99 or over but under 102, general malaise, sometimes chills; "severe," temperature 102 or over, malaise, often chills.

Serums.—The first sixty-eight tests were made with both active and inactive serums. As it was found that bacteriolytic substances in active serums frequently interfered with and obscured agglutination in low dilutions and sometimes in dilutions as high as 1 to 160, subsequent tests were made with inactivated serums only. Inactivation did not affect the titer of agglutinins.

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* Read before the Section on Pathology and Physiology at the eventy-Fourth Annual Session of the American Medical Association, n Francisco, June, 1923.

[1] Craig, C. F.: Triple Typhoid Vaccine, J. A. M. A. **69**: 1000 (Sept. 22) 1917.

[2] Davison, W. C.: Superiority of Inoculations with Mixed Triple Vaccine, Arch. Int. Med. **21**: 437 (April) 1918.

[3] Dreyer, Georges: J. Path. & Bacteriol. **13**: 332, 1909.

Method.—The macroscopic method was used. Serial dilutions of a serum were made in eight small test tubes, 0.4 c.c. of each dilution being used. To each tube, 0.4 c.c of antigen was added, making a total quantity of 0.8 c.c.. The final dilutions of serum were 1 : 10, 1 : 20, 1 : 40, 1 : 80, 1 : 160, 1 : 320, 1 : 640 and 1 : 1,280. A ninth tube containing 0.4 c.c. of antigen and 0.4 c.c. of physiologic sodium chlorid solution controlled spontaneous agglutination and furnished a standard for comparison. The tubes were incubated for two hours at 37 C., placed in the icebox overnight, and the result of the test read the next morning. Records were made of the highest dilution showing complete agglutination (clear supernatant fluid and sedimented organisms), and of the highest dilution showing partial agglutination (granular macroscopic appearance compared with the control tube).

Table 2.—*Agglutinating Power of Serums from One Hundred and Ten Vaccinated Persons*

Dilutions of Serums	Percentage of Reactions by Various Dilutions of Serums vs. Agglutinating B. Typhosus (Rawling's)			Percentage of Reactions by Various Dilutions of Serums vs. Agglutinating B. Paratyphosus A			Percentage of Reactions by Various Dilutions of Serums vs. Agglutinating B. Paratyphosus B		
	Complete	Partial	None	Complete	Partial	None	Complete	Partial	None
1:10	78	21	1	72	23	5	73	22	5
1:20	72	23	5	70	17	13	66	25	9
1:40	64	24	12	68	15	16	51	25	24
1:80	47	26	26	59	15	25	34	24	43
1:160	16	32	52	43	24	34	13	24	64
1:320	7	9	84	22	29	49	3	11	86
1:640	3	5	93	8	16	75	0	4	96
1:1,280	0	3	97	0	8	92	0	0	100

Table 3.—*Agglutinating Power of Serum from Seventy Vaccinated Persons Previously Unvaccinated and Giving No History of Having Had Typhoid Fever*

Dilutions of Serums	Percentage of Reactions by Various Dilutions of Serums vs. B. Typhosus (Rawling's)			Percentage of Reactions by Various Dilutions of Serums vs. B. Paratyphosus A			Percentage of Reactions by Various Dilutions of Serums vs. B. Paratyphosus B		
	Complete	Partial	None	Complete	Partial	None	Complete	Par. tial	None
1:10	80	19	1	73	24	3	80	17	3
1:20	70	26	4	71	17	12	71	23	6
1:40	61	23	16	70	16	14	59	20	21
1:80	48	24	28	63	14	23	36	30	34
1:160	13	34	53	49	23	28	13	26	61
1:320	7	7	86	26	28	46	3	10	87
1:640	4	3	93	10	16	74	0	3	97
1:1,280	0	4	96	0	10	90	0	0	100

The results of the tests as a whole are shown in Table 2. The results of the tests segregated into groups with reference to the absence or presence of a history of previous vaccination or of past typhoid fever, and the occurrence or not of marked reactions to the vaccines are shown in Tables 3, 4, 5, 6 and 7.

AGGLUTINATION TESTS

Table 2 shows that vaccination with triple vaccine stimulates marked production of agglutinins for each of the three organisms, a fact that has been previously demonstrated by other investigators, as Craig[1] and Davison.[2] It shows, further, that in this series the percentages of positive tests (complete or partial agglutination) in the lower dilutions up to 1 : 40 were approximately equal for the three organisms. In dilution of 1 : 80, and in greater dilutions, the percentage of positive tests for *B. paratyphosus* B decreased much more than for *B. typhosus* and *B. paratyphosus* A, while the higher dilutions agglutinated *B. paratyphosus* A better than *B. typhosus*. Craig[1] obtained practically the same results, though the variations were not so great in his series of twenty-four persons. Individuals in our series exhibited marked differences in their responses to the three organisms, though, in general, the responses ran roughly parallel, but less so than in Craig's series. Not infrequently, one serum would agglutinate *B. typhosus* in high dilution and *B. paratyphosus* A or B or both in but low dilution. Agglutination with high dilutions was obtained most frequently with *B. paratyphosus* A, which, like B, was present in the vaccine in only half the number of *B. typhosus*. This did not appear to be due to the greater agglutinability of the A strain, for thirty serums agglutinated *B. typhosus* in higher dilution. The relative agglutinating power of the serums for the three organisms was:

B. typhosus was agglutinated by higher dilutions than *B. paratyphosus* A thirty times, or 27 per cent.

B. typhosus was agglutinated by higher dilutions than *B. paratyphosus* B fifty-three times, or 48 per cent.

B. paratyphosus A was agglutinated by higher dilutions than *B. typhosus* fifty-one times, or 46 per cent.

B. paratyphosus A was agglutinated by higher dilutions than *B. paratyphosus* B sixty-one times, or 55.5 per cent.

B. paratyphosus B was agglutinated by higher dilutions than *B. typhosus* twenty-five times, or 22 per cent.

B. paratyphosus B was agglutinated by higher dilutions than *B. paratyphosus* A eighteen times, or 16 per cent.

Comparison of Tables 3 and 4 brings out no definite difference in the agglutinin response to *B. typhosus* between the groups previously and not previously vaccinated. In the cases of *B. paratyphosus* A and B, the negative group responded better than the previously vaccinated group, but the difference is probably fortuitous. It would be rash to argue that previous vaccination actually inhibited the production of agglutinins. Indeed, it is not known whether or not the previous vaccine used contained all three organisms or only *B. typhosus*. Certainly it contained the latter, and there is no appreciable difference between the responses to *B. typhosus* in the two groups.

Table 4.—*Agglutinating Power of Serums from Twenty-Five Vaccinated Persons Previously Vaccinated But Giving No History of Having Had Typhoid Fever*

Dilutions of Serums	Percentage of Reactions by Various Dilutions of Serums vs. B. Typhosus (Rawling's)			Percentage of Reactions by Various Dilutions of Serums vs. B. Paratyphosus A			Percentage of Reactions by Various Dilutions of Serums vs. B. Paratyphosus B		
	Complete	Partial	None	Complete	Partial	None	Complete	Par. tial	None
1:10	72	28	0	64	24	12	52	32	16
1:20	72	24	4	60	20	20	52	20	28
1:40	60	36	4	60	12	28	28	36	36
1:80	44	28	28	44	20	36	24	8	68
1:160	20	28	52	24	24	42	8	16	76
1:320	4	16	80	12	16	72	4	4	92
1:640	0	4	96	4	8	88	0	4	96
1:1,280	0	0	100	0	4	96	0	0	100

The group of Table 5, representing the persons giving a history of past typhoid fever, is small. Comparing the reactions with those of Tables 3 and 4, it would seem at first that the typhoid group responded best to vaccination with *B. typhosus*. But it apparently responded best, also, to the paratyphoid A and B organ- sms. The group shows no very striking variation, and uch as there is must be regarded as incident to the small umber of persons in the group. The serums of the wo persons who had been vaccinated previously and vho, also, gave a history of past typhoid fever showed o striking agglutinating power.

Comparison of Tables 6 and 7 shows that the agglu- inating power of the serums of the group of persons vho had a marked clinical reaction to the vaccine was lightly stronger than that of the serums of the nega- ive group. The difference, however, was not great nough to be of significance.

One person was vaccinated by an intravenous injec- ion of 0.1 c.c. of the vaccine. He had a severe chill and ever reaction. Before vaccination, no agglutinins uld be demonstrated even in a 1 : 10 dilution of the rum. The serum titrations, showing dilutions that oduced complete agglutination, are given in Table 8.

ABLE 5.—*Agglutinating Power of Serums from Twelve Vaccinated Persons Not Previously Vaccinated but Giving a History of Having Had Typhoid Fever**

Dilutions of erums	Percentage of Reactions by Various Dilutions of Serums vs. B. Typhosus (Rawling's)			Percentage of Reactions by Various Dilutions of Serums vs. B. Paratyphosus A			Percentage of Reactions by Various Dilutions of Serums vs. B. Paratyphosus B		
	Complete	Partial	None	Complete	Partial	None	Complete	Par. tial	None
1:10	83	17	0	75	17	8	75	25	0
1:20	83	17	0	75	17	8	67	33	0
1:40	83	17	0	75	17	8	58	25	17
1:80	58	33	8	67	17	17	42	33	25
1:160	33	25	42	50	25	50	17	33	50
1:320	17	17	67	17	50	33	0	25	75
1:640	0	8	92	8	25	67	0	8	92
1:1,280	0	0	100	0	8	92	0	0	100

* Two persons had had typhoid fever and had been previously vaccinated also. The titrations of their serums were:
1. B. typhosus agglutination complete 1:80; partial 1:160
   B. paratyphosus A agglutination complete 1:80, partial 1:160
   B. paratyphosus B agglutination complete 1:20, partial 1:40
2. B. typhosus agglutination complete 1:20, partial 1:40
   B. paratyphosus A agglutination complete 1:20, partial 1:40
   B. paratyphosus B agglutination complete 1:40, partial 1:80

ABLE 6.—*Agglutinating Power of Serums from Seventy-Seven Vaccinated Persons Who Had No Systemic Reaction to the Vaccine or Whose Temperature Did Not Rise to 101 F.*

Dilutions of erums	Percentage of Reactions by Various Dilutions of Serums vs. B. Typhosus (Rawling's)			Percentage of Reactions by Various Dilutions of Serums vs. B. Paratyphosus A			Percentage of Reactions by Various Dilutions of Serums vs. B. Paratyphosus B		
	Complete	Partial	None	Complete	Partial	None	Complete	Par. tial	None
1:10	77	22	1	70	23	7	69	25	7
1:20	69	29	3	68	19	13	60	29	10
1:40	62	26	12	65	18	17	51	22	27
1:80	47	27	26	60	10	30	31	26	43
1:160	14	34	52	45	21	34	13	21	66
1:320	5	8	87	19	32	48	1	13	86
1:640	0	5	95	7	17	77	0	3	97
1:1,280	0	0	100	0	7	93	0	0	100

While very good agglutinating power was obtained the small quantity of vaccine given intravenously, it ould be noted that the titer rapidly decreased, at least gainst *B. typhosus* and *B. paratyphosus* B, so that ithin about six weeks after vaccination, agglutination as incomplete or absent in even a 1 : 10 dilution of e serum.

Another person, who had previously been vaccinated ainst typhoid, was given 0.1 c.c. subcutaneously of e vaccine daily for nine days. There were no clinical actions. The serum titrations, showing complete glutination, were as in Table 9.

There was no change in the reaction against *B. typhosus*, but there was a marked production of agglutinins against *B. paratyphosus* A and B.

The so-called "proagglutinoid" phenomenon was encountered six times in the tests with *B. typhosus*, four times with *B. paratyphosus* A, and three times with *B. paratyphosus* B. In these tests, the lower dilutions of serum failed to agglutinate the organisms, while with higher dilutions agglutination was complete.

Table 7.—*Agglutinating Power of Serums from Thirty-three Vaccinated Persons Who Reacted to the Vaccine with a Temperature of 101 F. or More or (and) Chills*

Dilutions of Serums	Percentage of Reactions by Various Dilutions of Serums vs. B. Typhosus (Rawling's)			Percentage of Reactions by Various Dilutions of Serums vs. B. Paratyphosus A			Percentage of Reactions by Various Dilutions of Serums vs. B. Paratyphosus B		
	Complete	Partial	None	Complete	Partial	None	Complete	Par. tial	None
1:10	82	18	0	76	21	3	82	15	3
1:20	79	12	9	76	12	12	82	15	6
1:40	67	21	12	76	9	15	52	33	15
1:80	49	24	27	58	27	15	39	18	42
1:160	21	27	42	36	30	33	12	30	58
1:320	12	12	76	27	21	52	6	6	88
1:640	9	3	88	12	15	73	0	6	94
1:1.280	0	9	91	0	12	88	0	0	100

BACTERIOLYSIS

There appears to be considerable confusion in the literature regarding bacteriolytic substances, as "bacteriolysins" and "bactericidins" have been used synonymously. Obviously, bacteriolysis should refer to the actual solution of bacteria, as in Pfeiffer's [4] well known phenomenon, which Metchnikoff,[5] Bordet [6] and others reproduced to a lesser extent in vitro. Using "bacteriolysis" in this sense, we have been unable to find in the literature any mention of bacteriolysis, in vitro, of *B. typhosus* or of the paratyphoid organisms. This seems especially remarkable, because, in the agglutination tests reported above, lysis was an obvious phenomenon and interfered so frequently with the tests in the lower dilutions that it was found necessary to eliminate such a disturbing factor by inactivating the serum at 56 C. for one-half hour. Such serums could be reactivated by the addition of complement. The lytic bodies belonged, therefore, to the amboceptor-complement order of antibodies. The first sixty-eight agglutination tests were made with both active and inactivated serums. No bacteriolytic substances against

Table 8.—*Dilutions That Produced Complete Agglutination*

	B. Typhosus	B. Paratyphosus A	B. Paratyphosus B
June 26, 1917 (vaccinated).....	No agg. 1:10	No agg. 1:10	No agg. 1:10
July 3........................	1:10	1:160	1:40
July 6........................	1:160	1:640+	....
July 13.......................	1:160	1:640	1:80
August 14.....................	1:10 1:40 partial agg.	.....	No agg. 1:10

Table 9.—*Serum Titrations Showing Complete Agglutination*

	B. Typhosus	B. Paratyphosus A	B. Paratyphosus B
9/21/17 (before vaccination)..	1:80	No agg. 1:10	No agg. 1:10
10/ 6/17 (1 week after vac.)....	1:80	1:640	1:320

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[4] Pfeiffer: Ztschr. f. Hyg. **18**, 1894.
[5] Metchnikoff: Ann. de l'Inst. Pasteur, 1895.
[6] Bordet: Ann. de l'Inst. Pasteur, 1895.

B. paratyphosus B were observed, but frequent lysis of *B. typhosus* and *B. paratyphosus* A occurred. The results are given in Table 10.

Further studies on antityphoid lysins in normal and immune serums are being made, and the results will be reported in a subsequent communication. We wish merely to note here that we have found marked lytic power in normal human serums without agglutinins as well as in immune serums, and that rabbit immune serums, of high agglutinin titer, contain no lytic substances. On the other hand, in rabbits, complement-fixing bodies are produced in high titer by vaccination, while in human beings they are rarely found even in low dilutions.

Table 10.—*Bacteriolysis of B. Typhosus (Rawling's) and B. Paratyphosus A*

Dilutions of Serums	Percentage of Lytic Reactions by Various Dilutions of Serums vs. B. Typhosus Rawling's (68 Tests)			Percentage of Lytic Reactions by Various Dilutions of Serums vs. B. Paratyphosus A (67 Tests)		
	Complete	Partial	None	Complete	Partial	None
1:10	88	6	6	19	33	48
1:20	86.7	7	6	10	31	58
1:40	79	13	7	4	12	84
1:80	48	32	10	2	4	94
1:160	4	44	51	0	2	99
1:320	0	4	96	0	0	100

SUMMARY

1. Organisms of the typhoid group grown at room temperature furnish a more sensitive antigen for agglutination tests than those grown at incubator temperature. The room-grown organisms yield an antigen that has about the same degree of agglutinability as the Dreyer standard antigen.
2. General clinical reactions to the triple typhoid vaccine are less numerous and less severe after the third injection than after the first and second.
3. The triple typhoid vaccine produces a good agglutinin response in the majority of persons to each of the three organisms included.
4. The agglutinin response is not influenced to any significant degree by (1) previous vaccination, (2) previous typhoid fever, (3) previous vaccination and typhoid fever, or (4) the degree of the general clinical reactions.
5. Lytic bodies against *B. typhosus* and *B. paratyphosus* A are frequently present in normal and immune human serums, and they may interfere seriously with the agglutination test made with active serums. They are not found in immune rabbit serums.

ABSTRACT OF DISCUSSION

Dr. William Ophuls, San Francisco: I can confirm from personal experience the superiority of the room-grown cultures. We never used any others when we did this work, and they certainly react much more promptly than the incubator-grown cultures.

Dr. R. A. Kilduffe, Los Angeles: I should like to ask Dr. Brem whether he had any personal experience with the observation reported by O'Hara of Boston which tends to show that in a typhoid case with a dropping agglutinin titer, while the clinical condition of the patient remains unchanged, the prognosis tends to be bad. He reported a small series of cases apparently showing this to be the case. I was able to follow the same phenomenon in an isolated instance—which, of course, is of little significance.

Dr. Walter V. Brem, Los Angeles: I cannot say very much in answer to Dr. Kilduffe's question. When we made agglutination tests every three days in our typhoid cases we were using incubator-grown organisms which were not very sensitive. We not infrequently encountered cases with a rising agglutination test which became positive only once or twice during the whole course of the disease, and then became negative again; but we did not receive the impression when they became negative that the patients did any worse than the others. We have had several cases that went entirely through the initial attack of typhoid and subsequent relapse without a positive agglutination test, and then during recrudescence, or third relapse, their tests became positive. I do not have the impression that there is any definite relation between the agglutination and the prognosis. The question that has arisen is whether or not there is some relation between the lytic bodies and typhoid immunity. However, these lytic bodies occur in normal serums and apparently are not produced or are not influenced very much by the vaccination. Now, are the persons who do not have these lytic substances the ones that are susceptible to typhoid? Is it not a little difficult to conceive of a person who is strong in these lytic substances harboring typhoid bacilli which dissolve in lytic serums like sugar? On the other hand, we see in rabbits a marked natural immunity, and yet rabbits possess no lytic antibodies against typhoid. On the other hand, rabbits will respond to vaccination with tremendous concentration of complement fixing bodies. I am almost ashamed to say that one of our rabbits showed complement fixation with a one to two billion dilution of the serum. The observation was carefully checked up. Several times fixation occurred with dilutions greater than 1 : 100,000. Human serum very rarely shows complement fixing bodies, but is often strong in lytic bodies. It is a very interesting study to compare the antibody reactions of rabbits and human beings. We do not know just what is the relation between antibodies and immunity.

THE ADMINISTRATIVE VALUE OF THE VIRULENCE TEST FOR DIPHTHERIA BACILLI

WITH A REPORT ON THE USE OF FIELD CULTURES *

FRANK L. KELLY, M.D.
AND
ALICE POTTER, A.B.
BERKELEY, CALIF.

The contention of Loeffler [1] that virulent diphtheria bacilli can be differentiated from nonvirulent strains only by animal inoculation was lost sight of following the claim of Neisser [2] that a differentiation can be made by means of special stains. It has therefore become customary to quarantine persons found to be harboring organisms diagnosed on morphologic examination alone as diphtheria bacilli. The realization of the fact that the morphology of the organism is no criterion of its toxin production, and that persons quarantined on morphologic evidence often constitute no menace to the public health, has made necessary some rapid, economical method of determining the virulence or nonvirulence of cultures morphologically diphtheria bacilli. So far, all attempts to differentiate by means of stains or cultural reactions have failed, and, at present, animal inoculation is the only method that has proved of any value.

The subcutaneous test for virulence, using pure cultures, requires two animals for each test and a period of from three to four days to isolate the organism in pure culture, and from two to ten days to observe the inoculated animals. Wayson,[3] by using field cultures, was able to eliminate the time required to obtain the pure culture. This method, however, required the use of two animals for each culture tested, and a ten-day period of observation before giving a negative report.

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* From the California State Board of Health.

* Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

[1] Loeffler, F.: Centralbl. f. Bakteriol. **2**: 102, 1887.

[2] Neisser, M.: Differential Diagnose des diphtherie Bacillus, Ztschr. f. Hyg. **24**: 443, 1897.

The intracutaneous test for virulence with pure cultures used by Neisser[4] was modified by Zingher and Soletsky[5] so that it was possible to put from four to ix tests on one animal and its control. This made the est more economical than the subcutaneous tests, and educed the time necessary for a final diagnosis to seven r eight days. The use of pure cultures, in either the ubcutaneous or the intracutaneous test, is open to the bjection that the original culture may contain both irulent and nonvirulent organisms, and that the virulent strain may be lost in fishing and transplanting. That this is the case has been shown by both Havens nd Powell,[6] and Bull and McKee.[7]

Table 1.—*Virulence Tests of One Hundred and Eight Field Cultures Taken During an Epidemic Classified According to Sources of Cultures*

Source	No. Morphologically Positive	Virulent		Nonvirulent	
		Number	Per Cent.	Number	Per Cent.
onvalescent cases	18	16	89	2	11
ontacts with cases	27	16	59	11	41
arriers	30	18	60	12	40
ontacts with carriers	33	14	43	19	57
Totals	108	64	59	44	41

The intracutaneous test, using field cultures, devised y Force and Beattie,[8] not only shortens the time equired in making the test, but also eliminates the ossibility of losing the virulent strain in a mixed culure. From four to six tests can be put on one animal nd its control, and the time required for a final reading is never more than four days, and usually only two r three days.

While this paper is primarily concerned with the dministrative value of the latter test, a paragraph on e technic will not be out of place. When a field culure has been shown to contain organisms morphoogically diphtheria bacilli, the growth of this original ulture is washed off with 1 to 2 c.c. of physiologic odium chlorid solution. Approximately 0.2 c.c. of this uspension is injected intracutaneously into the side f a white guinea-pig prepared by plucking and shavng. From five to six hours after inoculation, the nimal is given a following protective dose of 200 units f diphtheria antitoxin. Beattie,[9] confirming the obseration of Eagleton and Baxter,[10] found that this did ot interfere with the local reaction but prolonged the lives of many animals that would otherwise have died when the toxin production outstripped the local necrosis. Each test is controlled by injecting the same amount of the culture intracutaneously into an animal that has been protected by a preceding dose of from 200 to 500 units of diphtheria antitoxin. From four to six tests can be put on a single pig. A characteristic necrosis develops in from forty-eight to seventy-two hours, if virulent diphtheria bacilli are present. The appearance of this lesion is well described by Force and Beattie.[8]

The reliability of the intracutaneous test using field cultures, in comparison with the subcutaneous test using field cultures, was demonstrated by Force and Beattie.[8] They showed that the intracutaneous test was less liable to be influenced by contaminating organisms than was the subcutaneous test, and in no instance did they get a positive result with the latter test and a negative with the former.

Their work was confirmed by Bull and his co-workers at Johns Hopkins University. Havens and Powell[6] found that, while they obtained 4 per cent. of positive reactions by the intracutaneous inoculation of pure strains from cultures that gave negative results with the field cultures, they obtained 3 per cent. of positive reactions with field cultures that were negative with pure cultures, and 13 per cent. of positive reactions with field cultures from which they were unable to isolate pure cultures. Bull[11] and Bull and McKee[7] found the intracutaneous field culture test to be more reliable than the intracutaneous or subcutaneous test with pure cultures. In one series of 136 cultures, proved virulent by the intracutaneous field culture test, only eighty-five pure cultures were isolated; in another series of thirty-one field culture positives, only twenty-six pure cultures were obtained. Every culture that proved positive in pure culture gave a positive result with the field culture, and they conclude "that more accurate results can be obtained by the whole culture test than by isolating pure cultures for virulence tests."

Table 2.—*Virulence Tests of Two Hundred and Fifty-Seven Field Cultures Classified as to Sources of Cultures and Prevalence of Diphtheria*

Series	Source	Prevalence of Diphtheria	Number of Cultures	Number Morphologically Positive	Number Tested for Virulence	Virulent		Nonvirulent	
						Number	per Cent.	Number	Per Cent.
1	Cases, contacts, carriers	Epidemic	4,266	757	108	64	59	44	41
2	Cases, contacts	Unknown	.....	...	70	49	70	21	30
3	School survey	Epidemic	103	3	3	3	100	0	0
4	School survey	Epidemic	43	5	5	4	80	1	20
5	School survey	Epidemic	71	8	8	3	37	5	63
6	School survey	Epidemic	65	14	14	5	36	9	64
7	School survey	Prevalent	364	46	11	3	27	8	73
8	School survey	Prevalent	210	9	9	2	22	7	78
9	School survey	Not prevalent	49	6	6	1	17	5	83
10	School survey	Not prevalent	252	44	23	2	9	21	91
	Totals		5,423	892	257	136	53	121	47

The hygienic laboratory of the California State Board of Health has, for more than a year, used the method of Force and Beattie[8] in the routine testing for virulence of cultures morphologically diphtheria bacilli. We report here the findings on several series of tests made of cultures taken under different conditions, and draw attention to the administrative value of the test.

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[3] Wayson, N. E.: The Laboratory Diagnosis of Diphtheria, Pub. ealth Rep. **31**: 3113 (Nov. 10) 1916.

[4] Neisser, M.: Bakteriologie der Diphtherie, Centralbl. f. Bakteriol. f. **57**, Supp. 1, 1913.

[5] Zingher, A., and Soletsky, D.: An Economical Intracutaneous ethod for Testing the Virulence of Diphtheria Bacilli, J. Infect. Dis. : 454, 1915.

[6] Havens, L. C., and Powell, H. C.: The Use of the Original Diagstic Culture for the Determination of the Virulence of Diphtheria cilli, Am. J. Hyg. **2**: 234 (May) 1922.

[7] Bull, C. G., and McKee, C. M.: The Whole-Culture Method of sting the Virulence of Diphtheria Bacilli, Am. J. Hyg. **3**: 103 arch) 1923.

[8] Force, J. N., and Beattie, M. I.: An Intracutaneous Test for the rulence of Diphtheria Bacilli in Field Cultures, Am. J. Hyg. **2**: 490 ept.) 1922.

[9] Beattie, M. I.: The Effect of a Following Injection of Diphtheria ntitoxin on the Intracutaneous Test for the Virulence of Diphtheria cilli, Am. J. Hyg. **2**: 656 (Nov.) 1922.

[10] Eagleton, A. J., and Baxter, E. M.: The Virulence of Diphtheriae Organisms: A Note on the Intracutaneous Test, Brit. M. J. **1**: (May 28) 1921.

[11] Bull, C. G.: Points of Interest in the Microscopic Diagnosis of Suspected Diphtheria Cultures, I, Observations Made in a Survey for Carriers Among School Children, Am. J. Hyg. **3**: 90, 1923.

RESULTS OF TESTS

The first series consists of 120 virulence tests of cultures taken during an extensive epidemic of diphtheria in a town of about 5,000 population and the surrounding country district. This epidemic had reached such proportions that the California State Board of Health was asked to take charge of the situation. On account of the large number of cases and their wide distribution, it was necessary to resort to taking wholesale cultures of the school children. We realized that by this method many persons who were carrying nonvirulent organisms would be placed in quarantine, but it seemed the most efficient way in which rapidly to control the epidemic. As soon as the epidemic was under control, we turned our attention to determining the virulence of the organisms present in the persons who had been placed in quarantine on a morphologic diagnosis of diphtheria. It was here that the test of Force and Beattie[8] proved of great value, for, as our work was done in a field laboratory, none of the other methods of testing for virulence would have been feasible. One hundred and twenty tests were made, of which sixty-four were positive, and forty-four were negative. We were unable to read twelve tests on account of the early death of the animals, as at this time we were not using the following dose of antitoxin. The results of 108 tests on 103 persons are given, grouped as to source of culture, in Table 1. Five of the cultures were second cultures from the same persons. The virulence test of the second culture agreed with that of the first in three instances; but in two, the second culture was positive while the first had been negative. In both of these tests, the first test had been made with a forty-eight hour instead of a twenty-four hour culture, and it is possible that the virulent diphtheria bacilli were overgrown by more rapidly growing contaminating organisms. However, we do not feel that this detracts from the value of the test, as Force and Beattie[8] had the same experience in which the animal inoculated subcutaneously showed a positive reaction following a negative test as well as the animal inoculated intracutaneously.

Table 3.—*Summary of Virulence Tests Classified According to Sources of Cultures and Method of Testing*

Observers	Source or Prevalence of Diphtheria	Cultures Used	Method of Inoculation	Morphologically Positive	Virulent		Nonvirulent	
					Number	Per Cent.	Number	Per Cent.
Nuttall and Graham-Smith: Bacteriology of Diphtheria, 1908, p. 232	Cases, contacts	.....	....	112	86	77	26	23
Von Sholley: J. Infect. Dis. **4**:337, 1907	Noncontacts	Pure	Subcutaneous	56	18	32	38	68
	Contacts	Pure	Subcutaneous	20	14	70	6	30
Williams: J. M. Res. **8**: 83, 1902	Carriers	Pure	Subcutaneous	27	5	18	22	82
Wayson: Pub. Health Rep. **31**: 3113 (Nov. 10) 1916	Epidemic	Pure	Subcutaneous	37	15	41	22	59
Perkins, Miller and Ruh: J. Infect. Dis. **18**: 607 (June) 1916	Noncontacts	Pure	Subcutaneous	18	0	0	18	100
Weaver: J. Infect. Dis. **20**: 125 (Feb.) 1917	Cases, contacts	Pure	Subcutaneous and intracutaneous	50	50	100	0	0
Kolmer, Woody and Moshage: Am. J. Dis. Child. **11**: 257 (April) 1916	Cases	Pure	Subcutaneous	551	296	54	255	46
Kolmer, Woody and Moshage: J. Infect. Dis. **11**: 56, 1912	Cases, contacts, carriers	Pure	Subcutaneous	159	68	42	91	58
Smeeton: J. Infect. Dis. **21**: 254 (Sept.) 1917	Cases	Pure	Subcutaneous and intracutaneous	37	23	62	14	38
Cary: J. Infect. Dis. **20**: 244 (March) 1917	Cases	Pure	Subcutaneous	23	20	87	3	13
Beckler, Gillette and Parker: J. Infect. Dis. **29**: 577 (Dec.) 1921	Epidemic	Pure	Subcutaneous	38	36	95	2	5
Simmons, Wearn and Williams: J. Infect. Dis. **28**: 327 (April) 1921	Contacts	Pure	Subcutaneous	27	13	48	14	52
	Cases	Pure	Subcutaneous	13	11	85	2	15
Wadsworth: J. A. M. A. **74**: 1633 (June 12) 1920	Cases	Not stated	Not stated	380	337	89	43	11
	Contacts	Not stated	Not stated	115	85	74	30	26
	Noncontacts	Not stated	Not stated	53	18	34	35	66
Blanton and Burhans: J. A. M. A. **72**: 1355 (May 10) 1919	Cases	Pure	Subcutaneous	12	7	58	5	42
	Carriers	Pure	Subcutaneous	24	3	12	21	88
Goldberger, Williams and Hachtel: Bull. 101, Hyg. Lab., U. S. P. H. S., 1915	Noncontacts	Pure	Subcutaneous	19	2	12	17	88
	Cases	Pure	Subcutaneous	30	29	96	1	4
Hachtel and Bailey: Am. J. Pub. Health **10**: 42 (Jan.) 1920	Contacts	Pure	Subcutaneous and intracutaneous	100	97	97	3	3
Guthrie, Gelien and Moss: Bull. Johns Hopkins Hosp. **31**: 388 (Nov.) 1920	Noncontacts	Pure	Subcutaneous	99	11	11	88	89
Moss, Guthrie and Gelien: Tr. XV Cong. Hyg. & Demog. **4**: 156, 1912	Noncontacts	Pure	Subcutaneous	33	6	18	27	82
Wade and Vaughan: Am. J. Pub. Health **10**: 426 (May) 1920	Noncontacts	Not stated	Not stated	128	6	5	122	95
	Noncontacts	Not stated	Not stated	417	6	1	411	99
	Cases	Not stated	Not stated	570	561	98	9	2
	Contacts	Not stated	Not stated	95	93	98	2	2
Havens and Powell: Am. J. Hyg. **2**: 234 (May) 1922	Cases, contacts, carriers	Pure	Intracutaneous	295	263	89	32	11
	Cases, contacts, carriers	Field	Intracutaneous	341	305	89	36	11
Bull: Am. J. Hyg. **3**: 90, 1923	School survey	Pure	Intracutaneous	338	85	25	253	75
	School survey	Field	Intracutaneous	338	136	40	202	60
Bull and McKee: Am. J. Hyg. **3**: 103 (March) 1923	Noncontacts	Pure	Intracutaneous	198	26	13	162	87
	Noncontacts	Field	Intracutaneous	198	31	16	167	84
Force and Beattie: Am. J. Hyg. **2**: 490 (Sept.) 1922	Cases	Field	Intracutaneous	98	74	75	24	25
	Contacts	Field	Intracutaneous	53	22	41	31	59
Totals				5,102	2,858	56	2,244	44

Series 2 is a group of seventy tests made of cultures from cases and contacts that had been in quarantine for thirty days or more. These cultures were obtained in the routine diphtheria work of a county health department. Of the seventy tests, forty-nine, or 70 per cent., were positive.

Series 3 to 6 consist of tests of positive cultures found in school surveys where diphtheria was epidemic. Of this group of thirty tests, fifteen, or 50 per cent., were positive; but the different series varied from 36 to 100 per cent. of positives, according to the prevalence of the disease and the degree of exposure.

Series 7 and 8 were school surveys made when diphtheria was more prevalent than usual, but in no sense epidemic. Of these twenty tests, five, or 25 per cent., were positive.

Series 9 and 10 are two groups of tests made of cultures taken from school children when diphtheria was not prevalent. In this group of twenty-nine tests, only three, or 10 per cent., were positive.

The results of these tests are shown in Table 2. summary of this table shows that, of the 257 tests, 6, or 53 per cent., were positive, and 121, or 47 per nt., were negative. This means that 121 persons had en held in quarantine when they were no menace to e public health. A study of Tables 1 and 2 shows at the percentage of virulent cultures depends on the gree of exposure and the prevalence of the disease. other words, persons who harbor organisms morpho- gically diphtheria bacilli, but give no history of con- ct with a case of the disease, and persons found to carriers during a school survey when diphtheria is t epidemic, are ordinarily carrying nonvirulent organ- ms. Therefore, from an economic standpoint, the rulence test is of more importance in these casual rriers than in recovered cases.

The percentage (53) of virulent cultures obtained us probably represents a fair average, as will be en from a comparison with the results obtained by hers shown in Table 3. During 1922, 5,190 cultures ere reported positive for diphtheria by the state gienic laboratory on a morphologic diagnosis. This presents cultures from at least 1,730 persons (assum- g that three cultures were examined from each person und positive). If virulence tests had been made on ese cultures, 713 persons would probably never have en placed in quarantine, or would have been released a few days.

The people are demanding, and rightly so, that our blic health procedures be based on scientific facts d common sense. They are learning rapidly that rsons quarantined as diphtheria carriers on morpho- gic evidence are often of no danger to others.

The virulence test gives us a means of identifying ose persons who may spread the disease. Such per- ns should be segregated or kept under observation, d public opinion will back the health officer in those ses. Public opinion, however, will not uphold the alth officer in the unjust quarantine of a carrier criminated on morphologic evidence alone. No althy carrier should be quarantined on such evidence, d the health officer who neglects to use the virulence st lays himself open to public criticism and reversal the courts.

CONCLUSIONS

The intracutaneous test for virulence, using field ltures, has proved a rapid, economical method for sting the virulence of diphtheria bacilli.

The general use of this test would result in great onomic saving by preventing the unjust quarantine persons who carry nonvirulent diphtheria bacilli.

ABSTRACT OF DISCUSSION

R. **JOHN N. FORCE**, Berkeley, Calif.: During the period mediately preceding the recent war, I was a member of board of health of Berkeley, and had abundant oppor- ity to secure impressions concerning the public attitude vard the quarantine of diphtheria carriers. The opposition s particularly strong when it became necessary to secure tures from the pupils of a school in which diphtheria had eared. It seemed most unreasonable to parents that their ldren should be excluded when no contact with diphtheria ıld be established. However, all children showing such tures were excluded from school and quarantined. I had eatedly urged the use of virulence tests in these cases, but technic was so beset with difficulties for our small city oratory that my suggestions were not enthusiastically eived. Local opposition reached its height in 1920, when carriers were excluded from a high school population of 1,441 in which five cases of diphtheria had occurred. Postponement of readmission of these carriers until two morphologically negative cultures had been secured resulted in two weeks' loss of school for 50 per cent., and more than three weeks' loss of school for 10 per cent. of those excluded, to say nothing of some unpleasant legal experiences with particularly belligenent parents. During this period, we tested release cultures by the intracutaneous field culture method, and found them uniformly nonvirulent though morphologically positive. Almost simultaneously we had the opportunity of testing a group of morphologically positive cultures secured by the state board of health in the course of a school survey of a small town in northern California. Again our results were negative in the noncontact group, and we were stimulated to attempt a study of the virulence of diphtheria bacilli with reference to the sources from which they were obtained. We examined 200 morphologically positive cultures, and in no instance did we find a virulent organism from a person who had not been in definite family contact with a case of diphtheria. Of course, our cultures were random samples. They were not segregated according to the diphtheria "saturation" of the community. The experience, however, convinced us that an immense amount of school time and money is being lost by the unjust practice of excluding children from school on the basis of morphologically positive cultures. To Dr. Wayson should be given credit for first using the field culture intracutaneous test. He did not publish his results. Dr. Kelly's paper is the fourth that has been presented recently on the field culture intracutaneous test, but public recognition should be accorded at this time to Dr. Wayson for stimulating the use of field cultures instead of the older time-consuming method of pure culture isolation.

DR. N. E. WAYSON, San Francisco: We cannot emphasize the point too much that oversanitation has much to do with the difficulty of popularizing legitimate sanitation work. Although we have known of morphologic diphtheria, we have been very slow to determine how the virulence could be reached in a practical manner. The biologic test is the only criterion at hand today for the determination of the ability of the diphtheria bacillus to do harm. There are numerous points which might be brought up as to the impracticability of isolating pure cultures for virulence determination, but I believe it is almost the consensus of opinion that it is not practicable. The field culture method is apparently the method of the day. Dr. Force has devised a scheme which is rather economical, and which in his hands, and those of the gentlemen who confirm his verdict, including Dr. Kelly, has been satisfactory. I am in hopes that his test will outweigh in its usefulness that which seems to be faulty, namely, the dependence on clinical manifestations in the skin of a guinea-pig. The Hygienic Laboratory of the Public Health Service at Washington, D. C., has for a long time been engaged in the control of the manufacture of biologics, and has found that it is almost absolutely necessary to devise a method, in potency and toxicity tests, which is final, and which may be standardized. The final biologic test is the death of the animal. That can be left to the laboratory technician. There is no difficulty to determine when there is a reaction, if the test is the death of the animal. I rather regret that Dr. Kelly, in his field work, did not pursue Dr. Force's line of work, namely, the balancing of a final biologic test against Dr. Force's clinical test. I think that would have been very interesting, and it may have contributed a good deal. It seems to me that Dr. Kelly has definitely shown that we are unnecessarily quarantining a great number of people, and that the Force test for deciding the necessity of quarantine is a practical test in the hands of a trained worker such as he is. Health officers should have reached the point that widespread quarantine of what is presumed to be diphtheria should be practiced only after virulence tests have been made by trained workers.

DR. FRANK L. KELLY, Berkeley, Calif.: We made our tests under conditions in which it would have been absolutely impossible to follow Dr. Wayson's suggestion. The work was done in a small town. Our laboratory consisted of a room in one of the hotels. The animal house was in a woodshed in the alley. We made 120 virulence tests in ten days.

This could not have been done using any other test than the intracutaneous test with field cultures, because we could not have taken enough equipment into the field to isolate pure cultures, and it would have been absolutely impossible to get animals necessary for the subcutaneous test.

ACTIVE IMMUNIZATION AGAINST DIPHTHERIA IN PRIVATE PRACTICE *

FRANK C. NEFF, MD.
KANSAS CITY, MO.

Protection against diphtheria needs not only the activity of an efficient health board in each community, but also the assistance of the private and dispensary physician; for it is from him that advice is sought. It is with the hope of creating more active general interest in this subject that this paper is presented.

INCOMPLETE CONTROL OF DIPHTHERIA

To diagnose this disease correctly is the duty of the practicing physician, for on him rests the responsibility of early administering antitoxin as a curative or prophylactic measure, and of urging the safeguarding of other individuals by isolation and quarantine. Passive immunization and isolation have their definite place, but that they have not been effectual in eradicating the disease is known to all, to a disappointing extent when one reads our recent statistics.

Since the last session of the American Medical Association, from June 1, 1922 to April 1, 1923, there have been in thirty states covered by the Public Health reports 102,042 cases of diphtheria, and up to Jan. 1, 1923, 5,584 deaths.[1]

For each hundred thousand of our population there is a yearly death rate of 15 individuals, as will be seen from these figures: 1921, 16; 1920, 15.3; 1919, 14.7; 1918, 13.9; 1917, 16.6; 1916, 14.5; 1915, 15.7; 1914, 17.9; 1913, 18.9.[2]

For each hundred thousand inhabitants there has been for ten years an average of 202 cases, eight of every hundred patients dying.

CAUSES OF LARGE MORBIDITY AND MORTALITY

Isolation of a patient with sore throat in a house is often delayed because of ignorance of the disease or of uncertainty that it is transmissible. Many families call no physician. When a physician is summoned there may be uncertainty in his mind, and still further delay results while a clinical or laboratory diagnosis is being made. The affected child may not be kept from school or from other outside associations unless he becomes too sick to be about, so that he and the other members of the family are carriers who broadcast diphtheria bacilli.

TABLE 1.—*Environment and Susceptibility*

	Per Cent. Schick Test Positive
Children in the least crowded schools and homes (Zingher, New York)	67
Children in the most congested schools and homes (Italian descendants giving the lowest percentage)	13.6
Private school boys from 8 to 18 (Fleischner, California)	65
Children in private practice (Neff, Kansas City)	70.8
Children (all ages) in Orphan's Home (Neff, Kansas City)	43.7

Failure to recognize the disease, delays in antitoxin administration and insufficiency of dosage frequently occur, and these are the factors that permit the fatal outcome. Our contagious disease hospitals are clearing houses for neglected cases, and the staff of such institutions knows well the disappointing and unsatisfactory way in which diphtheria is at present frequently handled.

Susceptibility to the disease is due to the lack of sufficient natural antitoxin (less than one-thirtieth antitoxin unit per cubic centimeter of blood). In severe and fatal cases, much toxin is elaborated, and the patients have little if any natural antitoxin to neutralize the toxin, and none is developed toward establishing an immunity. Such are the children who have never before had the disease or developed any contact immunity.

Private practice, especially among the pediatricians, deals with families who are trying to keep their children well. These children are better protected from exposure and, as a result, if exposed, more likely to develop diphtheria. Repeated contact with diphtheria bacilli usually confers immunity.

In studying the boys as they entered a school in England, Dudley[3] found that those newly admitted were three times as susceptible to diphtheria as the older inmates (not because of age). During an outbreak of diphtheria, the older inmates were the ones who did not succumb to infection.

TABLE 2.—*Rural Children in Vermont (Schick Test)**

Age	Number of Children Tested	Reaction Positive	Reaction Negative	Per Cent. Positive
From 5 to 9	721	580	123	81.4
From 10 to 14	849	626	203	75.4

* Kidder: C. W.: Pub. Health Rep. **38**: 663 (March 30) 1923.

The high percentage of susceptibles among the more protected children of the cities has been observed by Park and Zingher, Fleischner[4] and others, as shown in Table 1.

Some observers have noticed the marked susceptibility of children in remote districts in the country, as shown in Table 2.

The susceptibility of country children is of striking significance in such an acute and urgent illness as diphtheria, when one considers the frequent inaccessibility of the physician and antitoxin. One hopes that this statement from a medical officer[5] in rural Pennsylvania will become true: "A little more time and a little more education and we shall have the Schick test and toxin-antitoxin in the country school."

DESIRABILITY OF ACTIVE IMMUNIZATION

From the foregoing outline of the prevalence, susceptibility, mortality and disappointing state of our handling of the diphtheria problem, it is obvious that we are in need of better or additional means for controlling and eradicating the disease.

As stated by Schick,[6] the best method of producing immunity to a disease is by active immunization. In the case of diphtheria prevention, active immunization is durable; passive immunization is transient, lasting only a few weeks. If the child from the age of 6 months to 6 years—the period of greatest susceptibility and mortality—can be rendered immune by a method that is safe, practical and inexpensive, compared with the great economic loss of diphtheria illness, there is no reason why this health-saving and life-saving method should not be used. The same holds true with the smaller number of older children and adults who are susceptible.

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* Read before the Section on Diseases of Children at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

[1] Lloyd, B. J.: Personal communication to the author.

[2] Pub. Health Rep., Jan. 13, 1922.

[3] Dudley, S. F.: Brit. J. Exper. Path. **3**: 204 (Aug.) 1922.

[4] Fleischner, E. C., and Shaw, E. B.: Management of a Diphtheria Outbreak in a Private School, J. A. M. A. **77**: 1714 (Nov. 26) 1921.

[5] Bashore, H. B.: Fighting Diphtheria in the Country, J. A. M. A. **78**: 189 (Jan. 21) 1922.

[6] Schick, Bela: Boston M. & S. J. **188**: 255 (March 1) 1923.

In answer to the criticism that active immunization can never be general enough to eradicate the disease, one must say that no other measure now available seems likely to do so. The present generation of children and every new one must be protected. When one observes the simplicity of the injections with toxin-antitoxin, when one recalls the difficulties often attending the detection, isolation and handling of the actual disease, one feels that the advantages are with active immunization. It will be an easier matter for the average physician to give toxin-antitoxin to the well person than always to diagnose correctly, and to treat successfully clinical diphtheria as it comes to him, often late.

PUBLIC SCHOOL AND INSTITUTIONAL IMMUNIZATION AS A PROTECTIVE AND EDUCATIONAL METHOD

Diphtheria immunization of large numbers of children in the public schools and in other institutions has become well known, primarily in this country through the work of the New York health department, as carried on by the untiring efforts of Park and Zingher and their associates. The educational value of this experience in New York will be easily accepted in other communities as soon as it is known that the excellent statistics of that city now show a definite decrease in the incidence of diphtheria. School immunization is undoubtedly the most complete way of reaching all children of school age, and there is carried into the home the knowledge of the possibility of protection for the younger child.

From 70 to 80 per cent. of all diphtheria is found in children under 5 years of age. The number of contact cases here will be greatly decreased if the children attending school are immunized. The immunization of the preschool child depends largely on the efforts of physicians in private and dispensary practice. The many asylums and welfare stations offer opportunities for reaching many children who are not in school. Local health boards and child welfare organizations should circularize all physicians and families in their communities. Publicity by street car advertising, such as is being done in Baltimore, New York and other cities, offers an opportunity of reaching all classes.

It is to be hoped that the Children's Bureau in its work throughout the United States will help in education of the public along this line. Zingher[7] states that concentration of effort on the preschool age group is the most important phase of this work. It has taken many years for the knowledge of smallpox prevention to be accepted, and vaccination is a long way from being universal. However, vaccination against smallpox is prompt in its protection, and its good effects have been frankly demonstrated and accepted by all health authorities. In private practice during a recent smallpox epidemic in our city, few cases appeared, as there were few persons in one's regular practice who remained unvaccinated. Diphtheria immunization, to become widespread and thorough, needs to take advantage of all the foregoing methods of reaching the public, and must be accepted and practiced by the general medical profession.

OUR OPPORTUNITY TO EDUCATE THE COMMUNITY

An investigation in our city confirms the fact, which many physicians already knew, that the great majority of families have no constant family physician, and they call in whoever may be available, and then only in case of illness. There is lacking in most families the knowledge of the benefits to be obtained by the scientific prevention of disease.

PREVENTION OF DIPHTHERIA

Children of the preschool age are usually susceptible to diphtheria. It has been found advisable to give them three injections of toxin-antitoxin, from which nearly all become immune in the course of a few months or within a year. At the end of six months the Schick test is made on the arm, and if this is not negative, another series of three injections may be necessary to complete the immunization process.

Children of school age are less susceptible, but a considerable percentage will get diphtheria. To determine which children need the toxin-antitoxin, the Schick test is made and those found susceptible are immunized; six months later the test should be again made, and, if still positive, a second series of injections is given.

This preventive "vaccination" should not be confused with the ordinary antitoxin which is sometimes given to children who are definitely exposed to a known case or epidemic of diphtheria. "Vaccination" against diphtheria takes several months before the child becomes immune, and will not protect immediately after it is done, but will finally result in an immunity which probably lasts for life.

Name ....

Address ....

Preliminary Schick test: Date........Positive.... Negative....

Toxin-antitoxin was given on
....
....
....

Date for subsequent Schick test..............................

Result..................................

This child is now immune to diphtheria.

Date........... Physician...................................

Card stating the accepted facts about diphtheria immunization.

The busy physician has his time taken up with calls on the sick or near sick, and he finds he must rearrange his schedules and methods if he is to add preventive treatment to his daily program. Unless they are directly asked, many physicians hesitate to suggest measures which they may feel will be misunderstood as aggressive or unnecessary. When a method of disease prevention such as diphtheria immunization has been proved and established, the physician owes it to his clients to give them such information.

During the 1921 epidemic of diphtheria in Kansas City, toxin-antitoxin immunization was given considerable publicity, especially in the daily press; and during the time that the "scare" was current, there was marked interest on the part of parents in having their children protected. It is inadvisable to urge active immunization at such a time except with the definite statement that toxin-antitoxin takes too long to give immediate protection from diphtheria. The Schick test during the epidemic, used in children beyond the age of 3 years, was urged as a routine, and its usefulness was appreciated by physicians and parents.

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[7] Zingher, Abraham: Personal communication to the author.

Between epidemics the public becomes indifferent. This is unfortunate, for at such a time immunization is best performed.

THE SCHICK TEST IN PRIVATE PRACTICE

Some difficulty is encountered in carrying out the preliminary Schick test. From the physician's standpoint it is not always convenient, nor is one always prepared to have the test and control solutions available for occasional use. This can be overcome by having a certain day each week when children are to come in for this purpose. A week later they return for reading the test. As a detail it is well to give the Schick injection first, so that in nervous or frightened children the control test may be omitted if desired. It is a frequent observation that a child will bear one injection but may strenuously resist the approach of the needle the second time. Intradermal tests require a precision which is not needed in the toxin-antitoxin administration. Fortunately, in this regard the test may be omitted, especially under the age of 5.

Reading the test is not so convenient in private practice as in institutional work. A few children do not return, and some others do not appear on the exact day appointed, so that one of the advantages is lost, namely, the careful observation of the tests and the amount of protein reaction.

Children of the preschool age seldom show these pseudoreactions. The incidence of susceptibility or immunity in a family is interesting. In some families all the children may be immune; in others all may be susceptible; or, if there are both negative and positive reactors in a family, the younger children will give the positive test in most families (75 per cent.).[8]

Details of the Schick test cannot be given in this paper, but will be found in every package of the toxin, and especially in the recent description by Park and Zingher.

ADMINISTRATION OF TOXIN-ANTITOXIN

As soon as a positive Schick reaction is observed, or if this test is omitted, 1 c.c. of toxin-antitoxin is given, irrespective of the age of the patient, and the child returns to the office or is visited at the home every week or every other week for a total of three injections, on the special day for this work. The use of the refined toxin-antitoxin, which contains one-tenth lethal plus dose, underneutralized,[9] gives little local or constitutional reaction. My experience agrees with that of Park,[10] that one has no fear of severe reactions in toxin-antitoxin as now perfected, especially in children. The family is then notified of the exact date thereafter when a retest is to be made for determining the development of immunity. The parents are informed in the beginning that, if the retest is still positive, a second or rarely a third course of toxin-antitoxin may be necessary. One meets with difficulty in keeping the interest and cooperation of some parents for the later tests. This is an individual matter, however, and is similar to the carelessness with which many people regard the persistence of follow-up examinations and treatment.

At the playgrounds, baby and health stations in New York City, from one third to two thirds of the children completed the three injections of toxin-antitoxin. Our experience has been that only rarely are the three injections uncompleted.

When diphtheria becomes prevalent, the child may be brought in voluntarily for a Schick retest.

The assistance of a careful nurse in the preparation of the solutions and of a clerk in recording data will be found of help to the busy physician who does any considerable amount of this work. One must depend on records for later information as to results and dates. These are well kept in a special book for this purpose. The fact of immunity is recorded on the child's history card. Work of this kind is full of detail, but is unobjectionable when systematized.

In order that one may carefully impart to inquiring parents the facts about diphtheria immunization, a typewritten or printed card has been prepared which briefly and carefully states accepted facts.

One of these cards is retained by the family for future reference. The date to return for the retest is written on this card when toxin-antitoxin has been given. When the child has become immune, this card is signed by the physician and may be used as a certificate.

CONCLUSIONS

The medical profession should be aroused to the need and usefulness of active immunization to diphtheria.

Routine private practice must include the education of families in the use of toxin-antitoxin. It is obvious that the medical profession will be the final authority with the public as to the desirability of diphtheria immunization.

The systematic administration of toxin-antitoxin is easy, and if employed in private practice the demand for it will eventually reach throughout the community.

The use of refined toxin-antitoxin as now available is safe, and the physician need have no hesitancy in making diphtheria immunization a part of his regular work.

It is conservative to state that 90 per cent. of persons receiving toxin-antitoxin develop immunity, and that there is a small percentage of persons who develop antitoxin poorly, if at all. That there are a few exceptions can be recognized.

No child should be accepted as certainly immune until a negative Schick test is obtained.

1111 Rialto Building.

ABSTRACT OF DISCUSSION

Dr. E. J. Huenekens, Minneapolis: The use of toxin-antitoxin has gone far beyond the experimental stage. Attention has been called to this repeatedly by Park and Zingher, but, so far as I know, Dr. Neff was the first to call attention to the use of toxin-antitoxin in private practice. The use of toxin-antitoxin is even more important for the preschool child than it is for the school children. There is this great difficulty, however, in using toxin-antitoxin in private practice: we have to proceed with the education of the mothers piecemeal, one by one. That is the great rock on which the thing falls. The busy physician is not able to spend twenty or thirty minutes with each particular mother, showing her the necessity of these injections. Most mothers have heard of vaccination against smallpox, and that, with them, is an accepted fact; but this work is too recent. What we really require, above all else, is education of the people as to the value of this measure, and the fact that it has gone beyond the experimental stage. It would not be inopportune for this section to recommend it.

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[8] Zingher, Abraham: Diphtheria Prevention Among Children of Preschool Age, J. A. M. A. **80**: 456 (Feb. 17) 1923.

[9] Rohmer, P.: La vaccination antidiphtherique, Arch. de méd. d. enf. **26**: 1, 1923.

[10] Park, W. H.: The Toxin-Antitoxin in Prevention of Diphtheria, New York State M. J. **23**: 1 (Jan.) 1923.

Dr. C. A. Earle, Des Plaines, Ill.: I have great hopes for diphtheria prevention now that pediatricians are beginning to countenance and use toxin-antitoxin. I have learned that not much work has been done along the line of active immunization against diphtheria in private practice. I am constrained to believe that much of the passive, not to say active, opposition of the family physician has been due to the influence of some pediatricians who have been too busy to study and appreciate the experimental work of Smith, Guthrie, Moss and others, and the practical work of Park and Zingher. There is a field for the family physician. He can and should become skilled in the use of the Schick test. In many instances it might be profitable for him to devote more time to diphtheria prevention and less to the indiscriminate removal of tonsils, circumcision and shotgun vaccines. My experience leads me to believe that, while there may be some objections to mass testing of children during the preschool age by public health authorities, in private practice all children above 6 months of age should be given the Schick test, not only because a certain number are naturally immune and do not subsequently need the toxin-antitoxin but because those who receive the toxin-antitoxin injections, must, at the end of five or six months, be retested to determine their immunity status. The family physician, in addition, needs all the practice that he can get. He who intends to preach and practice the gospel of modern diphtheria prevention must first do a little studying. He ought to know the difference between active and passive immunization. Above all, he should familiarize himself with the experimental work done by Smith, who, sixteen years ago, proved beyond a doubt that balanced mixtures of toxin and antitoxin produced lasting immunity in guinea-pigs. Moss, Guthrie and others, by showing that all the manifestations of diphtheria in the guinea-pig, including antitoxin formation, are identical in human kind, have forged the last link in a chain of evidence that makes the basis of modern diphtheria prevention unassailable.

Dr. Frank C. Neff, Kansas City, Mo.: There are many things of interest connected with the Schick test and with toxin-antitoxin, but they could not be mentioned in this short time. If we have interested the men of this section in putting active immunization into practice, the object of the paper will be attained.

SYSTEMIC MANIFESTATIONS OF SUPPURATIVE DISEASE IN PARANASAL SINUSES *

M. F. ARBUCKLE, M.D.

ST. LOUIS

It seems worth while to record the results of some observations of cases in which certain constitutional disorders apparently have been caused by suppurative disease in the paranasal sinuses. The cases to be discussed include those of children and adults.

Until recently, there have been only a few physicians who have attached much importance to sinus disease in children because of the generally prevalent idea that in children the sinuses are in such a rudimentary stage of development as to be negligible clinically.

The experiences of Dean,[1] Sluder,[2] Lemere[3] and other investigators, as well as my own, have thoroughly convinced me that, in many instances, the portal of entry of many of the more serious ailments of infancy and childhood has been entirely overlooked. Furthermore, I am convinced that a large proportion of cases of chronic nasal disease of adult life, with the attendant constitutional manifestations, have existed as such since childhood.

We have, of course, all paid a certain amount of attention to constitutional disturbance secondary to sinus disease in adults, but I think that there are certain facts in this connection which may be profitably discussed.

Not infrequently there seems to be a sort of familial characteristic or predisposition to this sort of disease in certain families. For example, in one family, a boy, aged 11, was brought in to the St. Louis Children's Hospital for diagnosis. He had been treated for malaria and for tuberculosis, alternately, for about two years. He was a pasty looking child who did not eat, play, study or do anything that others of his age did. He had an irregular fever up to about from 100 to 100.5, and always had a cold in the nose, with headache much of the time.

Examination revealed a profuse suppuration in both sphenoid sinuses; most of the pus was going down the esophagus. The suppurative process yielded rather promptly to local treatment; the constitutional symptoms disappeared, and he was transformed into a normal boy.

There were two other children in this family, the younger aged 10 months, the older about 8 years. They also had nasal sinus suppuration, and the baby developed a troublesome infection of the cervical lymph nodes. The sinus infection and the glands cleared up with local treatment of the nasal condition. The father had a chronic sinus suppuration which had existed for years, and he was now having rather frequent attacks of headache.

Occasionally, a child fails to improve as it should after the removal of tonsils and adenoids. There is, in the majority of such cases, suppurative disease of the paranasal sinuses, and, with proper treatment, the results have been extremely satisfactory.

An accurate description of the sinuses in children is given by Schaeffer:[4]

> By the end of the first year the maxillary sinus is sufficiently developed in width to extend beneath the orbit.
>
> As a rule, one cannot be sure of the frontal sinus until the sixth to twelfth month of postfetal life.
>
> It must not be overlooked that even in early childhood the anterior and posterior groups of ethmoidal cells are fairly well established and subject to disease. The sphenoidal sinus in early childhood is more precocious than one would infer from diverse statements in the literature. They may come into intimate relationship with the ophthalmic and maxillary nerves and be a potent factor in childhood neuralgias of the trigeminal nerve even as early as the third year. It is obvious that the sphenoidal sinus is early of importance clinically and that by the second or third year has assumed proportions sufficiently large to become the seat of pathologic processes and to retain infectious material in its cavity.

In the St. Louis Children's Hospital and in private practice, we have had well authenticated cases of cardiac disease, nephritis, arthritis, bronchitis, erysipelas and a psychoneurosis in which the cause apparently was suppurative disease of the paranasal sinuses.

The description of Czerny's exudative diathesis by Birk[5] is remarkably similar to that of the condition found in infants who have suppurative disease in the nasal sinuses.

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* From the Department of Otolaryngology, Washington University Medical School.

* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

[1] Dean, Paranasal Sinus Disease in Children, University of Iowa Studies in Medicine, April 15, 1921.

[2] Sluder, G.: Asthma as Nasal Reflex, J. A. M. A. **73**: 589 (Aug. 23) 1919.

[3] Lemere, H. B.: Arch. Pediat. **39**: 601 (Sept.) 1922.

[4] Schaeffer, J. P.: The Nose, Paranasal Sinuses, Nasolacrimal Passageways and Olfactory Organ in Man, Philadelphia, P. Blakiston's Son & Co., 1920.

[5] Birk: Diseases of Infancy.

In children of all ages we see occasionally a case in which there is acute illness with high fever, leukocytosis, vomiting, loss of appetite and headache, in which suppurative disease of the nasal sinuses is the only discoverable cause. A few cases of chorea of a severe type with heart involvement apparently have responded with unusual rapidity, after treatment of suppurative disease of the paranasal sinuses had been instituted. We have had two cases in which severe herpes zoster over the first division of the fifth nerve accompanied acute suppurative disease of the sphenoid.

Dr. W. McKim Marriott[6] recently said:

> One of the most frequent and most serious of the systemic manifestations of sinus infection in children is acute parenchymatous nephritis. This seems to be the result of infection in the sinuses, for when the sinuses are cleared up all evidences of nephritis promptly disappear. These changes are entirely independent of the diet.

He also mentioned several other constitutional manifestations which I will discuss at this time. I herewith report a few of the more typical cases.

Case 1.—A. H., a girl, aged 4 years, admitted to the St. Louis Children's Hospital, Sept. 20, 1922, with acute parenchymatous nephritis, had had the usual diseases of childhood, including influenza. She was subject to frequent, protracted colds accompanied by cough and sore throat. Four months previous to admission, she had been exposed to cold and wet. The urine at that time was scanty and contained much albumin. She had been given the ordinary treatment without improvement. September 20, she had general anasarca. The weight was 20.5 kg. Albuminuria existed, with hyaline casts and low output.

The tonsils and adenoids were large; the cervical glands were somewhat enlarged on both sides. The tonsils and adenoids were removed, Sept. 22. The general anasarca became somewhat more marked after this operation. I saw her first, Oct. 6, at which time the nose was filled with crusts and pus. The antrums were normal. Pus came from above the middle turbinate on both sides. A culture proved to be pure *Staphylococcus aureus*. One per cent. mercurochrome-220 soluble was instilled high into the nose twice daily.

October 7, the weight was 20.15 kg.; the output of urine was 75 c.c., with much albumin and many hyaline casts. Her eyes were almost closed by the edema; the skin over the abdomen and legs was tense and shiny. She was and had been for some time on a restricted and entirely salt free diet.

October 8, the output of urine was 150 c.c.; the patient's weight was 20.09 kg., and the left thigh appeared to be smaller.

October 12, the output of urine was 1,300 c.c., and the weight was 13.8 kg.

October 13, there was no albumin and there were no casts in the urine. There was still a slight amount of pus in the nose, but very much less than on the first examination.

October 16, the weight was 12.72 kg., with no edema or ascites. The urine was normal. The diet was increased without recurrence of the retention of fluid. After this time, there were one or two slight recurrences of the kidney disturbance, but they subsided and the patient made an uneventful recovery.

I have been informed recently that she is well and has been since she went home.

Case 2.—E. C., a boy, aged 12 years, with a history of heart disease of long standing, was readmitted to the St. Louis Children's Hospital, March 28, 1922, for further study of the paranasal sinuses. The family history was essentially negative. He had had rheumatism, which began in October, 1920, and acute endocarditis. He always had pus in the nose. He was undernourished. He had no pain or adenopathy. The heart was enlarged, and the cardiac impulse was plainly visible. A systolic murmur was transmitted to the axilla; a short presystolic murmur also was heard over the apex. There was no fluid in the abdomen. He had a moderate decompensation. For that reason, he was not allowed to sit up.

Examination of the nose and throat revealed a quantity of pus beneath the middle turbinate on both sides. By irrigation under nitrous oxid anesthesia, a large quantity of heavy, yellow pus was recovered from both maxillary antrums. Culture from this pus gave a large, lance-shaped gram-positive diplococcus, which was declared not to be a pneumococcus.

One week later, he came up for further examination and treatment. The antrums were irrigated again, and pus was recovered from the right side only. After two further irrigations about a week apart, the pus from the right side also disappeared. His condition was so much improved that he was sent to his home twenty-five miles away, with instructions to come in and see the pediatricians once a month. This was about eighteen months ago, and his condition has been good in the meantime. He is now in school and apparently doing well.

Case 3.—W. B., a boy, aged 11 years, with chronic infectious arthritis, and mitral regurgitation, was admitted to the St. Louis Children's Hospital, April 4, 1922, with the complaint of "paralysis." He had had chickenpox and pertussis before he was 4 years of age; the history otherwise was negative until, at the age of 4 years, he had a sudden attack called rheumatism. There were no joint symptoms, but the head was drawn back and the heels were drawn up. He remained stiff for six months, and then had an apparent recovery. The adenoids and tonsils were removed in 1920. The onset of the present illness was in March, 1920. The eyes were watery; there was a rash on the face and skin, and he had pain in the left arm. He was put to bed and had not been up since. Remittent fever for ten or eleven weeks was followed for eleven months by fever of somewhat lower elevation. The heart rate at that time was very rapid.

The joint disorder began in August, 1920, with swelling of the ankles and elbows. There was pain on movement of the left knee, ankle and elbow, and great pain in the anterior part of the thighs. Other joint involvement followed, so that he now had involvement of the metacarpals, metatarsals, ankles, knees, hips, wrists and cervical vertebrae. The joints were first red and swollen and extremely painful, and later became stiff. He complained if any one touched his bed. The joints were becoming more and more fixed. He lay flat on the back with the knees flexed, and the hip joint extended laterally. The right arm could not be straightened, and the left arm was set at an angle of 135 degrees. No general adenopathy was observed, but there was depression of the sternum. The heart apparently was displaced slightly toward the left; there was a short systolic murmur not transmitted, and the rate was regular. Two fingers of each hand were sharply flexed at the first phalangeal joint. The skin felt curiously hard over the lower extremities. The lungs and urine were normal. Roentgen-ray examination showed extreme atrophy but no ankylosis. He had a fever up to about 103 or 104 at intervals of four or five days.

April 24, a nose and throat consultation was called. A small ulcer on the left side of the septum was found close to the floor. Both middle turbinates were hypertrophied. There was considerable dried secretion in the olfactory fissure, and a general chronic inflammatory reaction.

May 17, the patient had an increase in temperature, with precardial pain, slight sore throat, and an acute middle ear inflammation, which later subsided.

June 21, further nasal examination revealed dried secretions on the middle turbinate and above the middle turbinate on each side. Growth from the left side showed *staphylococcus aureus* in pure culture.

July 14, he had frontal headache and the nose was stopped up. July 25, the sphenoids and ethmoids were opened under gas anesthesia. After this operation, the temperature did not come up again on the four or five day intervals as it had previously done.

July 31, he was able to move the hip joints for the first time since entering the hospital. The sinuses were irrigated, and 1 per cent. mercurochrome-220 soluble was applied to their interior on a cotton swab.

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[6] Marriott, W. M.: Paper read before the St. Louis Medical Society, March 20, 1923.

October 15, he had gained considerable weight, and the legs could be straightened out somewhat. Since that time, he has had one or two mild illnesses, such as measles, but his improvement has been continuous, and he is now able to walk with braces and help. He was sent home recently.

CASE 4.—*Psychoneurosis secondary to sinus suppuration.* A man, aged 38, came to me on account of severe pain in the region of the right ear and mastoid, for which he had been unable to find relief. It was readily controlled by application of cocain to the nasal ganglion. He had a history of suppuration of long standing in the sphenoid-ethmoid region. Although much surgery had been done in the nose and throat, the sinuses had never been drained. He had a very marked hyperplasia throughout the sphenoid and ethmoid region on both sides, with only slight evidence of suppuration. He was subject to frequent attacks of cold, accompanied by severe headache, profuse nasal suppuration and marked toxemia, which left him unable to do his work. At this time, he was so extremely depressed that he felt life was not worth living. He could think of nothing but his troubles, and he told me that it was with the greatest difficulty that he controlled himself at times. It was decided to drain the sinuses, and this was done under local anesthesia plus scopolamin and morphin. He had great mental excitement while the effects of the scopolamin and morphin lasted. His nose healed gradually after the operation, which was performed, April 25, 1922. His general condition improved, and he told me, July 8, that when he got a cold he was not troubled by the feeling of depression. The earache disappeared, and later, May 14, 1923, he stated that he had had very little trouble with colds. He also said that in spite of the most severe mental and physical strain, there had been no return of the feeling of depression, and the appearance of the nose, as far as inflammatory reaction was concerned, very nearly approached normal.

CASE 5.—C. S., a woman, aged 25, admitted to Barnes Hospital, Nov. 20, 1922, had had malaise for the last few days and constant severe headache. Quantities of pus came from the upper nasal cells on both sides, and there was great swelling in the olfactory fissures, especially on the left side. In two or three days, she developed herpes zoster over the distribution of the ophthalmic division of the fifth nerve, which subsided on treatment of the suppurative processes in the nose.

Sometime later, she had a recurrence of the nasal disorder, with a recurrence of the herpes, which was permanently relieved, this time by surgical drainage of the sinuses.

CASE 6.—R. L. S., a man, aged 38, seen in consultation with Dr. George Dock, July 15, 1921, had at this time his second or third attack of bronchopneumonia. I was asked to see him because he had headache, nasal obstruction and great difficulty in getting air in and out of the lungs.

Examination revealed chronic bilateral sphenoid suppuration and pus in the middle meatus on both sides. The headache was relieved in a few minutes by the application of cocain to the nasal ganglion, and his breathing at the same time became easier. This was so noticeable to the patient that when, on two or three subsequent occasions, he had difficulty with breathing, which he described as an asthmatic feeling, he made a special request that his nose be "touched" again. This was done, with the result that breathing was made much easier.

CASE 7.—E. F., a man, aged 52, seen in April, 1923, had erysipelas of the face which started in the region of the ala nasi. He had chronic suppuration of the sphenoid and posterior ethmoid sinuses on both sides, which had existed for years. Prior to the time the erysipelas began, he had had no injury of any sort to the skin. I have seen a number of such cases in adults and children in which the only traceable source of the erysipelas was chronic suppuration of the nasal accessory sinuses.

CASE 8.—H. S., a boy, aged 20 months, seen in consultation with Dr. B. S. Veeder, had fever in the afternoon up to 104, and apparently was quite ill. He had leukocytosis and vomiting, with loss of appetite. Repeated general examination and careful study failed to reveal the cause of his illness, until it was discovered that he had pus in the upper nasal cells on both sides. Local treatment of this condition was followed by recovery within a very short time.

CASE 9.—A. C., a girl, aged 19 months, whose present illness started with fever and constipation, had swelling of the face and both eyes on the sixth day of illness; the temperature was around 104, and the patient was unconscious. Both eyes were greatly swollen and discolored. There was pus above and below the middle turbinate on both sides and in the throat. Blood cultures gave pure *staphylococcus aureus* on four occasions. Culture from the nose was pure *staphylococcus aureus;* the blood count was 40,000 white cells.

After about thirty-five days she had, in addition to the conditions mentioned above, pneumonia and pleurisy, followed by death.

Necropsy revealed: an abscess in the lateral wall of the nasopharynx about on a level with the fossa of Rosenmüller and external to it; thrombosis of the pharyngeal vein, jugular bulb; lateral and inferior petrosal and longitudinal sinuses, and cerebral veins; and encephalitis. In the nasal accessory sinuses, there was suppuration with necrosis of the posterior ethmoid and sphenoid cells on both sides. This process extended to and involved the optic nerve on both sides. There was orbital phlegmon on both sides, with sinuses leading to the skin.

CONCLUSIONS

1. The age of development of the sinuses and incidence of disease in them is much more youthful than it is popularly thought to be.

2. I do not, of course, wish to overestimate the importance of sinus disease in its relation to constitutional disease, but I do wish to emphasize the fact that it is of far greater importance and frequence than has generally been recognized.

3. The study and treatment of sinus disease must be done with proper equipment, to be satisfactory.

4. The results of treatment usually are extremely gratifying.

University Club Building.

ABSTRACT OF DISCUSSION

Dr. E. Lee Myers, St. Louis: I have come to the conclusion from my own experience that sinus infection is not only bacterial invasion, but also a draining of the body resistance as it affects the biochemistry of the system. This is confirmed by the work of Martin Fischer in acidosis. Suppose we have done a septum operation and straightened up the sinuses, possibly taken off a piece of the middle turbinate, and the patient is still neurotic, or has those symptoms. I believe that if we attack those cases on the basis of acidosis and try to change the patient's chemical reaction, we shall get better results. Along that line I have treated some of my patients with very good results. They eat large quantities of citrus fruits, drink magnesia magma and take sodium bicarbonate twice a day.

Dr. Dennis J. McDonald, New York: Dr. Arbuckle has brought before us in a concise way what a number of men heretofore have done in a slipshod way—the thorough examination of the child. He has brought to us conditions of the sinuses to which many of us several years ago had given little thought. He has shown us anatomic conditions which Shaffer has beautifully brought out in his plates. The early French writers made wonderful demonstrations of these sinuses. He has brought to our minds clearly that we should not do our work, particularly clinical work, in a slipshod way.

Dr. I. D. Kelley, Jr., St. Louis: Those who have had the opportunity to follow Dr. Arbuckle's sinus work more closely in the St. Louis Children's Hospital feel that this question of systemic manifestations of sinus disease is of the utmost importance, especially because of the difficulty of examining the sinuses of a small child, and because it is such an easy matter to slight or overlook entirely this type of examination. Dr. Arbuckle has elaborated a procedure of examination that is so definite and exact that I felt when he read this paper that a brief outline of his method of examination was of great importance. We all realize what pus infections will do in the accessory sinuses, but I feel confident that many of us do not realize the importance of a definite method of examination.

Dr. C. A. Broaddus, Salt Lake City: I have not had very much experience in sinus disease in children, but I have had quite a lot of it in adults in connection with my work with the Veterans' Bureau. I have seen many instances of systemic disease apparently originate from infection of the sinuses.

Dr. M. F. Arbuckle, St. Louis: Dr. Kelly mentioned the method of examination. I depend chiefly on visual examination, with proper lighting and proper equipment. Of course, we make roentgen-ray examinations, and bacteriologic and blood examinations, but we place first in importance naked eye inspection of the nose and nasal cavities, both anterior and posterior, keeping in mind, at all times, the changes that take place as a result of inflammation. The diagnosis of inflammatory disease of the sinuses does not depend on the actual demonstration of a quantity of pus in the nose. The nasopharyngoscope is a great help. Many men use transillumination and depend on that. I have not been able to use transillumination with any satisfaction. These cases are subjected to surgical treatment only as a last resort and after local treatment has failed. The great majority of our patients have recovered with local treatment. However, when surgery is indicated it should be done. Our results after surgical intervention have been extremely gratifying.

ISOLATION OF BACTERIUM PNEUMOSINTES FROM INFLUENZA PATIENTS

DURING THE 1923 EPIDEMIC *

PETER K. OLITSKY, M.D.
AND
JAMES E. McCARTNEY, M.D. (Edinburgh)
NEW YORK

The recurrence in January and February, 1923, of an acute respiratory disease resembling the epidemic influenza of 1918-1919, 1920, and 1922 afforded an opportunity to repeat the investigations of Olitsky and Gates [1] on the nasopharyngeal secretions of influenza patients, particularly to attempt the cultivation of *Bacterium pneumosintes* from these secretions. Prior to the onset of the 1923 outbreak, we were engaged in the investigation of the nasopharyngeal secretions from early cases of common colds in man by cultural methods similar to those employed in the studies on influenza. In this connection, it is of interest to record that we failed to obtain cultures of the bacterium from the cases studied.[2] If *Bacterium pneumosintes* could again be cultivated from the nasopharyngeal washings from patients with influenza, the relationship of this micro-organism to the latter disease would be strengthened.

In addition to the transmission and cultivation experiments, we shall report also the results of agglutination reactions with *Bacterium pneumosintes*, employing the serums from recovered patients of the 1923 epidemic.

SOURCE OF MATERIALS

A number of infections, some of obscure origin, of the upper respiratory tract occurred concomitantly with the onset and during the course of the epidemic of influenza. These ailments, not unusual for the season of the year, made the selection of cases of true, uncomplicated influenza difficult. Furthermore, we sought patients only in the early hours of the disease. Therefore, of the twenty persons who responded to our call for volunteers, only six were chosen as being representative of the type that prevailed during the pandemic of 1918-1919 and the subsequent recurrences of 1920 and 1922. In the selection of an early case of uncomplicated influenza for study, particular stress was placed on the occurrence of leukopenia affecting the absolute number of mononuclear cells, associated with symptoms and signs considered as typical of an influenzal attack. These consisted of an abrupt onset with chilliness, fever, prostration, headache, and muscular pains, especially in the back and limbs. Among the early symptoms were flush and suffusion of the face, injection of the conjunctivae, soreness of the throat, and a harsh, unproductive cough. The clinical course of Patient 1, a man, is described as illustrative of that of the other five patients studied:

> The onset was sudden, with frontal headache, chilly sensations and generalized muscular pains, especially in the back and extremities. There was marked prostration, although the temperature was only 38.9 C. (102 F.). Conjunctivitis was present, accompanied by photophobia. As the illness progressed, a dry and distressing bronchial cough supervened, but physical examination of the chest revealed no lung involvement. Other organs were not affected. After three days, following a profuse perspiration, the temperature fell to normal and the patient recovered. The dry cough and the prostration, however, persisted for several weeks thereafter. Twelve hours after the onset of the first symptoms, a blood count showed the total number of leukocytes to be 3,000, of which 600 were mononuclears. At this time the nasopharynx was washed [1] with 30 c.c. of Ringer's solution, and the washings were retained for study.

The remaining five patients corresponded in practically all the signs and symptoms to the one described, except in the total blood counts, which were, respectively, 4,800, 6,400, 3,800, 7,400 and 4,000 cells. The hour after onset in which the blood count was made and the washings secured from each of these five patients was, respectively, the forty-eighth, the twenty-fourth, the twenty-fourth, the thirtieth and the sixteenth.

RESULTS OF TRANSMISSION AND CULTIVATION EXPERIMENTS

A part of the nasopharyngeal washings from each case was filtered, and the filtrate was cultivated on anaerobic blood-agar plates and in the Smith-Noguchi fluid medium by methods already described.[3] The unfiltered material was injected intratracheally in rabbits [1] not only to study pathogenicity, but to aid in the cultivation of *Bacterium pneumosintes,* for it has already been determined [3] that a negative experience in the direct cultivation of this micro-organism without the help of animal passage is not conclusive.

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* From the Laboratories of the Rockefeller Institute for Medical Research, New York.

* These studies were made possible by the active cooperation and helpful assistance of Major Henry J. Nichols, Medical Corps, United States Army.

[1] Olitsky, P. K., and Gates, F. L.: Experimental Study of the Nasopharyngeal Secretions from Influenza Patients, J. A. M. A. **74:** 1497 (May 29) 1920; Studies of the Nasopharyngeal Secretions from Influenza Patients, **76:** 640 (March 5) 1921; J. Exper. Med. **33:** 125 (Feb.) 1921; **33:** 713 (June) 1921; **36:** 501 (Nov.) 1922; Science **57:** 159 (Feb.) 1923.

[2] To be reported in a forthcoming number of the Journal of Experimental Medicine.

[3] Olitsky, P. K., and Gates, F. L.: J. Exper. Med. **36:** 501 (Nov.) 1922.

The intratracheal inoculation of the secretions of five of the six patients induced in rabbits the usual clinical and pathologic condition, which consists, in brief, of a nonfatal and transitory leukopenia due to mononuclear depression, associated with a hemorrhagic edema and emphysema of the lungs and characteristic cellular exudate, but without pneumonic consolidation.[1] The nasopharyngeal secretions which failed to induce a reaction in the rabbit were obtained from a patient forty-eight hours after the onset of the first symptoms. In his blood, 7,400 leukocytes per cubic millimeter were found. Thus we were able to confirm, with the secretions from the recent cases of influenza, the results of animal transmissions obtained with nasopharyngeal washings derived from patients during the 1918-1919, the 1920 and the 1922 waves of the epidemic.

Cultivation tests were made with the filtered nasopharyngeal secretions and with the unfiltered suspensions of lung tissue from rabbits inoculated intratracheally with these patients' washings. Of the five persons whose secretions gave positive rabbit transmissions, there was found in the filtered nasopharyngeal washings of one a filter-passing, gram-negative micro-organism. From the lung tissue itself of a rabbit injected with the material of this patient was also cultivated a similar organism. In two other instances the patients' secretions did not yield this bacterium, but from the respective rabbits' lungs inoculated with the washings, growths of the same micro-organism were obtained.

These filter-passing bacteria, when compared with the strains of *Bacterium pneumosintes* isolated in 1918-1919, 1920 and 1922, were found identical in morphology and cultural characters, and the new strains were specifically agglutinated by immune rabbit serum prepared from the old ones. By the time, however, that the new cultures were purified and grown in sufficient quantity for animal inoculation, a process requiring from three to four months and from eight to twelve generations, tests for pathogenicity in the rabbit failed.

Thus in the 1923 wave of epidemic influenza there were isolated four strains of *Bacterium pneumosintes* from three of the six patients studied in the early hours of the disease. One culture was obtained directly from the filtered nasopharyngeal secretions and three cultures from the lungs of rabbits inoculated intratracheally with the secretions. All the strains agree morphologically, culturally and serologically with the cultures that were obtained in the previous waves of epidemic influenza.

SERUM AGGLUTININS IN PATIENTS WHO RECOVERED

The agglutination tests were carried out by the method already described.[4] The agglutinogens consisted of two pneumosintes strains; one, Strain 17, obtained from the 1918-1919 wave, and the other, Strain 34, from the 1922 wave of the influenza epidemic. Recent strains were not available when the tests were made.

Of the six patients whose nasopharyngeal secretions were studied and reported in this paper, the serums of four were examined for agglutinins. In one instance no agglutinins were found, even in dilutions of 1 : 2, seven days after recovery; but agglutinins were demonstrated in dilutions of from 1 : 2 to 1 : 10, thirteen days after the illness. In the second case, the agglutination test was positive in from 1 : 2 to 1 : 10 dilutions on the forty-seventh day after recovery, the only test performed. The two other serums were wholly negative.

Serums were available from six other recovered patients. We did not observe these cases personally, so that the nasopharyngeal secretions were not collected. However, the physicians in charge of the patients reported them as cases of typical, acute, uncomplicated epidemic influenza. In one patient the record of a blood count is missing; in the remaining five, the total blood counts given were, respectively, 3,200, 3,860, 4,200, 5,200 and 9,200.

Of these six cases, two were examined on the fifth and seventh days of convalescence. Both showed agglutinins in a dilution of serum of 1 : 2. A second examination, made on the twelfth and thirteenth days after the illness, revealed an increase of the titer in both to 1 : 8. The serums of the next two patients agglutinated the pneumosintes strains in dilutions of 1 : 10 on the ninth and tenth days, respectively, of convalescence. In these two instances no other tests were made. The remaining two patients were wholly negative.

To control the agglutinability of the cultures employed, Rabbits A and B, injected intravenously and repeatedly over long periods of time with living *Bacterium pneumosintes,* showed in their serums agglutinins against this micro-organism in dilutions of 1 : 10 in one case and 1 : 20 in the other.

To summarize the results of the agglutination tests, it may be said that of the serums from ten recovered patients, four were negative and six were positive. Of the positive cases, three were examined in the early and later stages of the convalescence and showed either slight or no agglutination against *Bacterium pneumosintes* in dilutions of 1 : 2 from five to seven days after recovery, but an appreciable reaction in dilutions of from 1 : 8 to 1 : 10, on the twelfth to the thirteenth day of convalescence. In one instance the agglutinins were demonstrable on the forty-seventh day after the influenzal attack.

The highest agglutinin titer in this series was 1 : 10. In this connection it is to be noted that in a previous publication[4] it was stated that *Bacterium pneumosintes* is a stable micro-organism which is not easily agglutinated.

SUMMARY

From the nasopharyngeal secretions of six patients in the early hours of typical, uncomplicated epidemic influenza during the epidemic of January and February, 1923, we observed in five instances an active agent, pathogenic for rabbits. On culture of the filtered secretions and of the lungs of rabbits inoculated intratracheally with these materials, four new strains of *Bacterium pneumosintes* have been isolated, one directly from the secretions and three from the rabbits' lungs. All the strains have been identified as agreeing with those of the 1918-1919, 1920 and 1922 strains in morphology, cultural properties and serologic reactions.

Agglutinins against *Bacterium pneumosintes* were demonstrated in six of ten patients who had recovered from an influenzal attack.

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[4] Olitsky, P. K., and Gates, F. L.: Experimental Studies of the Nasopharyngeal Secretions from Influenza Patients, XI, Antibodies in the Blood After Recovery from Epidemic Influenza, J. Exper. Med. 37: 03 (March) 1923.

EPIDEMIC TRANSIENT DIAPHRAGMATIC SPASM

A DISEASE OF UNKNOWN ETIOLOGY, EPIDEMIC IN VIRGINIA

GEORGE C. PAYNE, M.D.
Epidemiologist, Virginia State Board of Health
RICHMOND, VA.
AND
CHARLES ARMSTRONG, M.D.
Passed Assistant Surgeon, United States Public Health Service
WASHINGTON, D. C.

During the first week of July, 1923, Dr. Maude M. Kelly reported to the State Board of Health of Virginia that in Hanover County she had seen a number of persons who had recently suffered from an illness characterized by an acute onset with epigastric pain, but which did not give the usual history of summer digestive disturbances. July 21, she reported similar cases in Caroline County, and an investigation was ordered by the commissioner of health. The objects of this investigation were, first, to determine whether an epidemic was present; second, to learn the essential features of the disease and to present them to the physicians of the state as promptly as possible, and, third, to study the history of the epidemic and to obtain all available information about the characteristics of its spread. These studies are necessarily incomplete. The description of the cases will show that any investigation of this condition is seriously hampered by its short duration. The worst symptoms have often passed before the physician arrives, and before materials for laboratory studies can be assembled in isolated rural districts the patient has passed the acute stage.

CHARACTERISTIC CASE HISTORIES

Case 1.—R. G., a white boy, aged 3, awakened his mother on the morning of July 15 by his peculiar actions. He appeared "so white that he was blue," and was breathing with extreme rapidity. The mother, in imitation of the respiration, took very short inspirations and uttered a marked expiratory grunt. The child was extremely hot and stuporous; but, on being roused, he complained of pain in the upper portion of the abdomen. His condition appeared so critical that death was momentarily expected. Two hours later he was much more comfortable, and by the time that a physician arrived, about six hours after the mother awakened, the condition was no longer acute. The physician found no physical signs to account for the distress, and obtained no history of any indiscretion in diet. The temperature at this time was about 102 F. The following day the patient appeared well. When seen, July 23, nothing abnormal was disclosed except that a differential count of the leukocytes showed: polymorphonuclears, 28 per cent.; lymphocytes, 60 per cent.; eosinophils, 10 per cent.; basophils, 2 per cent. Two sisters and one brother suffered similar attacks, beginning July 18, and a third sister, July 19.

Case 2.—V. S. K., a white woman, aged 36, six months pregnant, on the evening of July 27, at about 10 o'clock, was working in the kitchen and was suddenly seized with severe epigastric pain. The attack was so violent that she fell to the floor and was unable to rise. She was carried to bed. She said that the pain choked her so that she was unable to breathe. She felt hot, and suffered from an excruciating headache. Her clothing was soon saturated with perspiration. Her husband gave her a saline purge, but a diarrhea began before this took effect. No physician could be obtained until the following morning. When seen, fourteen hours after the onset, the patient was feeling better. The temperature was 98.4; pulse, 78; respiration, 34. Physical examination showed a general tenderness of the abdomen and marked tenderness over the lower ribs. The differential leukocyte count showed: polymorphonuclears, 66 per cent.; lymphocytes, 33 per cent.; eosinophils, 1 per cent.

Case 3.—J. S., a white youth, aged 17, on the afternoon of July 27 suddenly felt pain all over his body; it was particularly severe in the epigastrium and in the back at the level of the lower thoracic vertebrae. Breathing was rendered so difficult that he could scarcely talk. He did not know whether he had fever. He was constipated, and took medicine to relieve this condition. The next day he felt better, but did not try to work. During the day he was caught in a rainstorm and was wet through. The following day he felt weak and was "cold and hot," but did not suffer any pain. July 30, he went to work, but continued to feel "cold and hot," and at 11 o'clock he felt a return of the former pain and was forced to stop work. He was seen about thirty minutes later.

He was well developed and well nourished, and appeared to be acutely ill. His body was bent forward and his facial expression indicated that he was suffering severe pain. There was twitching of the muscles of the face and fingers. The vessels of the conjunctivae were moderately dilated. The face and neck were covered with perspiration. The tongue was moderately coated, and there was marked redness of the tonsils, peritonsillar region, and soft palate which may have been due to excessive smoking rather than to the acute illness. Respiration was of the thoracic type; the rate was 34 a minute. The movement of the two sides of the thorax was equal. The ninth and tenth right ribs were very tender on pressure throughout their length. Resonance and breath sounds were normal over the entire thorax. There were no râles. The heart was not displaced; it was normal in size; the rate was 94 a minute; the action was unusually strong, but the sounds were of good quality.

The abdomen was retracted, and showed little movement with respiration. The musculature was moderately tense, but there was no difference between the two sides. The tension relaxed on gentle palpation, and no localized tenderness was demonstrated except at the end of the ninth and tenth right ribs. Pressure at this point produced pain, which was most intense in the thorax along the course of these ribs.

The extremities were normal. There was no pain on passive or active motion of any of the larger joints. There was marked pain on any attempt to hold the body erect, and also during the act of reclining or rising from the bed. This pain was always localized along the course of the ninth and tenth right ribs.

At the time of this examination, the patient's temperature was 102.2. A differential leukocyte count showed: polymorphonuclears, 76 per cent.; lymphocytes, 23 per cent.; basophils, 1 per cent., and no eosinophils.

The patient was seen forty-eight hours later, when the temperature, pulse and respiration were normal. He felt no more pain even on deep breathing, and the tenderness along the ninth and tenth right ribs had disappeared. The white blood cells numbered 6,700; polymorphonuclears, 54 per cent.; lymphocytes, 40 per cent.; eosinophils, 5 per cent.; basophils, 1 per cent. No plasmodia or granular basophilia were demonstrated.

SUMMARY OF THE ACCOUNTS OF THE OTHER CASES STUDIED

Prodromal symptoms were usually absent. The patients frequently said that they were feeling unusually well immediately before the onset, but there were a few who complained of chilliness, headache and backache, or slight abdominal pain a few hours previous to the first paroxysm. The attack nearly always began suddenly and without warning, with severe epigastric pain. The pain later extended to one or both sides of the lower part of the thorax. The expressions most commonly used to describe the onset were: "It doubled me up," and "It caught my breath." Respiration was exceedingly difficult, and in some cases the rate was sixty a minute. In nearly all cases the temperature rose at the time of onset, and soon reached its maximum, which varied from 101 to 105. There were some cases in which the physician reported that the temperature was not elevated. The pain was intermittent, and was most severe at the time of onset or soon after. Succeeding paroxysms were less severe, and the respiratory difficulty was less marked. Profuse perspiration was the rule. Some patients describe the sensation of water dripping from the skin during the paroxysms or immediately afterward. The pain was increased with active movement of the body, particularly with any attempt to stand or sit erect. In some cases it was also increased by swallowing.

Nausea and vomiting were not prominent symptoms, but they occurred in about one third of the patients questioned. Constipation was the rule. In only one case examined did diarrhea begin soon after the onset. There were a few cases in which diarrhea began on the third day or later. There were also numerous cases in which dysentery followed the attack. Abdominal distention was mentioned in the complaints of the patients, but it was apparently subjective rather than objective.

More than half of the patients who were questioned complained of headache. Some had pain which they localized in the lumbar vertebrae. A few complained of pain in the extremities, particularly in the shoulders. One child complained of numbness and heaviness of the left arm during the early paroxysms.

After from four to ten hours of severe paroxysms of pain and dyspnea, the patient usually became more comfortable. In no case did the initial paroxysm last more than twenty-four hours without a period of comparative comfort. With the subsidence of pain, the temperature fell; but occasionally it rose again, and some patients complained of weakness and slight fever for from one to three weeks after the onset. In some cases there was no return of the pain and dyspnea, while in others the initial symptoms recurred with decreased severity after an interval of twenty-four hours or more. Frequently the recurrence was apparently initiated by exertion or exposure.

Not all patients present the physical signs in the ame degree as in the cases that have been described. Some seem to have been more prostrated during the acute stage, while the illness of others was relatively mild. Some cases have been reported in which the everity of the pain and the abdominal rigidity were uch as to suggest an acute condition requiring lapaotomy. In one case an exploratory operation was erformed but no pathologic condition was found.

Unfortunately, it was impossible to make complete lood counts in the rural cases which were seen; but ifferential counts were made in eleven cases. There was no evidence of any increase in the total number of eukocytes. The polymorphonuclears varied from 5 to 76 per cent. In eight cases they were between 0 and 70 per cent. of the total count. In six cases he percentage of eosinophils was greater than 5, and he maximum found was 13. The eosinophilia was robably not significant, for it has been noted with bout the same frequency in other children from rural istricts but with no history of similar illness.

The sequelae of this condition are variable, and ppear to depend on individual and local conditions. ne case was seen in which a streptococcus empyema ollowed the initial illness. In certain localities, dysntery followed six days or more after the onset. One physician reports twenty cases of otitis media occurring in eighteen families after attacks of this condition. The only death that has been reported was in a woman who developed an acute endocarditis after recovery from this illness.

A disease that was similar to this was epidemic in Virginia in 1888, and was described by W. C. Dabney,[1] who stressed its similarity to dengue but believed that it was a separate entity. This epidemic began in June, and it is noted that the region of Charlottesville and also Rappahannock County were affected; but Dabney does not mention the duration or the extent of the distribution of the epidemic. The condition was dubbed "devil's grip" by some of its victims. Dabney emphasizes the sudden onset, lancinating thoracic pain, the unusual heat of the skin, absence of respiratory symptoms other than quickened respiration, similar absence of gastro-intestinal disturbances, and the variable duration. In his cases the duration varied from twelve hours to three weeks. In the prolonged cases, the pain and the elevation of temperature recurred at the same hour each day. In our cases we have been unable to establish any such periodicity in the paroxysms in similar cases. Sixteen of Dabney's patients were students in the University of Virginia and were scattered in different parts of the university buildings, there being usually only one or two cases in a single neighborhood. The cases in the town, however, were among children, and no adults were attacked in the same houses. As a rule, it attacked all of the children in the family.

EPIDEMIOLOGY

The disease has been reported by thirty-eight physicians from twenty-two counties. Nearly all of the reports have come from the northeastern part of the state. There appear to have been relatively few cases west of Louisa County or south of Chesterfield County. In practically all areas the epidemic is reported to have begun in July, but there were cases in Northumberland and Lancaster counties in May, and in Hanover, Botetourt and Louisa counties in June.

Many of the reports call attention to the apparent spread of the infection through families by contact. This is supported in evidence collected by us. Among seventeen families we found five cases in one, four cases in one and three cases in two others. Some of these famiilies were visited within a day or two of the onset of the illness in the first victim, so there may have been subsequent cases about which we did not learn. In the family in which five cases developed, three persons were attacked on the third day after the onset of the first, while another was attacked on the fourth day. In one of the families with three cases, the second case occurred on the fifth day and the third case on the seventh day. One physician reports a family in which there were ten persons, and all were victims within a period of about two weeks.

Children are somewhat more frequently attacked than adults. This is more noticeable in those regions in which there are numerous cases than in those localities where there are only sporadic cases. Of the twenty-seven cases studied by us, fifteen patients were under 20 years of age, and eight were under 10. Of twelve cases investigated in the epidemic area in the southern part of Caroline County, eleven patients were under

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[1] Dabney, W. C.: An Account of an Epidemic Resembling Dengue, Which Occurred in and Around Charlottesville and the University of Virginia in June, 1888, Am. J. Med. Sc. **96**: 488-494, 1888.

20 years of age, six were under 10 years, and two were under 5 years.

The epidemic thus far appears to have confined itself to strictly rural communities. In Caroline County the only case found in Bowling Green was in a nurse who had been working in the epidemic area. Although there were many cases in King George County within a few miles of Fredericksburg, the only case found in the city was in a nurse in whom a positive diagnosis could not be made. Thus far, very few cases have been reported in the city of Richmond, in spite of its very close relation with epidemic areas in Hanover and Chesterfield counties.

DIFFERENTIAL DIAGNOSIS

Occurring in summer, this disease must be differentiated from the acute gastro-intestinal disturbances due to indiscretions in diet. The absence of vomiting and diarrhea in most of the cases, and the prominence of the respiratory difficulty make the differentiation simple. The same features also differentiate it from gastro-intestinal influenza. Furthermore, cases of influenza are more varied in type, while the earlier paroxysms in this condition are remarkably uniform. It is differentiated from epidemics of food poisoning by the lack of gastro-intestinal symptoms, by the absence of paralysis, and by the absence of any history of common food. The occurrence of the disease in all ages and over an entire state makes the probability of origin in food very remote. From dengue it is distinguished by the absence of the characteristic rise of temperature, absence of rash, absence of the "breakbone" pain, and by its occurrence in epidemic proportions in isolated rural districts, while only sporadic cases occur in the cities. It has already been indicated that it is most difficult to distinguish some of the early paroxysms from an acute abdominal condition requiring immediate surgical attention. In this condition there is usually no indication of shock; the pulse is full and relatively slow. The rigidity of the abdomen can usually be overcome, and the pain on palpation is referred to the lower part of the thorax. Exquisite tenderness of some of the lower ribs is likely to be present at points corresponding to attachments of the diaphragm. Pain referred to the lumbar vertebrae, shoulders and neck also constitute differential features. So far as is known at present, the leukocytes are not increased. It is differentiated from malaria by the fact that it occurs in nonmalarious regions as well as in those in which malaria is present. No malaria parasites have been found in the smears examined. The periodicity of recurrence is irregular.

COMMENT

We feel that this condition must be regarded as an infection; but the evidence is not sufficient to warrant any conclusion with regard to the causative organism, nor can we go further than conjecture in regard to its mode of transmission. The pathology of the condition is likewise obscure; but the epigastric pain, the difficulty in breathing, and tenderness along the lower ribs point to involvement of the diaphragm or of one of its serous surfaces. The severe symptoms with disproportionately short duration of the illness are not compatible with our usual conception of inflammatory conditions which may affect either the musculature or the serous surfaces of the diaphragm. The active virus seems to be remarkably selective in its action, and the lesions produced appear to be usually of a transitory character. In spite of the defects in our present knowledge, it is important that this condition be brought to the attention of the medical profession because, first, it must be differentiated from serious surgical conditions, and secondly, precautions must be taken to avoid serious sequelae.

SUMMARY

Beginning in June, 1888, and in May or June, 1923, there was epidemic in Virginia a disease characterized by acute onset with epigastric pain, difficulty in breathing, fever, tenderness along the lower ribs, and duration varying from one day to three weeks. In the epidemic of 1923 it has been most prevalent in the northeastern portion of the state, affecting rural areas more than urban, and children more than adults. It has caused no deaths, but in some cases it has led to serious sequelae. It is believed to be due to an infection, but the nature of the virus has not been determined.

INFLUENCE OF THE APPLICATION OF THE ICE-BAG TO THE PRECORDIUM

I. PRELIMINARY STUDY: THE NORMAL PERSON *

ROBERT L. GILMAN, M.D.
AND
CLEVELAND J. WHITE, M.D.
MADISON, WIS.

Da Silva,[1] working under the direction of Bozzolo, made the first special study of the influence of the application of the ice-bag to the precordial region. He concluded that in the normal individual the systolic arterial blood pressure would rise from 30 to 40 mm. of mercury after an hour's application of the ice-bag, and that this rise in pressure was explained by an increase in vascular and cardiac tone. Corresponding to the increase of arterial pressure, the cardiac rate fell an average of 8 beats a minute. Intracardiac thermic determinations on dogs showed a decrease in temperature of 1 to 5 degrees C. Da Silva concluded that these effects resulted from the direct action on the cardiac fibers.

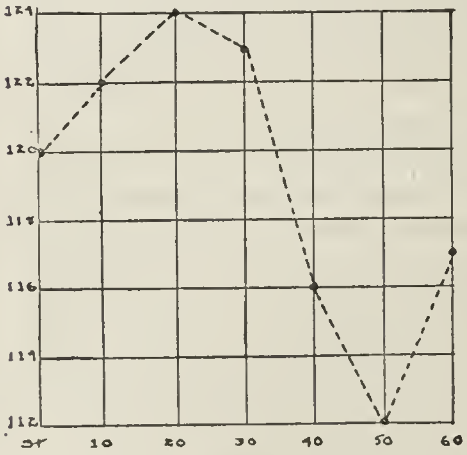

Chart 1.—Composite curve of systolic pressure during the hour of ice-bag application.

Winternitz[2] made practically the same observations as da Silva, but included a somewhat more exhaustive study of the therapeutic indications of such hydrotherapy. Hirschfelder[3] has briefly summarized their work.

In the present study, the work has been directed toward the immediate effects of the application of cold over the heart of normal subjects with the rationale of the treatment in view. In our preliminary observations, the studies have been confined to a series of twenty-five normal persons, with blood pressure, pulse and tem-

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* From the Bradley Memorial Hospital, Department of Clinical Medicine, University of Wisconsin.

[1] Da Silva: Riforma med., 1886, p. 253.

[2] Winternitz: Blätter f. klin. Hydrotherapie, 1891, No. 6.

[3] Hirschfelder: Diseases of the Heart and Aorta, p. 221.

perature readings at ten minute intervals throughout the hour's application of the ice-bag. Particular attention will be paid the effect on the blood pressure and on the heart rate. Temperature readings by mouth showed no appreciable change at any time, although da Silva reports a fall in rectal and oral temperatures of an average of 0.75 degree.

Our observations on blood pressure readings in this series of normal subjects were inconclusive. The systolic arterial blood pressure rose in five cases, was unchanged in seven, and fell in thirteen. In the last group the greatest fall was 18, and the average 3.5 mm. Diastolic pressure followed, mainly, the systolic change, and no appreciable variation in pulse pressure was seen. In most instances the arterial blood pressure showed a preliminary rise with a subsequent decline and a short terminal increase (Chart 1).

The pulse rate showed a final increase in three cases, no change in three, and moderate decrease in the remaining nineteen. The average fall in twenty-five was 4.28, and the average in twenty-two (excluding the three subjects with accelerated rate), 5.40. The maximum pulse decrease in a single case was 26 beats. However, in all but four cases the greatest decrease in pulse rate, i. e., the maximum effect, was prior to the sixty minute reading, averaging a significant maximum fall of 10 beats in the heart rate at the end of thirty minutes (Chart 2). This apparently bears out the empiric practice of shorter periods for ice-bag applications. The greatest effectiveness might be achieved in alternating half-hour periods.

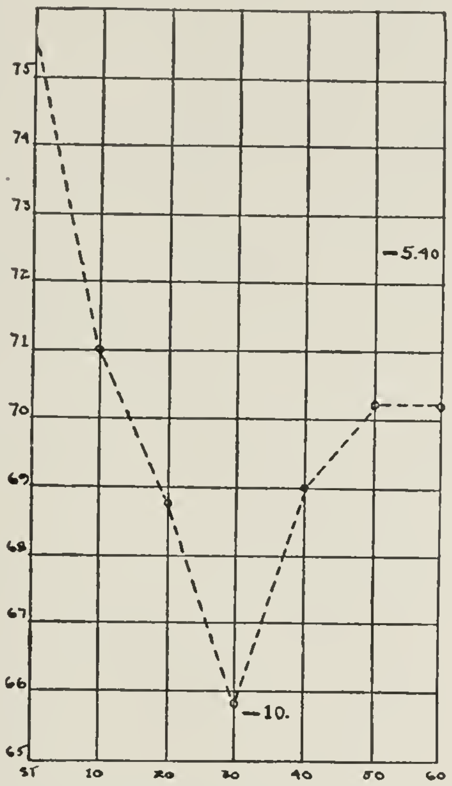

Chart 2.—Typical curve, showing a maximum drop at thirty minutes.

Further study is being pursued to determine the effect of the application of cold to the precordium on he accelerated heart rate in febrile cases and in cases n which there is tachycardia of immediate circulatory origin. In addition, an experimental study is contemplated, directed toward a determination of the factors nvolved in slowing the heart rate.

Sputum Infection of Children.—Roughly, about 10 per cent. f children of the type who resort to city dispensaries exhibit nfection by the end of their second year; at 3 years, from 5 to 20 per cent.; by 6 years, from 50 to 60 per cent., and y 15, about 75 per cent. In other words, if we take 75 per ent., or three fourths, of all children as our standard of nfection at age 15, we find that during the first two years f life, 10 per cent. of all children, or about one-seventh of ne infected, receive their first infection; during the third ear, about one-seventh more; between 4 and 7, one-half nore; and between 7 and 15, one-sixth or one-seventh more. he significant feature of such an analysis is that during nfancy about two-sevenths of the infected receive tubercle acilli for the first time; during early childhood (from four seven years) about one-half; and during later childhood from seven to fifteen) about one-seventh.—A. K. Krause: est and Other Things, p. 31.

Clinical Notes, Suggestions, and New Instruments

A CASE OF MYOSITIS OSSIFICANS

B. J. Gallagher, M.D., Waseca Minn.

Lewis[1] recently reported two cases of myositis ossificans in which bone developed in incisions of the abdominal wall, and he referred to eleven cases from the literature in which the same condition was found. The operation preceding the laying down of bone in the abdominal wound in eight of the thirteen cases reported was for gastro-enterostomy. On account of the apparent rarity of the condition, I am reporting a case in which the condition occurred subsequent to gastro-enterostomy.

A man, aged 38, suffered for several years with spells of indigestion of a gastric ulcer type. In April, 1921, he was operated on elsewhere; a duodenal ulcer was found, and a posterior gastro-enterostomy was performed. The wound suppurated, and several weeks elapsed before it was completely healed. In April, 1923, he consulted me on account of a ventral hernia large enough to admit the thumb, at about the center of the old right rectus incision. On each side of the old scar for the distance of about one-half inch and running around the upper end of it like a hair-pin was a very hard, flat mass, which felt about like a wooden tongue depressor. In April, 1923, I operated on him for repair of the ventral hernia. The operation necessitated the removal of this hard substance, extending the entire length of the wound, about the width and thickness of a rib, which proved to be bone.

New and Nonofficial Remedies

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.
W. A. Puckner, Secretary.

ARSPHENAMINE-SQUIBB (See New and Nonofficial Remedies, 1923, p. 49).

The following dosage forms have been accepted:

Arsphenamine-Squibb, 1 Gm. Tubes.
Arsphenamine-Squibb, 1.2 Gm. Tubes.

PITUITARY SOLUTION-SQUIBB (Formerly marketed as Solution of Hypophysis-Squibb, see New and Nonofficial Remedies, 1923, p. 219).

The following dosage forms have been accepted:

Ampules Pituitary Solution-Squibb, 0.5 Cc.
Ampules Pituitary Solution-Squibb, 1 Cc.

NEUTRAL ACRIFLAVINE-"NATIONAL" (See New and Nonofficial Remedies, 1923, p. 25).

The following dosage forms have been accepted:

Enteric Coated Tablets Neutral Acriflavine-"National," 0.0324 Gm. (½ grain).

Ointment Neutral Acriflavine-"National," 1 per cent. Neutral Acriflavine-"National" 1 part, dissolved in glycerin, 8 parts, and incorporated with a base composed of hydrous wool fat and petrolatum to make 100 parts.

POLLEN PROTEIN ALLERGENS-SQUIBB (See New and Nonofficial Remedies, 1923, p. 241.

The following products have been accepted:

Apple Pollen Allergen-Squibb; Black Walnut Pollen Allergen-Squibb; Cherry Pollen Allergen-Squibb; Dandelion Pollen Allergen-Squibb.

Prepared by the method given for Corn Pollen Allergen-Squibb (New and Nonofficial Remedies, 1923, page 241).

GROUP ALLERGENS DIAGNOSTIC-SQUIBB (See The Journal, Aug. 4, 1923, p. 393).

The following products have been accepted:

Group Allergens-Squibb Type XXIII (Ash, Cherry, Maple, Oak, Poplar, Willow).

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[1] Lewis, Dean: Myositis Ossificans, J. A. M. A. **80**: 1281 (May 5) 1923.

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SATURDAY, SEPTEMBER 1, 1923

THE LIVER AND CARBOHYDRATE METABOLISM

The discovery of insulin, and the widespread interest in the phenomena with which it may be concerned have centered interest to an unusual degree on the rôle of the pancreas in carbohydrate metabolism. Before the publication of the researches of the Toronto group of investigators responsible for the recent helpful progress in this field of study, the outstanding symptom that attracted the attention of the clinician dealing with abnormal metabolism of sugars was the hyperglycemia commonly present. Now that it has become possible to combat the undue content of glucose in the blood by administration of insulin with results more dramatic in character than even the most extreme dietary prescriptions can bring about, the therapeutist has been brought face to face with the possibilities of overdosage. The "utilization" of the circulating carbohydrate may proceed so rapidly and effectively under insulin administration that the blood sugar content is rapidly brought below the normal level of approximately 0.1 per cent. Hypoglycemia thus ensues, attended by a train of consequences that may be quite as threatening as the condition originally to be combated. The early symptoms of such overdosage may in turn be made to disappear quickly, and further danger may be avoided by an intake of carbohydrate in some easily available form. For this reason the employment of insulin calls for foresight based on understanding of the potency of the product and the tolerance of the patient.

It has thus come about that the clinician of today is liable to encounter the consequences not only of hyperglycemia, which has long offered a difficult problem in therapy, but also of an occasional menacing hypoglycemia. In either event the sugar supply of the circulation is involved. It has become clear, particularly through the difficult experiments of Mann[1] and his collaborators at the Mayo Foundation, that the liver plays a highly important part in keeping up the supply of blood sugar. In the absence of this organ a hypoglycemia incompatible with the continuance of life promptly arises, and the threatening symptoms can be relieved for a time by introduction of glucose into the system. Accordingly the liver, responsible for the maintenance of the normal level of blood sugar, assumes renewed importance and undoubtedly has a "vital function" in relation to carbohydrate metabolism.

Recently Mann and Magath have demonstrated that the liver is absolutely necessary for the maintenance of the blood sugar level in the hyperglycemic individual in the same manner as in the normal. For example, the increase in blood sugar following pancreatectomy is dependent on the presence of the liver. Without an adequate amount of functioning hepatic tissue, the increase in blood sugar following pancreatectomy could not occur. It is not yet understood precisely why loss of the pancreas should cause the rise in sugar, beyond the fact that the pancreatic hormone for sugar destruction is no longer furnished; in any event, the presence of the liver is necessary for the production of the hyperglycemia. Fortunately, the danger of underfunction on the part of the liver is relatively slight, for only a small portion of the entire organ is sufficient for the maintenance of its essential activities.

CONSTITUTIONAL RESISTANCE AND SUSCEPTIBILITY TO DISEASE

Every clinician who has come face to face with the varied manifestations of disease must have been impressed from time to time with the markedly unlike degrees of resistance and susceptibility shown by different patients. To some extent, such variability may be attributable to the varying virulence of the infective agent, if such an etiologic factor is involved, or to differences in the primary damage inflicted on the organism. Yet even when these extraneous influences are taken into account, persons may still exhibit pronounced differences in their ability to meet the disease foes. Owing to the lack of a more precise definition, it has become customary to speak of constitutional differences, thereby implying some systemic weakness or strength in the attack on disease.

It would, indeed, mark a distinct step in advance in the understanding of both the theory and the practice of medicine if a scientific explanation of varying physiologic stamina were forthcoming. Something of this sort seems to follow from recent investigations of Brown and Pearce[1] at the Rockefeller Institute for Medical Research in New York on the interrelations of certain diseases and the endocrine systems in those affected. It seems beyond much doubt that the growth of certain tumors is associated with the occurrence of marked alterations in the size and the general appearance of such organs as the thyroid, the thymus and the suprarenals, while distinct histologic changes also are found in the thyroid, the thymus and the hypophysis. For example, when the tumor progressed for a considerable period of time with the formation of metastases, some of the organs increased markedly in weight. If the disease assumed a highly malignant character, as indicated by the early appearance of widespread metastases, many of the endocrine organs showed a marked reduction in weight, suggesting an exhaustion; and this occurred before the experimental animal exhibited any clinical signs of physical deterioration. Again, when recovery ensued, and particularly when immunity was developed, the weights of the thyroid, parathyroids, thymus, suprarenals and hypophysis were all found to be greater than normal, and they apparently retained their increased size indefinitely.

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[1] Mann, F. C., and Magath, T. B.: Studies on the Physiology of the Liver, II, Arch. Int. Med. **30**: 73-84 (July) 1922; III, ibid., **30**: 171-181 (Aug.) 1922; IV, ibid. **31**: 797-806 (June) 1923.

[1] Brown, W. H., and Pearce, Louise: The Reaction of the Endocrine System of the Rabbit to Tumor Inoculation, and the Relation of this Reaction to Malignancy, Proc. Soc. Exper. Biol. & Med. **20**: 472 (May) 1923; Animal Resistance and the Endocrine System of the Rabbit in Experimental Syphilis, ibid. **20**: 476 (May) 1923.

Brown and Pearce point to such alterations, which were not chance observations but rather the outcome of many laborious experiments, as showing clearly that there is an intimate relation between the reactions that occurred in the typical endocrine organs and the malignancy displayed by the tumor or the ability of the animal to control or suppress its growth. Some of the organs mentioned are notably concerned with the regulation of growth and maturity in the organism; apparently their activity may determine the resistance of the individual to the development of neoplasms. From this standpoint, malignancy may to some extent depend on the animal economy, not merely on the invading cells. Something comparable has been observed in the extensive studies of experimental syphilis at the Rockefeller Institute. The status of the endocrine organs at one stage of the infection differed from that at another; and, in general, the direction and magnitude of the change that occurred was proportional to and parallel with the resistance displayed by those affected. Furthermore, it was found that the alterations that took place as the disease was brought under control and immunity was established were of a more or less permanent character. In other words, such organs as the thyroids, parathyroids, suprarenals and thymus did not revert to their normal size and appearance, but maintained a condition suggestive, as the New York investigators express it, of a higher plane of functional activity and of a change in the general relationship of one organ to another.

It is not easy to refrain from the speculations which these important studies evoke. They suggest at once the significant possibility of altering the general course of various diseases by modifying the reactions of the endocrine systems. If, as seems to be demonstrated, the development and resolution of syphilitic lesions are subject to the same influences as are concerned in ordinary processes of growth and maturity, it becomes easier to understand how agents which are devoid of spirocheticidal potency may nevertheless profoundly affect the endocrine glands and the lymphoid tissues, and thus modify the progress of the disease. Perhaps the therapeutic value of iodids and mercury in syphilis lies in this reaction.

It has been remarked that in syphilis the spirochete is of minor importance, as compared with a number of other influences, such as the factor of resistance in the host. Therapy directed toward the latter end comes into new prominence in the light of what has been discussed. Treatment must have due regard to the maintenance of constitutional resistance as well as to the eradication of the infective agent. Brown and Pearce point out further that, in view of the changes recorded in important organ systems of the body, differences in individual susceptibility, differences between the sexes, and between pregnant and nonpregnant women, or even racial and geographic peculiarities of a disease such as syphilis may depend on the constitutional factors described. Features of the disease, such as abnormalities in dentition in congenital syphilis, may be referable to injury inflicted on certain endocrine glands. The state of heightened activity of the latter or their constant stress may in turn account for the eventual physical deterioration and predisposition to other forms of disease which so often occur in syphilitic persons. The subject is by no means a new one, nor is the formulation of the problem entirely novel; but it does represent a step toward progress to be able to point to certain definite structures by the varying functional condition of which the character of specific diseases is distinctly modified. The fact that the structures involved in the present information are some of the ductless glands which have been the subject of all too much futile speculation and pseudoscience need not discourage a further study based on real facts secured under careful laboratory control.

ANTIRACHITIC SUBSTANCES

Cod liver oil is preeminently a specific in the treatment of rickets; and recently the therapeutic value of egg yolk in this disease has been emphasized by Hess.[1] The curative value of egg yolk is said to be less than that of potent cod liver oil, but it is likely to prove useful in cases in which the latter may not be well borne. Both of these fat-containing foods are rich in vitamin A, a food factor essential to well-being and apparently capable of protecting some species, at least, from the occurrence of certain types of ophthalmia. In view of these parallelisms between the antirachitic and the antiophthalmic potencies of cod liver oil and egg yolk, the conclusion has been drawn that they are manifestations of the same vitamin. Certain well known facts seem, however, to be opposed to such a conclusion. It is generally admitted by pediatricians who have devoted attention to the subject that rickets may occur quite freely in infants on mother's milk or on the best grades of fresh cow's milk. Furthermore, rachitic infants are not cured by liberal inclusion of cream or butter in their diets. Animal experiments also have strengthened the conclusion that the milk fats are not carriers of antirachitic properties in any noteworthy degree.

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[1] Hess, A. F.: The Therapeutic Value of Egg Yolk in Rickets, J. A. M. A. **81**: 15 (July 7) 1923.

The evidence that the antirachitic potency of certain foods is not to be confused with vitamin A seems to be increasing. McClendon and Schuck,[2] for example, have demonstrated that dried spinach, which exhibits the characteristic antiophthalmic potency attributed to vitamin A in both milk fat and cod liver oil, seems to be devoid of antirachitic efficiency. Employing the technic by which they have concentrated the antirachitic substance in cod liver oil several hundred times, Zucker and Barnett [3] have failed to separate it from a variety of food materials, including butter, carrots, spinach and pig's liver—all sources of vitamin A. For the present, therefore, it seems best to look on the antirachitic substance as something distinct, or at any rate to preserve an open mind in this connection.

Coincident with these studies of the antirachitic substances, and likewise the influence of the environmental factors represented by light in the cure of rickets, has come an interest in the hereditary and other predisposing aspects of the disease. There is considerable evidence that protective antirachitic substances can be stored in the body very early in life, and that it may be difficult to furnish the young with a sufficient amount of protection through the mother's milk.[4] In animal experiments, the influence of typical rickets-producing diets sometimes fails to become manifest until the second generation. Byfield and Daniels [5] have reported that the young of properly nourished mothers are less susceptible to rickets, even though they are themselves badly fed. If a deficiency in the diet of the parent may thus profoundly affect the development of the offspring, so that faulty parental nutrition may become one of the chief causes of rickets, we may well agree with these observers that prophylaxis at once looms up as an important factor in this dystrophy. Byfield and Daniels insist that it requires only the most cursory analysis of the average modern diet to note that inorganic and other deficiencies are common today; hence it need not be surprising that rickets of mild degree is a manifestation so frequent as to escape attention or, at least, arouse very little comment from the casual observer. Some one has aptly remarked that we seem to be transferring the problem of rickets from the pediatrician to the obstetrician. In these days, many aspects of medicine point to the importance of greater attention to the diet and hygiene of the mother during pregnancy.

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[2] McClendon, J. F., and Schuck, C.: The Presence of Antiophthalmic Vitamin and the Absence of Antirachitic Vitamin in Dried Spinach, Proc. Soc. Exper. Biol. & Med. **20:** 288 (Feb.) 1923.

[3] Zucker, T. F., and Barnett, M.: Observations on the Distribution of Antirachitic Substances, Proc. Soc. Exper. Biol. & Med. **20:** 375 (April) 1923.

[4] Hess, A. F.; Weinstock, M., and Tolstoi, E.: The Influence of Nutrition During the Preexperimental Period on the Development of Rickets in Rats, Proc. Soc. Exper. Biol. & Med. **20:** 371 (April) 1923.

[5] Byfield, A. H., and Daniels, A. L.: The Rôle of Parental Nutrition in the Causation of Rickets, J. A. M. A. **81:** 360 (Aug. 4) 1923.

Current Comment

SMOKING AND BLOOD PRESSURE

Among the habits that almost invariably are interdicted by the physician in the treatment of illness is the smoking of tobacco. Heretofore this interdiction has been based on a large empiric observation, but not founded on any extensive scientific study. In the course of a series of investigations on the effects of cigar and cigaret smoking on certain psychologic and physiologic functions, Dr. Robert L. Bates [1] of the Psychological Laboratory of the Johns Hopkins University has made a number of observations on the effects of tobacco smoking on the systolic and diastolic blood pressure and on the heart rate. Readings were made over a long interval on volunteer students, who were seated comfortably and smoked extensively during the observations. The tests indicated briefly that, following the smoking of a cigar or three cigarets, there is a rise in systolic and diastolic blood pressure and in the heart rate. The rise in blood pressure usually amounts to only a few millimeters, and, as Dr. Bates remarks, "The normal irregular variations in blood pressure, due to various causes, are practically as great as the variations which may be ascribed to tobacco." The rise in heart rate is irregular: usually less than 10 a minute in most cases, but in some cases as much as 20. Both blood pressure and heart rate subside to normal in from twenty to thirty minutes. The report of this study concludes with the statement that the extent to which the effects are due to absorbing smoke products and to psychologic factors involved in smoking remains to be discovered. The observations are of interest and indicate particularly the great difficulty in arriving at scientific conclusions in investigations of this character.

THE ADMINISTRATION OF INSULIN

The present methods of administering insulin parenterally, and particularly by the device of frequent subcutaneous injections, are far from satisfactory, even when the technic is carefully carried out so that there is a minimum of irritation at the site of the introduction of the drug. The difficulties are aggravated by the fact that the effects of insulin are transitory, so that the supply to the organism must be renewed at frequent intervals. Depending on the severity of the patient's diabetic symptoms, injections must be repeated twice or thrice daily for periods of as yet undetermined lengths. Consequently, even the earliest investigators of insulin and other pancreatic preparations attempted to secure physiologic effects by oral administration of the products. Banting and Best believed that slight results could sometimes be obtained when insulin was introduced into diabetic dogs through the stomach tube, although the outcome was never comparable to the beneficial effects of subcutaneous or intravenous injections. Rectal administration and nasal insufflation, both procedures which have proved to be effective with many drugs, were tried without success. Recently Hachen and Mills[1] of the University of Cincinnati have reported evidence of fairly rapid absorption of insulin from the small intestine in dogs and rabbits when the hormone was introduced directly into the bowel. To produce the desired effect by intestinal administration, very large doses are required. In man, on the other hand, the blood sugar lowering effect of insulin was not noted after good sized doses administered either orally or through a duodenal tube by the intestinal route. Earlier observers at Rochester, N. Y.,[2] had reported a reduction in hyperglycemia and glycosuria after the administration of Murlin's pancreatic extracts directly into the duodenum of patients through an Einhorn tube. The more recent reports[3] from the same laboratory show that desiccated pancreatic extracts, taken in capsule form by stomach, have thus far not proved to be effective in decreasing blood sugar or urinary sugar. It is desirable to give wide publicity to the current limitations of a most promising therapy, since unscrupulous venders of drugs are already attempting to distribute just-as-good pancreatic and antidiabetic preparations that are recommended for oral use.

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[1] Bates, R. L.: The Effects of Cigar and Cigarette Smoking on Certain Psychological Functions, J. Comp. Psych. **2:** 431 (Dec.) 1922.

COMMUNITY ORGANIZATION AGAINST TUBERCULOSIS

Tuberculosis is no longer a merely personal matter, but, like other infectious diseases, is a problem of vital importance to the community. The full benefits of a campaign against it can be secured only by efficient organization and cooperation. The report[4] of the comprehensive activities of the city of Richmond, Va., describes an unusually interesting plan. The city requires notification of all cases of tuberculosis, and a Virginia statute provides a penalty for tuberculous persons who place others in danger of infection. The antituberculosis work is placed under a special division of the city health bureau, which is in charge of a full-time physician, with the assistance of eight nurses, two of them on full time and the others on part time. The city maintains a tuberculosis clinic and a nutrition clinic which work in cooperation with the city hospital and laboratories for operative, roentgenologic and bacteriologic assistance. Sanatoriums are provided both for white and for colored patients, and use is also made of the state sanatoriums, when necessary. The clinic is principally a center for diagnosis and instruction, treatment being carried on in the homes under the direction of the patient's own physician or, when necessary, in the sanatoriums. Visits are made by the nurses to the homes, and there are special provisions for the study of contacts and the supervision of arrested cases. Great emphasis is laid on the instruction of patients and their friends through personal talks at the clinics and by the visiting nurses; literature, sputum cups and paper napkins are provided when necessary, with instructions for their use. In addition, the division is concerned with inspection of the city milk supply, all of which is either pasteurized or obtained from tuberculin-tested cows. The clinic director also visits, at the request of the physician in charge, the homes of patients who are unable to go to the clinic for the purpose of consultation. Finally, provision is made for the investigation, in every case, of the social and financial condition of the patient, partly to eliminate nonresidents and partly to see that those able to pay for services do not become charges on the city.

RECENT DATA ON THE SCHICK TEST

Readers of The Journal are familiar with the efforts that have been made during the last two years or more by Park, Zingher and their associates to secure a higher degree of immunization of children in New York against the dangers of diphtheria. It is perhaps unnecessary to recall that this is the foremost fatal disease in children from 3 to 5 years of age, and is preceded only by diarrhea and pneumonia in the mortality tables of children from 1 to 3 years of age. Statistics collected on an elaborate scale with adequate care always command respectful attention. This ought, therefore, to apply to the records secured for more than 150,000 children of school age in the public schools of Manhattan and the Bronx. More than 60 per cent. of these young persons gave a positive Schick reaction on entering school. Even a higher percentage of reactors has been observed in certain rural towns. Such facts present to the health authorities and physicians of this country, in a forceful way, the problem of securing immunity. At any rate, science has provided methods of protecting the young against the ravages of diphtheria so that the responsibility must be squarely faced by those most concerned, particularly the parents. Zingher[1] has not hesitated to assert that active immunization against diphtheria should become as much of a routine for all children between 6 months and 6 years of age as vaccination is against smallpox today. There is added food for reflection in the observation that a higher percentage of positive Schick reactions, that is, a smaller incidence of "natural" immunity, occurs among the children of the more well-to-do. Crowding, a characteristic of living among poorer classes in cities, brings exposure to infection and tends to develop immunity. In smaller communities, and especially in rural sections, where people live more or less segregated, the percentage of positive Schick reactions may be very high. Zingher has seen from 85 to 90 per cent. of positive results in certain rural schools. The rôle of race and heredity, though noticeable, is not very important in a problem of such magnitude. Physicians in every community may therefore well ask themselves: What are we doing against diphtheria here?

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[1] Hachen, D. S., and Mills, C. A.: Effects Following the Intestinal Administration of Insulin, Am. J. Physiol. **65**: 395 (July) 1923.

[2] Sutter, C. C.; Gibbs, C. B. F., and Murlin, J. R.: Am. J. Physiol. **63**: 392, 1923.

[3] Gibbs, C. B. F., and Sutter, C. C.: Clinical Observations on the Use of the Antidiabetic Substance, Proc. Soc. Exper. Biol. & Med. **20**: 419 (April 14) 1923.

[4] Mercer, W. N.: The Activities of the Tuberculosis Division of the Health Bureau, Department of Public Welfare, Richmond, Va., Virginia M. Month. **50**: 243 (July) 1923.

[1] Zingher, Abraham: The Schick Test Performed on More Than One Hundred and Fifty Thousand Children in Public and Parochial Schools in New York (Manhattan and the Bronx), Am. J. Dis. Child. **25**: 392 (May) 1923.

"THROW AWAY YOUR GLASSES"

In the September number of *Hearst's International* appears a contribution entitled "Throw Away Your Glasses," by one W. H. Bates, M.D. The article is an unfortunate hoax for thousands, even tens of thousands, of persons who will be cruelly deluded by its irrational bunkum. It presents a half-baked theory, based on the crudest of experimental work, elaborated in a pseudoscientific manner and presumably broadcast by the magazine because of its sensational title. Half or less than half truths are announced as facts without any investigation of underlying anatomic and physiologic conditions, and with no careful experimental study. The whole presentation is supported by illustrations which, like the cartoons of Goldberg, "don't mean anything." Certainly the case reports are too questionable to stand analysis. The entire matter illustrates again the danger of unauthoritative instruction of the public in medical matters. One article of this character may undo the good work of years by committees and councils for the conservation of eyesight; it will lead into false paths many of the afflicted who were perhaps progressing slowly but surely on the road to recovery. An editor's note indicates that the article is sponsored by Mr. Norman Hapgood himself. Where did Mr. Hapgood acquire his knowledge of the science of ophthalmology?

THE POTASSIUM IN THE BLOOD

Only a few years have elapsed since the clinician's knowledge of the composition of the blood and its changes incident to disease was limited to the blood pigment, hemoglobin, with an occasional estimation of the specific gravity as an index of the concentration in total dissolved solids. Today blood chemistry has attained the importance of practical usefulness as well as scientific interest. Procedures easily carried out by those suitably trained afford data that play a helpful part in the diagnosis and prognosis of disease and in the evaluation of therapeutic measures. The inorganic components of the blood have been among the most recent additions to the pursuits of clinical chemistry. As a consequence, the estimations of calcium and phosphorus have been put on a stable basis, and the data already secured have promoted scientific medicine in connection with several diseases. The element potassium has been the subject of some difference of opinion. It appears from the studies of Wilkins and Kramer[1] at Johns Hopkins University that a source of analytic error in the estimation of potassium in blood serum may lie in the red corpuscles, which contain a relatively enormous store of this alkali, and tend slowly to give it up to the serum when shed blood stands. Diffusion from the erythrocytes may, in fact, become very rapid. When precautions are taken, however, to secure speedy analysis, the potassium content of normal human serum is found to be fairly constant, approximating 20 mg. per hundred cubic centimeters. Thus far only two noteworthy deviations have been detected in disease, namely, an increment to 25 or 26 mg. in some cases of nephritis, and to from 23 to 29 mg. in tetany. According to Wilkins and Kramer there is no definite relationship between this and the decrease noted in blood calcium. These reports, taken in connection with the failure of other recent investigators to find any significant increase in the potassium content of the serum, even in advanced nephritis, make it unlikely, for the present at least, that this element will require special consideration in the current micro-analytic routine chemical examinations of the blood.

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[1] Wilkins, Lawson; and Kramer, Benjamin: Studies on the Potassium Content of Human Serum, Arch. Int. Med. **31**: 916 (June) 1923.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Public Health News.—A substation for biologic products, where the Pasteur treatment for rabies, tetanus antitoxin, typhoid vaccine and other prophylactic materials may be obtained, will be established in Birmingham in the near future, according to the director of the Birmingham branch laboratory of the state board of health.——Dr. H. G. Perry, vital statistician for the board of health, called a conference in Montgomery, August 8, to urge physicians and registrars to keep full and accurate reports on births and causes of deaths.

CALIFORNIA

State Medical Meeting.—At the annual meeting of the Medical Society of the State of California at San Francisco, June 21-23, Dr. Granville MacGowan, Los Angeles, was elected president; Drs. William H. Strietmann, Oakland, and Ruggles A. Cushman, Santa Ana, vice presidents, and Dr. Emma W. Pope, San Francisco, secretary. The name of the society was changed to the California Medical Association. Dr. William E. Musgrave, formerly secretary of the association, remains as editor of the *California State Journal of Medicine*.

Physician Erects War Memorial.—A large stone and steel memorial to the men who were killed in the World War has been erected in Oakland by Dr. Leroy E. Herrick of that city. Nearly 85,000 American names have already been placed in the crypt, and the Canadian, Australian, English, Belgian, New Zealanders', French and other allies' names will be added in the near future. The monument has portraits of Washington, Lincoln, Roosevelt and Wilson carved in the stone, and the whole is surmounted by an American Eagle. The entire cost of maintenance will also be paid by Dr. Herrick.

Hospital News.—Three and one-half acres have been cleared in the preparation of a site for the new sanatorium at Paradise.——The residence of Charles Myers and 20 acres of land at Arbuckle have been sold to Drs. Earl Harlan and Herbert S. Powis, who will remodel the building into a sanatorium.——Two lots have been purchased by J. P. Johnson as a site for a sanatorium at Fullerton.——A twelve-room addition will be made to the hospital owned by Dr. Hugh E. Smith, at Newman.——San Fernando was chosen, August 15, as the site for the U. S. Veterans' Bureau Tuberculosis Hospital, which was allotted to southern California. This location was recommended to the board of hospitalization by Director Hines. The San Fernando institution, and that at Livermore, each will have 300 beds for tuberculous patients. The institution at San Fernando will represent an expenditure of about $2,000,000. The plans call for the cottage type of construction. Two sites are under consideration, one known as the Brown site, comprising 200 acres, and the other the Volney Craig ranch of 600 acres.——Although protested by 320 residents of the neighborhood, the health committee of the board of supervisors, August 23, recommended that a permit be granted the Chinese Association to erect a hospital and dispensary at Jackson and Trenton streets, San Francisco.

CONNECTICUT

Welfare Work for Backward Children.—The 3,500 backward and subnormal children of Connecticut are being provided for by the state, more than forty classes having been formed in Bridgeport, Hartford, Manchester, New Haven, Somerville, Stamford, Torrington and Waterbury. More than 600 children have been placed in these schools with an average of fifteen to each class. Some schools provide two types of classes—one for children who are definitely feebleminded and one for those who are merely backward.

DISTRICT OF COLUMBIA

Appropriation for Howard University.—An appropriation of $500,000 to construct and equip an addition to the medical and dental schools of Howard University, Washington, will be asked of congress at its next session by Secretary of Interior Work. Dr. Work states that this sum is necessary owing to insufficient educational facilities for the colored race in the medical and dental professions throughout the United States. The average number of physicians graduating each year at Howard University Medical School for the last ten years has been twenty. During the 1922 fall term, there were 165 applicants for admission, but only fifty could be admitted because of inadequate laboratory space. The medical school is conducted in a small building. The proposed appropriation will be used to build a large structure that will about double the student capacity. Through a $500,000 endowment raised by public subscription and a gift from the General Education Board (The Journal, July 28, p. 304) sufficient funds were secured to provide for additional instructors for the medical school during the next five years.

HAWAII

Medical Society of Hawaii.—At the recent annual meeting of the society at Honolulu, Dr. Forrest J. Pinkerton, Honolulu, was elected president to succeed Dr. Joseph E. Strode. Dr. Wah Kai Chang remains as secretary of the association. The next annual meeting will be at Honolulu in April, 1924. Dr. G. McD. Van Poole was elected treasurer.

ILLINOIS

Hospital News.—A representative group of Aurora business and professional men have assumed charge of a campaign to raise $100,000 for a building fund for St. Charles City Hospital. It is to be used for a complete maternity hospital.——The Illinois Soldiers' and Sailors' Home and Hospital, Quincy, has been opened to World War veterans and their wives.——Excavation work has been started for the $125,000 nurses' home for the Washington Boulevard Hospital, Chicago.——The Tri-City Sanatorium, Moline, of which Dr. Elmer F. Otis is superintendent, has been closed.

Personal.—Dr. Harry C. Campbell has been appointed city physician of Alton.——Dr. Isaac D. Rawlings, the state commissioner of health, has appointed the following physicians as district health superintendents: Christian H. Diehl, Effingham; A. J. Markley, Belvidere; Paul A. Slater, Hindsboro; Robert C. Bradley, Peoria; Charles S. Nelson, Springfield, and Henry Reis, Jr., Belleville.——Dr. Jacob M. Furstman, director of health and hygiene for the Peoria public schools, has resigned to accept the position of assistant health director of the public schools of Los Angeles.

Chicago

Society News.—The first autumn meeting of the Chicago Tuberculosis Society will be held, October 11.——A special meeting of the council of the Chicago Medical Society was held, August 17, to discuss the venereal disease problem of Chicago. Drs. Charles M. McKenna, John S. Nagel, Malcolm L. Harris, Austin A. Hayden and Robert H. Herbst were appointed members of a committee to devise a plan for the consideration of the council at the meeting in October.——The North Shore Branch of the Chicago Medical Society will open the season with a dinner, lecture and dance at the Sheridan Plaza Hotel, September 8. Following the dinner, Dr. Carl O. Schneider will give a travel talk.——At the annual convention of the International Association of the Deaf, August 15-17, Arthur L. Roberts, Chicago, was elected president.

LOUISIANA

New Memorial Hospital.—The widow of Leonce M. Soniat will erect a charity hospital in New Orleans as a memorial to her husband. The hospital, which will be conducted by the Sisters of Mercy, will be located in the building known as the St. Luke's Sanatorium, which was recently sold to Mrs. Soniat for $100,000.

MARYLAND

Rural Towns Need Physicians.—In order to provide medical treatment for persons in the rural districts of Maryland, Dr. John S. Fulton, state health director, announces that it may become necessary to advertise for practitioners. There is need for more physicians in Anne Arundel County and in some sections of the eastern and western shore. A laboratory system has been successful in Maryland in bringing to rural physicians some of the facilities of the larger cities.

Infant Mortality in Baltimore.—The U. S. Department of Labor, through the children's bureau, has recently published the results of an extensive investigation of infant mortality and its causes in Baltimore. A summary of the findings of the report is as follows:

> Poverty, employment of mothers outside the home, housing below the proper standard, short intervals between births, and the deaths of mothers at or soon after childbirth were among the conditions causing high death rates among certain groups of babies under one year of age in Baltimore.
>
> The mortality in the entire group of 10,797 legitimate births studied was approximately the same as the infant mortality in the cities of the U. S. birth registration area for the same year.
>
> Mortality rate markedly above the average for the entire Baltimore group occurred among the colored families, foreign-born Polish families, and the very poor native white families.
>
> Low mortality rates were found among the babies of foreign-born Jewish mothers and in families of the highest earnings groups.
>
> Breast-fed babies in every group of the population had lower mortality than ratificially fed babies in the same group.
>
> Eliminating differences in color and nationality and considering only the babies born to native white mothers, the facts showed that infant mortality rose as the fathers' wages fell: In the poorest families studied about one baby in six died within the year; in the most prosperous families about one baby in twenty-six died within the year.
>
> Employment of the mother away from home during pregnancy was accompanied by a high percentage of premature births and high infant mortality. Room congestion and lack of sanitary equipment in the house were accompanied by death rates above the average.
>
> First-born babies had a mortality slightly higher than second or third babies.
>
> Babies of mothers under twenty and of mothers of thirty-five years or older showed higher mortality rates than other infants.
>
> Births following a preceding birth by an interval of less than two years had a higher mortality than births occurring after a longer interval.
>
> The babies born to the 105 mothers who died within the year following the babies' birth had the highest mortality in the entire group. When the mothers died within two months after the child's birth the infant mortality rate became six times as high as the rate for babies whose mothers lived.

MASSACHUSETTS

History of the Massachusetts Medical Society.—All of the manuscript of the "History of the Massachusetts Medical Society" has now been put into type, the illustrations are finished, and proof reading is in progress. Subscriptions for the history should be sent to Mr. James F. Ballard, Boston Medical Library. The secretary of the society has given seven years to the preparation of the book.

Course in Psychiatric Social Work.—The School of Social Work of Simmons College, Boston, has opened a department of psychiatric social work which will deal with the adjustment of persons suffering from mental disease and the study of delinquency, crime and all forms of abnormal behavior. The work, which will cover a period of two years, will be under the direction of Dr. Karl M. Bowman, chief medical officer of the Boston Psychopathic Hospital.

MINNESOTA

Hospital News.—The Cloquet Hospital has been purchased by Dr. Franklin W. S. Raiter. It will be operated as a general hospital open to all physicians in Cloquet and vicinity. Dr. Roy F. Raiter, now at the Cincinnati General Hospital, Cincinnati, will be associated with his brother at Cloquet.

Minnesota Sanatorium Association.—At the annual meeting of the association at Wadena the first week in August, Dr. Maurice G. W. Milan, Thief River Falls, was elected president; Drs. Leopold G. Guyer, St. Paul, and Jacob H. Bendes, Oak Terrace, vice presidents, and Miss B. E. Lindberg, St. Paul, secretary.

Health Exhibits at State Fair.—At the Minnesota State Fair to be held in Minneapolis, September 1-8, exhibits of interest to physicians are being planned by the state department of public health. Notable among these is the cancer exhibit which was shown in San Francisco at the annual session of the American Medical Association; a pneumonia prevention exhibit; a posture contest for children, and exhibits on infant welfare and child hygiene.

Personal.—Dr. Chris M. S. Sampson, U. S. Public Health Service Hospital No. 61, Staten Island, N. Y., and formerly chief of the physiotherapy service of the U. S. Army General Hospital, Lakewood, N. J., will give a series of lectures before the Hennepin County Medical Society in Minneapolis, September 17-21.——Dr. Marshall Hertig, Minneapolis, has been appointed epidemiologist of the expedition to go to China in December to study dumdum fever.

Psychiatric Clinic Established.—A psychiatric clinic will be opened at the University of Minnesota, Minneapolis, in October, to deal with intractable and mentally deficient children. It will be financed by the Commonwealth Fund of New York. The clinic, which will be in charge of Dr. V. V. Anderson, New York, and Dr. Lawson Lowrey, Boston, will be conducted one year, and, if successful, probably will be followed by permanent clinics in Minneapolis and St. Paul.

MISSOURI

Medical Association of the Southwest.—The newly formed Kansas City Clinical Society will entertain the Medical Association of the Southwest with a clinical program, October 8-13, following their annual sessions in that city, October 4-8. Sectional specialty clinics and conferences are being arranged by the various medical societies of Kansas City. Among the speakers will be: Drs. John B. Deaver, Philadelphia; Joel Goldthwait, Boston; Lewellys Barker, Baltimore; Henry Dwight Chapin, New York; Reuben Peterson, Ann Arbor, Mich., and Joseph C. Beck and Peter Bassoe, Chicago.

Illegal and Advertising Practitioners Leaving.—Following the intensive campaign against advertising "doctors" in St. Louis, by the St. Louis *Star* and Health Commissioner Starkloff, the following results have been obtained:

> The Coloni Laboratories, advertised as a "Radio Active Ohmage Master Machine, The World's Wonder," has been closed by the health department and all persons connected with it removed. The Associated Doctors have left the city with the issuance of warrants for the arrest of William M. Kemp, head of the concern. The "Electro Medical Offices," conducted by Henry Wasson Baskette, have been closed.
>
> Warrants have been issued for the arrest of F. C. Blattner, part owner of the European Clinic, charging him with practicing medicine without a license, and J. French, Blattner's partner, has announced that the European Clinic is closed.
>
> The offices of Edward L. Cooley, who advertised "The Cooley Way to Health," have also been closed.

Personal.—Drs. Franklin H. Broyles and William J. Harned, Bethany, were elected president and secretary-treasurer, respectively, of the Harrison County Medical Association, recently.——Dr. Bethune C. Bernard has resigned as superintendent of the Robert Koch Hospital, Koch, and Dr. Hyman I. Spector, chief resident physician, has been elected to succeed him.——Dr. George A. Johns, St. Louis, for twelve years superintendent of the City Sanatorium, has been appointed superintendent of the new St. Louis Training School for Feebleminded.——Dr. Jabez N. Jackson, Kansas City, was the guest of honor at a meeting of the Dallas County Medical Society, at Dallas, Texas, August 23. Dr. Jackson also took part in the dedication of the New Methodist Hospital of Dallas.

Malaria Survey of Railroad Made.—The U. S. Public Health Service in a bulletin, recently issued, sets forth the results of a malaria survey of the Missouri Pacific Railroad lines south of St. Louis, made for the purpose of determining the prevalence of malaria among employees of the railroad and to ascertain the effect of the disease on operating cost and railroad revenues. It was found that during the last twenty-three years, the number of employees given hospital treatment for malaria averaged more than 1,000 annually. This number constitutes 35 per cent. of all hospital admissions and 45 per cent. of all sick cases. For the same period injuries and surgical cases combined totaled only 75 per cent. of the malaria admissions. In 1921 fifty per cent. of all medical admissions for one hospital were for malaria, in addition to 4,000 who received outpatient treatment for malaria. The hospital malaria rate was found to be eight times higher among employees working south of St. Louis, than among those west of that point. The rate for the entire system (1920-1921) was 11.5 per hundred. The highest hospital malaria rate among the groups on the Southern Division was 79.7 found among the bridge and building crews and the extra gangs. The lowest rate was 11.0, that of the shopmen.

NEBRASKA

Hospital News.—Owing to the serious illness of Dr. Stuart A. Campbell, owner of the Campbell Hospital, Norfolk, it is proposed to sell the institution to the Lutheran Church for $120,000.——Construction has commenced on the Good Samaritan Hospital at Kearney, which, when equipped, will cost $250,000. It is expected the institution will be ready for patients by the spring of 1924.

NEW YORK

Hospital Association Meets.—The Eastern Long Island Hospital Association met in Orient, L. I., August 20, when it elected directors, among whom are Dr. J. H. Maisball and Dr. Clarence C. Miles. The annual report of the hospital shows that 507 patients were admitted last year and there were but sixteen deaths in the institution.

Typhoid in Elmira.—Infected ice is believed responsible for a typhoid epidemic in Elmira, which is being investigated by Dr. John A. Conway, district commissioner of the state health department. A warning has been issued against using river ice in water or other drinks, and all persons have been advised to be vaccinated at once against typhoid fever.

Health Exposition Date Changed.—The opening date of the National Safety-Health-Sanitation Exhibition at the One Hundred and Sixth Infantry Armory, Brooklyn, has been changed from October 20 to November 17, in order to give the National Exhibition Company, which is in charge of the arrangements, more time for preparation. The exhibition is given with the approval of the American Society of Safety Engineers, in cooperation with the city health department, the Medical Society of Kings County and other organizations. Among those on the honorary advisory committee are Senator Royal S. Copeland, Dr. Carleton Simon, Dr. Simon Blatteis, Dr. Frank Monaghan and representatives of a number of civic organizations.

Unknown Epidemic in Children's Institution.—About July 18 a mysterious epidemic started among the boys of the New York Catholic Protectory in the Bronx and spread until about 150 boys were attacked. The epidemic is now apparently under control. The cases occurred four or five at a time, and after twenty-four hours as a rule recovery was complete. The chief symptoms were muscular pains, slight cyanosis, difficulty in breathing, occasional headache and vomiting, a temperature between 100 and 101 and a somewhat accelerated pulse. The health department has been unable to find any evidence of food poisoning, and epidemiologists sent to the institution to ascertain the cause of the outbreak have been baffled. Dr. William H. Pound, acting commissioner of health, has expressed the opinion that the disease is probably a mild influenza. The symptoms are said to be similar to those of the so-called "devil's grip" now prevalent in eastern Virginia.

New York City

University News.—In order to provide nearby quarters for students, New York University has purchased for $250,000 the five-story apartment house at the southwest corner of University Avenue and One Hundred and Eighth Street.

Personal.—Charles A. Browne, Ph.D., chairman of the New York section of the American Chemical Society, has been appointed chief of the bureau of chemistry of the U. S. Department of Agriculture, Washington, D. C., effective, October 1. He succeeds Dr. Harvey W. Wiley.——Drs. Samuel Lloyd and C. Winfield Perkins were recently elected delegates to the American Legion state convention to be held in Saratoga Springs, September 13-15.——The honorary degree of doctor of laws was conferred by the University of Glasgow, June 21, on Dr. Graham Lusk, professor of physiology in Cornell University Medical School, New York.——Dr. Austin Flint and Dr. Oscar H. Rogers returned from Europe on the *Adriatic,* August 25.

OHIO

Public Health Conferences.—District health conferences of workers of the state public health association will be held in Columbus, September 10; Chillicothe, September 11; Dayton, September 14, and Lima, September 24, in connection with the campaign against tuberculosis.

Fines for Chiropractors.—J. A. Lozier and E. R. Sevitz, chiropractors of Ashland, were fined $100 each and costs in the police court, August 15, for practicing medicine without a state license.——Seven chiropractors of Canton were fined sums varying from $50 to $25 each, August 15, for practicing medicine without a license, according to reports.

Jail Condemned as Unhealthy.—The state department of health has pronounced the Columbiana County Jail at Lisbon a menace to health, and has condemned the building. Unless a new jail is provided, an order will be issued prohibiting the use of the building, and prisoners will then have to be confined in other counties.

Hospital News.—The new St. Thomas Hospital to be erected at Akron will be named in honor of the Rev. Thomas Mahar. A campaign has been started to collect $400,000.——The contract has been let for the erection of the three new buildings for the Ohio Hospital for Epileptics which will have a capacity of 1,800 beds.——A new building for tuberculous patients will be added to the Dayton State Hospital. It will accommodate thirty patients.——Work has been started on an addition to Springfield Lake Sanatorium, East Akron, which will cost about $180,000. The new building will house seventy-five children.——The contract has been awarded for the erection of the new sixty-room City Tuberculosis Hospital, Warrensville, at a cost of $250,000.——A successful campaign for funds has made possible a five-story addition to the Miami Valley Hospital, Dayton.——Officials of St. Francis Hospital, Columbus, are planning an addition to care for surgical patients and to provide a home and chapel for the Sisters of the Poor of St. Francis. Work will start early in the new year. The structure will be five stories high. The hospital is asking the public for contributions to a $200,000 fund for this purpose.——The Hamilton County Order of Eastern Star Home and Hospital, Cincinnati, was formally dedicated, August 11.

OREGON

Sterilization Law Enacted.—A new sterilization law, providing for a state board of eugenics comprising the state board of health and the superintendents of the two state hospitals for mental disease, as well as those of the state institution for the feebleminded, and the state penitentiary, was passed by the last session of the legislature. This board will examine into the innate traits, the mental and physical condition, the personal records, and the family traits and histories of all persons reported by the superintendents to the board. The superintendents are required to report to the board quarterly all persons who are feebleminded, insane, epileptic, habitual criminals, moral degenerates and sexual perverts who are likely to become a menace to society. If in the judgment of the board, procreation would produce children having an inherited tendency to feeblemindedness, insanity, epilepsy, criminality, or degeneracy, and there is no probability that the condition of such person will improve, then the board shall specify the type of sterilization to be performed. If the person does not consent at the end of twenty days' notice, a trial shall be had. The issue raised shall be whether the court shall affirm the findings of the board. The person may select his own physician, provided such physician is in the judgment of the board of eugenics competent to perform the operation.

PENNSYLVANIA

Insanitary Conditions in Prisons.—In the report of the July grand jury presented in the quarter sessions court, Philadelphia, July 22, prison conditions were described as a disgrace to the county. The recommendations were considered so far reaching that Judge McDevitt requested the jury to continue in session another week. The House of Correction, Holmesburg, was described as insanitary, and it was said that the prisoners were given poor food and were cruelly treated, "strapping" and the "spread eagle" being administered as punishment. Dope traffic among prisoners was also found in that institution. The authorities were blamed for the overcrowded condition at Eastern Penitentiary, where 1,654 inmates were found in 800 cells. In fifteen cases at Moyamensing, the grand jury found that drug addicts were housed in cells with those who had never used narcotics, and it was said that prisoners were furnished with drugs when being transported to and from the city hall courts. In the final recommendations, the grand jury suggested that physicians be impaneled and taken to the institutions with the board of prison inspectors, to give expert advice in regard to improvements.

Philadelphia

Personal.—Dr. Charles H. Frazier, professor of surgery at the University of Pennsylvania Medical School, Philadelphia, returned, August 25, from London, England, where he attended the International Surgical Conference.——Dr. Joseph Leidy has been commissioned lieutenant-colonel in the medical division of the Officers' Reserve Corps. Dr. Leidy served during the World War as medical director of gas defense with the Thirtieth Division.

A Tuberculosis Department.—The director of public health, Dr. Blair Spencer, has announced that he will request the council for authority to establish a division of tuberculosis, and that he will seek to have the city control the twelve tuberculosis clinics which are now under state judisdiction. The tuberculosis division, if authorized, will be located at 1724 Cherry Street, where there is now a clinic. A physician will be in charge, and an organization will be formed for the prevention of this disease.

Chair of Public Health Established.—A chair of public health administration has been established at the Women's Medical College of Pennsylvania, Philadelphia, it was announced, August 18. Dr. Lydia Allen DeVilbiss of the U. S. Public Health Service, Washington, D. C., has been appointed first professor of public health administration. Dr. DeVilbiss was formerly director of the division of child hygiene for the Kansas State Board of Health, director of the Better Babies' Bureau of New York City, and lecturer for the New York State Department of Health.

TEXAS

Hospital News.—Work will shortly start on the new $60,000 extension to Stamford Sanatorium, Stamford, providing an additional twenty-four beds.——Plans and specifications for the proposed $100,000 city-county hospital at Galveston have been approved by the county commissioners' court. The plans call for the erection of two wards for the treatment of the insane, one for men and the other for women.

UTAH

Compensation for Medical Services.—A new schedule of medical and surgical fees permissible under the Workmen's Compensation Act has been issued by the Utah State Industrial Commission. The maximum fees as shown on the schedule may be exceeded on the discretion of the commission, but, regardless of the maximum fees so established, the ruling of the commission will hold the physician's fee down to the prevailing charges for similar work in the community. One of the rules provides that only one half of the scheduled fee will be allowed if the case terminates fatally within seven days of the date of operation.

VIRGINIA

Personal.—Dr. Irving S. Barksdale, Richmond, has been elected associate professor of physiology at the Medical College of South Carolina, at Charleston.——Drs. Alexander F. Robertson, Jr., Staunton, and Harry G. Middlekauff, Weyers Cave, were elected president and secretary, respectively, of the Augusta County Medical Society at the annual meeting in Churchville, August 1.

CANADA

Royal Commission on Venereal Disease.—At the recent meeting of the Canadian Social Hygiene Council in Edmonton, Alberta, a resolution asking that the federal government appoint a royal commission to investigate and report on venereal disease was adopted.

Personal.—At the annual reorganization of the Halifax Health Board, Dr. John L. Churchill was reelected chairman.——Dr. Henri A. Lafleur, Montreal, has been nominated by the governor general to succeed the late Sir Thomas G. Roddick on the Medical Council of Canada.——Sir Henry Gray of Aberdeen, Scotland, has been appointed surgeon-in-chief of the Royal Victoria Hospital, Montreal, to succeed Dr. George Armstrong, resigned.——Dr. Norman Viner and Dr. Nathan Freedman were elected president and secretary-treasurer, respectively, of the recently organized Montreal Clinical Society.——According to reports at the Edinburgh (Scotland) International Congress of Physiology, Dr. Frederick B. Banting, Toronto, may be presented as a candidate for a Nobel prize this year.——Dr. J. J. R. MacLeod of the University of Toronto, who delivered an address on "Insulin" before the Congress of Physiology at Edinburgh (Scotland), has been elected a fellow of the Royal Society.——Prof. H. M. Lancaster, director of laboratories in the Provincal Board of Health, has resigned after twelve years of service to accept a position as head of the division of food and drugs of the Federal Department of Health, Ottawa. Dr. Charles M. Anderson has been appointed to succeed Professor Lancaster as director of laboratories.——The degree of doctor of laws was conferred on Dr. Charles J. C. O. Hastings by the University of Toronto, recently.——Dr. Helen Macmurchy, Ottawa, recently had the distinction of being the first woman physician to become M.D. of the University of Toronto.

GENERAL

American Roentgen Ray Society.—The twenty-third annual meeting of this society will be held in Chicago, September 18-21. The Caldwell lecture will be delivered by Dr. Percy Brown, Madison, Wis. Among the foreign visiting speakers will be: Drs. Robert Knox, England; Gustav Bucky, Germany; Paul C. Hodges, China; Carlos Heuser, Argentina, and Walter Friedrich, Germany.

American Ophthalmological Society.—At the annual meeting of the society in Colorado Springs, Colo., June 19-21, the following officers were elected for the ensuing year: president, Dr. Alexander Duane, New York; vice president, Dr. Cassius D. Wescott, Chicago, and secretary-treasurer, Dr. T. B. Holloway, Philadelphia. Hot Springs, Va., was selected as the meeting place for the 1924 session.

President Reappoints League Narcotics Envoys.—President Coolidge has authorized the reappointment of Dr. Rupert Blue, U. S. Public Health Service; Representative Porter of Pennsylvania, and Bishop Charles H. Brent, Buffalo, as representatives of the United States on the League of Nations committee having to do with regulation of opium and other narcotics. The three delegates will attend the next meeting of the convention in Geneva, Switzerland.

Rockefeller Fellowships Awarded.—The Medical Research Council announces the award of Rockefeller Medical Fellowships, tenable in the United States during the academic year 1923-1924, to the following: Dr. John Crighton Bramwell, Manchester Royal Infirmary; Dr. Norman M. Dott, University of Edinburgh; Dr. Helen Ingleby, Victoria Hospital for Children and South London Hospital for Women, and Hugh K. Ward, member of the scientific staff of the Medical Research Council and working in the department of pathology at the University of Oxford. Further awards may be made during the year.

Survey of Eye Conditions.—The Eye Sight Conservation Council of America has announced that it is about to undertake a nation-wide survey of eye conditions. A previous investigation by this organization indicated that in this country 25,000,000 persons gainfully employed have eye defects. The research program which has recently been adopted aims to discover the effect of incorrect vision on production. Among the objects of inquiry will be the extent of color blindness, the number of those blind in one eye, the number totally blind, hours lost due to eye accidents, equivalent wages for lost time, use of goggles, and the cost of eye protection service.

Nurses to Work Among Indians.—Three Red Cross nurses will continue to do public health work at Indian reservations, as a result of action taken by the American Red Cross in authorizing the continuance of their services after the completion of their first year. These nurses were assigned to promote health conditions among the Indians at the request of the Commissioner of Indian Affairs. They began work, Nov. 15, 1922. The action of the American Red Cross to continue their services was effected when appropriations were included in its annual budget to cover the expense. It is planned for the supervising nurses to study health conditions among the Indians and make a comprehensive report to be submitted to the Bureau of Indian Affairs and to the American Red Cross.

Proposed Eugenic Laws.—Prof. Irving Fisher, Yale University, recently made public plans of the Eugenics Society of the United States. Among the proposed legislative measures are the following:

Registration of family pedigrees.
Segregation of criminal defectives.
Setting the minimum marriage age at 18.
Status concerned with illegitimacy.
Mothers' pension.
Regulation of immigration on the basis of superiority to the American average by mental test.
Eugenic education.
Systematic mental testing of children at 10 and 16 years.
Removal of present restrictions on information and materials regarding contraception.
Encouraging parenthood on the part of those best endowed with hereditary traits.
Making "dysgenic inheritable defects" adequate grounds for divorce.

Medical Pension Claims.—Instructions issued, August 17, by Commissioner of Pensions Washington Gardner, with the approval of Secretary of the Interior Hubert Work, to the medical referee of the U. S. Pension Bureau, affecting reports of boards of medical surgeons throughout the country before whom applicants for pensions appear for medical examinations, request that findings of medical surgeons of the Pension Office in examining into the disability of war veterans applying for pensions should be liberal yet within the law. The instructions state further that in adjudicating claims for pensions the medical referee of the Pension Bureau must not set aside the findings of disability by examining surgeons without cogent reasons, for the reason that "While these surgeons act in an advisory capacity and their findings are not binding, yet it should be borne in mind that they are reputable practitioners in the community, that they have seen and examined the claimant, and as a result of personal observation and contact, have arrived at a conclusion that the man before them is disabled and to a degree estimated by them." Of the veterans of the Civil War, the instructions read, "the boy of 18 in 1865 is the man of 76 today, and it is safe to conclude that there are very few who make claim to the $72 rating under the act of May 1, 1920, who are not entitled to it."

Juvenile Court Standards.—Standards by which juvenile courts throughout the country can measure their work for children have just been published by the U. S. Department of Labor through the children's bureau (under the name of Juvenile Court Standards) in the report of a national committee consisting of prominent juvenile court judges, probation officers and psychiatrists from many states. It is the product of two years' study of the best methods of safeguarding the interests of the child through the courts. In drafting the standards recommended, the needs of rural as well as urban communities were considered. It is recommended that every community should have a children's court, equipped to deal with all cases in which a child is in need of the protection of the state either because of his own conduct, or the failure of parents or guardians to provide proper care; that the court be able to obtain jurisdiction over children at least until the age of 18 and that children taken into custody should be shielded from public observation and from conditions which might mark them as criminals, as, for instance, transportation in a police van or escort by a uniformed police officer. The report outlines methods through which each child may be given scientific treatment adapted to his needs. It places emphasis on the care of the child in his own home and his own community, except when adequate investigation shows this not to be in the child's interest. The children's bureau will endeavor to place the report in the hands of all judges and probation officers and others engaged in juvenile court work.

FOREIGN

Deaths Due to Wild Animals.—Statistics for the last year show that 3,263 people were killed in India by wild animals, tigers being responsible for 1,603; leopards, 509; wolves, 460; bears, 105; elephants, 55; hyenas, 9; wild boars and pigs, 90, and crocodiles and alligators, 255. The mortality from snake bites was 20,090.

The Campaign Against Malaria in Italy.—According to the *Policlinico,* the three year campaign against malaria, as of record June 30, was so successful that, of the 130,000 malaria patients treated, 50 per cent. were certified as cured by the physicians treating them; 32 per cent. were materially improved; 6 per cent. had emigrated; 1 per cent. had died.

The International Conference on Leprosy.—Our French exchanges state that delegates from twenty-three countries gathered at Strasbourg, July 28, to discuss ways and means for preventing the spread of leprosy. Jeanselme reviewed the work accomplished at the two preceding conferences, at Berlin in 1897, and at Bergen in 1909. The inaugural meeting of the conference was followed by a banquet tendered by the government.

International Health Conference in Japan.—The departments of home affairs, education, agriculture and commerce are preparing plans for the third international conference of health officials which it is expected will be held in Tokyo in the fall of 1925. The first conference was held in Belgium in 1922, under the auspices of the International Health Preservation Commission. At the last meeting it was decided to hold the 1925 meeting in the Far East. No definite program has yet been announced.

Broadcasting Propaganda Against Tuberculosis.—The *Presse médicale* gives the details of the official ceremony in the Eiffel Tower, August 1, in which the representative of the minister of hygiene and Professor Calmette of the Institut Pasteur broadcasted an appeal to the homes of France and the world to rally for the extermination of tuberculosis. Every French man and woman was urged to use his or her influence in every way, by word or pen or deeds or money to spread the knowledge of the curability of the disease, of the means for combating it, and the means for systematic prophylaxis.

Illegitimacy Abroad.—Major Carpenter recently presented the following figures on illegitimacy in different countries in the House of Commons, London, on request:

Countries	Year	Number	Rate Per 10,000 Total Live Births
England and Wales........	1921	38,618	455
Scotland	1921	8,756	711
France	1913	65,568	879
Italy	1917	32,933	477
Belgium	1913	10,975	641
Holland	1920	4,112	213
Norway	1917	4,466	699
Sweden	1919	18,060	1,494

Japan Aids Medical Research.—The Japanese government's subsidy for the encouragement of medical research for the present year (amounting to about 53,000 yen) has been given to some fifty research workers in fifteen medical colleges, eight special schools of medicine, pharmacology and dentistry, and two institutes. Some of the beneficiaries are: Prof. T. Irisawa of the Tokyo Imperial University Medical College for his work on "Influence of Rice-Bran Extract on Beriberi"; Prof. J. Simazomo, Kyoto Imperial University Medical College ("Nutritive Value of Japanese Food"), and Prof. M. Yamado of the Nagasaki Medical College ("Therapy of Filaria Bancrofti").

Chinese Medical Colleges.—The American section of the board of directors has authorized the China section to proceed at once with the erection of the Belle H. Bennett Memorial Building of the Union Medical School for Women, Shanghai; it is expected, the building will be ready for use by the Chinese New Year in 1924.——Dr. Tatsukichi Irisawa, head of the Medical Department of the Tokyo Imperial University, Japan, left for China, July 15, to investigate medical educational needs in that country. This is the first step of a plan to be undertaken by the Japanese government, for the erection of a medical school in China. The hospital to be erected in connection with the medical college will cost approximately 3,500,000 yen ($1,750,000), according to reports.

People's League of Health.—At a recent meeting in London between representatives of the Trades Union Congress General Council and a deputation from the medical council of the People's League of Health, it was proposed that the propaganda of the league be used for the health education of the workers of the country. Among the speakers were Sir Alfred Fripp, Dr. Jane Walker, Sir Harry Baldwin, Sir Frederick Mott, who stated that while education in health was increasing steadily, that which affected mental health was almost entirely neglected. Prof. C. S. Meyers, pointed out that health education was not only necessary from the employer's point of view, but actually meant larger profits. Insufficient light, insufficient leisure, insufficient air and anything else that had an adverse effect on health made workers discontented and resulted in diminished output.

New Foreign Journals.—A new journal was published last month in Copenhagen known as the *Acta Ophthalmologica,* edited by Dr. K. K. K. Lundsgaard, with the aid of correspondents in Christiania, Helsingfors, Lund and Upsala. The journal will be published in English, French and German.——A new quarterly medical periodical, the *British Journal of Anaesthesia,* appeared in July. It is conducted by an editorial board of twelve anesthetists in various centers in Great Britain, and is edited by Dr. H. M. Cohen, anesthetist, St. Mary's Hospital, Manchester. The annual subscription is $9.50. In the first issue, containing fifty-four pages, is an article by Drs. J. T. Gwathmey and E. P. Donovan of New York, dealing with painless childbirth by synergistic methods.——A new journal, entitled the *British Journal of Experimental Biology,* with Dr. F. A. E. Crew, of Edinburgh University, Scotland, editor, will be issued quarterly, it is announced.

International Union Against Tuberculosis.—The council of directors of the Union internationale contre la tuberculose held its annual meeting in Paris, July 26, at the headquarters of the League of Red Cross Societies, under the presidency of Dr. Dewez of Brussels. Prof. Léon Bernard, secretary general, gave an account of the development of the union since the Brussels conference. It was decided that the following questions should be placed on the agenda of the conference to be held at Lausanne this month: (1) Relations Between Pregnancy and Tuberculosis (Professor Forssner, Stockholm); (2) Does There Exist Naturally or Can There Be Produced Artificially Saprophytic Forms of Koch's Bacillus Which Might Become Virulent Tuberculosis Bacilli? (Professor Calmette, Paris); (3) Effects of the Organization of the Antituberculosis Campaign in Different Countries on the Decrease in Tuberculosis Mortality (Sir Robert Philip, Edinburgh). The report of Professor Bezançon, Paris, on "The Respective Value of Technics for Research of Koch's Bacillus for Diagnosis of Lesions in Human Tuberculosis" gave rise to an interesting discussion.

An International Pharmacopeia.—At the annual meeting of the International Pharmaceutical Federation, held in conjunction with the diamond jubilee session of the British Pharmaceutical Conference, in London, in July, the president, Professor van Itallie, dean of the University of Leyden, devoted a large part of his address to the problem of an international pharmacopeia. He pointed out the difficulty caused by the absence of uniform standards in medicine, and advised that a central international bureau should be formed to do the work of revision for all pharmacopeias. It was suggested that the preliminary work of documentation should be continued in the faculties of medicine and pharmacy of every country, and, when all the information necessary for unification had been obtained, a conference of medical men, pharmacists and analysts should meet under the auspices of the health department of the League of Nations and decide which formulas and methods should be universally adopted. The federation represents twenty countries, and delegates from France, Italy, Spain, Belgium, Holland, Roumania, Greece, Australia, South Africa, the United States, Czechoslovakia, and other nations were in attendance at the sessions.

Personal.—Dr. J. H. Anderson, senior lecturer in anatomy, and Dr. S. W. Patterson, director of the Walter and Eliza Hall Clinical Research Laboratory, University of Melbourne Faculty of Medicine, Melbourne, Australia, have resigned. Drs. L. E. Hurley and C. H. Kellaway have been appointed to succeed them.——Dr. A. Lustig, senator and professor of general pathology at Florence, has been invited to inaugurate the new quarters of the Biologic Institute at Buenos Aires and the Italian Hospital, and has sailed for Argentina. He is accompanied by Prof. P. Alessandrini of Rome and Dr. L. Lenzi, chief of staff of the Italian hospitals of Buenos Aires.——The eightieth birthday of Senator and Professor (emeritus) Camillo Golgi was celebrated recently with much ceremony by municipal and scientific circles at Pavia. His name was conferred on the Institute of Histology, and an album was presented to him with thousands of signatures and congratulations.——The *Presse médicale* reproduces the address made by Dr. C. L. Gibson of New York as he placed flowers on the tomb of Pasteur in the name of the American Surgical Association. Besides the officers of the Institut Pasteur, the foreign members of the society were present at the ceremony.

Deaths in Other Countries

Dr. **Flora Murray,** for several years officer-in-charge of the Endell Street Military Hospital, London, July 28, following an operation.——Dr. **William R. Young** of Sydney, Australia, July 7.——Dr. **Charles Killick** of Bradford, England, of septicemia.——Dr. **Stephan von Apathy,** professor of zoology at the University of Cluj, formerly Kolozsvar, aged 60.——Dr. **C. Poli,** a leader in the campaign against tuberculosis in Italy.——Dr. **H. Boruttau,** professor of physiology in the University of Berlin, aged 54.

CORRECTION

Dr. Hadley's License Not Revoked.—The Journal (Aug. 11, 1923, p. 482) stated it was reported that the license of Dr. Frederick H. Hadley, San Francisco, was revoked, May 29, by the state board for assisting a chiropractor in the treatment of a patient. This information was obtained from the San Francisco *Examiner,* July 25, 1923. The Journal has since learned that Dr. Hadley's license was not revoked. The board of medical examiners returned a finding of guilty and placed Dr. Hadley on two years' probation. Judge Trout of the superior court of California recently set aside the finding of the board.

Government Services

Proposed Service Legislation

Legislation will be proposed, it is said, to benefit the medical corps of the navy in the way of promotions. Existing law limits promotions in the upper grades of the navy medical corps to the number of officers allowed in the ranks of rear admiral, captain and commander. The proposed legislation for promotion in the staff corps, which the Navy Department approves, as applied to the medical corps will give medical officers an equal chance for promotion with all officers in the navy of the same length of service, regardless of the number in the medical corps. A number of vacancies still exist in the medical corps of the navy. Information concerning them may be obtained by addressing the Surgeon General of the Navy, Washington, D. C.

Recommendations for legislation, to meet special needs of the medical corps of the army, have been made to the legislative committee of the War Department by Surgeon General Ireland. It is proposed to amend that section of the act of June 4, 1920, which relates to duty with combatant troops for at least one year in every five. It is expected that the Secretary of War will urge Congress to modify existing requirements as to assignment to duty with troops of staff officers whose professional or technical services are more useful in other capacities. It is proposed that officers of the medical department shall serve with combatant troops only during the first ten years of commissioned service and then only for a period of two years. It also is proposed to credit for retirement officers of the medical corps with services as contract surgeons.

Hospital Head Named

Lieut.-Col. Paul C. Hutton, M. C., U. S. Army, Washington, D. C., has been assigned as commanding officer of the Fitzsimons Army Hospital, Denver.

The Third Interchange Visit of Health Officers

The health section of the League of Nations, at Geneva, Switzerland, has informed the U. S. Public Health Service at Washington that representatives from Europe, South and Central America will soon arrive in this country to attend the third interchange visit of health officers. The European representatives of this group will arrive in New York, September 10, and for three months will visit various parts of the United States to observe health conditions and study the activities devoted to their control. The first interchange visit was held in England, February, 1923, and the second in Italy, May, 1923. The U. S. Public Health Service participated in the first interchange visit by sending Dr. A. M. Stimson and Dr. G. A. Kampf, who were in Europe at the time, to attend the sessions. Dr. L. L. Williams, Jr., attended the sessions in Italy. The U. S. Public Health Service is arranging a program for the benefit of these foreign health officials during the tour of the United States. The names of these physician officials and the countries they represent are as follows:

France: Dr. L. Aublant, inspecteur principal des services d'hygiène; Dr. M. Bussière, directeur des services d'hygiène de Montlucon.

England: Dr. Thomas Carnwath, Ministry of Health, London; Dr. Charles Porter, London.

Italy: Dr. F. Piccininni, ufficio sanitario de Porto Napoli.

Russia: Dr. Slonewski, Sanitary Epidemic Bureau, Moscow; Dr. Marzcew, chef de Sanitary Epidemic, Kharkof, Ukraine; M. Ivanitski, sanitary engineer, Moscow.

Spain: Dr. R. Ferandez-Cid, inspecteur provincial de la santé publique San Sebastian.

Holland: Dr. D. J. Hulshoff Pol, inspecteur gouvernemental de la santé publique La Haye.

Belgium: Dr. van Boeckel, directeur de laboratoire de l'administration de l'hygiène, Brussels.

Greece: Dr. Pringos, Greek Legation, Paris.

Poland: Dr. J. Batko, Provincial Health Office, Cracow.

Jugoslavia: Dr. Ivo Kuhn, referent de ministere de la santé publique, Belgrade.

Germany: Dr. Sannemann, % American Line, 1 Broadway, N. Y. (To join in America.)

Switzerland: Dr. J. Hunziker, chef du service d'hygiéne du Canton de Bale-Ville.

Norway: Dr. E. Andersen, médecin de préfecture, Lillehammer, Norway.

Mexico: Name not yet received.

San Salvador: Dr. Segovia, director de sanidad, San Salvador.

Argentina, Brazil: Name not yet received.

Chile: Dr. J. Ducci, Santiago de Chile; Dr. C. Mayers, Santiago.

Canada: Dr. M. Seymour, chief sanitary commissioner Saskatchewan.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Aug. 13, 1923.

The Crisis in the Panel Service

The threatened reduction in the capitation fee which has led to crisis in the panel service has been discussed in previous letters. Negotiations with the government are being conducted by the British Medical Association with all the secrecy of the old diplomacy, which some enthusiasts hoped to see abolished after the peace of Versailles. The negotiations concern two things: the terms of service and fees. Those on the latter are regarded as so delicate that Dr. Brackenbury, chairman of the Insurance Acts Committee, stated at the recent annual meeting of the association that, if the propriety of certain measures being taken in the event of a struggle were discussed, things would have to be said which it would be unwise to publish at present. To avoid inconvenience and the putting of those who had to conduct negotiations in an impossible position, "Document M. 10" should be allowed to rest without discussion. The title of this mysterious document is "Organization of Insurance Practitioners in Consideration of and in the Event of a Refusal of the Terms Offered by the Government for National Health Insurance Work." It was consequently not discussed. However, some idea of its contents can be gathered from a motion against it which stated that any campaign conducted as was recommended would tend to alienate public opinion, would react injuriously on those not concerned in the contest with the government, would not be likely to receive the general approval of the profession, and would be contrary to its honor and interest. As previously explained, the crucial point of the contest is the refusal of the government to continue an addition of $0.50 to the capitation fee made during the period of high prices which followed the war and which continue now in less degree. The problem then becomes the obtaining of this sum from the "approved societies," which represent the greater part of the insured, and so far have shown themselves unwilling to pay.

The Smallpox Epidemic

The smallpox epidemic is declining considerably. During the week ending July 28, only fifty-one new cases were notified, as compared with 116 and 148 in the preceding weeks, in each of which one death occurred. As these were the only deaths, the epidemic has been very mild. Of the fifty-one cases, twenty-two occurred in Gloucester, the home of the leader of the antivaccinationists, Dr. Hadwen. One good result of the epidemic is that the town seems to have repented of its folly in neglecting vaccination. Since April the number of vaccinations there have averaged 2,000 a month. In Derbyshire, where the epidemic has continued for many months, a better condition is reported. Unfortunately, this awakening to the value of vaccination is almost confined to areas involved in the epidemic. In the country generally there are many potential Gloucesters—ill vaccinated places where the appearance of a single case is likely to give rise to an outbreak.

Medical Examination and Life Insurance

Referring to an announcement in the *Times* that a certain insurance company, following American precedent, intended to provide for its policyholders without charge an annual overhauling examination by its medical officers, Dr. Lauriston Shaw, physician to Guy's Hospital, has written a letter commending this proposal, as the average length of life of the policyholders would thus be increased. He suggests a modification to improve the scheme. Instead of inviting the policyholder to submit himself annually to examination by one of its medical officers, the company should offer a rebate on his premium to any policyholder who submits a certificate from a physician indicating that he has carried out a medical examination, including certain specified investigations, and has advised the policyholder as to the best course to remedy any defects disclosed. This certificate, which would be handed by the physician to the policyholder for transmission to the company, would not disclose the existence or nature of any defect that might be discovered. There would thus be avoided the not unnatural fear that a policyholder might feel that in submitting to the company's medical examiner there was a risk of disclosures that might later on prejudice attempts to increase the insurance. The policyholder, too, would feel confidence in the competence of an examiner chosen by himself and be more likely to act on professional advice offered to him. If such a scheme was introduced, it would give a great impetus to the movement for periodic medical examination of the apparently healthy, which would be a valuable means of safeguarding the nation's health. An objection to this scheme, which does not appear to have occurred to its author, is that insurance companies would not have the same confidence in reports from a policyholder's physician as in one from their own office.

The Museum of the Royal College of Surgeons

The National War Collection has been assembled in new quarters provided in the Museum of the Royal College of Surgeons. It contains more than 3,000 specimens. There is also a valuable collection of drawings illustrating injuries of blood vessels and gunshot wounds of the spine which Sir George Makins is arranging and cataloging. A noteworthy event in the history of the museum is the completion of the series which illustrates the principles of pathology. This work was commenced in 1910, but was interrupted by the war. In the words of the conservator, Sir Arthur Keith, for the first time in the museum "a complete and systematic treatise has been written not in words but in illustrative specimens." A large proportion of the prehistoric remains, human remains found in Britain during the past century, are preserved in the museum, and a new catalogue is being prepared of them. Mr. Alban Doran has almost completed the descriptive catalogue of surgical instruments in the possession of the college, and is now engaged on the last section—the surgical nstruments used by barbarous and semicivilized peoples.

PARIS

(From Our Regular Correspondent)

Aug. 3, 1923.

Cooperation in Scientific Work

A plenary session of the International Commission on ntellectual Cooperation, instituted by the assembly of the eague of Nations, has been held at Geneva under the presilency of Professor Bergson. The commission approved the eport of its subcommittee on bibliography recommending, in iew of the impossibility of establishing at the present time complete international library, the coordination of libraries lready existing in the principal centers. The subcommittee ecommended also the publication of a bibliographic index nd conferences of experts on analytic bibliography to coordiiate the work of reviewers and existing libraries, and thus revent duplication of effort.

The commission decided to transmit to the Council and to he Assembly of the League of Nations a draft agreement for he protection of property rights in scientific work, as elaboated by Professor Ruffini of Turin, formerly minister of pubic instruction in Italy. The request is made that the several governments establish protection for authors of scientific discoveries analogous to that accorded by law to the artist and the author. The establishment of an international agreement for the protection of scientific property rights would result in the creation of a new international league, which would rank with the two leagues now existing, the one for the protection of industrial rights and the other for the protection of artistic and literary property. Ruffini, in modeling his draft agreement, made use of the two French drafts, that of the French Confederation of Intellectual Workers (The Journal, May 19, 1923, p. 1467) and that submitted to the French parliament by M. Joseph Barthélemy, deputy from the department of Gers and professor in the law department of the University of Paris.

The Commission on Intellectual Cooperation adopted the following resolutions for promoting mutual aid in intellectual work:

1. The commission warmly approves the creation of national commissions on intellectual cooperation, such as have been established in the countries of central and eastern Europe.
2. The commission invites national commissions already created, and those that may be established later, to appoint delegates to meet with it to consider the best means of organizing mutual aid in intellectual work.
3. The commission begs the Council to request governments that are members of the League of Nations to lend moral and financial support to the endeavors of the national commissions.
4. The commission begs authority from the Council to accept donations from institutions that manifest an interest in its endeavors, such funds to be plaeed at the disposal of the national commissions.

CONDITIONS OF INTELLECTUAL WORK IN EUROPE

Various reports on the present conditions of intellectual work in the several countries were presented to the International Commission on Intellectual Cooperation. M. de Reynold, professor at the University of Bern, after investigating conditions in Switzerland, Germany, Holland, the Scandinavian countries and Luxemburg, and among Russian emigrants, has reached the conclusion that the intellectual life is suffering even in countries that remained neutral during the war. This is due, on the one hand, to the economic crisis, and, on the other hand, to the indifference of governments and people, especially of the younger generation, to the needs of science and art. M. Castella, who was chosen to make a special inquiry in Switzerland, declared that in that country an undermining of cultural studies is taking place; students are becoming more and more utilitarian. M. Luchaire, who took charge of the inquiry among the Latin races of Europe, also testifies to a falling off of interest in intellectual work that promises no immediate practical return.

International Control of the Sale of Narcotics, More Particularly Cocain

At the eighteenth Congress of Legal Medicine for French-speaking countries, which has been held in Paris under the presidency of Prof. Pierre Parisot of Nancy, the problem of international control of the sale of narcotics was discussed. In their communication, Drs. Courtois-Suffit and René Giroux, after pointing out that there had been considerable extension of the cocain habit (The Journal, Aug. 12, 1922, p. 569), discussed the present status of legislation for its control, not only in France but also in foreign countries. Speaking generally, legislation in foreign countries is less stringent than the French act of July 13, 1922, by the terms of which the courts must expel from a community, for a period of not less than five years nor more than ten years, all persons found guilty of having "facilitated" for others the use of toxic substances, whether by procuring a place for this purpose, or by any other means. In Germany, Italy, Switzerland, England and Belgium, the law is less rigid. This being the case, the League of Nations is called on to assume an important rôle in the campaign against the unwarranted use of toxic substances. Courtois-Suffit and Giroux recommend special supervision over the production of narcotics in Germany and their restriction to purely medical needs. By strict control of poisons at their source and by surveillance at the frontiers of the country, the number of intoxications in drug addicts would rapidly diminish.

Dr. Vervaeck of Brussels emphasized the value of organizing police cooperation between the different countries for the suppression of the illegitimate use of narcotics. At present, such relationships are hampered by administrative and diplomatic formalities. In harmony with the authors of the papers mentioned, Vervaeck advocates stringent penal measures to aid in suppressing the traffic in contraband drugs, more especially, expulsion from the community and the infliction of fines commensurate with the enormous profits of the traffickers. As regards the treatment of drug addicts and drug traffickers who have been found guilty, he is opposed to all leniency and to the granting of paroles. Imprisonment for any period less than a year is ineffective; no cure is possible without a prolonged period of disintoxication. Drug addicts, when found guilty, should be placed in a psychiatric colony. On liberation, cocain addicts should be removed from urban centers to some spot where they will not be exposed to temptation and suggestion. Vervaeck recommends furthermore: (1) strict surveillance of governmental and private pharmacies; (2) discreet but effective supervision, by medical organizations, of prescriptions, which will doubtless reveal a certain amount of complacency on the part of the addict's physician; (3) extension of the application of the law to all narcotic specialties, many of which, in certain countries, may be secured without a physician's prescription, and (4) educative propaganda against this menace among adolescents and intellectuals, these groups being particularly prone to cocain addiction. Professor Balthazard called the attention of the congress to the relationships that exist between homosexuality and cocain addiction.

At the close of the discussion of the paper by Courtois-Suffit and Giroux, the congress passed the following resolution:

> In view of the increasing extent of the illegal traffic in cocain and other narcotics and the dangers arising from cocain addiction, the Congress of Legal Medicine bereby recommends that (1) prosecutions against traffickers be carried out indefatigably and that all measures for their repression be rigidly enforced; (2) international control be established in order to prevent importation and clandestine trade in narcotics; and (3) repressive measures be supplemented by educative propaganda. It would be in line with these proposals to organize lectures on this vital subject, for the purpose of spreading information in medical and pedagogic circles. A medical inquiry in the various countries on the gravity of the peril of narcotics would also be valuable.

BELGIUM

(From Our Regular Correspondent)

Aug. 3, 1923.

The Brussels Medical Conference

In previous years reference has been made to the instructive meetings of the Brussels Medical Conference. This type of congress certainly deserves to be more widely introduced, for, to judge from its success, it fills a genuine want. Its mode of organization has already been described in a general way. The session of 1923 so far surpassed all previous meetings that one feels justified in predicting the perpetuation of the system.

The practitioner who is kept by his duties or location from contact with hospital and university centers is enabled, through this conference, to bring his theoretical and practical education up to date. He can hear special lectures, attend operations in the hospitals, and participate in therapeutic and operative demonstrations in the clinics. The mornings are given up to practical instruction, at clinics and hospitals, while the afternoons are devoted to lectures on ordinary subjects and to live topics of the hour. These meetings, therefore, give the general practitioner, in a manner much more feasible than a postgraduate course, an opportunity to perfect his knowledge along any given line, without keeping him too long away from his practice. They are much more instructive than the ordinary medical congress, the program of which is necessarily restricted and has an interest only for a limited number of practitioners.

All branches of medicine, including the various specialties, afforded opportunities to the visiting physicians for instruction, and all hospitals continued to function as usual during the conference. It is therefore impossible to give anything like a complete account of the program, and mention will be made only of the principal subjects discussed before the members of the congress.

THE CAMPAIGN AGAINST CANCER

Bergonié discussed the activities in the campaign against cancer, in which he has participated for many years. He called attention to the establishment of campaign centers where the latest and best surgical equipment, together with radiotherapeutic apparatus capable of producing 200,000 volts, have been installed. These centers are also provided with a supply of radium, which for some tissues may reach 1 gm. These campaign centers are, at the same time, centers of investigation, where methods are perfected, technic is improved and efforts are made to elucidate the pathogenesis of cancer and the constitution of the tissues in which the cancer develops.

ILEOCOLIC STASIS

De Beule of Ghent discussed intestinal stasis. He defined the multiform phases of this affection clearly and explicitly, and outlined the main medical and surgical methods of treatment. The sole means of diagnosis is to take a series of roentgenograms at intervals during six to forty-eight hours after a test meal. De Beule asserted that colopexy is the surgical method of choice; resections do not give as good results and are therefore less frequently indicated. He emphasized especially the importance of roentgenography and collaboration between surgeons and roentgenographers.

INDIVIDUAL MENTAL AND PHYSICAL APTITUDES

Remy, a public health officer of Brussels, has studied the effects of individual aptitudes on intellectual and manual output. By the precise graphic methods employed in pedagogy and experimental psychology, he examined the aptitudes of each subject and thus determined the maximal producing power. From his researches he is convinced that aptitudes are inborn. They may be either mental or physical, and proper knowledge of the aptitudes of pupils would make it possible to direct them toward the choice of the profession, trade or occupation for which they are best adapted and thus assure maximal returns from their labor.

Numerous other papers, of noticeably practical importance, were read. All contributions and demonstrations were planned to familiarize one with the innovations and the improvements in the fields of surgery and therapeutics.

The Pathogenesis of Cancer

Before the Royal Society of Medical and Natural Sciences, M. Reding of Brussels recently presented some of the newer ideas concerning the pathogenesis of tumors. Radioactive bodies may, it is held by some, under certain circumstances become concentrated in a given tissue and through their constant irradiation bring about a malignant division of the cells.

Another problem of considerable interest is the study of the physicochemical modifications that take place in the tumor host. These changes have been studied from the standpoint of metallic ions by researches on electric resistances and the use of microchemical methods. Potassium, calcium, magnesium and sodium have been the principal subjects of investigation, the author having devoted himself particularly to the study of magnesium. He has studied also certain relations between cancer and diabetes, and finally the question of immunity, more particularly by inoculation or vaccination with tumors attenuated by radium or roentgen rays.

BUDAPEST

(From Our Regular Correspondent)

Aug. 2, 1923.

Damages for Negligent Treatment

Alexander Kerrich, an architect, has sued the Fasor Sanatorium for neglect in treatment. In his complaint he says that he was operated on successfully by Prof. Louis Adam, and left the sanatorium after one week; but he had to undergo after-treatment with deep roentgen-ray applications. After this was completed, he developed severe burns, which, according to Adam, were due to negligence in the application of the roentgen rays. When Kerrich attempted to continue his vocation, he found that he was unable to climb ladders; as he was a builder, this decreased his working capacity by at least 50 per cent. As the sanatorium is materially responsible for injuries caused by the negligence of its employees, he sued for damages of 160,000,000 crowns (equal to about $5,000). He reckoned that his least monthly earnings were $30, and now his working capacity is impaired by 50 per cent. At the time of the accident he was 37 years of age, and reckoning a work expectancy of twenty-eight years, his damage amounts to 160,000,000 crowns. The Budapest court decided against the sanatorium, arguing that, according to the medical evidence, at the time of the roentgen-ray application (end of last year) there existed reliable means for measuring the dosage. The sanatorium, having no such equipment, should not undertake deep penetration work, which needs exact measurement. The court reduced the sum asked by the architect to 80,000,000 crowns with costs.

Device for Manipulating Objects Under Microscope

A long felt want in microscopy is a device that enables the examiner to grasp and manipulate objects under the microscope. Tibor Peterfi has studied this question for many years and has succeeded in perfecting a device with the aid of which it is possible actually to grasp bacilli and even to cut them with fine platinum or glass needles; this renders possible various physical and chemical examinations. Peterfi's invention will unquestionably be appreciated all over the world, and he already has numerous applications from foreign instrument makers requesting licenses to manufacture the device, which was exhibited before the Medical Society of Budapest.

Professor Vamberg on the Exaggeration of Prices for Brain Work

The Budapest supreme court of judicature has rendered a decision to the effect that the law relating to usurious wages is applicable to physicians. Prof. Rustem Vamberg has declared, in connection with this decision, that the consequences cannot be estimated. If the conception of usurious wage is applicable to physicians, it will also apply to lawyers, writers, journalists and artists, and to all who do mental work. This would lead to the most impossible situations. Manifestly, mental work, in which the individuality of the worker is expressed, cannot be measured in terms of raw material and time expended. Many eminent jurists refrain from extending the conception of extortionate wage beyond manual labor. It should certainly not be extended to physicians who perform purely mental work. It might be urged that if the judge cannot estimate the value of mental work performed by a physician, this could properly be done by a medical expert. But this is nonsense, said Vamberg. Imagine the situation, for instance, if H. G. Wells claimed $100,000 for a novel and Mark Twain as expert said that the writer is exploiting the needs of the publisher. It would be just as foolish to say that the physician, who according to the patient, charges an extortionate fee, is exploiting the patient's need.

A Club of the Blind

Not long ago, a club was opened in Budapest in which all members and the staff are blind. It has a library comprising more than 2,000 works, billiard rooms and chess rooms. The members call themselves "fate-mates." The president, a woman, is an accomplished pianist, and has composed several popular songs. The chessmen are of regulation form, and are distinguished by touch. Chess matches are arranged to which the public is admitted, the proceeds of the price of admission being donated to the indigent blind. The members also use typewriters. The president has proved to your correspondent that the blind are capable of writing whole volumes without error. The club has more than 200 members, and secures work for them in offices, cinemas and cafés.

VIENNA

(From Our Regular Correspondent)

Aug. 6, 1923.

Prophylactic Centers Against Tuberculosis of Children

With the final dissolution of the British Help for the Famine Area in this country, a number of children and juveniles would have been left to the mercy of public charity. Therefore it was decided to make use of the excellent organization built up by the institution mentioned, and its work was taken up by a committee consisting of members of the former British Help Society, the municipal board of health and all other societies (Red Cross, Society of Friends, American Help) which had done so much relief work within the last five years. The new institute is the United Home and Foreign Help for Tuberculous Children. Its chief aim is the placement of (1) tuberculous children in special sanatoriums, and (2) of children threatened with infection in recreation homes where they may gain weight, strength and power of resistance. The minimum time of stay in one of these institutes is three months. In the first year (April, 1921-March, 1922), 1,638 children were thus housed; in the second year (April, 1922-March, 1923), 1,649. As the funds contributed by foreign societies have been used up, the Union of the Austrian Sickness Insurance Clubs (krankenkassen) decided to devote a sum of a thousand million kronen ($15,000) a quarter to continue the work. About 60 per cent. of the children cared for by these institutes were the offspring of wage earners, laborers, office clerks and commercial assistants. Some recreation homes for the children are situated in our Alpine districts, from 800 to 1,000 meters (from 2,500 to 3,000 feet) above sea level; some are on the German seacoast; others are in the Austrian forest districts. About 20 per cent. of the children can be sent by the Vienna Board of Health, which pays the cost for their care; about 75 per cent. are paid for by the government, and 5 per cent. pay their own costs. The medical supervision and examination is entrusted to municipal officers of health, assisted by qualified nurses. In Vienna there are three centers where the children are examined and registered; in the counties there is one center in each principal town. If a child is found affected, it is handed over to the Sanatorium Committee. With few exceptions, the sanatorium costs of the children are paid by one of the corporations mentioned above, and it is worthy of remark that state and municipality contribute liberally.

Results of Surgical Treatment of Tuberculosis of the Lungs

In a paper presented recently to the surgical society of this city, Dr. Denk reported from the Eiselsberg clinic on the results in eighty-one cases from surgical intervention in pulmonary tuberculosis. Of these patients, twenty-nine were operated on by the paravertebral route, the remaining fifty-two by the usual costal route. Three patients died as a consequence of the operative procedure, and two died later from tuberculosis; three operations have been so recent that these cases cannot be considered. Dr. Denk has followed up and examined all the cases accessible, and found that 50 per cent. of the patients have obtained decided benefit, or have been cured, being free from bacilli and fit for work. Four patients received no benefit; the disease progressed and the other lung was affected some time after the operation. The operation consisted in opening the affected side, draining pleural effusions, and thoracoplasty. The method of filling the lung with iodoform or other disinfectant (like a dental filling), did not give favorable results. Of eleven patients treated in this way, two died soon after the operation, and four died later of tuberculosis; of the five surviving, three are not improved, and two are cured. Twenty-six patients were subjected to phrenicotomy. This operation did not arrest the progress of the disease; it can be recommended only as an adjuvant in thoracoplasty. If pneumothorax is aimed at, or if there are adhesions between the diaphragm and the lung (basal adhesions), the division of the nerve is followed by welcome temporary relief. Surgical methods are not yet sufficiently successful to justify their substitution for climatic and dietetic measures, but they offer useful help in tiding the patient over a critical period and rendering improvement by other factors more hopeful.

Correlations Between Metereologic Conditions and Mortality

For several years the relations between climatic variations and morbidity and mortality have received increasing attention on the part of pathologists and alienists, but heretofore without decided advance in real knowledge. In connection with these researches, it is interesting to note the views of a well-known pathologist of half a century ago, Prof. I. Engel of Vienna. In a paper read before the Pathologic Society of this city, Dr. Schrötter presented a diary of this scientist, wherein he found these shrewd observations: Under the date of July 25, 1873, he wrote:

"A constant stationary barometric pressure exerts a most beneficial influence on the life of the diseased and on the spirits and sense of pleasure of the healthy. The absolute degree of pressure is insignificant, but its constancy is important; then the number of deaths is minimal. Slow increase or drop of pressure produce no variations. Rapid changes of barometric pressure, even if the absolute differences are not great, cause a rise of mortality; healthy and diseased persons are excited and feel disagreeable sensations; melancholic attacks also are frequent. Rapid and considerable changes of pressure cause an increase of sudden deaths. The minds of persons are affected in a way that makes them act in a fashion they would otherwise abstain from. In these times the maximum of suicides occurs, both from excitement and from depression of the soul; apoplectic insults are relatively most frequent. The sexual desire among healthy people is strong in periods of falling pressure and weaker with a rising barometer.

"The atmospheric humidity plays an important part in many diseases; dropsy patients especially feel most disagreeable in periods of increased humidity; patients with edema—without exception—die most often in moist times. The simultaneous occurrence of several 'hydropic' deaths is a sure forerunner of an approaching period of rain. Phthisic patients, however, do not stand well the lack of moisture in the air. Their mortality reaches a maximum when the moisture is at a minimum. Barometric pressure and humidity of the air are among the most important factors of human welfare, both in healthy and in ill persons. In lunatic asylums one often observes a sudden change in the behavior of the inmates, always due to atmospheric conditions. Before a thunderstorm we all feel different; the mental equilibrium is affected and is restored after the storm. Our mind is under the inevitable influence of the body and is controlled by it rather than controlling the body."

BERLIN

(From Our Regular Correspondent)

Aug. 4, 1923.

Conflict of the Panel Physicians with the Health Insurance Societies

The constantly increasing economic distress has again brought about a conflict between the panel physicians and the health insurance societies over the subject of fees. As on previous occasions, the controversy arose not only on account of inadequate compensation but more particularly because of undue delay in the payment of fees, a combination of difficulties from which many physicians have suffered considerably. In Berlin, the results of such defective conditions are naturally felt more keenly than elsewhere, not only because, in the city, as a rule, the necessaries of life are harder to obtain, but also on account of the surplus of physicians such as is commonly found in the capital. In view of the fact that in the United States as well there has for some time been an agitation to introduce social health insurance, it will doubtless be of general interest if I describe with some detail the conditions that gave rise to the present conflict between physicians and the health insurance societies. In the contract that was drawn up for Greater Berlin in 1920, it is provided that the compensation to be given panel physicians shall be in the form of an annual capitation fee for each member of a health insurance society. Whereas, in the meantime, in almost all communities of the empire, payment has come to be made according to the actual amount of work performed, in Berlin the capitation fee method has been retained; and, owing to the many difficulties that the application of the new system to an organization comprising almost 3,500 physicians would entail, no very energetic attempt has been made to introduce in Berlin the method of compensating physicians according to the work performed. On the contrary, efforts here in Berlin have been concentrated for the most part on endeavors to bring the capitation fee up to an amount that would be commensurate with present economic conditions, but, unfortunately, with only partial success.

According to the new contract entered into March 1, 1921, the annual capitation fee per member was 30 marks. Three months later it was advanced to 40 marks, and in three months more to 50 marks. These advances, however, were brought about, not by discussion and pacific agreements between the health insurance societies and the panel physicians, but only through decisions of the court of arbitration, which both parties are under obligations to recognize. For the first quarter of 1922, the court of arbitration established 100 marks as the annual capitation fee, while, about the same time, the consultation fee laid down by the official Prussian schedule of fees was raised from 1 mark to 10 marks. By virtue of an agreement that was entered into in the second quarter between the health insurance societies and the physicians, certain extra compensation in addition to the capitation fee was allowed during the course of the year 1922. Only once (in the third quarter of 1922) did it prove possible to secure through the court of arbitration extra compensation, in addition to the capitation fee, equal in amount to that granted for Germany as a whole. For the fourth quarter, 1922, the court of arbitration refused to grant the demands made for extra compensation, so that, with the total number of insured reaching almost 1,500,000, the loss in fees to the physicians amounted to around 70,000,000 marks.

The special agreement according to which extra compensation was to be granted physicians in keeping with the advances in the cost of living expired (as did also the agreement pertaining to Germany as a whole), Dec. 31, 1922, and was not renewed. In the first quarter of 1923, the court of arbitration had to be appealed to again for the adjustment of the fees. On this occasion, the physicians demanded approximately twelve times the amount of the minimal consultation fee (as established by the official Prussian schedule of fees) as the annual capitation fee. The physicians thought that, by this demand, they would secure a capitation fee that would put them on the same financial basis as their colleagues throughout the empire who were paid according to the work performed. The court of arbitration granted the Berlin physicians for the period from February 1-14 a capitation fee equal to ten times the amount of the minimal consultation fee, while for the period from February 15 to March 31 a capitation fee only nine times the amount of the consultation fee was accorded, so that they were thus receiving more than 25 per cent. less than their colleagues who were compensated according to the amount of work performed.

These constant struggles to secure an adequate increase of the capitation fee, together with the uncertainty of income, which is a natural accompaniment of the capitation fee system, have occasioned an ever increasing feeling of bitterness among Berlin physicians, which has found vent in their various assemblies. This bitterness was still further increased by the fact that, when fees due them were finally paid, the money received had depreciated perceptibly in value. The physicians therefore proposed that, in adjusting the capitation fee for the second quarter of 1923, the minimal consultation fee established for Prussia be no longer used, and demanded as a basis the capitation fee that existed just before the war, which was equal to 5 gold marks. When payment in paper money was made, they demanded that this sum (5 marks) be multiplied by the average *Teuerungsindex* (the index representing the percentage of increase in the cost of living over peace times), adjustment to be made at the beginning of each month for the ensuing month. They also demanded an extra compensation of 20 per cent. to reimburse them for the increased cost of professional equipment and general upkeep. The court of arbitration, which was again appealed to, did not accede to the demand that another method of adjusting the capitation fee be instituted, but continued to use the minimal consultation fee of the official Prussian fee schedule as a basis. A certain modification was allowed, but the gain was more ideal than material. The court of arbitration raised for its basic standard the minimal consultation fee of the Prussian fee schedule as established by the Prussian minister of welfare for April, May and June, and thus committed itself to the view that it did not regard the Prussian standard commensurate with the increased cost of living, an admission of inestimable importance. The court of arbitration raised the minimal consultation fee of the Prussian fee schedule from 925 marks to 1,000 marks for April, from 1,000 to 1,300 marks for May, and from 1,800 to 2,200 marks for June. In this instance, however, it ruled that *nine* should be taken as a multiplier in arriving at the amount of the annual capitation fee, in place of *twelve*, which the physicians had demanded. But, since it was provided in the decision of the arbitration court that, in case in June a further increase in the fee schedule should be made, the increased fee should be applied for the whole month; and since the Prussian minister of public welfare actually did increase the minimal fee from 1,800 marks to 3,600 marks for June, we received as a capitation fee 17,700 marks in place of 13,500 marks. With reference to the payment of the capitation fees, the health insurance societies were instructed by the arbitration court to make partial payments by the fifteenth of each month for the preceding month. In case of nonpayment, the usual interest on the delayed payments must be paid. Two weeks later, negotiations were begun with reference to the fees for the month of July. The demands of the physicians were the same as in the previous quarter; namely, the capitation fee of the prewar period multiplied by the ratio of the present increased cost of living to the cost during peace times, and an extra 20 per cent. for professional equipment and upkeep. On the basis of the cost of living at the close of the first week in July, the physicians ought to have received a capitation of 97,100 marks. The court of arbitration contented itself with establishing the capitation fee for the first half of July, again on the basis of an increase of the minimal fee of the Prussian fee schedule from 6,000 marks to 6,500 marks, and again using *nine* as a multiplier. This adjustment yielded a capitation fee of 58,500 marks. July 28, 1923, the arbitration court was to convene again, with reference to any advances in the cost of living, was to establish the capitation fee for the second half of July.

The medical profession decided that it could no longer keep silent in the face of the repeated rejection by the arbitration court of its demand for a change in the method of arriving at the amount of the capitation fee. In numerous protest or indignation meetings, the leaders were urged to cancel the contract at once, since, in view of the inadequate capitation fee, only a very small fraction of the physicians, overworked as they were, was interested in keeping it up. The leaders, however, again succeeded in preventing an immediate cancelation for an indefinite time. But if, by July 28, the physicians had not received satisfactory assurances from the health insurance societies, the executive committee was empowered by a resolution adopted at a special meeting of more than 1,500 panel physicians to cancel the contract on August 1.

Fortunately, no cancelation of the contract took place. That would have been unfortunate in every way, for there can be no doubt that the cancelation of the contract with the health insurance societies, and the consequent treatment of the members as private patients, would have lessened materially the income of the physicians. And since there would doubtless have been many physicians hard pressed financially, some, partly on account of the unendurable drop in their income and partly by reason of the lack of fraternal spirit or class consciousness, would soon have given up the fight, and the health insurance societies would soon have been in a position to provide, to a limited extent at least, medical care for their patients and would thus have been able to carry on the fight to the detriment of the panel physicians as a whole. There is little doubt that the sad experiences of the physicians during similar conflicts in prewar years would have been repeated under the present oppressive economic distress. Thus the leaders among the panel physicians, who carried on the negotiations under the chairmanship of representatives of the government, did not find it difficult to compromise on the following basis:

> The capitation fees from August 1 onward shall be determined in the following manner: They will be figured on the basis of 5 gold marks (the capitation fee during the prewar period), multiplied by the ratio of the present cost of living to the prewar cost, as determined weekly, according to the standard index adopted by the German empire, which is to include the cost of clothing. The health insurance societies shall pay the capitation fees weekly in advance. Furthermore, some time before August 1, a conference shall be held between the health insurance societies of Berlin and the medical association of Greater Berlin to decide in regard to the payment to the physicians of a special allowance for professional equipment and upkeep, in addition to the regular capitation fee.

Necrology

Prof. Max Wolff, bacteriologist, died, July 20, at the age of 79. He was first an assistant in the Medizinische Klinik at Rostock; later served in the Chirurgische Klinik in the same city, and afterward became an assistant in the University Policlinic in Berlin, of which Prof. J. Meyer was then the director. In 1875 he became an instructor in the university. Among his earlier publications, his treatises on poisoning from mussels deserve mention. He did much research on actinomycosis, and later devoted himself chiefly to investigations on tuberculosis. His earlier work on tubercle bacilli was criticized by Robert Koch, but his studies on tuberculin were more valuable. In 1900 he was appointed director of the newly founded University Policlinic for the Tuberculous in Berlin, a position he retained until it was closed a few years ago.

Prof. A. Ellinger, director of the pharmacologic institute in Frankfort-on-the-Main, has died at the comparatively early age of 53. He was a pupil of Professor Jaffé in Königsberg, and was his assistant from 1897 to 1912. On the death of Jaffé, Ellinger succeeded him. In 1914 he removed to Frankfort, where he became director of the pharmacologic institute. His publications deal not only with pharmacology but also with physiologic chemistry. He was the author of numerous treatises on these subjects, and published a revision of Huppert's textbook on urinalysis.

The death of Assistant Professor Forschbach, director of the department of internal medicine in the Wenzel-Hancke Hospital in Breslau, at the age of 43, has been announced. Forschbach was a pupil of Minkowski, and had made contributions to the pathology and therapy of diseases of metabolism, more particularly diabetes.

Marriages

Franklin C. McLean to Miss Helen Vincent, both of Peking Union Medical College, Peking, China, July 2.

Joseph Ehrlich Rosenfeld, Detroit, to Miss Adelaide Seaman of Battle Creek, Mich., August 9.

Marvin Arthur Bowers, Winston Salem, N. C., to Miss Lettie Green of Thomasville, July 17.

Carroll Spaulding Wright, Philadelphia, to Miss Helen C. Shaw of Ann Arbor, Mich., June 23.

Howard Lull Van Winkle to Miss Josephine Krause, both of Cedar Rapids, Iowa, June 29.

Frank Hamer Russell, New York, to Miss Charlotte McCoy of Cincinnati, August 1.

Harold Townsend, Sac City, Iowa, to Miss Avo Dovbenmier of Cedar Rapids, May 18.

Frank Theodore Hartman to Mrs. Martha Pederson, both of Waterloo, Iowa, June 27.

Ivan Ray Powers, Waterloo, Iowa, to Miss Dorothea Herman of Boone, June 27.

Andrew C. Henske, St. Louis, to Miss Mary Jane Sinclair of Litchfield, Ill., June 26.

Marion A. Weightman to Mr. Albert P. McKee, both of Toledo, Ohio, August 18.

Arthur Lawrence Washburn to Miss Sona de Got, both of New York, August 16.

Joseph Edward Leo to Miss Lucille J. McGuinn, both of Chicago, September 1.

Charles F. Little, Vail, Iowa, to Miss Agnes Helen Reilly of Iowa City, June 9.

Frank Miles Keefe to Miss Geraldine Kelly, both of Clinton, Iowa, June 9.

Clyde A. Medlar to Miss Louise Nagel, both of Verdon, Neb., June 7.

Bretislav B. Sedlacek to Miss May Fixa, both of Omaha, June 20.

John A. Flora to Miss Beth Morris, both of Flora, Ind., June 29.

Deaths

Herbert Harlan ⊕ Baltimore; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1879; died of heart disease while playing golf, August 16. Dr. Harlan was born in Harford County, May 7, 1856; he was appointed assistant demonstrator of anatomy at his alma mater in 1880 and demonstrator in 1886. At the time of his death Dr. Harlan was chief-of-staff at the Presbyterian Eye, Ear and Throat Hospital, president of the state board of medical examiners, president of the Medical and Chirurgical Faculty of Maryland. He was ophthalmologist to the Western Maryland Railway, the Mount Hope Retreat, Maryland Cambridge Hospital, St. Joseph's Hospital and other institutions. In 1913 he was sent by the Secretary of the Interior to the mountain counties of Kentucky to investigate the cause of trachoma. Dr. Harlan was a member of the American Ophthalmological Society, the American Otological Society and the National Board of Medical Examiners.

Herman Truman Livingston Collyer, New York; Bellevue Hospital Medical College, New York, 1881; member of the Medical Sociey of the State of New York and the New York Obstetrical Society; treasurer of the New York Academy of Medicine, 1900-1905; formerly assistant gynecologist to the French Hospital; aged 66; died, August 13, in Bellevue Hospital, of cerebral hemorrhage.

Mary Almira Smith, St. Petersburg, Fla.; University of Zurich, Switzerland, 1880; member of the Massachusetts Medical Society; formerly attending surgeon to the New England Hospital for Women and Children and the Women's Memorial Hospital, Boston; aged 73; died, August 10, in Winthrop, Mass., of senility.

Robert Fleming Amyx ⊕ St. Louis; Marion Sims College of Medicine, St. Louis, 1897; on the staff of the Mullanphy Orphan Asylum and former assistant superintendent of the St. Louis City Hospital; member of the Association of Surgeons of St. Louis; aged 58; died, August 5, of cerebral hemorrhage.

Edward Everett Allen, Charleston, Mass.; Boston University School of Medicine, Boston, 1896; assistant professor of anatomy at his alma mater; on the staff of the Massachusetts Homeopathic Hospital, Boston; aged 55; was killed, August 13, when the car in which he was riding overturned.

Rawley Holland Powell ⊕ Fairmont, W. Va.; College of Physicians and Surgeons, Baltimore, 1892; served with the M. C., U. S. Army, during the World War with the rank of major; aged 54; superintendent of Fairmont Hospital No. 3, where he died, August 5, following a long illness.

Lewis Seaver Dixon, Boston; Medical School of Harvard University, Boston, 1871; member of the Massachusetts Medical Society and the New England Ophthalmological Society; for several years ophthalmologist to the Boston City Hospital; aged 77; died, August 5, of cerebral hemorrhage.

John Whiting Hargis, Pensacola, Fla.; Kentucky School of Medicine, Louisville, 1893; member of the Florida Medical Association; specialized in surgery; served in the M. C., U. S. Army, during the World War with the rank of major; aged 53; died suddenly, August 11.

Joseph H. Huntley, Lima, Ohio; Eclectic Medical College, Cincinnati, 1878; Starling Medical College, Columbus, Ohio, 1890; member of the Ohio State Medical Association; formerly consulting surgeon for the Lima Hospital; aged 72; died, August 10, of senility.

Edward Hamlin Hazen ⊕ Oakland, Calif.; Charity Hospital Medical College, Cleveland, 1866; veteran of the Civil War; for forty years a practitioner in Iowa; formerly instructor at Drake University College of Medicine, Des Moines; aged 89; died, August 3, of senility.

Edward Elder Austin ⊕ Minneapolis; University of Michigan Homeopathic Medical School, Ann Arbor, 1884; formerly professor of gynecology at the University of Minnesota Medical School, Minneapolis; gynecologist to the City Hospital; aged 69; died, August 9.

Jonah Clifford Cadwallader ⊕ Norwood, Ohio; Medical College of Ohio, Cincinnati, 1891; for fifteen years city health officer; on the staff of the Bethesda Hospital, Cincinnati; aged 57; died, August 14, of cerebral hemorrhage, while on his vacation, at Sault Ste. Marie, Mich.

⊕ Indicates "Fellow" of the American Medical Association.

Griffith Holme Maghee, Aguilar, Colo.; Northwestern University Medical School, Chicago, 1908; served in the M. C., U. S. Army, during the World War with the rank of major; aged 51; died, August 9, from a bullet wound, presumably self-inflicted.

Charles E. Cole, Prairie Du Chien, Wis.; Iowa Eclectic Medical College Medical Department of Drake University, Des Moines, Iowa, 1893; member of the State Medical Society of Wisconsin; aged 65; died, August 5, in Chicago, following an operation.

Joseph Williams McCall, Huntington, Tenn.; University of Nashville Medical Department, 1857; College of Physicians and Surgeons of Columbia University, New York, 1869; veteran of the Civil War; aged 91; died, August 2, of cerebral hemorrhage.

Jacob A. J. Martin, Yankton, S. D.; Indiana Medical College, Indianapolis, 1875; University of Illinois College of Medicine, Chicago, 1885; formerly a practitioner of Iowa, and a member of the legislature of South Dakota; aged 79; died, August 10.

Almon Tanner Godfrey ⊕ Holland, Mich.; Northwestern University Medical School, Chicago, 1904; professor of chemistry at Hope College; aged 46; died, August 21, at the Holland Hospital, of peritonitis following an appendectomy.

Aldéric Lesage, Pointe Claire, Que., Canada; Laval University Faculty of Medicine, Quebec, 1897; formerly mayor of Pointe Claire and president of the board of school examiners; aged 49; died recently, following a long illness.

Hiram Dewey Peterson ⊕ Sandusky, Ohio; Jefferson Medical College of Philadelphia, 1899; chief of staff, Providence Hospital, Sandusky; aged 47; died suddenly, August 19, at his summer home in Cedar Point, of angina pectoris.

Chauncey Frank Cotteral, Guthrie, Okla.; Medical College of Ohio, Cincinnati, 1883; member of the Oklahoma State Medical Association; aged 63; Logan County physician at the time of his death, August 10.

Martin William Brian, Hillsboro, Texas; Memphis Hospital Medical College, Memphis, Texas, 1890; member of the State Medical Association of Texas; aged 66; shot himself, August 9, while suffering from ill health.

Andrew Todd McClintock ⊕ Wilkes-Barre, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1911; specialist in internal medicine; aged 38; died, August 4, following an operation for colitis.

Victor Francis Ryan, Escanaba, Mich.; Detroit College of Medicine and Surgery, 1916; served with the M. C., U. S. Army, in France during the World War; aged 29; died, May 24, of acute endocarditis.

Frederick A. Nelson, Omaha; Creighton University College of Medicine, Omaha, 1904; also a pharmacist; aged 54; died, August 6, from injuries received in an explosion of chemicals in his pharmacy.

Thomas W. Green, Chelsea, Mass.; Boston University School of Medicine, Boston, 1891; aged 60; died suddenly, August 8, at his summer home in Limerick, Me., of cerebral hemorrage.

Leon B. Stratton, Pasa Robles, Calif.; Saginaw Valley Medical College, Saginaw, Mich., 1899; aged 47; died, August 7, at the St. Francis Hospital, San Francisco, of lobar pneumonia.

Ella D. Goff, Bellevue, Pa.; Boston University School of Medicine, Boston, 1891; for eighteen years treasurer of the Homeopathic Medical Society of Pennsylvania; aged 55; died, August 3.

Henry Timm, Brooklyn; Long Island College Hospital, Brooklyn, 1880; on the staffs of the Lenox Hill and the Long Island College hospitals; aged 71; died, August 12, of heart disease.

Allyn Claude Magee ⊕ Los Angeles; College of Physicians and Surgeons, Los Angeles, 1908; served during the World War; aged 46; died suddenly, August 14, of edema of the lung.

Charles Wesley Turner ⊕ Harrisburg, Ill.; St. Louis College of Physicians and Surgeons, 1898; formerly mayor of the city; aged 52; died suddenly, August 19, of heart disease.

Philip B. Riggins, Los Angeles; University of Southern California College of Medicine, Los Angeles, 1907; aged 40; died suddenly, August 14, of heart disease.

Belle Voorhees Aldridge, Shoreham, N. Y.; Women's Medical College of Pennsylvania, Philadelphia, 1886; aged 65; died, August 6, at Elmira, of carcinoma.

Leopold J. Fogel ⊕ Cincinnati; Medical College of Ohio, Cincinnati, 1874; formerly on the staff of the Avandale Hospital; aged 72; died suddenly, August 16.

Harvey J. Terpening, Fulton, N. Y.; Eclectic College of Cincinnati, 1895; member of the Medical Society of the State of New York; aged 55; died, August 9.

L. B. Boggs, Oklahoma City (years of practice); served as a member of the Nebraska state legislature in 1878; aged 95; died, July 29, of senility.

George W. Richards, Island Ford, Va.; Medical College of Virginia, Richmond, 1857; Confederate veteran; aged 96; died, August 3, of senility.

William A. Iles, Urbana, Kan.; University Medical College of Kansas City, Mo., 1890; veteran of the Civil War; aged 80; died, August 5, of senility.

J. H. Dunham, Rivesville, W. Va. (licensed, West Virginia, 1881); aged 89; died, August 3, at the home of his son in Fairmont, of senility.

Wirt Adam Fullington, Oklahoma City; Fort Worth (Texas) School of Medicine, 1902; aged 57; died, July 31, of chronic nephritis.

Abraham Joseph Saylin ⊕ Los Angeles; College of Physicians and Surgeons, Los Angeles, 1915; aged 40; died, August 5, of heart disease.

George P. Mehl, Oklahoma City; Fort Worth School of Medicine, Fort Worth, Texas, 1898; aged 58; died, August 16, of heart disease.

Isaac Friedman, Chicago; Bennett Medical College, Chicago, 1895; member of the Illinois State Medical Society; aged 65; died, August 20.

Arthur B. Holland ⊕ Wellsville, Ohio; Long Island Hospital College, Brooklyn, 1891; aged 59; died, August 6, of heart disease.

Elbert Tripp Rulison, Sr., Sacramento, Calif.; Albany (N. Y.) Medical College, 1875; aged 71; died, August 10, of heart disease.

John Ferguson Thomson, Garrett, Ind.; University of Michigan Medical School, Ann Arbor, 1875; aged 73; died, July 25, of senility.

Jacob Andrew Keck, Richmond, Va.; Medical College of Virginia, Richmond, 1895; aged 48; died, July 26, following a long illness.

William Russell McIntyre, Troy Grove, Ill.; University of Illinois College of Medicine, Chicago, 1909; aged 45; died, August 12.

John Dennard Keaton, Dallas, Texas; Atlanta (Ga.) Medical College, 1855; veteran of the Civil War; aged 89; died, August 1.

Vene Duane Farmer, Jackson, Mich.; University of Michigan Medical School, Ann Arbor, 1905; aged 41; died, August 5.

Thomas C. Alexander, Oakland, Iowa (licensed, Iowa, 1887); veteran of the Civil War; aged 84; died, June 2, of senility.

T. A. Harvey, Prattsville, Ark.; Louisville (Ky.) Medical College, 1876; aged 84; died suddenly, August 1, of heart disease.

Orlando B. Surface, Indianapolis (licensed, Indiana, 1903); aged 77; died, August 11, at the Methodist Hospital, of senility.

George Alfred Barrall, Allentown, Pa.; Jefferson Medical College of Philadelphia, 1882; aged 66; died, August 18.

James W. Puckett, Atlanta, Ga.; Southern Medical College, Atlanta, 1902; aged 47; died, August 2, of influenza.

John Findley, Caldwell, Ohio; Miami Medical College, Cincinnati, 1876; aged 77; died, August 6, of senility.

James Lincoln More ⊕ Pulaski, N. Y.; New York University Medical College, 1887; aged 63; died recently.

Charles D. Roome, Cresco, Iowa; Rush Medical College, 1871; aged 79; died, May 31, of senility.

Correction.—Dr. William Hunter Steele, Rockingham, N. C., whose obituary notice was published in The Journal, August 18, p. 594, is not dead. It was W. L. Steele, D.D.S., who died in Rockingham, July 24.

The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other General Material of an Informative Nature

EL ZAIR

Quackery's Latest Offer of an Elixir of Life

The student of quackery is led to wonder whether the dealer in alleged remedial agents can concoct a story too preposterous for the public to believe. A study of the exploitation of the nostrum "El Zair" convinces one that no claims are too absurd to coax the dollars from those who seek "rejuvenation."

The public is being circularized by El Zair, Inc., which gives its American address as "American Laboratories, 43 West 16th Street, New York City." Certain verbal peculiarities of the "literature" give internal evidence of an English origin. The magnificent abandon with which the probabilities are discarded and the almost unbelievable absurdity of the claims marks the material as of trans-Atlantic birth. According to a certificate filed March, 1923, the El Zair concern was incorporated under the New York state laws with an authorized capital of $1,000 consisting of ten shares, each having a par value of $100; of this $500 was paid in. The names of the officers and directors of the company are: Carl F. Doscher, President; Ralph Van Buren, Treasurer; A. V. Skinner, Secretary.

The El Zair Company occupies the same quarters as those used by the "Thompson-Barlow Co.," the "Thompson Feature Service," the "Modern Research Society," the "Corrective Eating Society," etc. Especially does the concern seem to be closely affiliated with the Thompson-Barlow Co. which has for its president one R. S. Thompson, who also is president of the "Corrective Eating Society" (see reproduction of typical advertisement) said to have been founded by Eugene Christian, the food faddist. From this office comes forth such stuff as "Little Lessons in Corrective Eating" by Eugene Christian, "Weight Control" by the same author, "Subconscious Power—the Secret of Achievement" by one Legaren, "The Secret of Sound Sleep," the "Vaco Reducing Cup" and various other pieces of pseudo-scientific buncombe.

The El Zair advertising approach consists in (1) a typewritten letter of three pages signed "J. E. Bartlett," (2) a reprint of what purports to be an article by the late W. T Stead from the English *Review of Reviews* for March, 1911 and (3) a "Reservation Card for Introductory El Zair Treatment" with an addressed envelope to simplify the parting o the fool from his money. The letter from Bartlett state that there are thousands who "have personal reasons t believe that the long-sought Elixir of Youth has at last bee found." Anticipating, evidently, that the reader may be skeptical, Mr. Bartlett points out that, although man has bee trying to fly from the time of Icarus and his famous wax attached wings, successful aviation is a recent triumph and that while for centuries men have "tried to find new methods of broadcasting their messages" not until today ha science learned the secret of the radio.

> "Older than all of these is the search for the Elixir of Youth. Hav these centuries after centuries of research, thought and tireless endeavo at last enabled modern Science to discover this Elixir?"

And Mr. Bartlett answers his own question by declaring that the elixir *has* been found—and is available in the forn of "El Zair." The discovery of El Zair seems a matter o controversy, for, as the reader of this article will find, the history of El Zairian quackery is not consistent. According to Bartlett, El Zair's discovery was due to the untiring investigations of "an English scientist of considerable note" one Professor James Dean Morgan, who is said to have been collaborating "with the famous Metchnikoff" at the "University of Bonn." In passing, it may be said that there seems to be no evidence that Metchnikoff ever did research work a Bonn.

> "Like Metchnikoff he was trying to pick up the lost threads droppe by the ancient alchemists and medieval philosophers."

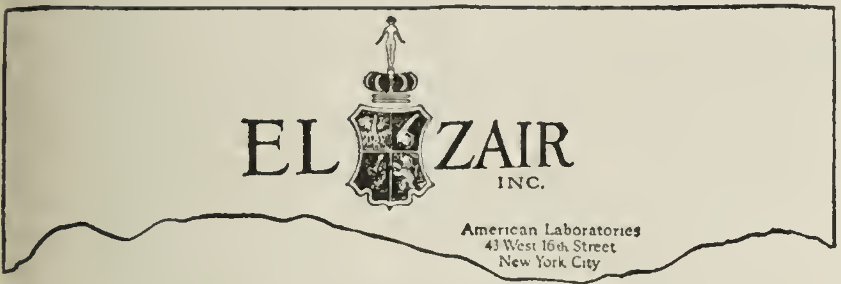
Professor Morgan—still according to Bartlett—finally discovered his elixir and returned to England. There he "founc a member of his family, Mrs. Frances Campbell, very seriously ill." He immediately sent back to Bonn for "a quantity of his new formula" with the result that Mrs. Campbell not only regained her health but her youth and, to quote the lady "In an incredibly short space of time I had all the worl crying out to me to give it to them at any price."

The Elixir of Life
by W. T. Stead
INTRODUCTION
W. T. Stead
Reprint of Article by W. T. Stead in the Review of Reviews (London) of March, 1911—entitled The Elixir of Life
CHAPTER I.
Has the Elixir Been Discovered?
A Few of the Remarkable Letters
Science's Story of El Zair
SPONGINGS AFTER EACH EL ZAIR TREATMENT SHOW HOW DANGEROUS WASTE IS WITHDRAWN
El Zair Comes to America
A New Kind of Health and Vigor

Some pages from the advertising booklet sent out by the El Zair concern. While this purports to contain a reprint of an article by W. T. Stead, comparison with the original shows modifications, deletions and additions.

ENLISTING THE REVIEW OF REVIEWS

Enter Mr. Stead. The famous founder of the *Review o Reviews* was known by those who followed that remarkabl man's career, as a journalist of unswerving loyalty to wha he considered the truth. His sincerity of purpose was exceeded only by his appalling lack of judgment on all things medical and some spiritual. Mr. Stead will long be remembered for the courageous fight he made against the vicious traffic that he brought to the attention of his countrymen in his series "The Maiden Tribute of Modern Babylon." Yet, this champion of political, economic and social justice unwittingly played into the hands of medical fakers. Uncritically, he lent aid and comfort to the cancer quack, Count Mattei, and his preposterous "Blue Electricity" and he did his readers a lamentable disservice when he took up cudgels in behalf of Quack Macaura and his fakish "Tulsocon." Mr. Stead's gullibility in the matter of nostrums and quackery and certain phases of spiritualism was a trait that was as astonishing as it was grievous to his admirers.



EL ZAIR
INC.

American Laboratories
43 West 16th Street
New York City

A miniature reproduction of El Zair letterhead.

In 1911, in the March issue of the English *Review of Reviews* Mr. Stead had an article entitled "The Elixir of Life." It dealt with El Zair, the subject of the present article. The present exploiters of El Zair send out as part of their advertising paraphernalia what purports to be a reprint of this article. (See miniature reproduction with this article.) Comparing it with the original, however, one finds many significant omissions and some additions. These will be discussed later. Recurring again to the Bartlett letter we are told that Mr. Stead had published an article on El Zair and had suggested that the price of the treatment should be set at £100 (about $500). This is a falsehood; Mr. Stead made no such suggestion. The Bartlett letter states further that Mr. Stead was so impressed with the marvelous possibilities in El Zair that he "sailed on the Titanic to offer to America the benefits of its truly astonishing results." The destruction of that ill-fated ship and the resultant death of Mr. Stead is said to have "delayed El Zair's coming to America, a delay that was further prolonged by the chaotic conditions resulting from the World War. But:

> ". . . even these tragic delays had their elements of good fortune; for during this intervening time large deposits were discovered of the ingredients which had made 'EL ZAIR' so costly. And as a result 'EL ZAIR' has come to America at a cost so moderate that anyone sincerely anxious to derive its benefits can readily afford it."

The reference in the quotation just given to the discovery of "large deposits" of the "ingredients" of El Zair will be appreciated by the reader when he learns the result of the analysis of this "Elixir of Youth." The claim that Mr. Stead's visit to the United States was to offer El Zair to America is another flight of fancy. The real reason for his visit was to address a meeting in New York on the subject 'The World Peace" and to take part in the "Men and Religion Forward Movement."

The Bartlett letter closes with the statement that the action of "El Zair" is "to withdraw from the pores and the tissues of he skin the calcareous and other waste matter which results n premature old age, and in the many diseases which are orerunners of it." El Zair is applied externally with a sponge and is "guaranteed harmless." The price of a full reatment is $6.00, but Mr. Bartlett encloses a "Reservation Card" for an "Introductory Treatment" for $2.00.

GARBLING MR. STEAD'S STORY

The second piece of advertising already briefly referred to purports to be a reprint of the article by W. T. Stead in the English *Review of Reviews* of March, 1911. The reprint has an introduction by Vance Thompson who abandons for the nonce the writing of popular pseudo-science for the task, doubtless equally profitable, of embellishing nostrum literature. *Facilis descensus Averni.*

A careful comparison of the original article with the reprint now being sent out shows a number of minor changes, the omission of several paragraphs and the addition of material that did not appear. The El Zair concern quotes the article with fair accuracy up to the point at which Mr. Stead discussed the composition of the Elixir of Life. Mr. Stead's story was to the effect that El Zair was a re-discovery; it had originally been discovered centuries ago in Arabia and an Arabic manuscript which came into the hands of a friend of Mr. Stead "contained the formula for El Zair, together with full and explicit directions as to where it could be found and how it should be used." Not a word did Mr. Stead have to say about the "noted" English scientist, "Professor James Dean Morgan." Parenthetically, a thorough search of all available biographical data, American, British and European, has failed to disclose any reference to this noted man!

THE MYSTIC HERBS OF EL ZAIR

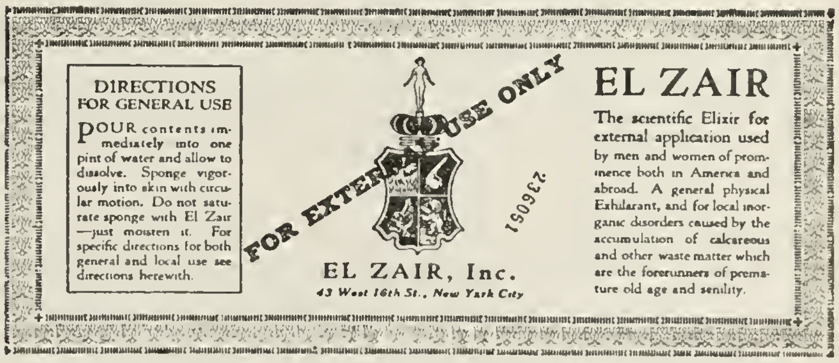
After mentioning the incident of the Arabic manuscript, Mr. Stead wrote:

> "The ingredients could only be procured in certain lofty and almost inaccessible mountain ranges in Africa. The secret as to the precise habitat of the herbs—for El Zair is the product of certain herbs gathered under certain phases of the moon, and compounded with certain mystical rites—was known only to the Grand Vizier of a barbarous potentate."

The paragraph just quoted from the original article in the March, 1911, issue of the *Review of Reviews* is entirely omitted from the reprint now being sent out. So, too, is a subsequent paragraph describing the perilous and hair-raising adventures of Mr. Stead's friend in quest of the Elixir. The sum and substance of it was that the lady in question finally obtained some of these mystic herbs, brought them to England and thus made available the raw material for El Zair.

TONED DOWN FOR AMERICAN CONSUMPTION

Nor is this the only omission from Mr. Stead's original article. In describing some of the marvelous results alleged to have been produced by El Zair when it was being experimented with, Mr. Stead detailed the case of a septuagenarian, who was as bald as a billiard ball. He used El Zair and, presto! "the bald patch was covered with a plentiful thatch of hair." Possibly the advertising man in charge of the present El Zair campaign in the United States decided that this yarn was a little too strong for American consumption and felt that he was justified in omitting it.



DIRECTIONS
FOR GENERAL USE

POUR contents immediately into one pint of water and allow to dissolve. Sponge vigorously into skin with circular motion. Do not saturate sponge with El Zair—just moisten it. For specific directions for both general and local use see directions herewith.

FOR EXTERNAL USE ONLY

230951

EL ZAIR, Inc.
43 West 16th St., New York City

EL ZAIR

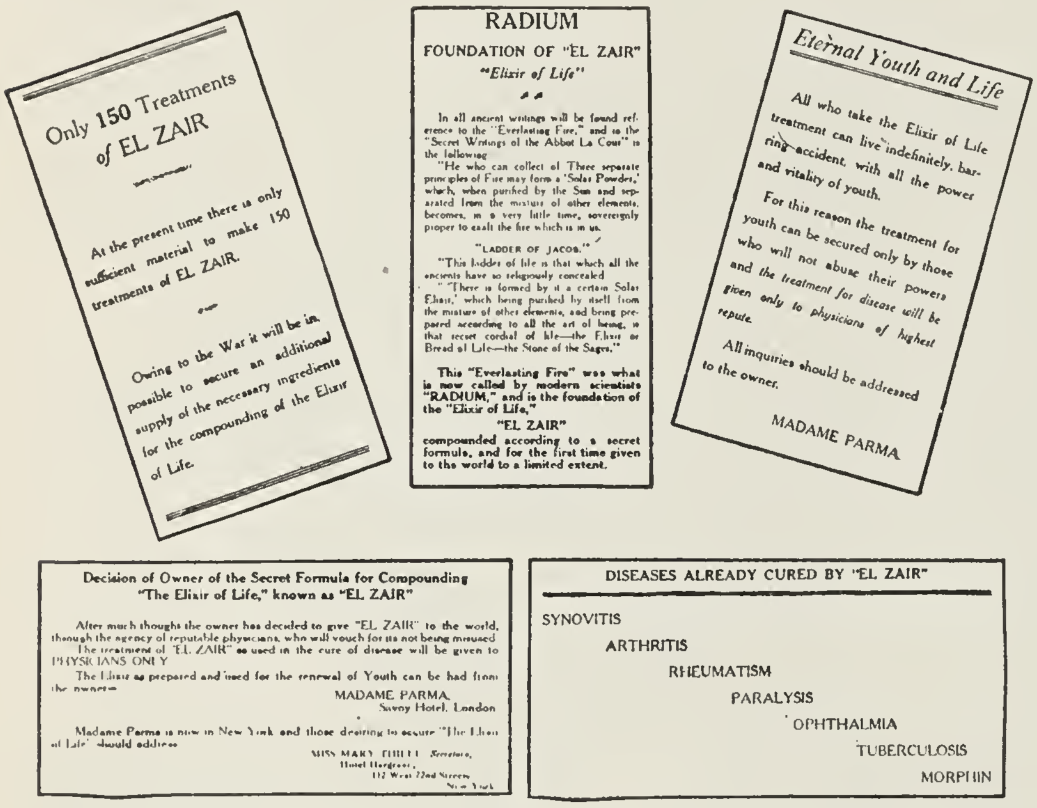
The scientific Elixir for external application used by men and women of prominence both in America and abroad. A general physical Exhilarant, and for local inorganic disorders caused by the accumulation of calcareous and other waste matter which are the forerunners of premature old age and senility.

Photographic reproduction (reduced) of an "El Zair" label.

Another case described by Mr. Stead was that of the "noble lady, who had long since given up all hope of presenting her lord with an heir." She took El Zair and "became a happy mother in less than a year." This incident, too, the present exploiters of El Zair omit, possibly in the belief that to ascribe such potency as this to El Zair might hurt its sale among the Jurgens—and Mrs. Jurgens—in quest of youth.

But the present exploiters of El Zair make up for their deletions from Mr. Stead's article by putting in several paragraphs that do not appear at all in the original. They tell of "an unfortunate gentleman whose doctors had given him over to death, promising at the uttermost another year's existence." The case of the doomed man in the closing stages of pulmonary tuberculosis is described in detail. But the dying consumptive refused to die. He took El Zair for six weeks and became "to all intents and purposes a cured man." They tell, too, the story of a "distinguished novelist" who was "mentally and physically tired out"; he took El Zair and it "made a new man of him." A "member of a great ducal family who, although only sixty-five, was "deserted by the vital forces," was also rejuvenated with El Zair. And there are others.

As a matter of fact, one who reads the original article on "El Zair" is convinced that Mr. Stead himself was under no misapprehension on the subject. The reason for the article was very evidently to give Mr. Stead an opportunity to discuss, as he did, the ethical problem that would be involved in the discovery of a preparation that could make persons live indefinitely. Stead reveled in hypothetical discussions of this kind and no man could write them better. Although more than half of Stead's original article dealt with this phase, the present exploiters of "El Zair" have left out all reference to it. As indicative of what Stead thought of the matter, are these sentences following his description of "El Zair" and prefacing his theoretical discussion of elixirs of life: "Supposing that this incredible story is not a page out of the Arabian Nights but is a solid, serious, scientific fact and that there is at present living in London a fellow creature who is in possession of this momentous secret. What then?"



Only 150 Treatments of EL ZAIR

At the present time there is only sufficient material to make 150 treatments of EL ZAIR.

Owing to the War it will be impossible to secure an additional supply of the necessary ingredients for the compounding of the Elixir of Life.

RADIUM

FOUNDATION OF "EL ZAIR"

"Elixir of Life"

In all ancient writings will be found reference to the "Everlasting Fire," and in the "Secret Writings of the Abbot La Cour" is the following

"He who can collect of Three separate principles of Fire may form a 'Solar Powder,' which, when purified by the Sun and separated from the mixture of other elements, becomes, in a very little time, sovereignly proper to exalt the fire which is in us.

"LADDER OF JACOB."

"This ladder of life is that which all the ancients have so religiously concealed

" 'There is formed by it a certain Solar Elixir,' which being purified by itself from the mixture of other elements, and being prepared according to all the art of being, is that secret cordial of life—the Elixir or Bread of Life—the Stone of the Sages."

This "Everlasting Fire" was what is now called by modern scientists "RADIUM," and is the foundation of the "Elixir of Life,"

"EL ZAIR"

compounded according to a secret formula, and for the first time given to the world to a limited extent.

Eternal Youth and Life

All who take the Elixir of Life treatment can live indefinitely, barring accident, with all the power and vitality of youth.

For this reason the treatment for youth can be secured only by those who will not abuse their powers and the treatment for disease will be given only to physicians of highest repute.

All inquiries should be addressed to the owner.

MADAME PARMA

Decision of Owner of the Secret Formula for Compounding "The Elixir of Life," known as "EL ZAIR"

After much thought the owner has decided to give "EL ZAIR" to the world, through the agency of reputable physicians, who will vouch for its not being misused

The treatment of "EL ZAIR" as used in the cure of disease will be given to PHYSICIANS ONLY

The Elixir as prepared and used for the renewal of Youth can be had from the owner—

MADAME PARMA,
Savoy Hotel, London

Madame Parma is now in New York and those desiring to secure "The Elixir of Life" should address

MISS MARY THIELL, *Secretary*,
Hotel Hargrave,
112 West 72nd Street,
New York

DISEASES ALREADY CURED BY "EL ZAIR"

SYNOVITIS
ARTHRITIS
RHEUMATISM
PARALYSIS
OPHTHALMIA
TUBERCULOSIS
MORPHIN

Some of the advertising of "El Zair" sent out in 1914. At that time "Madame Parma" was the exploiter and the claim was made that the foundation of El Zair was radium.

Following the garbled reprint, the advertising booklet contains "A Few of the Remarkable Letters Attesting the Merits of El Zair." These testimonials are practically all British and from the aristocracy or the nobility. The "follow-up" literature, however, contains testimonials from mere commoners in the United States. Gullibility knows no caste.

There is one from Lord R———, another from Lady H———, still another from His Royal Highness, Maharajah of ——— and one from Renee of S———; then there is one each from Lady A. C———, Lady C———, Lady A———, Lady V——— and the Secretary to Lady G———. Some of the testimonials are frankly signed. One is ascribed to Count de Lambert, another to Lady Islington while there are puffs credited to the Countess of Warwick, Lord Redesdale and Sir Charles Hawtrey.

Irresistibly we are reminded of Gilbert's delightful satire, "The Gondoliers," in which the "celebrated, cultivated, underrated" Duke and Duchess of Plaza-Toro describe in tuneful verse how men and women of noble rank may find congenial —and remunerative—employment:

> "I write letters blatant, on medicines patent,
> "And use any other you mustn't;
> "And vow my complexion, derives is perfection,
> "From somebody's soap — which it doesn't!"

Thus sang the duchess, summing up the matter, with the duke, in a duet:

> "In short, if you'd kindle, the spark of a swindle,
> "Lure simpletons into your clutches;
> "Or hoodwink a debtor, you cannot do better
> "Than trot out a Duke or a Duchess."

And the El Zair concern trots them out. The booklet closes with "Science's Story of El Zair" and describes how "El Zair Comes to America." The "Reservation Card" for the "Trial Introductory Treatment" offers enough El Zair for two weeks' treatment for $2.00.

ADVERTISING EL ZAIR IN 1915

Before giving the chemists' report on this preparation, mention should be made of a little past history of El Zair advertising. In the latter part of 1914 El Zair was being exploited from New York City apparently to an exclusive and limited clientele, men of wealth and, in many cases, position. At that time a reprint of the *Review of Reviews* article was sent out but without the omissions to be found in the present advertising matter. In addition there was a booklet containing matter alleged to have been "freely translated from the Arabic" and purporting to give "The Rationale of El Zair." The owner of El Zair at that time was "Madame Parma," the Savoy Hotel, London. At the time the Madame was in New York and those who desired to secure "The Elixir of Life" (not "The Elixir of *Youth*" as now) were told to address Madame Parma's secretary, Miss Mary Thiell, at 112 West 72d Street, New York City. In addition to the two booklets there were a number of advertising leaflets (some are reproduced in miniature with this article) describing the alleged virtues of El Zair. One of these leaflets declared that radium was the foundation of El Zair; another gave a list of "Diseases Already Cured by El Zair." But the nub of the 1915 advertising campaign was the statement that, owing to the war, it was impossible to secure an additional supply of the necessary ingredients for compounding El Zair and that at that time there was "only sufficient material to make one hundred and fifty treatments of El Zair." Finally, it was declared that the owner had "decided to give El Zair to the world through the agency of reputable physicians."

Evidently the attempt made eight years ago to market this preposterous nostrum at a high price to wealthy gulls and through the agency of physicians, failed and nothing more was heard of El Zair until its present exploitation.

Before closing this part of the narrative, it should be said that after Stead's first article in the March, 1911, English *Review of Reviews* there was an editorial on El Zair in the May, 1911, issue. It was there stated that "the lady who rode over the mountains of North Africa in order to gather the mystic herbs from which the Elixir is brewed" was charging one hundred pounds sterling for the stuff. Evidently English quacks are no pikers. Then Mr. Stead had a final announcement in the issue of December, 1911, stating that the woman who had the wonderful herbs from which El Zair was made, wished to be known as "Mrs. Merlin." Mr. Stead stated further that, according to the Arabic manuscript in Mrs. Merlin's possession:

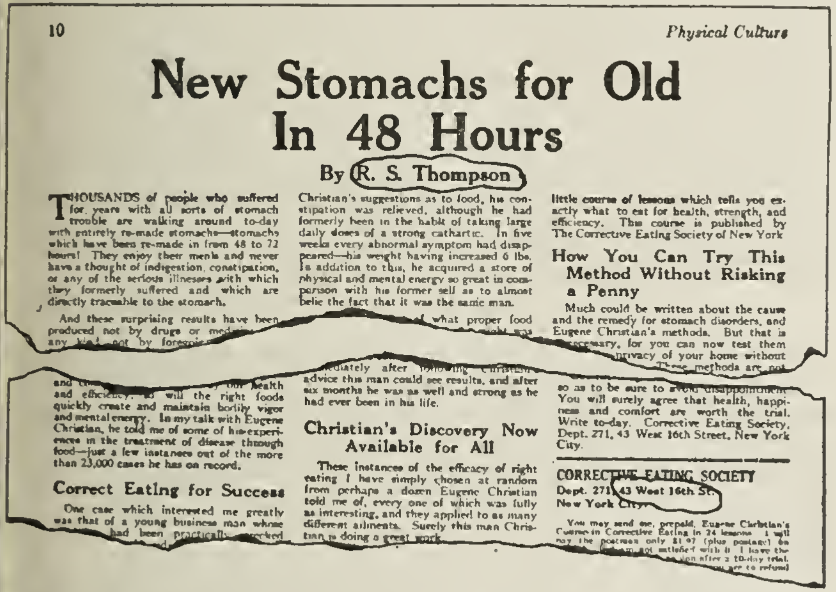
> "He who would use El Zair must take it internally and apply it externally with undeviating regularity. If he shrinks from the regular performance of the necessary rites let him pass by—El Zair is not for him."

It should be borne in mind, then, that the original El Zair was an infusion of herbs and was to be taken internally and used externally. These facts are interesting when compared with the present exploitation.

A TREATMENT IS ORDERED

In order to tell a palpitating world of what El Zair is composed a "treatment" was purchased. (See label reproduced in miniature.) The check sent in payment was returned in due time through the usual banking channels, and was found to have been endorsed: "El Zair, Inc. Pay to the order of Garfield National Bank, Advertised Products, Inc." Just what relationship there is between the Garfield National Bank and this piece of quackery, we do not know.

Before the specimen arrived there came another typewritten letter from J. E. Bartlett expressing thanks for the order, stating that the treatment was being sent and giving instructions in the use of the Elixir of Youth. The purchaser was told to dissolve the powdered El Zair in water and sponge the body daily with the solution. He was urged to squeeze out the sponge after the treatment and save the spongings in separate bottles. The letter declared that "the spongings would gradually get darker until they sometimes become almost black." This is the "deeper seated waste matter" which El Zair removes and which, according to El Zairian theories, is the cause of old age and its infirmities. With the letter there was an advertising circular whose verbiage followed closely the tenets of mail-order quackery. Part of the material is the report of an alleged "Clinical Test" said to have been "conducted by Eustace H. Gane, chemist, 1063 Sterling Place, Brooklyn." Mr. Gane's name is already familiar to readers of the Propaganda department as the author of a puff for a fake "obesity cure" put out by one R. Lincoln Graham of New York City. Possibly time will teach Mr. Gane that selling his services to quacks does not redound either to the credit of his profession or to his own reputation.



10 *Physical Culture*

New Stomachs for Old In 48 Hours

By R. S. Thompson

THOUSANDS of people who suffered for years with all sorts of stomach trouble are walking around to-day with entirely re-made stomachs—stomachs which have been re-made in from 48 to 72 hours! They enjoy their meals and never have a thought of indigestion, constipation, or any of the serious illnesses with which they formerly suffered and which are directly traceable to the stomach.

And these surprising results have been produced not by drugs or med
any kind, not by foregoi

and efficiency, so will the right foods quickly create and maintain bodily vigor and mental energy. In my talk with Eugene Christian, he told me of some of his experiences in the treatment of disease through food—just a few instances out of the more than 23,000 cases he has on record.

Correct Eating for Success

One case which interested me greatly was that of a young business man whose
had been practically wrecked

Christian's suggestions as to food, his constipation was relieved, although he had formerly been in the habit of taking large daily doses of a strong cathartic. In five weeks every abnormal symptom had disappeared—his weight having increased 6 lbs. In addition to this, he acquired a store of physical and mental energy so great in comparison with his former self as to almost belie the fact that it was the same man.

what proper food

advice this man could see results, and after six months he was as well and strong as he had ever been in his life.

Christian's Discovery Now Available for All

These instances of the efficacy of right eating I have simply chosen at random from perhaps a dozen Eugene Christian told me of, every one of which was fully as interesting, and they applied to as many different ailments. Surely this man Christian is doing a great work.

little course of lessons which tells you exactly what to eat for health, strength, and efficiency. This course is published by The Corrective Eating Society of New York

How You Can Try This Method Without Risking a Penny

Much could be written about the cause and the remedy for stomach disorders, and Eugene Christian's methods. But that is
necessary, for you can now test them
privacy of your home without
These methods are not

so as to be sure to avoid disappointment. You will surely agree that health, happiness and comfort are worth the trial. Write to-day. Corrective Eating Society, Dept. 271, 43 West 16th Street, New York City.

CORRECTIVE EATING SOCIETY
Dept. 271, 43 West 16th St.
New York City

You may send me, prepaid, Eugene Christian's Course in Corrective Eating in 24 lessons. I will pay the postman only $1.97 (plus postage) on

Photographic reproduction (greatly reduced) of a full page advertisement from *Physical Culture* of the "Corrective Eating Society." This concern does business from the same address as the El Zair Company. Notice that this advertisement is attributed to R. S. Thompson, resident of the "Corrective Eating Society," of the Thompson-Barlow ompany, etc.

The specimen of El Zair finally arrived and was turned over to the A. M. A. Chemical Laboratory. The laboratory eport follows:

LABORATORY REPORT

One original bottle of "El Zair" manufactured by "El Zair, nc., 43 West 16th St., New York City," was submitted to he Chemical Laboratory for examination. El Zair consisted f a lumpy white substance, which was in a moist state. It ad a strong, pungent odor of acetic acid; also an aromatic dor resembling oil of bergamot; when dissolved in water he acetic acid odor was not so pronounced. The product was vidently impure as some straw and dirt was easily detectble. Nonvolatile organic matter was absent. When the ixture was treated with alcohol and filtered, on evaporation he filtrate left no residue. When a specimen of the substance as dried for two hours at from 200 to 210 C., the loss in eight was 53.3 per cent. Qualitative tests indicated the bsence of all heavy metals; also absence of calcium, barium nd strontium; magnesium, a trace of sodium and sulhate were present. Quantitative determination yielded the llowing:

Acetic acid (calculated as absolute)	27.60 per cent.
Magnesium (Mg^{++})	8.41 per cent.
Sulphate (SO_4^{--})	33.92 per cent.

This is equivalent to approximately 42 per cent. of magesium sulphate, calculated as anhydrous and 28 per cent. acial acetic acid. (The magnesium sulphate of commerce aries much in its water of crystallization; if pure, it contains 7 molecules which weighs about twice as much as the anhydrous.) Essentially, the product may be considered to consist of 1 part glacial acetic acid to 3 parts of magnesium sulphate, U. S. P. (Epsom salt) perfumed with oil of bergamot. According to the directions, the contents of the bottle are to be added to a pint of water. An essentially similar solution can be made by dissolving 2½ ounces of Epsom salt in a pint of distilled vinegar (containing about 5 per cent. acetic acid).

THE ELIXIR OF LIFE—EPSOM SALT AND VINEGAR

Here, then, we have the new Elixir of Life, handed down from the old Arabians and obtained with much toil and travail by an intrepid English woman who rode over the mountains of North Africa in order to gather its mystic ingredients—Epsom salt and vinegar. Here we have, to quote from the enterprising Mr. Bartlett, the results of "centuries after centuries of research, thought and tireless endeavor"—Epsom salt and vinegar. Here stands the crowning achievement of the English scientist of note who, like Metchnikoff tried "to pick up the lost threads dropped by the ancient alchemists and medieval philosophers"—Epsom salt and vinegar. Here is the marvelous combination that brought back to life a dying consumptive, that grew hair on the bald thatch of a septuagenarian, that cured a crippled American millionaire of a tuberculous knee joint, that permitted a "noble lady who had long since given up all hope of presenting her lord with an heir" to become a "happy mother"; that made a new man of a mentally and physically tired out distinguished novelist; that rejuvenated a "member of a great ducal family"; that called forth paeans of praise from Lord Redesdale, the Countess of Warwick and Sir Charles Hawtrey—Epsom salt and vinegar.

The exploiters of "El Zair" charge $6.00 for six weeks' treatment. For those who are willing to forego the thrill of reading the El Zair literature but still wish to be rejuvenated, to grow hair on bald heads, to cure tuberculous joints, or to become happy mothers, we suggest that the same results can be obtained by purchasing half a pound of commercial Epsom salt and a quart of "white" vinegar.

Correspondence

THE PHYSICIANS' HOME ASSOCIATION

To the Editor:—While traveling this summer I met a number of physicians, with whom I discussed the necessity or desirability of one or more homes for physicians who are without any financial means and too old or disabled to help themselves. Most physicians are not aware that such an institution already exists in the state of New York, and that four physicians are being cared for. As a member of auxiliary committees of various medical societies, I had occasion for many years to come in contact with men who, for some reason or other, had lost everything and were without finances and without a home. Some, but very few, were not deserving of any support. Others were men of high character of whose integrity there was no doubt. Often I was at a loss how to help and what to do, when the small allotted pecuniary help that medical societies can afford came to a stop. In one short period there were five or six men in the wards of several hospitals in Manhattan—in the public wards. At about the same time two others died; after close inquiry I was convinced that they took their own lives. One of these men had been president of a national medical society, and neither left sufficient funds to defray funeral expenses.

When these facts were mentioned to a small coterie of physicians and I proposed starting a home, the idea was enthusiastically received. The result is that today there is such a home in the state of New York, whose doors are open to all practitioners (male or female) of the United States. The aim of the incorporated society is to admit physicians who are either without means and who are unable to support themselves, or for such physicians as are in a position to pay the cost of their maintenance either in part or in full. Lack of funds prevents the society from advertising the institution thoroughly, but it is growing steadily, though slowly. An estate with 186 acres of land with buildings has been donated to the society and is now being used. It is located at Caneadea, several hundred miles from the city of New York. This place is not only too far from the city to be practical, but also to receive personal management, which is always most essential.

Meanwhile, the House of Delegates of the American Medical Association, at the San Francisco session, endorsed this movement, and assistance may be expected not only from the Association itself, but also from its individual members. I am convinced that it will be supported very largely, once it has come to the notice of the many thousand readers of The Journal. In fact, I cannot see how any physician can ethically "stay out of it."

While in Illinois, Nebraska, Colorado and other states I was asked whether different states should not erect such homes, and whether they should not independently form new societies for this purpose, I would say that for many reasons it would be better to have a central society branching in different parts of the Union. For example, an inmate always prefers to live near his relatives or friends; another one may require the climate of California or of Colorado. To some men the name "Physicians' Home" was objectionable. "Osler Home" was suggested. Still others preferred the name "Sanatorium." Would the family or patients or friends like to perpetuate a colleague's name by a large contribution and have the home named after him? The views and opinions on these and other questions are invited. What I would ask of my colleagues is to think this matter over. Soon they will be convinced that not only one home but more such homes is the urgent need in the United States. It will require work —hard work—to accomplish this; for "nil sine magno vita labore dedit mortalibus." In other words: we mortals (especially we physicians) do not achieve anything without hard labor.

Wolff Freudenthal, M.D., New York.

IRRITATION FROM MICROSCOPE EYEPIECE

To the Editor:—From personal experience, I wish to warn both the microscope user and the microscope manufacturer of the danger of the projecting corrugated rim of the ordinary microscopic eyepiece as an agent for producing an epithelioma in the region of the orbit. This applies especially to the binocular microscope, in which it is almost impossible to look through the microscope without scraping a piece of nasal epithelium with the eyepiece. Can any other procedure, if repeated day after day for year after year, be any more favorable for the production of an epithelioma on the side of the nose?

William F. Allen, Ph.D., Portland, Ore.
Professor of Anatomy, University
of Oregon Medical School.

INSULIN-LIKE SUBSTANCE FROM PLANTS

To the Editor:—I was much interested in the editorial "Progress With Insulin" (The Journal, August 4, p. 397). I found an insulin-like substance in yeasts (*Saccharomyces ellipsoideus* and *cerevisiae*) and in some green corn stalks, and reported my findings in a general way to the Dallas County Medical Society. A record of the report will be found in the *Dallas Medical Journal* (**5**:54) and *Texas State Journal of Medicine* (**19**:53). I also mentioned the fact that I had noted an insulin-like substance in plant material, while discussing another's paper, before the last meeting of the Texas State Medical Association, held on May 8-10, in Fort Worth. Most of my work up to date has been done on rabbits, a few dogs and cats, and two human beings.

Lewis William Fetzer, M.D., Dallas, Texas.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TREATMENT OF MYOPIA

To the Editor:—Kindly enlighten me on the following points:

1. Given: A girl 8 years old, oversized for her age, muscular, and apparently in perfect health; food, sleeping, exercise, fresh air all carefully supervised; taught at home, her studies occupying about three hours daily. In the course of a routine examination it was discovered that she was myopic to the extent of 2 diopters, there being practically no astigmatism. Visual acuity, measured at 20 feet, was about 6/10. Spherical lenses were ordered to be worn constantly, except possibly for near work. Now, in such a case, with no eye symptoms, whatever, is it a known fact, or is it merely assumed, that wearing such glasses will prevent the further development of the myopia? If the glasses do prevent the development of the myopia somewhat, it must be because they relieve the eye from a certain "strain," and that brings up the next question.

2. In such a mild degree of myopia, with good near vision, in what way does a slight blurring of distant objects impose a strain on the eyes? When gazing at distant objects the eyes are practically at rest, and corrective accommodation of the ciliary muscle would consist merely of further relaxation. In mild hyperopia I fully understand the slight constant strain in near vision, and with myopia and wide-apart eyes I appreciate the strain accompanying excessive convergence; but where is the strain in the given case of mild myopia? I shall be glad if you can make physiology and clinical practice agree, and, if possible, indicate the prognosis in case the glasses were not worn.

E. M. Ewing, M.D., Napoleonville, La.

Answer.—1. The question of preventing the development of myopia in an individual case cannot be answered easily. Myopia is not a congenital condition of the eyes, but occurs most frequently among those who use their eyes for much near work because of the excessive accommodation and convergence. Children of near sighted parents are not always near sighted, but show a greater tendency to become near sighted than do children whose parents have normal sight. The emmetropic eye is the ideal eye, and to lessen strain all eyes should be made emmetropic by lenses. For many years it has been the practice of the leading ophthalmologists in this country and in Europe to correct myopia fully under complete cycloplegia. As Duane says, "The full and early correction of myopia tends to check the progress of the process."

2. The myope does not see well in the distance, and makes an effort to do so by compressing the lids over the globe to shorten the anteroposterior diameter. In this act there is a tendency to strain the already weakened sclera and choroid. Myopia which had already progressed to 2 diopters at this patient's age, if not corrected, would in all probability increase if the eyes were used in the ordinary way, and more rapidly if used under unfavorable circumstances. Risley has shown that strain due to astigmatism in predisposed children tends to produce myopia. It is therefore of great importance to correct any measurable degree of astigmatism in all cases of myopia.

TUBERCULIN AS A DIAGNOSTIC AGENT—SIGNIFICANCE OF POSITIVE INTRADERMAL TUBERCULIN TEST

To the Editor:—1. Please give the present status of tuberculin as a diagnostic agent. 2. What infections or conditions, aside from tuberculosis, may be responsible for a positive reaction in the intradermal test?

Inquirer.

Answer.—1. A positive intradermal tuberculin test is believed to be an antigen reaction in the presence of defense agencies or antibodies, induced by the primary contact of the body with the tubercle bacillus or its toxins. This reaction begins with the formation of tubercles or tuberculous tissue or soon thereafter, and only after the formation of tubercle or tuberculous tissue can the skin reaction become positive. A positive skin reaction in a suspected individual, however, does not give us any clue if the tuberculous process is just orming, just beginning, or if the process is progressing or etrogressing, if arrested or latent. The application of tuberulin in suspected tuberculous involvement of tissues and rgans other than the lungs is also followed by systemic disurbances and to signs pointing to these various organs, but vith an absence of pulmonary symptoms. It is in this sense hat phthisiotherapeutists consider old tuberculin of much mportance and valuable as a diagnostic agent.

2. It is admitted that intradermal reaction may follow after njections of other proteins than the tuberculins. Observaions have been made along the line of serum therapy, and orse serum injections have repeatedly been followed by a ondition known as anaphylactic shock. In some individuals he parenteral use of a foreign protein is followed by more r less severe reaction, and such persons are the possessors f a peculiar condition called idiosyncrasy, a hypersensitized kin; and many outside factors may be responsible for bringng about the oversensitive skin condition. Besides horse erum we find that milk, casein, albuminous products derived rom various foodstuffs, and many other body foreign roteins, even nonprotein bodies, may bring about similar onditions; and individuals so sensitized may react positively vhen tuberculin is given intradermally. For instance, tuberulously infected or diseased individuals who previously have een treated with horse serum or milk products may react nost vigorously to the intradermal tuberculin test. Likewise uberculosis-free individuals previously sensitized to horse erum, casein, etc., will react vigorously to an intradermal lose of tuberculin. Occasionally, patients sensitized to horse erum will bring about a dermal reaction at the point of a reviously applied test, and usually patients with negative ntradermal findings are also negative to foreign proteins. The whole process seems to be one of hypersensitization of he body cells by the different proteins as well as nonprotein odies. It should be mentioned here that the seasons seem o influence this hypersensitiveness of the skin.

INJUNCTION TO PREVENT PRACTICE

To the Editor:—Kindly give me what information you can on the ollowing case: A clinic was organized for group practice in connection vith a hospital about four years ago. One of the physicians connected vith the clinic was paid a high salary, and contracted not to practice rivately in the city for five years in case he should sever his connecions with the group. After three years he resigned, and demanded a vritten consent to practice in the same city with a competing group. This was refused, and he left the community for one year and now vishes to return to practice with an opposing group. If a contract of his kind is not binding, it is manifestly impossible to conduct group ractice in a small city. An attorney advises an injunction to prevent im from practicing until the contract period has expired. What is our opinion?

Subscriber.

Answer.—A court of equity will ordinarily enjoin a physiian from practicing medicine in a given place and for a iven time in violation of a valid contract to refrain from uch practice. Such a contract is not valid if the time or lace within which the physician agrees not to practice are reater than necessary to protect the other contracting party r in any other manner contrary to public policy as tending nnecessarily to reduce competition. No hard and fast limits f time and place can be fixed, but each case is determined n its own merits. A contract, to be enforceable, must be in very other respect valid, and a party before seeking an njunction should make sure that by some breach or waiver n his part he has not lost his rights under it. Of course, he contracting parties will be guided by counsel in any legal ction.

CADAVERIC RIGIDITY—RIGOR MORTIS

To the Editor:—Can you inform me of the cause of cadaveric rigidity —rigor mortis?

Inquirer.

Answer.—Two chief doctrines have been supported: one hat rigor is not essentially different from ordinary muscular ontraction except in degree, and perhaps due to a loss f inhibition to contraction. The other looks on it as a coagulation similar to the coagulation of the blood; and this idea, may be said, has had the most general acceptance. Muscle ontains a protein, myosinogen, which is readily coagulated, nd it seems probable that rigor mortis depends on coagulaon of this protein under the influence of acid formed in the uscle. When the blood supply is cut off in the muscle tissue here is a rapid rise in its acidity, apparently from increase f lactic acid, which is formed abundantly under asphyxial onditions. Meigs has advanced the idea that it is the swellng of the muscle colloids under the influence of the acid, and there is much to be said in favor of this view. The dependence of rigor on acidity is shown by the fact that it is possible to produce rigor in the muscles of living animals by perfusing a limb with a slightly acid salt solution, and the hardness of a limb from which the blood supply has been shut off by thrombosis or embolism, and also much of the cramplike pain, is probably due to rigor mortis in the muscles caused by acid formation under conditions of suboxidation. The occurrence of rigor mortis, even post mortem, does not necessarily mean that the muscle is dead, for if the part is transfused with a salt solution the rigor may be removed, and the muscle will then be found to react to stimuli. This indicates that the chemical changes of rigor mortis are not very profound.

(A more complete discussion will be found in Wells: Chemical Pathology, Ed. 4, 1920, p. 392.)

VITAMIN IN MILK

To the Editor.—What is the status of milk as a food in regard to vitamin content before and after pasteurization and also after boiling for two or three minutes? We have been recommending raw milk boiled for two or three minutes for our infants, but have met considerable opposition from one of the large dairies, which is pasteurizing all its milk. To its credit, it may be said that this dairy has the cleanest milk in town without going through the pasteurizing process. It claims less loss of vitamins by this process than through the boiling. We are trying to get this dairy to furnish certified milk. Are we on the right track or not?

Hugh W. Reynolds, M.D., Hibbing, Minn.

Answer.—Experimental studies have shown that when milk is permitted to stand for twenty-four or more hours after pasteurization its antiscorbutic value is much below that of fresh raw milk; consequently, the relation of the time of pasteurization to the hour of feeding is important.

Proper pasteurization destroys most organisms which are not spore bearers. Fortunately, this includes a majority of the ordinary pathogenic bacteria. The disadvantages of inadequate pasteurization or poor handling afterward are apparent in that such milk does not sour readily, owing to the destruction of most of the lactic acid forming organisms, and therefore gives the user a false sense of security. Experiments have further shown that boiling the milk a short time before using affects the antiscorbutic content far less than pasteurization followed by aging and oxidation.

Hygienic handling of milk is absolutely essential to proper infant feeding, as no degree of heat will destroy the toxic bodies contained in the milk. When any doubt exists as to improper exposure of milk, even though collected under the best of conditions, the method of choice is boiling in the home

ALTITUDE AND HEARING

To the Editor:—Does altitude affect the hearing? I am partially deaf because of catarrh of the middle ear, and also have laryngitis; I have had the tonsils removed; I hear a noise, similar to that made by the katydid, in the left ear all the time, and occasionally in the right ear; I hear a distant noise, as of a band; I was never hard of hearing until coming to Coffeyville, seven months ago. The altitude here is 500 feet. I shall be glad to make a change if you think I should be benefited. Would too high an altitude, such as that of Arizona, Wyoming or Colorado, be injurious? I am 30 years old. The noise is almost unbearable, and whatever suggestions you make will surely be appreciated.

Mrs. J. F. Keller, Coffeyville, Kan.

Answer.—Altitude affects the hearing only in cases in which a condition of constriction of the eustachian tube exists, and then only temporarily. No permanent harmful results are produced. The type of ear trouble which develops in early middle life and associated with severe subjective head noises is not likely to be influenced appreciably by changes in altitude.

REMOVAL OF EMBEDDED COAL DUST

To the Editor:—Please advise me whether there is any known successful method of removing coal that has been embedded in the skin. In the coal regions this condition is often encountered as a result of premature explosion while mining coal.

Harry H. Bolton, Jr., M.D., Pierce, W. Va.

Answer.—There is no successful way of removing from the skin old carbon stains such as those produced by coal dust. When the wounds have just been made, a great deal can be done by mechanical methods—washing and picking out the material, if possible. In the fresh cases also, Hutchins of Atlanta has recommended applying over the fresh wounds a layer of sterile adhesive plaster, under which serous exudate takes place which removes much of the material.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Alaska: Juneau, September 4. Sec., Dr. Harry C. De Vighne, Juneau.

Arizona: Phoenix, October 2-3. Sec., Dr. W. O. Sweek, 404 Heard Bldg., Phoenix.

Florida: Tallahassee, October 9-10. Sec., Dr. W. M. Rowlett, Tampa.

Georgia: Atlanta, October 9-11. Sec., Dr. C. T. Nolan, Marietta.

Idaho: Boise, October 2. Dir. Mr. Chas. Laurenson, Boise.

Illinois: Chicago, October 9-11. Supt. Mr. V. C. Michels, Springfield.

Kansas: Topeka, October 9. Sec., Dr. Albert S. Ross, Sabetha.

Massachusetts: Boston, September 11-13. Sec., Dr. Charles E. Prior, Room 144, State House, Boston.

Michigan: Lansing, October 9. Sec., Dr. Beverly D. Harison, 707 Stroh Bldg., Detroit.

Minnesota: Minneapolis, October 2-4. Sec., Dr. Thomas S. McDavitt, 539 Lowry Bldg., St. Paul.

Montana: Helena, October 2. Sec., Dr. S. A. Cooney, 205 Power Bldg., Helena.

New Hampshire: Concord, September 13-14. Sec., Dr. Charles Duncan, Concord.

New Jersey: Trenton, October 16-17. Sec., Dr. Alexander MacAlister, State House, Trenton.

New Mexico: Santa Fe, October 8-9. Sec., Dr. W. T. Joyner, Roswell.

New York: New York, Albany, Syracuse, Buffalo, September 24. Sec., Dr. William D. Cutter, Albany.

Porto Rico: San Juan, October 2. Sec., Dr. Jorge del Toro, 1 Olimpe St., San Juan.

Louisiana June Examination

Dr. Roy B. Harrison, secretary, Louisiana Board of Medical Examiners, reports the written examination held at New Orleans, June 7-9, 1923. The examination covered 12 subjects and included 100 questions. An average of 75 per cent. was required to pass. Fifty candidates were examined, all of whom passed. Five candidates were licensed by reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
University of Arkansas	(1915)	86.8
Northwestern University Medical School	(1923)	88.6
Tulane University (1902) 78.7, (1920) 88.9, (1921) 75, (1922, 3) 88.2, 90.1, 91.7, (1923, 41) 84.1, 84.5, 85.6, 86.2, 86.3, 86.7, 86.7, 86.8, 87.2, 87.7, 87.8, 87.9, 88, 88.2, 88.3, 88.6, 88.9, 89, 89.6, 89.8, 89.9, 89.9, 90, 90.2, 90.4, 90.4, 90.6, 90.6, 90.9, 90.9, 90,9, 90.9, 91.2, 91.3, 91.4, 91.5, 91.6, 91.9, 91.9, 92.1, 92.2		
Meharry Medical College	(1923)	83.8

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
Atlanta Medical College	(1916)	Georgia
University of Georgia	(1906)	Georgia
College of Physicians and Surgeons, Baltimore	(1895)	Texas
St. Louis University School of Medicine	(1908)	Illinois
John A. Creighton Medical College	(1906)	Nebraska

Minnesota June Examination

Dr. Thomas S. McDavitt, secretary, Minnesota State Board of Medical Examiners, reports the oral, written and practical examination held at Minneapolis, June 5-7, 1923. The examination covered 15 subjects and included 80 questions. An average of 75 per cent. was required to pass. Forty candidates were examined, all of whom passed. Eight candidates were licensed by reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Rush Medical College	(1923)	85.5
University of Illinois	(1923)	92.2
Harvard University	(1921)	89.1
Tufts College Medical School	(1921)	83
University of Minnesota (1922) 89.7, (1923, 31), 84, 84.6, 85.8, 86.9, 87, 87.9, 88.5, 89.3, 89.4, 89.5, 89.8, 90, 90.4, 90.5, 91, 91, 91.1, 91.1, 91.2, 91.3, 91.4, 91.4, 92.2, 92.3, 92.4, 92.5, 93, 93, 93.1, 94.8, 94.8		
University of Pennsylvania	(1920)	89.7
McGill University	(1919)	90
University of Moscow, Russia	(1919)*	84.3
University of St. Vlademira, Kief, Russia	(1913)*	82

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
University of California	(1921)	California
State University of Iowa Coll. of Med.	(1922)	Iowa
University of Kansas School of Medicine	(1921)	Kansas
University of Michigan Medical School	(1921)	Michigan
St. Louis University School of Medicine	(1922)	Missouri
Columbia University	(1892)	Washington
University of Pennsylvania (1920)	(1921)	N. Carolina

* Graduation not verified.

Book Notices

The Spectroscope and Its Uses in General Analytical Chemistry. By T. Thorne Baker, A.M.I.E.E., F.R.P.S. Second edition. Cloth. Price, $3. Pp. 208, with 98 illustrations. New York: William Wood & Co, 1923.

"The object with which this book has been written," says the author, "is to fill a want which has hitherto been felt by the student of an intermediate textbook which will connect the ordinary treatises on general physics with the modern advanced works on the spectroscope. The spectroscope or the spectrograph today finds an application in a very large number of industrial processes. Remarkable progress has been made in extending the field of spectrography, or photography of the spectrum, largely rendered possible by the recent progress in the manufacture of photographic plates for scientific purposes. The spectroscope may now be made to yield, in skilled hands, quantitative results where formerly its use was more especially qualitative." The book is clear and concise, although the discussions are necessarily technical. Only one of the ten chapters is of interest to the medical worker, and this only to the specialist in roentgen-ray spectra and analysis with roentgen rays. There is no mention of any kind of the spectral examinations of the blood, which might prove of some moment to the worker in medical laboratories. The subject matter is such that it does not lend itself to brief review, owing to its technical character. This work should prove extremely valuable to the scientific worker and to the advanced student in chemistry who wishes to ground himself in the principles of spectroscopic examinations and to learn something of the possibilities of research work along these lines.

Anomale Kinder. Von Dr. L. Scholz. Dritte, Umgearbeitete Auflage von Prof. Dr. Adalbert Gregor, Direktor der Fürsorgeerziehungsanstalt Flehingen in Baden. Paper. Price, 72 gold marks. Pp. 312. Berlin: S. Karger, 1922.

This practical monograph covers the large field lying between what may be termed normal mental state in childhood and the extremes represented by different pathologic types of individuality. Secondary characteristics as influenced by heredity, disease and environment are discussed from a philosophic point of view. A practical chapter on feeblemindedness in five sections covers the hereditary and postnatal types; their recognition during the first year of life; the examination of these children; their intelligence and their possibilities. Individual chapters are devoted to nervousness, hysteria and epilepsy. A very complete chapter is devoted to the psychopathic child. The disturbances of puberty and dementia praecox are also covered in detail. The pathologic basis is emphasized in a chapter devoted to suicide. A very extensive chapter on treatment and welfare measures covers these subjects from a general standpoint as well as the physical care and educational possibilities. Attention is directed to sexual perversion as influencing the prognosis and the relation of these children to society.

Haematology in General Practice. By A. Knyvett Gordon, M.B., B.C., B.A.. Medical Superintendent of the Virol Pathological Research Laboratories. Cloth. Price, $1.75, net. Pp. 100, with 5 illustrations. New York: William Wood & Co., 1923.

This is intended as a guide to the general practitioner who is anxious to utilize the light which a rough examination of a stained blood-film may throw on the diagnosis and prognosis of certain diseases. As the author points out, the busy practitioner rarely examines the blood himself, but sends the specimen to a laboratory for diagnosis. This is often unnecessary, as a little time spent by the physician may enable him to arrive at his conclusions at the bedside, and thus facilitate his treatment of the case. The work is divided into sixteen chapters, three of which cover the general scope of hematology, equipment and technic, while the others are devoted to a general discussion of the cellular elements of the blood and the changes found in blood diseases and, also, the influences of certain general conditions on the blood findings. While the discussion of the technic is necessarily limited to the simplest procedures, for the general worker they will be found to cover his needs. The subject matter is sufficiently complete to enable one to understand and interpret the findings of the very simple technic outlined.

Optotypes Consisting of Test-Letters and Pictographs for Measuring the Acuteness of Vision. By John Green, M.D., LL.D., Professor of Ophthalmology in St. Louis Medical College, and A. E. Ewing, A.M., M.D., Professor Emeritus of Ophthalmology in Washington University. Paper. Pp. 24, with 35 engraved plates. St. Louis: C. V. Mosby Company, 1923.

This description, with the accompanying optotypes, is the outcome of work started by Dr. Green in 1886, when he had printed the original optotypes of this series for private distribution. The demand for these truly scientific charts was so great that Dr. Ewing compiled and elaborated the original charts, and made them available. Accompanying the charts is a booklet giving the history of the development of vision charts and the mathematical calculations on which these charts have been established. Both the charts and the booklet are in a handy form, and are a welcome addition to the armentarium of the ophthalmologist of precision.

Handbuch der gesamten Tuberkulose-Therapie. Herausgegeben von Prof. Dr. med. Ernst Loewenstein. Volume 1, Parts 1 and 2. Paper. Price, 40 marks, 5 pfennigs. Pp. 1044, with 62 illustrations. Berlin: Urban & Schwarzenberg, 1923.

This book represents an exhaustive consideration of the ield of tuberculosis therapy. It has been planned to furnish o the practicing physician in collected form as much as possible of what is known concerning all aspects of the therapy of tuberculosis. While some features of the book will be of value chiefly to physicians of central Europe, the American nay learn much by contrast with our own conditions. Most of the aspects of tuberculosis treatment are, of course, the ame everywhere, and hence there will be much of value for ll in a modern compilation such as this. Space does not ermit comment on all the individual contributions. We note articularly the only one of the sections by an American, hat on American tuberculosis clinics and welfare work by Walsh of Philadelphia. He takes as the origin of these uccessful institutions the clinic founded in 1891 by Flick n Philadelphia, out of which grew the Phipps Institute, which as served so well as an inspiration and a model to other American centers. The indebtedness of Flick and others to he pioneer clinic of Calmette in Lille is recognized, a debt which was perhaps repaid to France by the extensive American aid in tuberculosis welfare work during the war. We wonder whether our tuberculosis experts thought to breathe n inspiring "Calmette, we are here," when they began their ampaign in and about Paris. This volume presents the usual irtues and defects of German works of its class. The individual sections are written by men competent in their field, nd familiar with the central European literature and point f view, but with little else. As with all cooperative handbooks, there is a lack of continuity and coordination, and here is repetition. For example, it is difficult to understand hy thirty-eight pages are given to a contribution on the athology of tuberculosis of the vascular system in a work on he treatment of tuberculosis. Again, some contributors give bliographies, while others do not give any references whatever. The illustrations are few, some good, but some altogether valueless, e. g., many of those in the article by Gassul n light therapy.

The Vaso-Motor System. By Sir William M. Bayliss, M.A., D.Sc., L.D., Professor of General Physiology in University College, London. oth. Price, $2.50, net. Pp. 159, with 67 illustrations. New York: ongmans, Green & Co., 1923.

To the average student of medicine, the term vasomotor stem conveys ideas that are more or less vague. To one siring more exact information, this monograph will be tremely helpful in explaining the obscurities of the comicated actions by which blood vessels undergo changes in ameter. There are discussed the structure of the vessels, e vasomotor nerves, vasomotor reflexes, the capillaries, ins, chemical action on arterioles, hemorrhage and shock. he acknowledged position of the author as a learned teacher, riter and investigator assures one of an authoritative and ientific treatment of the subject.

Medicolegal

Violation of Narcotic Law by Physician

(Manning v. United States (U. S.), 287 Fed. R. 800)

The United States Circuit Court of Appeals, Eighth Circuit, says that defendant Manning was convicted on five counts of an indictment charging him with aiding and abetting the violation of Section 2 of the Harrison Narcotic Law. Each count charged in substance that on a date specified the defendant, a registered physician practicing in St. Louis, did unlawfully, fraudulently and wilfully aid and abet the sale of certain narcotic drugs by one Eckert to the person named —not in pursuance of a written order from such person on a form issued in blank for that purpose by the commissioner of internal revenue—in the manner following: That the defendant did then and there issue a written order purporting to be a prescription to the person named for a certain quantity of narcotic drugs, which so-called prescription was not issued by the defendant in the course of his professional practice only, or for the treatment of any disease from which the person was suffering, or for the purpose of effecting a cure of the drug habit to which the person was addicted, but that the prescription was issued by the defendant for the purpose of gratifying the appetite of the person, who was a habitual user of narcotic drugs, in order that the person might continue their customary use, and with the intent that any registered druggist in the city of St. Louis, whose custom and practice it was to fill such so-called prescriptions for narcotic drugs, for addicts, might supply these drugs to the person named in the prescription, and that the so-called prescription constituted and was only a subterfuge for the purpose of consummating an unlawful sale of narcotic drugs under the guise of lawfully dispensing the drugs by a registered dealer to a consumer under and in pursuance of a written prescription issued by a physician registered under the act.

Each count in the indictment also alleged that Eckert was engaged in the drug business in the city of St. Louis, and had duly registered and paid the special tax required by the narcotic law; that, on the date of the so-called prescription, he wilfully and unlawfully sold and dispensed the drugs specified to the person named therein not in pursuance of a written order from the person on a form issued in blank for that purpose by the commissioner of internal revenue, but that he, Eckert, knowing the fraudulent purpose of the so-called prescription, and that the person named therein was addicted to the use of drugs as a habit, used the so-called prescription, as the defendant intended he should do, to cloak the unlawful sale and to make it appear to be a proper and legitimate dispensing of the drugs by a dealer to a consumer under and in pursuance of a written prescription issued by a physician registered under the act of Congress.

On behalf of the defendant it was argued that the indictment failed to charge the commission of any offense defined in any law of the United States. What revenue measure did the offense as charged affect? How did it interfere with the government keeping tab on all drugs that Eckert sold or Manning prescribed? The defendant was not charged with making any sale or of dispensing any drugs or with failure to keep a copy or record of the prescriptions that he issued. The druggist was not charged with failing to keep on file the prescriptions on which the drugs were sold. The pretended offense did not prevent or endanger the federal government in any way from the exercise of its just and lawful rights and powers reserved to it under the constitution.

However, the questions presented as to the constitutionality of the act and of the construction of Section 2 necessary to sustain this indictment have been settled by decisions of the Supreme Court of the United States; and it would seem that both the defendant and the druggist would be guilty under the act if the facts alleged in the counts of the indictment were true. Without stopping to state the evidence, the court of appeals is of the opinion that the good faith of the defendant is issuing the prescriptions alleged in the indictment, and the good faith of Eckert, the druggist, in filling them, were rightly submitted to the jury. But the judgment of the lower court is reversed with directions to grant a new trial, on account of error in permitting inquiries to be made on the cross-examination of the defendant with regard to alleged misdemeanors of fifteen or twenty years previously in unlawfully writing prescriptions for intoxicating liquors.

Must Be Able to Distinguish Sources of Knowledge

(Acree v. North et al. (Neb.), 192 N. W. R. 947)

The Supreme Court of Nebraska, in affirming a judgment in favor of the plaintiff for damages for injuries sustained to his face and jaw from an alleged assault by the defendants, says that he called as a witness the physician who had treated him for the injuries, and asked the physician to describe the injuries, which he did, and among other things stated that the plaintiff had sustained a fracture of the jaw. On cross-examination, the physician was asked whether, on a prior occasion, he had not treated the plaintiff for facial paralysis; and, on stating that he had, he was asked in a series of questions to state the condition of the plaintiff's facial paralysis at that time; what effect it had on the muscular movements of the jaw or face, and what, if any, difference he observed in the condition of the face and jaw at his prior treatment and now. Objections to these questions were sustained on the ground of improper cross-examination and privilege.

The defendants, than calling the physician as a witness in their own behalf, asked him whether or not he had seen the plaintiff at different places on the street prior to the treatment of his present injuries; and, answering that he had, the physician was asked: "Will you state whether or not there was any difference in the appearance of his jaw at the time you treated him on the 7th and in the time that you had seen him on the street prior to that?" The plaintiff objected to any answer to this, for the reason that the relation of physician and patient existed and any communication or information obtained by the physician in the treatment would be privileged, which objection was sustained. This ruling seemed to be regarded by the defendants as a serious error and from it was sought to be raised the legal inquiry: How far may a physician be permitted to testify as to the physical condition or appearance of one from facts gained in a nonprofessional capacity whom he has before treated for the same or like conditions in a professional capacity?

The court is of the opinion that on the state of the record that inquiry was not properly reached. The witness had not been properly qualified, and the question put to him was premature; so, if but for that reason alone, the objection was properly sustained. The physician at no time stated, nor at any time was he asked to state, whether or not he could give the information required of him by the question based solely on his knowledge of the plaintiff derived unprofessionally, to the entire exclusion of knowledge derived professionally. This was essential to his competence to testify at all. Suppose he had been asked whether or not he could entirely separate and distinguish these two sources of knowledge, and he had answered that he could not; that would have disqualified him for further inquiry. He was not asked to make this discrimination, and at no time was it intimated to him that he must do so in order to render his answer to the question a proper one. Under these circumstances, the witness was left at perfect liberty to draw to the fullest extent on his experience, knowledge and information gained while treating the plaintiff as a patient, and impress it on any answer he might make. This the witness could not be permitted to do.

In other words, the court holds that the physician would not be permitted to testify, over the objection of the plaintiff that it would be a violation of the privilege existing between the physician and the patient, what the difference was, if any, in the appearance of the plaintiff's jaw and face at the time he treated him for his injuries from the assault and the time he had seen him on the street, at least until, if at all, it was first shown that the witness was able to and would separate and discriminate the knowledge and information gained in his professional capacity from that gained in a nonprofessional capacity and base his answer solely on the latter.

Examinations Not Medical or Surgical Attention

(Fidelity & Casualty Co. of New York v. Cross (Miss.), 95 So. R. 631)

The Supreme Court of Mississippi, Division B, in affirming a judgment in favor of plaintiff Cross on a permanent disability policy, holds that a question in an application for insurance which calls for a disclosure of the medical or surgical attention previously received by the applicant does not require an applicant to disclose the fact of previous medical examinations which showed that he was in good health at the time such examinations were made, as such examinations do not come within the meaning of the term "medical or surgical attention received" as used in the application. The court says that the undisputed evidence in this case showed that one examination was a periodic routine examination which the plaintiff was required to undergo in consequence of a position that he held, and another examination was an examination for life insurance; but, since the result of each of these examinations disclosed the fact that the plaintiff was in good health and physically sound, neither of them came within the meaning of the term "medical or surgical attention received" as used in the application. Consequently, the question in this application which called for a disclosure of the medical or surgical attention which the applicant had received during the previous seven years did not require him to list either of these examinations.

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, Washington, D. C., Oct. 15-20. Dr. Luther C. Peter, 1529 Spruce St., Philadelphia, Secretary.

American Association of Obstetricians, Gynecologists, and Abdominal Surgeons, Philadelphia, Sept. 19-21. Dr. James E. Davis, 111 Josephine Avenue, Detroit, Secretary.

American Association of Railway Surgeons, Chicago, Oct. 17-19. Dr. L. J. Mitchell, 29 E. Madison St., Chicago, Secretary.

American Child Hygiene Association, Detroit, Oct. 15-17. Dr. Philip Van Ingen, 125 East 71st St., New York, Secretary.

American Electrotherapeutic Association, Atlantic City, Sept. 18-21. Dr. Richard Kovacs, 223 E. 68th Street, New York, Secretary.

American Public Health Association, Boston, Oct. 8-11. Mr. A. W. Hedrich, 370 Seventh Avenue, New York, Secretary.

American Roentgen Ray Society, Chicago, Sept. 18-23. Dr. W. W. Watkins, Goodrich Building, Phoenix, Ariz., Secretary.

Association of Military Surgeons of the United States, Carlisle Barracks, Pa., Oct. 4-6. Col. James Robb Church, Army Medical Museum, Washington, D. C., Secretary.

Central States Pediatric Society, Detroit, Oct. 18-19. Dr. H. T. Price, Westinghouse Building, Pittsburgh, Pa., Secretary.

Colorado State Medical Society, Glenwood Springs, Sept. 4-6. Dr. F. B. Stephenson, Metropolitan Building, Denver, Secretary.

Delaware State Medical Society, Middletown, Oct. 8-9. Dr. W. O. La Motte, Industrial Trust Building, Wilmington, Secretary.

Indiana State Medical Association, Terre Haute, Sept. 26-28. Dr. Charles N. Combs, Terre Haute, Secretary.

Interstate Society of Radiology and Physiotherapy, Omaha, Sept. 18-19. Dr. Roland G. Breuer, Security Mutual Life Building, Lincoln, Neb., Secretary.

Kentucky State Medical Association, Crab Orchard, Sept. 17-20. Dr. A. T. McCormack, 532 West Main Street, Louisville, Secretary.

Medical Association of the Southwest, Kansas City, Mo., Oct. 4-8. Dr. E. H. Skinner, Rialto Building, Kansas City, Mo., Secretary.

Michigan State Medical Society, Grand Rapids, Sept. 11-13. Dr. F. C. Warnshuis, 410 Powers Building, Grand Rapids, Secretary.

Minnesota State Medical Association, St. Paul, Oct. 10-12. Dr. Carl B. Drake, Guardian Life Building, St. Paul, Secretary.

Mississippi Valley Medical Association, Hot Springs, Ark., Oct. 9-11. Dr. John L. Tierney, University Club Bldg., St. Louis, Secretary.

Missouri Valley, Medical Society of the, Omaha, Sept. 20-21. Dr. Charles W. Fassett, 115 East 31st Street, Kansas City, Secretary.

Nevada State Medical Association, Reno, Sept. 28-30. Dr. Horace J. Brown, Thoma-Bigelow Building, Reno, Secretary.

New England Surgical Society, Boston, Oct. 18-19. Dr. P. E. Truesdale, 151 Rock Street, Fall River, Mass., Secretary.

Pennsylvania, Medical Society of the State of, Pittsburgh, Oct. 1-4. Dr. W. F. Donaldson, Jenkins Arcade, Pittsburgh, Secretary.

Vermont State Medical Society, Bennington, Oct. 11-12. Dr. W. G. Ricker, St. Johnsbury, Secretary.

Virginia, Medical Society of, Roanoke, Oct. 16-19. Mr. G. H. Winfrey, 104½ W. Grace St., Richmond, Secretary.

Wisconsin, State Medical Society of, Milwaukee, Oct. 3-5. Mr. J. G. Crownhart, 558 Jefferson St., Milwaukee, Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

26: 1-102 (July) 1923

*Health and Growth of Children in Institution. L. E. Holt and H. L. Fales, New York.—p. 1.
*Leukocyte Count in New-Born with Dehydration Fever. H. Bakwin and R. M. Morris, New York.—p. 23.
*Basal Metabolism of Prematurity. III. Metabolism Findings in Twenty-One Premature Infants. F. B. Talbot, W. R. Sisson, M. E. Moriarty and A. J. Dalrymple, Boston.—p. 29.
*Treatment of Colipyuria in Children. V. Poulsen, Copenhagen, Denmark.—p. 56.
*Effect of Drugs on Blood Agglutinins. D. M. Siperstein and A. L. Kvenberg, Minneapolis.—p. 65.
Mixed Tumor of Cervix and Vagina in Infant. S. McLean and M. Wollstein, New York.—p. 69.
*Indurated Ulcer of Tongue Due to Oidium Lactis. L. Wilkins and S. Bayne-Jones, Baltimore.—p. 77.
Some Aspects of Neuropathy in Infancy. C. De Lange, Amsterdam, Holland.—p. 83.
Gastro-Enterospasm as Manifestation of Autonomic Imbalance in Early Infancy. P. J. White, St. Louis.—p. 91.

Health and Growth of Children in Institution.—The observations made by Holt and Fales show that strikingly good health and excellent nutrition can be maintained in an institution. The factors which contributed to this result were: (1) regularity in habits of eating and in sleep, rest and exercise: (2) a liberal but simple diet, and (3) freedom from contact infections.

Leukocyte Count in New-Born with Dehydration Fever.—At birth, the leukocytes are increased, the counts usually anging between 20,000 and 25,000 per cubic millimeter Bakwin and Morris state that there is no change in the leukocyte count n new-born infants with dehydration fever, the daily average n those with fever corresponding closely to that in babies without fever.

Basal Metabolism of Prematurity.—Talbot et al. found that he heat production of premature infants is very low when alculated on the basis of total production per twenty-four hours or per unit of body surface. On the basis of the heory as to the relation of heat production to body surface, ne would expect the same heat production per unit of surace as in full-term infants; but they produce less heat, and t is necessary for this reason to give the premature baby much more protection against heat loss in its period of prematurity than at any other period of infancy. The basal metabolism findings are suggestive of what the heat producon of the fetus might have been during the last two months rior to birth. The basal metabolism of the premature infant s lower than that of the full-term infant, and remains so or at least three months. Even if the handicap of time is llowed, the premature infant produces less heat on his xpected birthday than does the full-term infant during the rst week of life.

Treatment of Colipyuria.—The method adopted by Poulsen , briefly, as follows: Twice a week the patient's bladder is ashed out with a solution of silver nitrate, 2 per cent. for he girls and, owing to the pain connected with the treatent, 1 per cent. for the boys. Hexamethylenamin methylentrate, or phenyl salicylate, was often used in addition, in oses according to age. This treatment is continued until e urine is sterile on two examinations at an interval of ree or four days, i. e., it shows no growth on agar or broth ter incubation for forty-eight hours. In the treatment of olipyuria Poulsen attaches great importance to the child's neral health, improving it in every possible way. Thus her diseases that the patient may be suffering from, such dyspepsia and anemia, are treated.

Effect of Drugs on Blood Agglutinins.—Serum agglutinins e apparently not altered by ether anesthesia, blood transsion, or the drugs employed by Siperstein and Kvenberg—inin, calcium, potassium and arsenic.

Ulcer of Tongue Caused by Fungus.—In a chronic indured ulcer occurring on an infant's tongue, the mycelial filaments of a fungus identified as *Oidium lactis* were found by Wilkins and Bayne-Jones in great profusion in the ulcer, penetrating deep into the tissues. It was strongly agglutinated by the patient's serum. The ulcer did not show much improvement after local applications of tincture of iodin, but yielded readily to cauterization with silver nitrate.

American Journal of Ophthalmology, Chicago

6: 545-630 (July) 1923

Primary Ring Sarcoma of Iris. T. M. Li, Peking, China.—p. 545.
Nourishment of Corneal Epithelium. C. F. Charlton, Pasadena.—p. 556.
Effect of Drugs on Regeneration of Corneal Epithelium. L. Post, St. Louis.—p. 559.
Papillitis with Focal Infection. L. F. Appleman, Philadelphia.—p. 563.
Pseudoglioma and Remains of Tunica Vasculosa Lentis. S. R. Gifford, and J. S. Latta, Omaha.—p. 565.
Opaque Nerve Fibers. M. L. Lerner, Rochester, N. Y.—p. 571.
Lupus Vulgaris with Ocular Extension. W. S. Franklin and F. C. Cordes, San Francisco.—p. 573.
Hyosein Idiosyncrasy. S. W. Green, Brooklyn, N. Y.—p. 578.
Treatment of Prolapse of Iris Following Cataract Extraction. H. F. Hansell Philadelphia.—p. 580.
Lens Injury Without Resulting Cataract. C. L. LaRue, Boulder, Colo.—p. 582.
Complete Congenital Cataract Bilateral. W. E. Scarborough, Albuquerque, N. M.
Painless Chalazion Operation. W. T. Davis, Washington, D. C.—p. 583.
Chalaziotome for Removal of Meibomian Cyst. J. M. Thorington, Philadelphia.—p. 584.
Neuroretinitis Resembling Retinitis Pigmentosa Probably Due to Congenital Syphilis. A. C. Lewis, Memphis, Tenn.—p. 585.

American Journal of Roentgenology and Radium Therapy, New York

10: 419-500 (June) 1923

Carcinoma of Small Bowel. M. M. Portis and S. A. Portis, Chicago.—p. 419.
*Roentgen-Ray Gastro-Intestinal Studies of Patients with Chronic Deforming Arthritis. R. G. Taylor, Los Angeles.—p. 424.
Comparison of Clinical and Roentgenologic Observations in Pulmonary Tuberculosis. F. S. Bissell, Minneapolis.—p. 428.
*Pulmonic and Cardiac Changes Following Inoculation with Foreign Protein. I. E. Liss, Scarsdale, N. Y.—p. 435.
Roentgen-Ray in Neurologic Diagnosis: Its Shortcomings and Possibilities. H. W. Crouse, El Paso.—p. 437.
Annular Shadows: Are They Cavities or Spontaneous Pneumothoraces? P. K. Brown, San Francisco.—p. 445.
*Case of Bullet in Heart with Recovery. F. C. Swearingen, Pomona, Calif.—p. 454.
Lumbar Transverse Processes. M. I. Bierman, St. Louis.—p. 456.
Treatment of Carcinoma of Esophagus by Deep Roentgen-Ray Therapy. A. H. Pirie, Montreal.—p. 459.
*Carcinoma of Floor of Mouth. D. Quick, New York City.
Intrathoracic Changes Following Roentgen-Ray Treatment of Breast Carcinoma. T. A. Groover, A. C. Christie, and E. A. Merritt, Washington, D. C.—p. 471.
Review of Present Status of Deep Roentgen-Ray Therapy. G. Holznecht Vienna.
Practical Roentgen-Ray Spectrometry and Its Physical Basis. Dozent and K. Staunig, Innsbruck, Austria.—p. 479.
Standardization of Ionization Measurements of Intensity and Measurements of Scattered and Secondary Roentgen-Rays Effective in Producing an Erythema. J. L. Weatherwax and E. T. Leddy, Philadelphia.—p. 488.
Stereoscopy of Accessory Sinuses. G. W. Grier, Pittsburgh.—p. 497.

Intestinal Infection Causes Arthritis.—Starting with the proposition that the cause of chronic deforming arthritis is an intestinal infection, probably, more specifically, a perverted bacterial flora in the intestines with secondary joint infections, roentgen-ray studies have been pursued by Taylor. The things observed have been: First, that the majority of these patients have a certain type of colon characterized typically by its abnormal length and abnormal mobility. Second, practically all the cases that have become chronic show so-called surgical lesions in the right colon, or in the ileum, or in both. Third, these lesions consist of adventitious bands similar to Jackson's membrane, involving the colon, usually above the ileocecal valve, and involving occasionally the ileum, producing the so-called Lane kink and other less typical fixations, or chronic appendicitis, or the results of an acute inflammatory process in the appendix with adhesions and fixation of the cecum and appendix to surrounding structures, notably the ileum and right colon itself (the appendix is frequently retrocecal), or postoperative adhesions following removal of the appendix. In connection with the theory of intestinal infection it seems reasonable to Taylor to believe that a local stasis distinctly favors infection and perversion of the normal flora. Granted that there is an infection, and that there is a crippled portion of the intestine, it would seem reasonable to assume that the crippling of the intestine, especially if it produced local stasis, is a factor in the continuance of the infection, and certainly must be taken into consideration when an attempt is made to bring about a normal condition. Therefore, these lesions must be removed before marked permanent improvement in the local condition can be expected. A certain percentage of these cases that show some crippling but no actual stasis would seem to offer a chance for pure medical treatment; but the others are distinctly surgical.

Lung and Heart Changes Caused by Injection of Foreign Protein.—Of thirty-three subjects, varying in age, the larger percentage, after injection of foreign protein, presented definite pulmonary changes and, in a smaller percentage, cardiac changes.

Bullet in Heart.—The bullet was not recovered from the heart in Swearingen's case, one of attempted suicide. Six months after the accident the man was working at moderate manual labor apparently enjoying the best of health.

Radium Therapy for Carcinoma of Floor of Mouth.—In carcinoma of the floor of the mouth Quick advises interstitial radiation by means of unfiltered radium emanation tubes as the agent of choice in the treatment of the primary lesion. The problem of dealing with the metastatic extension of disease to cervical nodes is best handled on a conservative basis, using a combination of surgery, radium and roentgen rays.

American Review of Tuberculosis, Baltimore

7: 215-290 (June) 1923

Future of Tuberculosis Work in America. L. Brown, Saranac Lake.—p. 215.
*Clinical Study of Gassed Exsoldier with Special Reference to Pulmonary Tuberculosis. H. H. Cole, Springfield, Ill.—p. 230.
*Chaulmoogra Oil Esters in Treatment of Pulmonary Tuberculosis. H. H. Lissner, Los Angeles.—p. 257.
Suspension Stability Rate of Erythrocytes in Pulmonary Tuberculosis. S. A. Levinson, Chicago.—p. 264.
Lipoids and Enzymes of Blood in Pulmonary Tuberculosis. S. A. Levinson and W. F. Petersen, Chicago.—p. 278.
Chemistry of Tubercle Bacilli. T. B. Johnson and E. B. Brown, New Haven, Conn.—p. 285.

Effect on Lungs of Gassing.—Cole's observations of normal gassed subjects and gassed tuberculous patients disclosed that in the gassed patient there is a general and steady tendency toward recovery with decrease in physical disturbance. The exceptions are those cases in which the gassing has been very severe with considerable tissue damage. For these the ultimate prognosis is still in doubt. War gassing has little to do with the development of later pulmonary tuberculosis. The gassed patient who later develops tuberculosis usually runs a less severe course with less tendency to serious complications than the nongassed person.

Chaulmoogra Oil Esters in Tuberculosis.—Improvement in the cough, a lessening of the sputum with a decided diminution in the number of bacilli, and a decrease in the lung infiltration with a general increase in strength is credited by Lissner to the administration of ethyl esters of chaulmoogra oil. Doses of from 2 to 4 minims are better tolerated than larger doses, and will not cause reactions when given at weekly intervals. The dose should not be increased above 0.5 c.c. in any case and when the maximum dose is used, the interval between injections should be from two to three weeks. In any case the individual reaction must be the guide for further treatment. If these precautions are followed Lissner says the use of chaulmoogra oil esters is warranted in the treatment of pulmonary tuberculosis and its complications.

Archives of Neurology and Psychiatry, Chicago

10: 1-140 (July) 1923

Decerebrate Rigidity of Sherrington in Man: Its Recognition and Diffentiation from Other Forms of Tonic Muscular Contraction. F. M. R. Walshe, London, Eng.—p. 1.
Telangiectasis of Spinal Cord. W. G. Spiller, and C. H. Frazier, Philadelphia.—p. 29.
*Complete Transverse Lesion of Spinal Cord with Retention of Superficial Reflexes. C. E. Dowman, Atlanta, Ga.
*Dual Nature of Efferent Nervous System: Further Study of Static and Kinetic Systems, Their Function and Symptomatology Contents. J. R. Hunt, New York.—p. 37.
Yellow Spinal Fluid, Its Origin and Significance. F. J. Scully, Hot Springs, Ark.—p. 83.

Complete Transverse Lesion of Spinal Cord with Retention of Superficial Reflexes.—Three cases are reported by Dowman with necropsies, in which there was complete severance of the cord at the levels of the fourth and fifth cervical segments, sixth and seventh thoracic segments, and third thoracic segment, respectively. In spite of this, there was retention of the following superficial reflexes in the parts below the level of the lesion: cremasteric reflexes on both sides, epigastric, abdominal, cremasteric and plantar reflexes (flexor type) on both sides: abdominal and cremasteric reflexes on both sides.

Dual Nature of Efferent Nervous System.—Hunt postulates for the whole efferent system a duality of function and structure in the interest of motility: a kinetic component for the production of movement; and a static component for the maintenance of posture.

Boston Medical and Surgical Journal

189: 45-90 (July 12) 1923

Some Medical Aspects of Training of College Athletes. D. C. Parmenter, Boston.—p. 45.
Acute Chest. J. B. Hawes, Boston.—p. 50.
Attempt at Psychogenic Interpretation of Some Familiar Mental Disorders. M. W. Peck, Boston.—p. 52.
Some Conclusions Derived from Last Five Years' Work at National Hospital for Speech Disorders. J. S. Greene, New York.—p. 57.
Value of Animal Experimentation to Medical Profession and to People. V. C. Vaughan, Chicago.—p. 62.
Activities of School Nurse When Under Proper Direction. H. G. Rowell, New Bedford, Mass.—p. 63.

Illinois Medical Journal, Oak Park

64: 1-76 (July) 1923

Some Factors on Which Successful Use of Local Anesthesia Depends. R. E. Farr, Minneapolis.—p. 9.
Laity's Idea of Physician. B. C. Keller, Chicago.—p. 13.
Prevention of Birth Injuries of Child. H. Ehrenfest, St. Louis, Mo.—p. 20.
Acute Lesions of Upper Abdomen. F. G. Dyas, Chicago.—p. 27.
Europe Today and Postgraduate Medicine. J. E. Lebensohn, Chicago.—p. 29.
Gastric Surgery. W. J. Hurley, Chicago.—p. 31.
*Case of Purpura Following Vaccination. E. F. Traut, Oak Park.—p. 35.
Food Desensitization in Bronchial Asthma. L. Unger, Chicago.—p. 40.
*Treatment of Carbuncle. E. J. Mitchell, Monmouth.—p. 41.
Standard for Determination of Cure of Gonorrhea in Male. F. M. Phifer and N. K. Forster, Chicago.—p. 42.
Continent Without an Orphan. B. Holmes, Chicago.—p. 47.
Roentgen-Ray Diagnosis of Bone Lesions. R. W. Lovett, Boston.—p. 48.
Medical Men Who Have Attained Fame in Other Fields of Endeavor. W. M. Thompson, Chicago.—p. 49.

Purpura Following Vaccination.—A man, aged 50, was vaccinated on the arm in the usual manner. Three days afterward the area of scarification became itchy and commenced to swell. On the same day blood oozed from his gums. The following day there were several penny-sized blue spots on his tongue. Small red spots appeared on the vaccinated arm and then over the whole body, with large purple spots on the trunk. Epistaxis started on the same day and continued four days. It was not profuse and did not cause alarm. There were no joint pains or abdominal symptoms. There was no gross blood in the urine or feces. The patient walked to the office seven days after vaccination. His general appearance was fair. A herpes vesicle on the lip was filled with blood. The ecchymoses into the tongue were about 1 cm. in diameter. There were small effusions of blood into the gums. No conjunctival or retinal hemorrhages were noted. There was a large healing ulcer on the seat of vaccination. It was surrounded by numerous small hemorrhages which became more scattered as the distance from the ulcer increased. The trunk and limbs were dotted by ecchymoses from 1 to 6 cm. in diameter. The legs and arms were liberally sprinkled with petechiae and the application of a ligature brought out fresh crops. A very slight contusion would produce an ecchymosis. Physical examination was otherwise essentially negative. The urine was normal, and so was the blood. The hemorrhages rapidly disappeared and the ulcer at the vaccination site healed. The patient had his first attack of purpura at 32. There was no precipitating cause but his health had been poor. The attack was slight. There were only a few petechiae on the legs and arms. Two years later he had an attack with more numerous skin hemorrhages. His third attack occurred at 37, following his participation in a hotly contested baseball game. On this occasion he had epistaxis lasting sixty-four hours. At 40 he had the fourth attack. It started in the tongue without any apparent cause and his eyelids filled with blood. Three years later he had an attack featured by smoky urine and bloody stools. The skin hemorrhages were very extensive. The bleeding continued ten days and it was thought that he would not survive. The attack stopped as suddenly as it had begun. The sixth attack occurred at 41. His condition following the attacks had always been good.

Potassium Permanganate Treatment of Carbuncle.—Mitchell injects through the entire diseased mass a solution of potassium permanganate. He uses the chemical in excess of saturation so as to have a part of it in fine suspension.

Johns Hopkins Hospital Bulletin, Baltimore

34: 205-240 (July) 1923

*Studies of Diabetes Mellitus. III. Use of Pancreatic Extract Insulin in Treatment. W. S. McCann, R. Hannon and K. Dodd, Baltimore. —p. 205.
*Treatment of Active Infantile Tetany with Radiations from Mercury Vapor Quartz Lamp. H. Casparis and B. Kramer, Baltimore.—p. 219.
*Bacteriostatic Action of Urine After Intravenous Administration of Mercurochrome to Normal Rabbits. J. H. Hill and J. A. C. Colston, Baltimore.—p. 220.
Destruction of Bacillus Radicicola by Connective Tissue Cells of Chick Embryo in Vitro. M. R. Lewis, Baltimore.—p. 223.
Increasing Significance of Permeability Problems for Biologic and Medical Scences. H. J. Hamburger, Baltimore.—p. 226.
Spontaneous Contractions of Fallopian Tube of Domestic Pig with Reference to Oestrous Cycle. D. L. Seckinger, Baltimore.—p. 236.

Pancreatic Extract Insulin in Diabetes.—Of ten representative cases of severe diabetes treated by McCann, Hannon and Dodd with insulin, nine derived some benefit, which was measured objectively in terms of lowered blood sugar values, decreased glycosuria, improved oxidation of glucose, and in control of ketosis, as well as in the relief of symptoms. Wide variations were observed in responses of the different patients to unit doses of the drug. The extra calories of food which patients were enabled to utilize per unit of insulin varied from 12 to 70 calories. The amount of extra carbohydrate which was utilized per unit (all sources of glucose being considered) varied from 0.5 to 3.6 gm. In the presence of severe infection the action of the drug is apparently less effective. The importance of exact diet reguation is emphasized. Cautious methods of balancing gradually the diet and dose are illustrated. Attention is drawn to the dangers of hypoglycemia from overdosing. Prevention and treatment of this condition are discussed. Insulin is a very powerful and very valuable therapeutic agent from which most patients suffering from diabetes will derive benefit. It has failed therapeutically in certain cases in this series. It is in no sence a cure for diabetes so that it is highly important that other methods of influencing the disease favorably should not be neglected.

Treatment of Infantile Tetany with Mercury Vapor Quartz Lamp.—Five children suffering with active infantile tetany were exposed by Casparis and Kramer to the rays of the mercury vapor quartz lamp in order to determine (1) whether such treatment regularly brings about the disappearance of symptoms, (2) what effect it has on the calcium concentration of the serum, and (3) whether healing of the accompanying rachitic process can be accomplished at the same time. Following raying, the clinical manifestations of tetany disappeared in from three to seven days, and the calcium concentration of the serum increased approximately to the normal. Similar results may be obtained when calcium chlorid is administered, but the inorganic phosphorus concentration of the serum is not increased when calcium chlorid is given. If the phosphorus of the serum is normal, the administration of calcium chlorid produces a definite decrease of its concentration. When, however, raying is employed, not only does the calcium concentration of the serum increase but the inorganic phosphorus concentration also increases. This treatment, then, not only brings about a subsidence of the manifestations of active tetany but also cures the accompanying rickets.

Bacteriostatic Action of Urine After Mercurochrome Injection.—Inhibitive action of urine following intravenous injection of 1, 2.5, 5 and 10 mg. per kilogram of body weight of mercurochrome is shown. In two cases bactericidal urine has been obtained by Hill and Colston, one after a single injection of 1 mg. per kilogram, and one after a single injection of 5 mg. per kilogram. The authors conclude that the clinical trial of moderate intravenous doses of mercurochrome is justified from the point of view of bacteriostatic action in *B. coli* infections of the urinary tract.

Journal of Biological Chemistry, Baltimore

56: 297-700 (June) 1923

*Placental Transmission. I. Calcium and Magnesium Content of Fetal and Maternal Blood Serum. L. J. Bogert and E. D. Plass, Detroit. —p. 297.
*Placental Transmission. II. Various Phosphoric Acid Compounds in Maternal and Fetal Serum. E. D. Plass and E. H. Tompkins, Baltimore.—p. 309.
*Acidosis of Ether Anesthesia in Dog. C. D. Leake, E. W. Leake and A. E. Koehler, Madison, Wis.—p. 319.
Fat Soluble Vitamin. XI. Storage. H. Steenbock, M. T. Sell, and E. M. Nelson, Madison, Wis.—p. 327.
Id. XII. Fat Soluble Vitamin Content of Millets. H. Steenbock, M. T. Sell and J. H. Jones, Madison, Wis.—p. 345.
*Id. XIII. Light in Its Relation to Ophthalmia and Growth. H. Steenbock and E. M. Nelson, Madison, Wis.—p. 355.
*Availability of Calcium Salts. H. Steenbock, E. B. Hart, M. T. Sell, and J. H. Jones, Madison, Wis.—p. 375.
Fructose, Glucose and Galactose Tolerance in Dogs. M. Bodansky, Ithaca, N. Y.
*Determination of Blood Urea. J. A. Behre, New York.—p. 395.
Reaction Between Proteins and Nitrous Acid. Tyrosin Content of Deaminized Casein. H. B. Lewis and H. Updegraff, Ann Arbor, Mich.—p. 405.
Product of Mild Acid Hydrolysis of Wheat Gliadin. H. B. Vickery, New Haven.—p. 415.
Chlorid and Conductivity Determinations on Plasma. H. C. Gram and A. Norgaard, Copenhagen, Denmark.—p. 429.
Tisdall Method for Determination of Calcium in Small Amounts of Serum. F. F. Tisdall, Toronto.—p. 439.
*Function of Parathyroids. H. A. Salvesen, Christiania, Norway.—p. 443.
Constituents of Waxlike Coating on Surface of Apple. C. E. Sando, Washington, D. C.—p. 457.
Modification of Folin-Wu Method for Making Protein Free Blood Filtrates. R. L. Haden, Kansas City, Kan.—p. 469.
*Inorganic Constituents of Blood in Experimental Nephritis. W. Denis, New Orleans.—p. 473.
Chemical Study of Several Marine Mollusks of Pacific Coast: Reproductive System. P. G. Albrech, Stanford Universiy, Calif.—p. 483.
*Synthesis of "Bios" by Yeast Grown in Solution of Purified Nutrients. M. B. MacDonald, Baltimore.—p. 489.
Digestibility of Proteins in Vitro. IV. Digestibility of Cottonseed Globulin and Effect of Gossypol on Petictryptic Digestion of Proteins. D. B. Jones and H. C. Waterman, Washington, D. C.—p. 501.
*Glucokinin. New Hormone Present in Plant Tissue. J. B. Collip, Alberta, Edmonton, Canada.—p. 513.
Separation of Hexone Bases from Certain Protein Hydrolysates by Electrolysis. G. L. Foster and C. L. A. Schmidt, Berkeley, Calif.—p. 545.
*Basal Metabolism and Menstrual Cycle. G. Wakeham, Boulder, Colo. —p. 555.
Acid-Base Equilibrium in Simple Two-Phase Systems. C. D. Murray, New York.—p. 569.
Regulation of Osmotic Pressure (Conductivity, Chlorides, Freezing Point, and Proteins of Serum). H. C. Gram, Philadelphia.—p. 593.
Initial Acidosis in Anesthesia. G. E. Cullen, J. H. Austin, K. Kornblum and H. W. Robinson, Philadelphia.—p. 625.
Study of Calcium Balance of Dairy Cows. W. G. Gaessler and A. C. McCandlish.—p. 663.
Does the Chick Require Fat Soluble Vitamins? A. D. Emmett and G. Peacock, Detroit.—p. 679.
Propionic Acid Fermentation of Lactose. J. M. Sherman and R. H. Shaw, Washington.—p. 695.

Placental Transmission of Calcium and Magnesium.—The calcium and magnesium content of maternal and fetal blood serum of twenty-three mothers and their babies was determined by Bogert and Plass. The calcium content of the blood serum was consistently higher in the fetus at the time of birth than in the mother. The serum calcium of the mother at the end of labor is usually below the physiologic range for normal nonpregnant women, while the average maternal serum calcium is distinctly lower than the average value for normal women. The serum calcium of the child at birth usually exceeds the upper limits of the normal physiologic range for adults. The magnesium content of fetal and maternal serum is generally the same, although in a few instances higher values were observed in the fetus. There seems to be a tendency in certain cases for both the maternal and fetal serum magnesium to be below normal, although the average values found at the end of labor (maternal, 2.0 mg. and fetal, 2.1 mg. of magnesium per hundred cubic centimeters of serum) are within the normal range.

Placental Transmission of Phosphoric Acid Compounds.—The distribution of the various phosphoric acid compounds between the maternal and fetal serums, separated by the barrier of placental cells, was studied by Bloor's method. Evidence has been adduced in support of the belief that the fats and lipoids are synthesized in the fetal organism, and it has been demonstrated that the inorganic phosphoric acid furnishes another example of an easily diffusible body being maintained in higher concentration in the fetal blood, where an optimum quantity is desirable for satisfactory bone production.

Acidosis of Ether Anesthesia.—The evidence presented by the Leakes and Koehler indicates that the acidosis of ether anesthesia can be explained neither by a compensatory reaction to an acapnia, nor by the entrance of acid into the blood, but rather by the withdrawal of base from it.

Fat Soluble Vitamin.—Young rats raised on a stock ration and transferred to a purified ration carrying yeast as its only source of vitamins, Steenbock and Nelson found, will grow for a few weeks then cease growing completely or partially and ultimately will fail due to the incidence of ophthalmia or infections of the respiratory tract. Aerated cod liver oil or light from a quartz mercury-vapor lamp, both well known as antirachitic agents, will eliminate the initial failure of growth, or, when prevalent, will restore it without appreciably postponing the final failure due to ophthalmia or respiratory diseases. Inasmuch as aerated cod liver oil did not cure ophthalmia, the experiments lend support to the theory of McCollum that cod liver oil contains two vitamins; viz., vitamin A and the antirachitic vitamin.

Availability of Calcium Salts.—In experiments with young rats no difference was found by Steenbock et al. in the availability of calcium lactate, carbonate, phosphate, silicate, or sulphate when these were fed in liberal amounts.

Determination of Blood Urea.—Behre's results indicate that the true urea content of blood is best represented by the urea figure obtained from blood filtrates. These figures are the same or slightly lower than the figures obtained from whole blood with small amounts of enzyme. The results obtained with human blood suggest very definitely that it would be worth while to study the apparent urea content of these bloods (using whole blood) with small and with large amounts of soy bean.

Function of Parathyroids.—Salvesen asserts that the symptoms of parathyroid insufficiency are due to calcium deficiency. The parathyroids control the calcium level of the blood, and, by doing so, they influence the function not only of the muscle and nerve tissues, but probably of all the organs.

Inorganic Blood Constituents in Experimental Nephritis.—Denis claims that the fact has been definitely established that in certain cases of human nephritis there is a marked increase in the concentration of inorganic phosphates in the serum and a corresponding decrease in calcium, but in her experiments no suggestion of such a condition was noted. The results on whole blood are essentially similar to those obtained on serum; a retention of sulphate is noted in the most severe cases, but the concentrations of all the other constituents, including potassium, show only slight variations with no indications of even a slight degree of retention.

Growth Stimulating Substance in Yeast Not a Vitamin.—The experimental data set forth by MacDonald make it clear that the growth stimulating substance for yeast which Funk and Dubin have recently discussed cannot logically be placed in the class of vitamins. It is not an indispensable nutrient principle for yeast, since it is synthesized during the slow proliferation of yeast cells in a medium of purified nutrients.

Glucokinin: New Plant Hormone.—Extracts have been prepared by Collip from the vegetative tissues of several angiospermous plants as well as yeast, subcutaneous administration of which produces marked hypoglycemia in normal rabbits. Certain of these extracts have been administered to depancreatized dogs. A fall in the level of blood sugar and a decrease in in the hourly excretion of sugar resulted. The primary effect was an increase in the rate of sugar elimination.

Basal Metabolism and Menstrual Cycle.—It is shown by Wakeham that there is a distinct fall in basal metabolism during or immediately after menstruation and a premenstrual rise. Further suggestions, which are regarded as merely tentative, are (1) that basal metabolism is considerably higher, on the average, in those engaged in strenuous labor than in those of sedentary occupations; (2) that basal metabolism fluctuations in those living under uniform conditions are less than in those whose mode of life is more varied; (3) that the basal metabolism variation due to the menstrual cycle, while in every case less than the average daily fluctuations, is greater in active women than in sedentary women; (4) that causes which produce too frequent menstruation are likely to be accompanied by high basal metabolism; (5) that causes which delay or suppress menstruation are likely to be accompanied by low basal metabolism.

Journal of Infectious Diseases, Chicago

33: 1-112 (July) 1923

Hydrogen-ion Concentration vs. Titratable Acidity in Culture Mediums. A. J. Quirk and E. H. Fawcett, Washington, D. C.
*Experimental Studies on Infection and Immunity in Typhus. E. Weil and F. Breinl, Prague, Ger.—p. 60.
*Epidemiology of Scarlet Fever in School Outbreak. W. P. Shepard and H. S. Diehl, Minneapolis.—p. 75.
*Bactericidal Action of Blood of Rabbits Immunized Against Pneumococci. H. E. Smiley, Boston.—p. 88.
Bacteriologic Study of Pneumonia in Sheep. R. S. Spray, Chicago.—p. 97.

Infection and Immunity in Typhus.—The method described by Weil and Breinl consists in incorporating immune serum and virus into the organism at the same time in such proportions that the infection, i. e., the development of the virus, is not prevented, but that the infectious symptoms alone are suppressed. They have not determined how far it will be possible to use the experience gained in animal experiments for the immunization of man.

Epidemiology of Scarlet Fever.—A school epidemic of fifty-nine cases of scarlet fever among 840 students occurring over a period of sixty-one days was studied by Shepard and Diehl. Features offering unusual opportunity for study were: The large percentage of students from rural or small town districts; the possibility of absolute enforcement of control measures; and a comparison of the economic loss incident to control measures alone and to the epidemic alone. The incidence of scarlet fever was greater among students from farms and small towns than from cities. A concurrent epidemic of a mild form of influenza had no apparent effect on the epidemic of scarlet fever. Some evidence is offered to show the possibility of a person with mild angina infecting others with scarlet fever. Daily examinations of the entire group of affected students were not sufficient to control the epidemic. Isolation of persons showing the slightest abnormality suggestive of beginning scarlet fever was necessary to control the epidemic. The economic loss alone occasioned by such drastic isolation measures was slightly less in this epidemic than the probable loss from the disease alone.

Bactericidal Action of Blood of Rabbits Immunized Against Pneumococci.—Although the best method of producing bactericidins in the blood against pneumococci has not as yet been determined, the method which Smiley used successfully was to give an initial injection of heat killed organisms followed by large and repeated doses of live organisms. The preliminary injection of heat killed organisms lessened the chance of pneumococcic infection. In the rabbits thus "immunized" bactericidins appeared in the blood ten days after the last injection, and persisted in the blood for periods ranging from thirty to seventy days.

Journal of Laboratory and Clinical Medicine, St. Louis

8: 563-630 (June) 1923

- *Importance of Suprarenals in Action of Certain Alkaloids. II. Strychnin on Blood Picture. C. W. Edmunds and P. C. Lloyd, Ann Arbor, Mich.—p. 563.
- *Histologic Study of Muscle Degeneration Produced by Local Injections of Insulin. D. J. Bowie and W. L. Robinson, Toronto.—p. 569.
- Effect of Phenol in Estimation of Reducing Sugars by Picramic Acid Methods. H. C. Sweany, Chicago.—p. 572.
- Clinical and Laboratory Procedures in Pediatrics. A. Levinson, Chicago. —p. 579.
- Case of Erythremia. I. R. Sutton and W. Cole, Anaheim, Calif.—p. 589.
- *Comparative Study of Various Methods of Hemoglobin Determinations. E. G. Senty, Rochester, Minn.
- Determination of Uric Acid in Blood by the Method of Folin and Wu. R. S. Hubbard and L. L. Finner, New York.—p. 605.
- Relation Between the Presence of Indican and of Uroroscinogen in Urine in Certain Diseases. J. Rosenbloom, Pittsburgh.—p. 610.
- Emergency Microtome. A. H. Glaister, Technician, Florence, Ala.—p. 611.
- Gastric Analysis and Constancy of Percentile Relationship Among Titrable Factors of Gastric Secretion. B. S. Levine, Waukesha, Wis. —p. 612.
- *Estimation of Albumin in Urine. A. J. Quick, Philadelphia.—p. 615.
- Phenoltetra-Chlorphthalein: Clinical Test for Liver Function. E. Bogen, Cincinnati.—p. 619.
- *Useful Urinary Finding in Diagnosis of Hydronephrosis and Pyonephrosis. J. Rosenbloom, Pittsburgh.—p. 621.

Effect of Strychnin on Blood.—The changes in the total number of leukocytes in the dog and in the relative proportions of the different varieties of leukocytes produced by strychnin, according to Edmunds and Lloyd, are only indirectly due to strychnin; they are directly due to the epinephrin which is secreted by the suprarenals under the influence of strychnin. The epinephrin thus secreted is not in sufficient amount to alter the number of the red blood cells.

Muscle Degeneration from Insulin Injections.—Intramuscular injections of insulin, Bowie and Robinson found, called forth near the site of injection a very marked degeneration of the muscular fibers with leukocytic invasion. This same type of lesion, however, was found to be caused by other agencies such, for example, as hypertonic glucose solution. Isotonic saline, on the other hand, as a rule produced only slight localized areas of degeneration although hypertonic solutions had an effect like that of insulin. These lesions probably explain the considerable pain and discomfort that is not uncommonly complained of, and it is pointed out that if the lesions can be produced by hypertonic saline it is altogether likely that they might become quite extensive when various therapeutic agents are employed.

Comparative Value of Methods of Hemoglobin Determinations.—Senty compared the various methods and apparatus used for the determination of hemoglobin. The standard Dare hemoglobinometer, he says, is a practical instrument for hemoglobin determinations from 25 to 65 per cent. Above 70 per cent. the hemoglobin estimations on the standard Dare instrument are very misleading. The Newcomer disk method is a unique and practical method of estimating the percentage of hemoglobin in the blood. The percentages obtained are reliable. The Cohen and Smith acid hematin method is accurate and fairly practical and should be used in the estimation of the percentage of hemoglobin in all suspected cases of anemia. The special Dare instrument is a decided improvement over the standard Dare instrument. The Tallqvist hemoglobinometer is probably quite as accurate as the standard Dare instrument.

Estimation of Albumin in Urine.—A comparative study of the modifications of the Esbach method for the determination of protein in urine has been made by Quick. Since the available Esbach tubes were unsatisfactory, a new tube was designed. Esbach's reagent, Tsuchiya's reagent and a 10 per cent. trichloracetic acid were studied as precipitating agents. The influence of temperature and of specific gravity of urine were determined. A 10 per cent. solution of trichloracetic acid as a precipitating reagent was shown to yield the most satisfactory results.

Fat in Urine in Pyonephrosis and Hydronephrosis.—In three cases of pyonephrosis and in two cases of hydronephrosis Rosenbloom found globules of fat in the urine. These globules are usually large and strongly refractile and stain black with osmic acid and red with sudan III. They are also soluble in ether. In one of the cases the fat droplets were only found in the urine obtained on chatheterization of the diseased kidney. The catheterized urine from the normal kidney was free of the fat droplets.

Kentucky Medical Journal, Bowling Green

21: 301-382 (July) 1923

- Surgery of Toxic Thyroid. L. W. Frank, Louisville.—p. 306.
- Juvenile Tuberculosis. O. O. Miller, Louisville.—p. 309.
- Leukoplakia Associated with Lichen Planus: Two Cases. W. J. Young, Louisville.—p. 317.
- Fermentative Diarrhea. J. W. Bruce, Louisville.—p. 317.
- Sacral Anesthesia in Obstetrics. S. P. Oldham, Owensboro.—p. 321.
- Diagnosis of Incipient Tuberculosis. C. Richards, Glasgow.—p. 324.
- Insulin Treatment of Diabetes Mellitus. R. H. Davis, Louisville. —p. 325.
- Abortin, Criminal and Inevitable. N. W. Moore, Cynthiana.—p. 332.
- Protein Hypersensitiveness. J. W. Moore, Louisville.—p. 337.
- Mastoidectomy; Closure of Wound. S. S. Watkins, Louisville.—p. 347.
- Primary Carcinoma of Liver. Report of Case. J. A. Kasper, Louisville.—p. 349.
- Case of Acute Osteomyelitis. J. D. Trawick, Louisville.—p. 353.
- Ruptured Ectopic Gestation; Operation; Recovery. C. Farmer, Louisville.—p. 355.
- Carcinoma of Breast. Report of Case. J. W. Price, Jr., Louisville. —p. 357.
- Use and Abuse of Roentgen Rays. L. H. Kerr, Louisville.—p. 364.
- *Case of Brain Tumor with Unusual Clinical Findings. M. Flexner, Louisville.—p. 368.
- Physiology of Internal Secretions. J. H. Hohnsted, Ft. Thomas. —p. 371.
- Infant Feeding. T. J. Glenn, Covington.—p. 372.

Dural Epithelioma.—Flexner cites the case of a man, aged 57, who complained of weakness. Low blood pressure was found as well as a glycosuria and difficulty in gait. Definite pathology was evident in the spinal fluid, with one borderline Wassermann reaction. Glycosuria disappeared after neoarsphenamin. The process progressed rapidly to death, in about five weeks, with evidence of cerebral involvement appearing only three days before death. The diagnosis lay between cerebral syphilis, brain tumor and possibly lethargic encephalitis. The course was atypical for a brain tumor, but it proved to be a case of dural endothelioma.

New York Medical Journal and Medical Record

118: 1-60 (July 4) 1923

- Physiotherapy. N. E. Titus, New York.—p. 1.
- Physical Therapy. J. H. Burch, Syracuse.—p. 4.
- Problem of Physiotherapy Aide. A. B. Hirsh and E. Wellington, New York.—p. 8.
- Physiotherapy Clinic a Necessity of Modern Hospital. R. Kovacs, New York.—p. 10.
- Urgent Need for Greater Use of Physical Therapy by Internists. J. Gutman, Brooklyn.—p. 13.
- Electrotherapeutics in Urology. V. C. Pedersen, New York.—p. 18.
- Physiotherapy in Orthopedics. C. R. Brooke, New York.—p. 22.
- Physiotherapy in Medical Department of United States Navy. E. G. Hakansson, Washington, D. C.—p. 26.
- Employment of Some Forms of Electricity in Cardiovascular Diseases. E. C. Titus, New York.—p. 27.
- Exercise in Therapeutics. H. E. Stewart, New Haven, Conn.—p. 29.
- Exercise in Treatment of Hypertension. C. W. Crampton, New York —p. 31.
- Practical Method to Determine Correct Roentgen-Ray Dose in High Voltage Treatment. H. Holfelder, Frankfort on the Main, Germany. —p. 35.
- Use of Static Electricity in Treatment of Noninfected Inflammation. W. B. Snow, New York.—p. 37.
- Roentgen-Ray Therapy in Exophthalmic Goiter. S. Tousey, New York. —p. 41.
- Modern Methods of Hydrotherapy. C. Pope, Louisville.—p. 44.
- Roentgenoscopy as Cause of Menstrual Disturbance. S. Weiss, New York.—p. 48.
- Otitis Media and Mastoiditis Treated by Radiant Light and Heat from Electric Lights. F. T. Woodbury, New York.—p. 49.

Philippine Journal of Science, Manila

22: 559-650 (June) 1923

- *Diphtheria Carriers and Their Significance in Philippines. L. Gomez and R. Navarro.—p. 559.
- Hypersensitiveness of Philippine Dogs to Strychnin. M. Manresa.—p. 567.
- Philippinen Rutelides (Coleoptera, Lamellicornia). V. F. Ohaus.—p. 581.
- New Malayan Wasps of Subfamily Pseninae. S. A. Rohwer.—p. 593.
- Disease of Satsuma and Mandarin Orange Fruits Caused by Gloeosporium Foliicolum Nishida. H. A. Lee.—p. 603.
- Solid Bitumens of Leyte. B. Nelson.—p. 617.
- Hexamethylenetetramine as Reagent in Microscopic Qualitative Chemical Analysis. H. I. Cole.—p. 631.

Significance of Diphtheria Carriers in Philippines.—Cultural studies were made by Gomez and Navarro of material obtained from the throats of about 1,775 healthy individuals to determine the prevalence of diphtheria carriers in the Philippines, and animal tests have been performed to determine the virulence of the different strains of diphtheria bacilli isolated in pure culture. At least 2.08 per cent. of healthy persons in the Philippine Islands harbor diphtheria bacilli in their throats. The diphtheria bacilli have been found nonvirulent in about 89 per cent. and virulent in about 11 per cent. of the carriers. Apparently the disease does not become epidemic in Manila. In spite of the continuous existence of carriers of nonvirulent bacilli and the occasional existence of virulent ones in persons living in institutions where a certain number have been proved to be susceptible to the disease by Schick's test, no clinical diphtheria has ever been known to develop among the inmates. From these data it is concluded, that, for the control of diphtheria in the Philippines, it is only necessary (*a*) to examine the throats of those persons who have come in intimate contact with cases, (*b*) to isolate those who are carriers, and (*c*) to liberate them later if the animal tests show that the bacilli they harbor are not virulent.

Rhode Island Medical Journal, Providence

6: 99-114 (July) 1923

Some Problems in Artificial Feeding. H. E. Utter, Providence.—p. 99.
Principles Underlying Weaning from Breast. H. G. Calder, Providence.—p. 101.

Southern Medical Journal, Birmingham

16: 495-570 (July) 1923

Aplastic Anemia. Report of Case. Differential Diagnosis of Anemias Due to Hemolysis and to Hemopoietic Degeneration. B. W. Fontaine, Memphis.—p. 495.
Case of Paramyoclonus Multiplex Epilepticus. N. M. Owensby, Atlanta.—p. 500.
*Tropical Sprue and Its Relationship to Disturbances of Pancreatic Digestion. D. N. Silverman and W. Denis, New Orleans.—p. 503.
Treatment of Leprosy. R. M. Wilson, Kwangju, Korea.—p. 507.
*Case of Convulsions Followed by Amnesia. P. F. Barbour, Louisville.—p. 511.
Case of Congenital Syphilis with Ascites. R. C. Spence and L. C. Tittle, Dallas, Texas.—p. 512.
*Virulent Diphtheria Bacilli Isolated from Chickens Suffering from Roup. W. Litterer, Nashville.—p. 514.
School Inspection Basic in Control of Communicable Diseases. J. Thames, Little Rock, Ark.—p. 518.
Restoration of Burnt Child. V. P. Blair, St. Louis.—p. 522.
Present Day Obstetrics Procedure. T. S. Field, Jacksonville, Fla.—p. 527.
Ileorectovesical Fistula, Probably of Syphilitic Origin. E. G. Ballenger, and W. R. Smith, Atlanta, Ga.—p. 532.
Review of Six Cases of Meckel's Diverticulum with Reference to Caution in Resections. R. M. Harbin, Rome, Ga.—p. 534.
Peptic Ulcer and Its Surgical Treatment. M. J. Henry, Louisville.—p. 537.
Tendon Transplantation. W. S. Roberts, Birmingham, Ala.—p. 545.
Roentgen-Ray versus Radium in Treatment of Uterine Hemorrhage. J. W. Lanham, Atlanta.—p. 550.
Vaccine Treatment of Vernal Conjunctivitis. J. F. Townsend, Charleston, S. C.—p. 555.
Conservatism in Nasal Surgery. W. W. Potter, Knoxville, Tenn.—p. 560.

Tropical Sprue and Disturbed Pancreatic Digestion.—The observations made in one case cited, Silverman and Denis state, do not warrant general conclusions. The enzymes of duodenal contents were present to a considerable extent during the clinical course of the disease, and these enzymes greatly increased in strength, even up to normal amounts, during clinical improvement of the case. These facts would indicate that in tropical sprue the pancreas does not always undergo extensive or permanent damage and that this gland may assume its normal digestive function.

Convulsions Followed by Amnesia.—Barbour reports the case of a baby, aged 16 months, that, as a result of a severe convulsion, lost memory for words, recognition and affection for her parents, and physical coordination. They returned in reverse order.

Virulent Diphtheria Bacilli Isolated from Chickens.—Litterer reports what he believes to be the first instance in which virulent Klebs-Loeffler bacilli have been isolated from fowls. It is probable that the fowls were infected from human beings harboring virulent bacilli, since persistent virulent carriers were demonstrated in the families that owned the fowls. Experiments on healthy fowls failed to produce a permanent carrier state. Negative results were also obtained in two fowls suffering with roup. The demonstrations of virulent Klebs-Loeffler bacilli in fowls opens up a new means of dissemination of the Klebs-Loeffler bacilli among human beings.

Southwestern Medicine, Phoenix, Ariz.

7: 221-272 (July) 1923

Colloidal Gold Test of Spinal Fluid. P. B. Newcomb, Tucson, Ariz.—p. 221.
Correction of Deformities of Nose and About Orbit by Plastic Surgery. J. P. de River, San Francisco.—p. 226.
Hodgkin's Disease Case Report. W. A. Holt, Globe, Ariz., and W. B. Watts, Miami, Ariz.—p. 232.
Primary Carcinoma of Appendix. E. B. Rogers, El Paso.—p. 236.
Does Public Health Work Pay? W. A. Evans, Evanston, Ill.—p. 238.
Pituitary Gland. C. A. Wright, El Paso.—p. 246.
Case Reports. R. Fersuson, Bisbee, Ariz.—p. 247.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

27: 353-384 (May) 1923

Elevation of Diaphragm. Unilateral Phrenic Paralysis. J. M. W. Morrison.—p. 353.
Deep Roentgen-Ray Therapy. Pilger.—p. 364.
Dr. Seemann's Roentgen-Ray Spectrograph.—p. 373.

British Journal of Tuberculosis, London

17: 107-154 (July) 1923

Artificial Pneumothorax B. Hudson and J. Mamie.—p. 107.
Tuberculosis Problems in India. C. Muthu.—p. 118.
*Physics of Heliotherapy. A. Rosselet.—p. 120.
Rest Breathing as Physiologic Adjuvant in Treatment of Pulmonary Tuberculosis. S. A. Knoof.—p. 124.
Significance of Lung Rest in Treatment of Pulmonary Tuberculosis. S. H. Stewart.—p. 127.

Physics of Heliotherapy.—According to Rosselet the sun cure in winter is dependent on three important factors: (*a*) the relatively short length of the solar spectrum; (*b*) the relatively feeble maximum intensity of the solar radiation, and (*c*) the relatively short duration of this maximum intensity. The sun cure in summer is also dependent on three factors: (*a*) the maximum length of the spectrum; (*b*) the maximum intensity of the sunlight, and (*c*) the prolonged duration of this maximum intensity.

British Medical Journal, London

2: 51-90 (July 14) 1923

*Experimental Basis of Endocrine Therapy. A. J. Clark.—p. 51.
Treatment of Gonococcal Infection by Diathermy. E. P. Cumberbatch and C. A. Robinson.—p. 54.
Diathermy for Malignant Disease of Mouth, Pharynx and Nose. N. Patterson.—p. 56.
*Case of Diabetes Treated with Insulin. E. L. Springs, D. V. Pickering and A. J. Leigh.—p. 58.
Behavior of Blood Sugar Under Action of Insulin and Other Agents. G. S. Eadie.—p. 60.
Case of Actinomycosis with Recovery. A. D. Bigland and F. C. H. Sergeant.—p. 61.
Suction in Treatment of Septic Ears. W. Stuart-Low.—p. 62.

Value of Endocrine Therapy.—The review given by Clark indicates that the therapeutic action of only a few of the endocrine extracts is established with any degree of certainty. He also discusses the basis of proof for polyglandular therapy. Typical polyglandular formulas usually contain some or all of the following preparations: dried thyroid, extract of the posterior lobe of the pituitary, thymus, suprarenals, and extract of testes or ovaries. The remedy is usually given by the mouth. Of these constituents the thyroid is beneficent if the patient chances to be suffering from thyroid deficiency, and in other cases there is usually too little present to do any harm. Pituitary extract is inactive when given by the mouth, except as regards its effect in reducing carbohydrate tolerance in cases of pituitary tumor deficiency; this action would be assisted by the thyroid, but it is difficult to see what benefit it would produce for the patient. Pituitary deficiency, as manifested by Fröhlich's syndrome or by diabetes insipidus, is very rare, and outside these conditions there is no rational indication for the use of pituitary extract, other than its usual use as a temporary stimulant to the uterus, intestine or blood vessels. It is not known whether the thymus even has an internal secretion, nor is it known whether its extracts have any therapeutic action. As regards epinephrin, it is not certain whether it is essential for the normal health of the body. The low blood pressure and asthenia in Addison's disease are not simple results of epinephrin deprivation. Epinephrin, when given by the mouth, may be of benefit in gastric hemorrhage or to relax esophageal spasm, but otherwise there are few actions that it has been shown to exert when given by the mouth. Finally, nothing is known for certain about the action of extracts of the gonads. Clark suggests that the administration of a mixture of the above nature is as far removed from rational therapy as is the writing out of a charm on a piece of paper and giving that to the patient to swallow. He says that the extracts on the market have as high a degree of potency as any that it is possible to produce. This is, of course, an unwarranted assumption, for in the case of those extracts for which a test of activity has been found, and a correct method of extraction discovered, it frequently happens that some slight error in extraction may result in an inactive preparation being produced; this can occur, for example, with insulin and with extract of the posterior lobe of the pituitary. Obviously, when there is no reliable test for the activity of extracts, it is impossible even to know which is the best method of preparation, and the odds against such preparations having any activity whatever are very heavy.

Insulin in Diabetes.—In a detailed study made by Spriggs and others of a moderately severe case of diabetes in which tolerance had been diminishing for the last three years, it was found that with the help of two daily hypodermic injections of insulin, on a measured diet, the excess of sugar in the blood, the sugar in the urine and the acidosis could be controlled; also that the patient could take more than double the amount of food he had previously been able to take without the appearance of sugar in the urine. Regulation of diet is still needed, for if an excess of food was taken above the new and higher level of tolerance, the hyperglycemia, glycosuria and acidosis reappeared. The treatment led to improvement in nutrition, physical capacity, and mental outlook.

Calcutta Medical Journal

17: 193-240 (May) 1923

Clinical Study of Cerebrospinal Fluid. B. B. Shaha.—p. 193.
Main Principles of Cardiologic Practice. S. C. Bose.—p. 208.
Two Cases of Anemia Suggesting Endocrine Deficiency. J. Maitra.—p. 219.

Japan Medical World, Tokyo

3: 1-18 (Jan. 15) 1923

*Experimental Studies on Process of Vaccinal Immunity. T. Ohtawara.—p. 1.
Cholera Bacteriemia and Appearance of Vibrion in Bile. S. Mashimo.—p. 10.

Vaccinal Immunity.—Ohtawara maintains that vaccinal immunity is an active histogenous immunity of the body as a whole. The immune bodies in the blood are produced by the tissue cells of various organs as a reaction to the virus.

Journal of Obstetrics and Gynæcology of the British Empire, Manchester

30: 117-328 (Summer) 1923

Intrinsic Dysmenorrhea. I. Natural History. II. Clinical Aspects. Analysis of 400 Cases. W. B. Bell.—p. 119.
*Primary Chorionepithelioma of Fallopian Tube. B. Solomons and E. C. Smith.—p. 162.
*Heart Disease in Pregnancy. A. L. Robinson.—p. 172.
*Investigation of Constancy of Chemical Composition of Blood During Pregnancy. E. C. P. Williams.—p. 189.
Two Cases of Cancer of Body of Uterus with Secondary Growths in Vulva and Vagina Free from Recurrence Five and Four Years After Hysterectomy. H. Spencer.—p. 197.
Congenital Deformity of Posterior Lip of Cervix. H. R. Spencer.—p. 202.
*Papillary Adenocarcinoma of Ovary, with Permeation of Great Vessels of Heart. H. J. C. Gibson and G. M. Findlay.—p. 204.
Three Cases of Contraction Ring Dystocia. G. FitzGibbon.—p. 208.
Cervical Fibroid Showing Vein Opening into Cervical Canal. B. Whitehouse.—p. 211.
*Endometrial Adenoma of Abdominal Wall Following Ventrisuspension of Uterus. C. D. Lochrane.—p. 213.
Carcinoma of Female Urethra: Two Cases Treated with Radium.—p. 215.
Case of Calcified Bodies in Uterine Cavity. H. L. Murray.—p. 220.
Case of Strangulation of Normal Fallopian Tube and Ovary. H. L. Murray.—p. 222.
Adenomyoma Involving the Vermiform Appendix. D. Dougal.—p. 224.

Primary Chorionepithelioma of Fallopian Tube.—Solomons and Smith relate the case of a woman, aged 40, seen by them because of continuous hemorrhage since her last menstruation which had started three weeks before. She also complained of anorexia, wasting and great thirst. She was suffering from profound anemia, was wasted and slightly cachectic. Gynecologic examination revealed a small tumor on the anterior vaginal wall about two inches from the vulva. It was the size of a hazelnut and the color of claret. From the appearance of the vaginal tumor a diagnosis of chorionepithelioma was made, and it was removed. After a mesial suprapubic incision, a tumor, evidently of the same nature as the vaginal growth, was evident. It occupied a large part of the left side of the true pelvis. The tube and ovary could not be discriminated; it was close to the left cornu of the uterus and was extremely adherent to the surrounding intestines. A supravaginal hysterectomy with removal of the mass in the left side and of the tube and ovary of the right side was done. The cause of the chorionepithelioma in this case is doubtful.

Heart Disease in Pregnancy.—Apart from childbirth, many heart lesions are naturally progressive, the sclerosing process may appear to be stationary, but endocarditis is only too likely to recur and light up fresh mischief, for which the cardiologist has no remedy. Robinson urges that repeated pregnancies must, therefore, be forbidden to women with heart disease, and if other methods prove unsuccessful, surgical sterilization should be advised in selected cases.

Blood Chemistry During Pregnancy.—In about thirty cases of normal pregnancy in which the blood chemistry was studied by Williams, the average figures during the whole term of pregnancy were found to be: nonprotein nitrogen, 25.2 mg. per hundred cubic centimeters of blood; urea, 19.5 mg. per hundred cubic centimeters of blood; giving a ratio (urea nitrogen to nonprotein nitrogen) of 34.8. When the figures were averaged for the successive months of pregnancy, it was found that the urea gradually dropped until it reached the lowest value (16 and 17 mg. per cent.) in the fifth and sixth months, and then rose again until term, when the average was 21.9 mg. per cent., and within ten days of confinement the urea had returned to the normal nonpregnant average of 27.2 mg. per cent. The average values for the nonprotein nitrogen do not follow the curve, but remain approximately at the level value of 25 mg. per cent. The ratio of the urea nitrogen to the nonprotein nitrogen, therefore, follows the same curve as the urea, and is lowest in the fifth and sixth months.

Papillary Adenocarcinoma of Ovary and Heart Vessels.—In all previously reported cases of this sort, the primary tumor permeated the vessels directly. In the case cited by Gibson and Findlay the permeation was due to an extension from a secondary growth in the skin, the primary ovarian growth showing no evidence of vascular permeation.

Endometrial Adenoma of Abdominal Wall.—Three years after an operation for "displacement of the womb" Lochrane's patient first noticed a lump in the operation wound site. This lump had been getting bigger gradually, and became sore and tender about the time of menstruation. At operation a diffuse fibrous looking mass, irregularly circumscribed, but with ill defined margins, lay under the right rectus fascia, on, and internal to, the rectus muscle, but not definitely in the substance of the latter. Its position corresponded to the site of the operation wound in the lower middle quarter of the subumbilical rectus. It was apparently shut off from the peritoneal cavity by peritoneum only. On gross section the tumor was irregularly honeycombed with small cystic spaces varying in size from a pinhead to a pea. These spaces all contained thick, dark, menstrual-like fluid. The tumor was moderately vascular. The remains of two or three old catgut sutures were found in the midst of the mass. Microscopic sections of the tumor showed very numerous gland spaces lined with typical endometrial epithelium. The condition appears to be the result of an implantation of endometrial tissue in the abdominal wall during the operation of ventrisuspension. Whether the tissue was carried there in the too deep passage of the suspending sutures through the uterus, or whether it escaped through the fallopian tubes, or from similar areas in the right ovary into the raw area of the abdominal wall Loehrane does not say. The probability is, however, that it was carried on the catgut sutures.

Lancet, London

2: 53-104 (July 14) 1923

Surgery of Thyroid. A. J. Walton.—p. 53.
Insurance Practice. Review with Certain Criticisms and Constructive Proposals. A. Garvie.—p. 60.
*Cause of Death in Intestinal Obstruction. S. Pringle.—p. 62.
*Case of Inspiratory Apnea in New-Born Infant. W. D. Kirkwood and B. Myers.—p. 65.
Mode of Transmission of Malaria, by Coccidia: Hypothesis Advanced by Richard Pfeiffer in 1892. C. M. Wenyon.—p. 68.
Provision for Expiration in Endotracheal Insufflation Anesthesia. I. W. Magill.—p. 68.
Acute Ketosis During Pregnancy. J. H. Robinson.—p. 69.
Bronzed Diabetes: Failure to React to Dietetic and Insulin Treatment. E. B. Leech.—p. 69.

Cause of Death in Intestinal Obstruction.—Pringle is of the opinion that experimental work justifies the conclusion that the principal factor in causing death in intestinal obstruction is a toxin which is developed chiefly in the duodenum, and, although not absorbed from the normal intestine, is absorbed under the conditions which prevail in obstruction. The exact mode of production of the toxin is also undecided, but probably the presence of pancreatic secretion, and, in a lesser degree, the activities of bacteria are necessary for its production. While the duodenum is the site of maximum toxicity in obstruction, yet the poisonous substances are developed lower down in the intestine, and it is probable that in the production of these toxins bacterial action plays an important rôle—a rôle which increases in importance the lower down the obstruction occurs. Pringle suggests that intestinal toxemia has a large share in causing death in acute septic peritonitis.

Primary Inspiratory Apnea in the New-Born.—The important points in the case cited by Kirkwood and Myers are: The mother was a healthy primipara, aged 25, who enjoyed excellent health during pregnancy and labor. The labor was comparatively easy and natural. No drugs were given except a few whiffs of chloroform just before the birth of the child. There was no similar case in the family. Cyanosis was present at birth, but passed off. There was no asphyxia neonatorum. The infant was well formed, showed no abnormalities, and looked healthy. It took its food well and passed meconium and urine without trouble. There were slight, although definite, changes noted in the infant within the first twenty-four hours. These gradually increased in intensity. Definite attacks of apnea occurred before the infant was 2 days old. Heart, lungs and air passages were normal. Twitchings occurred and then convulsions. The infant looked well and was of good color between attacks of apnea. The cyanosis was only present during attacks. Artificial respiration cut short the attacks. Death occurred within twelve hours of the first appearance of apnea. The total number of attacks was more than a dozen. The clinical symptoms suggested an affection of the respiratory center yet at the necropsy there was comparatively little evidence macroscopically. Microscopically, just above the level of the olivary bodies and constituting the lower 2 mm. of the pons, five or six small hemorrhages had occurred. The largest of these measured 2x15x1.25 mm. At its lower extremity it surrounded the apex of the right olive, and thence extended for 2 mm. upward, outward and backward toward the restiform body. This hemorrhage caused damage to the formatic reticularis, fillet, a small portion of the seventh nerve nucleus, and some fibers of the trapezium. A second extravasation of almost equal size was found in a nearly symmetrical situation on the left side. This hemorrhage would temporarily, at any rate, have the same effect as section of the brain stem just above the striae, and would determine the onset of the apneatic type of respiration, which is characterized by alternating periods of inspiratory tonus and gasping.

Medical Journal of Australia, Sydney

1: 627-654 (June 9) 1923

Infection in Cardiac Disease. W. N. Horsfall.—p. 627.
Radium Therapy for Malignant Disease. H. M. Moran.—p. 632.
Complement Fixation Test in Gonorrhea. N. M. Gibson.—p. 635.
Mastoidal Disease with Lateral Sinus Infection. H. M. Jay.—p. 638.

1: 655-686 (June 16) 1923

Leukocytes in Health and in Disease. K. D. Fairley.—p. 655.

Sei-I-Kwai Medical Journal, Tokyo

42: 1-19 (June) 1923

*Effect of Chloroform Narcosis on Growth of Transplanted Animal Tumors. T. Kimura, K. Ohba and Y. Wada.—p. 1.
Excitatory Process of Respiratory Center. K. Tugane.—p. 4.
Multiple Cholangiectatic Cyst Formation in Liver. Three Cases. K. Sonobe.—p. 17.
*Review of Serum Diagnosis Complement Deviation Method for Tuberculosis. Y. Nishida.—p. 19.

Effect of Chloroform Narcosis on Tumor Growth.—No marked stimulating effects on the growth of inoculated tumors were recognized by Kimura et al. in animals which were repeatedly anesthetized or surgically operated on under chloroform anesthesia.

Complement Deviation Test for Tuberculosis.—Nishida believes that the complement deviation test with a fine antigen (as Petroff's glycerin extract) may be of distinct aid in the diagnosis of early tuberculosis and in the detection of the disease when the condition is obscure.

Bulletin de l'Académie de Médecine, París

89: 651-677 (June 19) 1923

*Preventive Protein Therapy. F. Arloing and L. Langeron.—p. 658.
Training of Midwives. C. Jeannin.—p. 660.
*The Leukocyte Formula of the "Gassed." Dupont and Delater.—p. 663.
*Surgical Treatment of Rhizomelic Spondylosis. P. Peugniez.—p. 674.

Temporary Local Immunity Conferred by Parenteral Injection of Protein.—Arloing and Langeron found that guinea-pigs injected subcutaneously with serum, casein or peptone, alone or associated, succumbed like the controls to intraperitoneal inoculation with the pyocyaneus. If the protein injection was made into the peritoneum, instead of subcutaneously, all the animals survived. The success of this preventive polyprotein therapy can be explained only by assuming that it induces a local immunity. It throws light on the local effect of vaccination, as in vaccination by the mouth against typhoid, or the administration of peptone in alimentary anaphylaxis: The epithelium of the intestine becomes resistant to the local action of the toxin involved.

The Leukocyte Count in the Gassed.—The findings are recorded during spa treatment at Mont-Dore in seventeen gassed soldiers with pulmonary sequelae.

Surgical Treatment of Rhizomelic Spondylosis.—Two years had elapsed in Peugniez' case since the last pains, and the ankylosis was so extreme that the man, aged 37, had to be lifted as an inert block, and was unable to sit down. Subtrochanteric osteotomy of both hip joints restored him to a comparatively active, self-supporting life.

Bulletins de la Société Médicale des Hôpitaux, Paris

47: 865-936 (June 15) 1923

*Uteroplacental Nitritoid Crisis. M. Gougerot.—p. 865.
*Artificial Pneumothorax for Interlobar Pleurisy. J. Troisier and R. Gayet.—p. 867.
Varicella During Herpes Zoster. A. Netter and Vallat.—p. 874.
*Iodin in Treatment of Chronic Articular Rheumatism. J. Thiroloix, Brace-Gillot and Harmelin.—p. 877.
*Mercurial Poisoning: Two Cases. Vialard and Baril.—p. 907.
Meningeal Hemorrhage of Spinal Origin. J. Huber and J. de Massary.—p. 916.
Paget's Disease of the Bones with Paraplegia. Ardin-Delteil et al.—p. 920.
Hemibulbar Syndrome. Ardin-Delteil, Leblanc and Azoulay.—p. 924.
Phenolsulphonephthalein Test of Senile Kidney. Merklen et al.—p. 929.
Case of Incipient Neurosyphilis. Lortat-Jacob and L. Béthoux.—p. 934.

Nitritoid Shock of the Uterus Under Arsenical Treatment.—Gougerot in two cases ascribes to nitritoid shock from intravenous injection of the drug the headache, sensation of heat in the abdomen, immediate contraction of the uterus, with slight hemorrhage, and the expulsion of a living child.

Artificial Pneumothorax in Suppurating Interlobar Pleurisy.—A man aged 65 was in a very grave condition at the end of six weeks from the onset of pneumonia, but improvement progressed to clinical recovery in five weeks after therapeutic pneumothorax had been induced. Troisier and Gayet cite this case to sustain their plea that the indications for artificial pneumothorax should be broadened to include suppuration after pneumonia, with or without interlobar extension, after, but not before, the pus has made an opening into a bronchus.

Iodin in Treatment of Chronic Articular Rheumatism.— Four years of experience and thirty-four cases are analyzed in detail, and the systematic prolonged daily administration of from 0.21 to 0.63 gm. of pure iodin is recommended. Notable improvement or a cure was manifest in 83 per cent. The drug was given by mouth or parenterally, as a methyl or benzyl salt of iodin, with hexamethylenamin.

Mercurial Poisoning.—Of two men, one treated by nephrotomy in addition to the other measures, died; the other man recovered. Intravenous injections of a hypertonic solution with subcutaneous and rectal injections of an isotonic solution of glucose in large doses were employed.

Lyon Chirurgical

20: 129-292 (April) 1923

*Intraspinal Tumors. Bériel, J. Branche, A. Devic, Viret and P. Wertheimer.—p. 129. Cont'd.
Symmetrical Cysts in Lower Jaw. A. Rendu and C. Dunet.—p. 222.
*Vaccine Therapy in Puerperal Infection. Voron et al.—p. 227.

Intraspinal Tumors.—Bériel and Viret discuss, with illustrations, two cases of polyneuromas which show that the nervous tumor spread exclusively by nerve tissue, and lingered for years in the spinal roots before entering the spine. When it invaded the spine, it affected only the intradural tissue in the free space between the bifurcation of the two roots, and could easily have been shelled out. The mother tumor in the root could have been excised, and thus have forestalled the invasion of the spine. Neuromatous bunches in the neck had been noted for thirteen years in one of these cases. In the other, the right arm had been weak since childhood.

Bériel and Wertheimer explain that mestastasis in the spine of cancers or hydatid cysts in viscera, bones, etc., is almost invariably extradural. One woman, aged 54, with paraplegia after a year of vague motor symptoms, recovered after the removal of an extradural tumor in the dorsal spine; it proved to be thyroid tissue. When the metastasis induces pachymeningitis, operative measures are generally contraindicated, but under other conditions they should be considered. The intraspinal metastasis may be long in developing; in one woman, aged 46, there was a destructive process in vertebrae from metastasis after mammectomy for cancer, but the paralysis was the work of a circumscribed extradural nodule.

Complications of Intraspinal Tumors.—Besides the symptoms from compression, Devic and Wertheimer analyze the anatomic complications in cord, meninges or vertebrae, and multiple tumors. In Claude's case there was paraplegia at 17, then fatal recurrence after a remission for five years. Necropsy revealed six intraspinal sarcomas.

Vaccine Therapy in Puerperal Fever.—In twelve cases given autogenous vaccine treatment, the lack of benefit in four cases was explained by advanced endocarditis or other cause. One woman with grave septicemia recovered on the eleventh day after phlebitis had developed. The vaccine therapy had been begun on the sixth day. In this and in seven other cases, the vaccine treatment seemed to extinguish the foci of phlebitis and to hasten convalescence. Two of the women had presented eclampsia and the infection in all had previously displayed a tendency to waves of exacerbation. In two other cases the infection did not seem grave enough to call for vaccine therapy, but the recurring phlebitis and protracted course were in marked contrast to the vaccine treated cases. Stock vaccines proved unreliable. Although the streptococcus often seems to sensitize the organism during the height of puerperal infection and prevent any response to vaccine therapy, the vaccine may prove a potent aid when the organism starts to rally its defensive forces.

Néoplasmes, Paris

2: 97-144 (May-June) 1923

*Origin of Cancer. A. Lumière.—p. 97.
*Cancer. A. Sartory and Scheffler.—p. 108.
*Present Status of Treatment of Cancer. Delbet and Thomas.—p. 119.

Origin of Cancer.—Lumière recalls that cancers develop in regions exposed to traumatism from without or within, or in organs which undergo periodical fluctuations in size. The structure of the resulting cicatrix is so compact that the blood cannot circulate freely through it, and it is thus cut off from the vital fluids, and the cells lose their differentiated structure and revert to a more embryonal type. Cancer does not develop in the cicatrix until it has lasted a long time, and until it undergoes some trauma which allows influx of the vital juices into the cicatrix. When this occurs, the cells which, in becoming retrogressively undifferentiated have acquired the exceptional faculty for growth of all embryonal tissue, begin to proliferate, and cancer results. Prophylaxis consists in warding off diseases and injuries liable to induce cicatricial changes in the skin, alimentary tract and elsewhere. After the cicatrix has developed, the aim must be to protect it against trauma.

Cancer.—Sartory and Scheffler found the plasm demineralized in cases of cancer, the leukocytes unusually large and numerous, with low proportion of lymphocytes, and excessive eosinophilia. Robin has noted low oxyhemoglobin and low erythrocyte count, while the corpuscles are unusually large. Emotional strain, by its action on the sympathetic system, seems to predispose to cancer; never have there been so many cases in France as since the war. The contagion in cancer houses may possibly be explained by a water supply that lacks minerals. Cristol's research has demonstrated an exceptional proportion of zinc in cancer tissue. The largest proportion he found in the normal uterus in his extensive research was 0.367 per thousand ash, while in the cancerous uterus it was 0.794. The longer the duration of the tumor, the more zinc. Robin's research also indicates that a deficiency of silica also predisposes to cancer. We know that the cancer age corresponds to declining function in the thyroid and genital glands, and loss of the thymus. The practical conclusions are that administration of silica and organ therapy might combat the evolution of a cancer, or prevent recurrence.

Present Status of Treatment of Cancer. — In concluding this review, Delbet and Thomas reiterate that the treatment of malignant disease has to be multiple. Adjuvant serotherapy and vaccine therapy offer a broad and promising field for research.

Paris Médical

13: 477-508 (June 2) 1923

*Infectious Diseases in 1923. C. Dopter.—p. 477.
The Schick Reaction. P. Lereboullet and P. Joannon.—p. 486.
Typhoid and Paratyphoid Jaundice. E. Sacquépée.—p. 494.
Primary Pneumococcus Sepsis. L. Izard.—p. 501.
*Typhoid Nephritis. J. Chalier and R. Desjacques.—p. 503.
*Convalescents' Serum in Prevention of Measles. C. Dopter.—p. 504.
Protracted Pneumococcus Infection in Infants. P. Blamoutier.—p. 508.

Infectious Diseases in 1923.—Dopter's review of the literature of the year mentions the success of protein therapy after failure of other measures in a few cases of meningococcus septicemia. When even this failed, Netter, at the hundred and third day of the disease, injected pus from an aseptic abscess induced in a horse with turpentine, and the patient recovered. An interesting finding in recent months is Bordas' discovery of healthy carriers of plague bacilli among rats. Where plague has once prevailed, these healthy carriers serve as a reservoir of the virus between epidemics. Blanchard's discovery of a special spirochete in the blood during blackwater fever is also significant. It reproduced hematuria, and not jaundice, in animals. Spirochetes have also been found recently in the spinal fluid in multiple sclerosis, but only intermittently.

Typhoid Nephritis.—In the young woman, the paratyphoid B infection had suggested ordinary typhoid until, in the second week, edema and tachycardia developed, with tube-casts. Complete recovery followed.

Convalescents' Serum in Prevention of Measles. — Dopter remarks that if this method of prophylaxis continues to justify the hopes now based on it, systematic arrangements must be made to collect the serum and distribute it to institutions threatened with an epidemic.

Revue Française d'Endocrinologie, Paris

1: 97-184 (May) 1923

*Hyperthyroidism. M. Labbé.—p. 97.
*Endocrine Glands and Deficiency Diseases. G. Mouriquand et al.—p. 109.
*Evolution of Hormones. L. Hallion.—p. 137.
*Blood Production in the Pituitary. R. Collin.—p. 147.
*Thyroid Treatment Regulates Diuresis. R. Porak et al.—p. 159.

The Diagnosis of Excessive Functioning of the Thyroid.—Labbé comments that the epinephrin test and the basal metabolism findings are not only indispensable, in atypical cases, for the diagnosis, but for oversight of the effect of treatment and the prognosis.

Endocrine Glands and Deficiency Syndromes.—Mouriquand, Michel and Sanyas found that deficiency diseases developed in their ninety-two guinea-pigs earlier and more pronounced when they were given thyroid extract. No effect in this line was observed from epinephrin, even when kept up for 240 days.

Evolution of Endocrine System. — Hallion discusses the evolution of the local secretions from the general circulating medium, the blood. Each organ has its own special fluid medium, and this relative autonomy of the local mediums explains many facts in physiology and therapeutics.

Blood Production in the Pituitary.—Collin presents new experimental evidence in this line. It suggests, he says, that part of the red corpuscles in the blood may originate from transformation of the glandular cells in the hypophysis cerebri.

Action of Endocrine Extracts on Diuresis.—The beriberi polyneuritis in the boy, aged 12, was accompanied with evidences of deficient functioning of the sympathetic nervous system, and scanty production of urine. Under thyroid treatment, the sympathetic system seemed to be restored to normal and, with this, normal diuresis returned. Porak and his co-workers ascribe this to improvement of the nutrition in general by the thyroid treatment, rather than to any direct action on the sympathetic nerve.

Schweizerische medizinische Wochenschrift, Basel

53: 461-484 (May 10) 1923

*Epidemic of Smallpox in Zurich in 1921-1923. Naegeli.—p. 461. Idem. O. Leuch.—p. 461.
Gummatous Meningitis with Persisting Central Scotoma. Strebel.—p. 467.
A Warming Apparatus for Drip Enemas. H. Koller-Aeby.—p. 469.
Chorea Major in Switzerland in Former Centuries. Martin.—p. 470.

Epidemic of Smallpox in Zurich in 1921-1923.—Naegeli saw only one death, in a new-born child, among 1,400 cases of the recent epidemic of smallpox in Zurich. He believes that it is a special variety of smallpox, similar to those observed in America (white pox) and England (alastrim). The mortality of the usual form of smallpox in the neighboring canton Basel was at the same time about 15 per cent.

Clinical Picture of a Benign Epidemic of Smallpox in Canton of Zurich in 1921-1923.—Leuch describes the symptoms of this disease. It starts suddenly, with chill and high temperature (38 to 40 C.). Pains in the back were present in two thirds of the cases. The temperature becomes normal after two or three days, and the eruption, which resembles varioloid, starts after one or more days of a free interval. The pustules develop in one to four days and last three or four days. The whole content of the pustule usually empties after one puncture. The disease is very benign.

Riforma Medica, Naples

39: 553-576 (June 11) 1923

Share of Reticulated Tissue in Blood Production in Leukemia. D. Reitano.—p. 553.
Subcutaneous Rupture of Three Tendons. G. M. Fasiani.—p. 557.
Typhoid Simulating Acute Appendicitis. F. de Gironcoli.—p. 559.
Connection Between Influenza and Appendicitis. M. Gioseffi.—p. 561.
Diagnosis of Visceritis and Perivisceritis Below the Liver. G. Castronuovo.—p. 562.

39: 577-600 (June 18) 1923

Phlegmonous Gastritis Secondary to Cancer. A. Businco.—p. 577.
Behavior of Right Atrium in Vagotonia. S. Mongini.—p. 580.
*Sign of Sclerosis of Aorta. C. Trunececk.—p. 581.
Main Points for Diagnosis of Gastric Ulcer. G. Carisi.—p. 584.

Sign of Arteriosclerosis of the Thoracic Aorta.—Trunececk recalls that normally there is no arterial pulse in the supraclavicular fossa. When pulsation is perceptible and the wave in the subclavian can be traced to the axilla, with unusual dulness over the aorta and to the right of the sternum, and the second aortic sound is exaggerated and metallic, there is sclerosis and dilatation of the thoracic aorta. This abrupt "sclerotic shock" as he calls it, may be bilateral. The jugular venous pulse is entirely different; it is longitudinal, becomes imperceptible with respiration, is sluggish, and the tension is low. With exophthalmic goiter, the pulse is equally perceptible in all the peripheral arteries. An aneurysm and a pericardial effusion can usually be recognized by the symptoms due to compression. The peculiarities of the "sclerotic shock" may be felt in other peripheral arteries when the blood stream passes from a rigid into a still elastic segment of the artery.

Rivista Critica di Clinica Medica, Florence

24: 49-64 (Feb. 5) 1923

*Bilirubin in Infectious Jaundice. A. Bolaffi.—p. 49.
*Alimentary Colloidal Shock. I. Spadolini.—p. 54.

Bilirubinemia in Infectious Jaundice.—Bolaffi reports three cases of catarrhal jaundice with necropsy in one, in which the prompt direct reaction with Hijman van den Bergh's test conflicted with his theory as to its interpretation.

Hemoclastic Crisis and Anaphylactic Shock After Experimental Lesions of Mesenteric Nerves.—Spadolini's research on the pathogenesis of dystrophia, of alimentary origin, seems to establish that the mesenteric plexuses are the normal protecting barrier against anaphylactic sensitization of alimentary origin.

Rivista di Clinica Pediatrica, Florence

21: 193-256 (April 24) 1923

*Oxydases. G. Righi.—p. 193.
Interlobar Empyema After Pneumonia. R. Mancinelli.—p. 218.
Clinical Importance of Vegetative Nervous System. Pollitzer.—p. 230.

Contribution to the Study of Oxydases.—Righi studied in different infectious diseases the leukocytes containing oxydases. He found that sometimes the clinical symptoms or complications are preceded by an increase of oxydases. During the course of the disease the amount of these granules decreases notably. They reappear during convalescence.

Archivos Españoles de Pediatría, Madrid

7: 193-256 (April) 1923

*Achondroplasia. A. Martínez Vargas.—p. 193.
Intertrigo in Children. J. Fernandez de la Portilla.—p. 222.

Achondroplasia.—Martínez Vargas has published two preceding studies of achondroplasia since 1900, and he here gives eleven illustrations of a number of new typical cases, and reviews international literature on the subject. The data all confirm his view that it is a kind of physiologic mutation. The tissue involved is the epiphyseal cartilage, although some of the endocrine glands may show anomalies. The achondroplasia has finished its evolution by the time the child is born, and treatment seems to be futile.

Prensa Médica Argentina, Buenos Aires

9: 1005-1028 (May 20) 1923

*Inherited Syphilis in Gynecology. E. Nicholson.—p. 1005.
*Cholesterol Metabolism. J. Palacio.—p. 1014.
An Epidemic of "Fourth Disease." A. B. Ribeyrolles.—p. 1017.

Inherited Syphilis in Gynecology.—Nicholson has encountered a number of cases in which a gynecologic affection that had long resisted treatment of all other kinds, including repeated curettage, subsided under tentative treatment as for syphilis. He refers in particular to menorrhagia and metrorrhagia in virgins, uterine fibromyomas and endocrine derangement, reporting a number of typical cases of each class. The parents, the brothers and sisters, may first give the clue, and the success of specific treatment, even as late as the menopause, will disclose the syphilitic element. One girl of 17 with pains in the epigastrium, dysmenorrhea, and symptoms of irritable heart was restored to normal by a month of mercury and iodid; the father's ataxia had given the clue in this case. In one woman, aged 32, the complete success of mercury and thyroid treatment sustained his diagnosis of menorrhagia from thyroid insufficiency in inherited syphilis.

Metabolism of Cholesterol. — Palacio reports inconclusive findings in regard to the effect on the cholesterol content of the blood in ten rats before and after removal of both suprarenals.

Revista Médica del Rosario, Argentina

13: 89-153 (April) 1923

*Congenital Stenosis of the Pylorus. A. Zeno and C. Muniagurria.—p. 89.
*Chronic Appendicitis in Children. J. M. Maidágan.—p. 103.
*Acquired Hydrocephalus. T. Fracassi.—p. 113.
*Bile in the Peritoneum. D. Staffieri.—p. 121.

Congenital Stenosis of the Hypertrophic Pylorus. — The present status of operative treatment is reviewed, and a successful case reported.

Chronic Appendicitis in Children. — Maidágan protests against the frequent statements in regard to the "abuse of appendectomy." He affirms that the appendix in children is not removed as often as it should be. Chronic insidious appendicitis is rare in very young children, but after 4 it is a frequent sequela of acute infections and eruptive diseases. Cyclic vomiting, with or without acetone, never returned after removal of the appendix in his cases. Severe dyspepsia seldom occurs in children between 6 and 8 without being traceable to chronic appendicitis.

Acquired Hydrocephalus.—The hydrocephalus developed in the young man four years after a contusion of the chest. Frontal headache and impairment of vision of sudden onset, with normal spinal fluid, called for a decompression operation, which was followed by gradual improvement. In a second case similar improvement was realized, but vision had been lost when the girl, aged 12, was first seen.

Bile in the Peritoneum.—Staffieri had two cases nearly at the same time; in one a hydatid cyst in the liver had been ruptured in a contusion. In the other case symptoms of old gallstone disturbances and mild infection in the biliary apparatus suggested that the choleperitoneum had occurred without perforation.

Revista Médica del Uruguay, Montevideo

26: 189-228 (May) 1923

Hemiplegia of Adult Type in Two Children. J. Bonaba.—p. 189.
Nipiology. Ernesto Cacace.—p. 194.
*Cyanosis in Whooping Cough. M. A. Jaureguy.—p. 207.
*Preventive Treatment of Syphilis. J. May.—p. 213.
Peritonitis in Course of Typhoid. J. L. Vera.—p. 216.
*Bilateral Suppurative Parotitis in Young Infant. L. Volonté.—p. 220.

Cyanosis in Whooping Cough. — Jaureguy describes three cases, from a recent epidemic of whooping cough, in which the children developed fever, dyspnea and intense cyanosis that were speedily fatal. Tuberculous lesions were evident, and it is known that in whooping cough the organism is unable to respond to the tuberculin test. This negative phase allows the tubercle bacilli free play, and they may rapidly invade the pericardium or other organs, when the paroxysms of coughing shake up the organs in which they are already lurking, or open the portal to new invasion.

Preventive Treatment of Syphilis. — May comments on a case of professional syphilis acquired in delivering a syphilitic woman. The physician disinfected his hands with great care and a syphilologist cauterized an erosion, but syphilis developed and ran the usual course. Prompt preventive treatment would have averted it. This was proved in two other physicians given preventive treatment at once after the eye had been contaminated with syphilitic saliva or the finger cut in puncturing a chancre. Preventive treatment is justified, May says, only when syphilis is absolutely certain in the person suspected of the contagion. The preventive treatment can be milder the briefer the interval after the contact.

Bilateral Parotitis in Recently Born Infant. — The infant had thrush, and the suppurative parotitis required incision; recovery was complete in a month.

Semana Médica, Buenos Aires

1: 1109-1148 (June 14) 1923

*Aneurysm of Common Carotid. R. A. Bullrich and S. Viggiano.—p. 1109.
Medicolegal Testimony in Case of Impotency. C. L. García et al.—p. 1115.
Polymorphous Bacterium Found in Whooping Cough. J. Melfi.—p. 1125.
Fractures of the Humerus. C. Pasquini López.—p. 1128.
Infant Feeding, Growth and Nutritional Disturbances. J. C. Navarro and Florencio Bazán.—p. 1134.

Aneurysm of Common Carotid. — The man, aged 44, presented aortic insufficiency as well as a fusiform aneurysm of the right common carotid and a four plus Wassermann reaction. The accessibility of the entire aneurysm allowed instructive electrocardiographic study of the diseased carotid and its sound mate. Hill's sign of aortic insufficiency was pronounced.

Siglo Médico, Madrid

71: 525-548 (June 2) 1923

*Means to Induce Premature Delivery. Parache.—p. 525.
Bismuth Preparations in Ophthalmology. M. Marín Amat.—p. 528. Cont'd.
Nondisfiguring Surgery of the Skin. V. Gimeno y Rodríguez Jaén.—p. 532. Cont'n.
Traumatism of Skull and Brain. V. Fidalgo Tato.—p. 534. Cont'n.

Means to Induce Premature Delivery.—Parache has been much impressed with the smooth and apparently normal delivery when he ruptured the membranes and, four hours later, injected pituitary extract. For five years this has been his practice when conditions required immediate premature evacuation of the uterus (60 cases). As term approaches, the uterus is sensitized, so that rupture of the membranes starts the birth process, and pituitary extract reenforces the natural powers. He warns that if uterine contractions do not appear, or grow weaker, this testifies that the uterus is not sensitized, and the injection should not be repeated.

Deutsche Zeitschrift für Chirurgie, Leipzig

178: 289-426 (April) 1923

*Research on Kidneys in Parabiosis. A. Hermannsdorfer.—p. 289.
Ascarids from Surgical Standpoint. O. Hürzeler.—p. 393.
*Intermittent Peritonitis with Adhesions. F. Kempf.—p. 402.
Etiology of Spontaneous Extensive Hemorrhage in Bed of Kidney. K. Grasmann.—p. 416.
*Primary Sarcoma in the Liver. A. Candea.—p. 423.

Research on the Kidneys in Parabiosis. — The extensive experimental research here reported has confirmed that from 66 to 75 per cent. of the pairs of rats joined together present evidence of severe toxic action. It seems to be a constant internal, reciprocal, biochemical, toxic influence. Cachexia and shifting of the blood picture are the principal manifestations. Urine from the parabiosis rats, injected into the peritoneum of a healthy single rat, may cause convulsions, fatal in a few minutes. Among the conclusions suggested by these experiences is that eclampsia in the pregnant and uremia with convulsions are the results of a toxic disturbance of the total metabolism by production of a toxin in the kidneys, with absorption of the toxin into the blood stream. Extrarenal and renal pathologic conditions cooperate to produce the clinical picture.

Intermittent Adhesive Peritonitis.—Kempf does not hesitate to apply the term malignant to the peritonitis to which he refers. No mechanical or chemical irritation or other local cause has been discovered, and operative measures to break up the adhesions are futile, as new adhesions soon form. Kempf is convinced that bacteria are a factor in this chronic progressive affection, with its acute exacerbations. In a typical case, as a last resort, he detached the adhesions and poured liquefied fat into the abdominal cavity. The fat was taken from the patient's thigh and seemed to have answered the desired purpose to a certain extent, although the man died in collapse three days later from peritonitis. He ascribes the peritonitis to irritation from the albumin left in the fat; he had noticed white specks in the fluid fat at the time. In a future case he proposes to extract the auto-fat with ether before pouring it into the abdominal cavity. The fat must not touch the lips of the incision, as this would interfere with the healing of the wound. Moving the patient about would help to distribute the fluid fat over the desired surface. He used

100 gm. of liquid fat, but says that half of this would probably have been sufficient, as although fully 50 per cent. of the fat had escaped through the fistula, yet necropsy showed the entire peritoneum coated with the oily layer. To get 50 gm. of fluid fat, it would be necessary to have 100 or 150 gm. of solid fat, and it takes a day to prepare it.

Primary Sarcoma in the Liver.—In connection with resection of a small tumor in the liver of a young woman, Candea mentions a family in which three of the five children died within four years from sarcoma. The ages ranged from 19 to 23, and the tumors were in the stomach and liver, rib and tibia.

Jahrbuch für Kinderheilkunde, Berlin

101: 251-372 (April) 1923

- *Congenital Syphilis. K. Kundratitz.—p. 251.
- Essential Amino-Acids in Cow's and Human Milk. A. Mader.—p. 281.
- *Biology of the Colon Bacillus in Dyspepsia. A. Adam.—p. 295.
- *Pathology and Treatment of Nutritional Disturbances. Schaps.—p. 315.
- *False Passage in Intubation. M. Hohlfeld.—p. 349.
- *Psychic Inanition of Infants. E. Aschenheim.—p. 353.

Congenital Syphilis.—Kundratitz finds all the welfare work of little use in congenital syphilis as long as the parents are not compelled by law to allow regular treatment. The mortality of untreated syphilitic infants is between 24.2 and 66.6 per cent. The mortality of his treated cases was 4.7 per cent. An apparently permanent cure was obtained in 31.7 per cent. of infants. Pathologic findings were present in the cerebrospinal fluid in only 29 per cent. of forty-five infants tested.

Biology of the Colon Bacillus in Dyspepsia, and Its Relation to Pathogenesis and to Intoxication.—Adam finds that the food which causes or increases dyspepsia, acts favorably on the development of the colon bacillus. Food that cures dyspepsia, inhibits the growth of the colon bacillus.

The Treatment of Nutritional Disturbances in Infants.—Schaps claims that daily addition of 2 or 3 gm. of lactic acid (divided in five or six doses) arrests dyspepsia in a very few days, no matter whether fermentative or putrefactive. Severe habitual vomiting and nutritional intoxication disappear in a day, if 10 to 20 gm. of gelatin are given in a liter of water during the day.

False Passage in Intubation.—Hohlfeld four times observed a false passage among his 428 intubations. He concludes that even an expert must not use force in introducing the cannula.

Psychic Inanition of Infants.—Aschenheim finds that older infants are inhibited in their psychic and somatic development if left alone. Association with other infants or children is necessary, especially in institutions.

Medizinische Klinik, Berlin

19: 709-744 (May 27) 1923

- *Primary Chronic Progressive Polyarthritis. E. Freund.—p. 709.
- Necessity of Hygienic Survey of German Students. P. Kuhn and R. Fetscher.—p. 711.
- So-Called Sexual Anesthesia of Women. A. Moll.—p. 714. Conc'n.
- Syphilis of Bones. J. Weiss.—p. 716.
- Mechanics of Incisions of Skin and of Scars. F. du Bois-Reymond.—p. 718.
- Treatment of Bile Fistula. L. Nicolas.—p. 721.
- *Hemorrhagic Diathesis After Blood Transfusion. H. Herrmann.—p. 722.
- *Tropical Malaria in Germany. P. Neumann.—p. 723.
- Calcium Treatment in Spasmophilia. K. Blühdorn.—p. 724.
- *Seroreaction for Determination of Activity of Tuberculosis. L. Mátéfy.—p. 725.
- Treatment of Eczema. Aufrecht.—p. 727.
- Large Prolapses of Vagina. E. Runge.—p. 729.
- Present Status of Treatment of Carcinoma. O. Strauss.—p. 730.

Treatment of Primary Chronic Progressive Polyarthritis.—Freund did not see permanent improvement of chronic arthritis after tonsillectomies. The transient improvements resemble the effects of protein treatment, and it is possible that they are due to resorption of proteids from the open wound. Carious teeth do not seem to have any significance. Notwithstanding this, diseased tonsils and teeth should be removed. Radium preparations give good results. Injections of milk and other proteins help sometimes, but the affection recurs frequently. Immobilization of the joints should be restricted to a minimum. Exercises are preferable; massage, especially in a warm bath, is to be recommended. Thermic treatment is overestimated.

Hemorrhagic Diathesis After Blood Transfusion.—Herrmann transfused 200 c.c. of citrated blood into a patient with anemia after septic abortion. The transfusion was immediately followed by severe subjective and objective disturbances and a hemorrhagic diathesis. The patient died.

Diagnosis and Treatment of Tropical Malaria in Germany.—Neumann points out that tropical malaria acquired in Germany may be without characteristic attacks of fever. Arsphenamin may cause death or a more severe progress in such cases.

Seroreaction for Determination of Activity of Tuberculosis.—Mátéfy mixes 0.2 c.c. of serum with 1 c.c. of a 0.05 per cent. solution of aluminum sulphate. He found that much larger flakes of globulin form in the serum from patients with severe tuberculosis than in other serums.

Monatsschrift für Geb. und Gynäkologie, Berlin

62: 119-240 (March) 1923

- *Renal Diabetes in the Pregnant. H. Küstner.—p. 119.
- Ovarian Pregnancy Carried to Term. K. Böwing.—p. 127.
- Results with Naegele and Kjelland Forceps. A. Hermstein.—p. 139.
- Is Prophylactic Cesarean Section Justified with Contracted Pelvis? P. W. Siegel.—p. 147.
- Rubin's Test for Patency of Tubes. E. Graff.—p. 159.
- *Isolated Tuberculosis of the Portio. K. Neuwirth.—p. 163.
- Primary Carcinoma of One Tube with Tuberculosis of Both Tubes. Stübler.—p. 173.
- *Pregnancy with Rectal Cancer. K. Heil.—p. 179.
- *Two Thousand Cancer Cases. F. Voltz.—p. 187.
- *Roentgen Treatment of Menorrhagia. Scholten and F. Voltz.—p. 194.
- Treatment of Inadequate Labor. B. Herzfeld.—p. 201.

Renal Diabetes in Pregnancy.—Küstner noted alimentary glycosuria—renal diabetes—in all of 125 pregnant women, and also in twenty of a group of twenty-two nonpregnant women a few days before the onset of menstruation. He reasoned from this that this "renal diabetes" must be traceable to the ovaries. This assumption was confirmed by research on rabbits. The permeability of the kidneys is exaggerated under the influence of the corpus luteum.

Isolated Tuberculosis of the Vaginal Portion of the Uterus.—The aspect suggested cancer, but the lesion healed over under local iodin treatment. The patient was a woman of 67, and her age contraindicated operative measures. Senile marasmus developed later and the tuberculous process flared up anew.

Rectal Cancer in the Pregnant.—Heil adds another case to the thirty-one on record. He delivered his patient by cesarean section, and seven weeks later resected the rectum—an abdominal-sacral total extirpation. The woman's general condition is now satisfactory. The case teaches anew the great importance of careful examination of the rectum at the first sign of trouble.

Two Thousand Cancer Cases.—Voltz analyzes from various standpoints 2,000 cancer cases in women in Döderlein's service in ten years. In 35 per cent. of the total the father or mother had died from cancer, and in 8 per cent. a brother or sister besides the parent; in 34 per cent. the father or mother had died from tuberculosis, and in 7 per cent. also some brother or sister.

Roentgen Irradiation of the Spleen in Treatment of Uterine Hemorrhage.—Scholten and Voltz report excellent results from roentgen exposures of the spleen in treatment of purely functional menorrhagia and metrorrhagia in twenty-seven cases. The patient lies on the right side; a field 10 by 15 cm. is exposed, with a 0.5 mm. zinc filter, and the dose is 24 per cent. of the erythema dose.

Monatsschrift für Kinderheilkunde, Leipzig

26: 97-208 (May) 1923

- *Treatment of Epidemic Meningitis. K. Lewkowicz.—p. 97.
- Deforming Juvenile Osteochondritis. W. Singer.—p. 123.
- *Roentgenologic Examination of Enemas in Infants. R. Steinko.—p. 166.
- Gaucher's Splenomegalia. T. Fahr and C. Stamm.—p. 169.
- Extrasystoles in Children. Siemianowski and Cieszynski.—p. 175.

Treatment of Epidemic Meningitis with Sweating and Antiserum.—Lewkowicz finds that sweating has no certain effect in meningitis. It is dangerous, if serum treatment is neglected because of it. Intraspinal injections of serum suffice if the passage between the subarachnoidal space of the spinal canal and the ventricles of the brain is free. Its action may last for two days. In other cases, direct injections into the ventricles of the brain are necessary.

Roentgenologic Examination of Enemas in Infants.—Steinko found that an enema, even as small as 50 c.c., stimulates reflexly peristalsis of the whole colon.

Münchener medizinische Wochenschrift, Munich

70: 521-552 (April 27) 1923

Treatment of Heart With Scilla and Quinidin. F. Kauffmann.—p. 521.
Indications for Artificial Abortion. H. Sellheim.—p. 524.
*Cerebrospinal Fluid in General Paralysis. Gennerich.—p. 525.
*The Wassermann Reaction. K. Eskuchen.—p. 527.
Specific Diagnosis in Surgical Tuberculosis. Friedrich.—p. 528.
Arteriosclerosis and Preceding Hypertension. H. Malten.—p. 530.
"Staining of Spirochetes." J. Schumacher.—p. 531.
*Tuberculosis and Capillaries. W. Hagen.—p. 532.
Fatal Botulism from Beans Sterilized by Weck Method Before Canning. Blum.—p. 533.
Rare Injury Demonstrating Tenacity of Tendons. Block.—p. 533.
Bilirubin Determination in Urine. K. Hoesch.—p. 534.
Von Moltke's Heart Disease. A. Herrmann.—p. 534.
*Occupational Lead Poisoning. L. Schwarz.—p. 535.
Diagnosis of Vague Feverish Conditions. A. Krecke.—p. 537.

Histologic Demonstration of Diffusion of Cerebrospinal Fluid in the Pia Mater and Nervous Tissue in General Paralysis.—Gennerich considers the diffusion of cerebrospinal fluid into the parenchyma of the central nervous system as the most important factor conditioning metasyphilis. He believes that the pia mater normally protects the central nervous system against the diffusion. If the membrane is injured by a chronic latent syphilitic meningitis, the fluid penetrates into the brain or spinal cord, and causes general paralysis or tabes. He infused in cadavers a solution of potassium ferrocyanid intraspinally, and was able to prove in general paralysis and tabes a penetration of the substance into the nervous tissue by treating sections with copper sulphate. He believes that these experiments prove his theory.

Frequency of Positive Wassermann Reaction in Cerebrospinal Fluid with Negative Reaction in Blood.—Eskuchen finds in 34 per cent. of his seronegative cases of syphilis of central nervous system (especially general paralysis) a positive Wassermann reaction in the cerebrospinal fluid.

Tuberculosis and Capillaries.—Hagen believes that the frequency of tuberculosis in spring and the exacerbations in pregnancy and menstruation are due to a dilatation of capillaries and fast blood stream, which he observed at these periods.

Report on Action of Lead in Printers Investigated at the Institute for Industrial Hygiene in Frankfort-on-the-Main.—Schwarz found only a small number of instances of lead poisoning among printers and machinists. He insists nevertheless on a semiannual routine examination, including blood smears and hematoporphyrin determination in the urine. The research included 274 persons whose trade required the handling of metallic lead in some form, and who had consulted a physician.

Wiener klinische Wochenschrift, Vienna

36: 321-338 (May 3) 1923

Diuresis in Children with Regard to the Water Content of Food. E. Nobel.—p. 321.
*Action of Lysozyme. O. Nakamura.—p. 322.
*Parenteral Injections of Milk in Internal Disease. Högler and Seidel.—p. 323.
*Oral Râles. A. Schick.—p. 325.
*Bacteriuria as Cause of Vulvitis. Bucura.—p. 326.
*Abdominal Stasis. L. Hess.—p. 327. Conc'n.
Private Practice and Competition of Hospitals. Holzknecht.—p. 330.

Actions of Lysozyme.—Nakamura confirms, generally, Fleming's investigations on the lytic action of tears on some sarcinae. The tears may be active even in a dilution of 1:100,000, and are comparatively resistant to heat. They act also on dead micro-organisms, and do not lose their activity by use. N/8,000 acid enhances the effect. Acids which are stronger than N/2,000 inhibit it, but overneutralization by alkali is followed by a quick dissolution of the germs, even if the amount of tears originally added would not have been sufficient to obtain it. [An editorial on "Bacteriolytic Tears" appeared in The Journal, June 17, 1922, p. 1896.]

Action of Parenteral Injections of Milk in Different Internal Diseases.—Högler and Seidel attribute the untoward effects of parenteral injections of milk to its high content of micro-organisms and toxins. If milk is obtained under aseptic precautions and sterilized, intramuscular injections of 5 to 10 c.c. are hardly ever followed by fever or subjective disturbances. They had favorable results in arthritis, bursitis, tendovaginitis, and bronchitis. They observed a distinct diuresis eight to twelve hours after the injections. This may be in connection with the effect of the treatment on inflammatory edemas.

Oral Râles.—Schick never observed râles in beginning tuberculosis by auscultation of the mouth. They are present in cases of cavities and bronchitis. Since the cavities may be deep in the tissues, oral auscultation serves for quick orientation as to the extent of the disease.

Bacteriuria as Cause of Vulvitis.—Bucura had favorable results with hexamethylenamin in the treatment of vulvitis, which is frequently caused by bacteriuria.

Abdominal Stasis.—Hess discusses the pathogenesis and symptoms of blood stasis in the abdominal organs. The paradoxic differences in the affections of the single organs may be explained by a predisposition of the most severely changed organ. Vascularization and susceptibility to "poisons of stasis" are determining factors.

Zeitschrift für Tuberkulose, Leipzig

38: 81-160 (April) 1923

*Test for Oversensitiveness in Tuberculosis. Fischer.—p. 81.
*Tubercle Bacilli in Blood and Römer's Reaction. F. Ishiwara.—p. 86.
Syphilis and Pulmonary Tuberculosis. F. Koester.—p. 94.
Treatment of Pulmonary Tuberculosis with Phosphorus. Rückle.—p. 101.
Tuberculosis and War. E. Fürth.—p. 106.

Comparison Between Intradermal Reaction to Tuberculin and Own Serum as Measure of Specific Oversensitiveness in Tuberculosis.—Fischer induced intradermal reactions with a mixture of patient's own serum and tuberculin (diluted 1:5,000), and tuberculin alone. The results were read after sixty hours, and he believes that they are an index of the degree of toxemia and of the amount of circulating antibodies. The proportion is larger than 1:1 in chronic cheesy fibrous pulmonary tuberculosis. Progressive healing causes a ratio less than 1, though some favorable cases remained at the proportion of 1:1.

Tubercle Bacilli in Blood, and Römer's Reaction.—Ishiwara surveys 3,444 cases from the literature and reports his own findings in forty-six cases. His preparations from blood were positive in six cases, the experiment on guinea-pigs in nine cases. Adding doubtful results, he figures with nineteen positive cases—41 per cent.—especially in the third stage. Römer's experimental tuberculin reaction was negative in three certainly positive instances.

Zentralblatt für Chirurgie, Leipzig

50: 825-856 (May 26) 1923

*Osteoplastic Wedge Resection. W. Porzelt.—p. 826.
*Sphincter Equivalent in Artificial Anus. R. Haecker.—p. 827.
Two Cases of Periarterial Sympathectomy. J. Philipowicz.—p. 829.
*Periarterial Sympathectomy in Scleroderma. W. Horn.—p. •831.
*Rupture of Patellar Ligament. J. Philipowicz.—p. 833.

Curving Osteoplastic Wedge Resection in Ankylosis with Genu Valgum and Genu Varum.—Porzelt recommends the osteoplastic knee-joint resection of Iselin as possessing advantages over Helferich's curvi-cuneiform osteotomy for the correction of bony ankylosis of the knee with contracture. Iselin implants on the opposite side a thinner bone wedge taken from the apex of the curvature angle to prevent further shortening. The wedge guarantees better protection against a recurrence than Helferich's method. The advantages of both methods can be applied to the more difficult cases in which genu flexum exists with genu valgum or genu varum. Thereby, not only a further shortening is prevented, but coaptation of larger cut surfaces is effected, which insures better healing and gives better protection against shifting of the bone ends.

Sphincter Equivalent in Artificial Anus.—In cases in which, on account of a rectal carcinoma near the anal opening, amputation of the rectum and the introduction of an artificial (sacral) anus is indicated, Haecker recommends, either before or after the operation, the preparation of a Maydl artificial anus that can be closed by means of a Sauerbruch skin tube (as for a cineplastic amputation).

Periarterial Sympathectomy in Scleroderma.—Horn thinks his case may be the first one in Germany in which sympathectomy has been used in scleroderma. In view of the uselessness of the treatment hitherto applied, he thinks the favorable results in his case—that of a young woman, aged 23, who three years previously observed a hardening of the skin in a circumscribed area on the left forearm—are very encouraging. During the next few years the disease extended to the whole left arm. Six months previously the disease process appeared on the right arm. The patient had been treated in various hospitals with iodin, ointments, baths, massage, quartz lamp and roentgen rays, but the disease process advanced steadily. The brachial artery immediately below the axilla was exposed. The artery was embedded in tough, hard tissue. The adventitia was dissected free for 8 to 10 cm. and extirpated. Fourteen days after the operation a retrogression of the trophic changes became manifest. The skin slowly regained its elasticity. On the forearm and hand there are still slight traces of the malady, which may or may not clear up eventually. He now proposes to operate in the same way on the right arm.

Etiology of Laceration of the Patellar Ligament.—Philipowicz describes two cases of laceration of the patellar ligament, which is of rare occurrence, as compared with fracture of the patella. In the first case, a man aged 48 had slipped and fallen on his knee. A severe pain set in and he could not get up without assistance. A curvilinear incision was made just below the patella. A Z-shaped laceration of the middle portion of the patellar ligament was found. The edges were frayed. The joint was gaping open. After freshening, the ligament and the lacerated capsule were sutured with strong catgut button sutures and the leg was put in a plaster cast. After three weeks, active and passive movements were cautiously begun and in another week the patient got up, but retained a bandage for a time. Six weeks later completely normal motion had been restored. In both cases syphilis was present, the Wassermann test being positive. The changes were evidently associated with endarteritis on a syphilitic basis. The tendon was weakened by a deficient blood supply. In the motion of the leg it was constantly used and became over distended, which led to its fatty degeneration and fragility.

Zentralblatt für Gynäkologie, Leipzig

47: 737-784 (May 12) 1923

*Results of Radiotherapy in Cancer of Uterus. Flatau.—p. 737.
*Uterine Carcinoma, with Long Latency. A. Blau.—p. 744.
Sarcoma of Rectovaginal Septum: Radiotherapy of Sarcoma. Szamek.—p. 752.
Rupture of Uterus Following Cesarean Section. P. Keller.—p. 758.
Balneology and Gynecology. W. Engelmann.—p. 760.
Prolapse Recurring After Schauta-Wertheim Operation. Paunz.—p. 764.

Results of Radiotherapy in Cancer of the Uterus.—Flatau discusses the relative merits of operative treatment and radiotherapy. When the treatment is spread over several months and divided into two or three series, there is always a large percentage of patients who for various reasons—exaggerated optimism, indolence, or lack of funds—fail to appear for the second or third series, which fact explains, in part, the large number who remain uncured. Radiotherapy must be intensified if it is to compete with operative treatment. Flatau, therefore, sets up three requirements for a standardized method: (1) The greatest possible homogenization and hardening of the ray cone; (2) irradiation of the whole pelvis (uterus, ligaments, lymph paths, lymph glands, connective tissue) in one large field, and (3) simultaneously (or immediately preceding or following) a combination of excentrically applied and "incentrically" active distant roentgenization and an "incentrically" applied and excentrically active radium treatment. Flatau has been applying such a standard method for nearly three years and now gives a preliminary report of his results. He uses 50 mg. of radium within the cervix for forty-eight hours; 50 mg. of radium vaginally for twenty-four hours; immediately preceding or immediately following this treatment he applies an irradiation of the whole pelvis with the aid of four distant fields, one dorsal, one ventral and two lateral. Out of 22 operable cases, 80 per cent. are still living; 5 are dead or have been lost sight of; out of 46 inoperable cases, 22 per cent. are still living; 34 are dead or have left the community. The results of operative treatment, Flatau holds, cannot compare with these, and as regards the inoperable cases, the 12 patients alive and well today is so much net gain. He emphasizes, however, that radiotherapy requires a skilled and experienced operator to the same extent as surgery. The ingestion of a teaspoonful of sodium chlorid immediately following irradiation has been found to exert a markedly prophylactic action as regards after-effects of irradiation.

Uterine Carcinoma with Long Period of Latency.—Blau gives the case history of a patient who, twelve years after a uterine carcinoma was diagnosed through curettage and microscopic examination, presented herself, disquieted by irregular hemorrhages, for reexamination. The carcinoma was found to be still operable and a radical vaginal operation followed, with good results. The patient was dismissed cured, after two weeks.

47: 785-816 (May 19) 1923

*Reinfusion of Own Blood After Operations. F. Burgkhardt.—p. 786.
Dietrich's Statistics on Febrile Abortion. W. Bronsert.—p. 789.
Death Due to Perforated Acute Septic Gastric Ulcer After Criminal Abortion. R. Falk.—p. 792.
Instrument for Localization in Deep Roentgenotherapy. T. Brandess.—p. 798.

Reinfusion of Patient's Own Blood in Vaginal Hemorrhages and Operations.—Burgkhardt objects to the rectal reinfusion of the patient's own blood on account of the varying resorptive activity of the rectum. He reinjects the blood intramuscularly. After the operation, the blood collected in a vessel containing physiologic sodium chlorid solution is immediately strained through five or six layers of muslin, which rids it of impurities, also of bacteria. The fluid blood is then injected intramuscularly into the thigh or the buttocks. A tight compress is then applied over the site of the injection to hasten resorption. Burgkhardt has used this method in about fifty cases in which the hemorrhages were due chiefly to chronic metritis, endometritis, myoma and sarcoma of the uterus. The quantity of blood reinjected ranged from 50 to 400 c.c. Of late he has put blood-soaked sponges from abdominal operations in sterile sodium chlorid solution, pressed them out, strained the solution and injected it intramuscularly. The results have been uniformly excellent. In all cases the patients recovered much sooner than did others without the reinfusion of blood.

Zentralblatt für innere Medizin, Leipzig

44: 273-288 (April 28) 1923

*Significance of Grocco-Rauchfuss Triangle. A. Lehndorff.—p. 273.

Diagnostic Significance of Grocco-Rauchfuss Triangle.—Lehndorff found the Grocco-Rauchfuss triangle of dulness at the base of the healthy side in sixteen out of seventeen cases of pneumonia. Though it is constant in pleuritic exudates, it cannot be used for differential diagnosis.

Casopis lekaruv ceskych, Prague

62: 249-276 (March 10) 1923

*Alternating Respiration. M. Netousek.—p. 249.
Primary and Secondary Zonular Keratitis in Seeing Eyes. J. Janku.—p. 251. Cont'd.
Cerebral Polyneuritis with Menière's Syndrome. P. Zaviska.—p. 254.
*Agrammatism. A. Heveroch.—p. 256. Conc'n.
Sedimentation Speed of Erythrocytes. J. A. Sefcik.—p. 259. Conc'n.

Alternating Respiration.—Netousek describes a case of alternation between deep and superficial breaths in a case of azotemic uremia and malignant endocarditis. He points to the analogy with pulsus alternans.

Agrammatism.—Heveroch analyzes the relation of thought and speech. The thought causes a sentence which is formed automatically, and starts new thoughts. Correct grammatical speaking is an automatic function, which may be defective. Some patients, who are able to speak only in "telegram style," may be able to write correctly, because they have more time for it. He is skeptical in regard to the present attempts to localize the disturbance exactly.

Journal of Biochemistry, Tokio

1: 175-332 (April) 1922. English and German Edition

*Synthetic Production of Cynurenic Acid. Z. Matsuoka and S. Takemura.—p. 175.
Biochemical Study of Japanese Persimmon. S. Komatsu and H. Ueda. —p. 181.
Influence of Guanidin Acidosis on Fat Content of Blood. C. K. Watanabe.—p. 195.
Nature of Carbohydrates in Konjak (Arum) Plant. K. Goto.—p. 201.
Formation of Volatile Oil from Leucin. S. Kodama.—p. 213.
Ferment Content of Python Saliva. N. Fuse.—p. 219.
Chemistry of Rice Plants Resistant to Blast. K. Miyake and M. Adachi.—p. 223 and p. 241.
Lipolysis by Certain Saprophytes. N. Shibata.—p. 249.
*Formation of Fat from Albumin. T. Nishikata.—p. 261.
*Determination of Epinephrin. S. Kodama.—p. 281.
Electromotor Behavior of Frog Skin. K. Hashida.—p. 289.
Calcium and Magnesium Content of Blood and Tissues of a Starved Animal. K. Goto.—p. 321.

Synthetic Production of Cynurenic Acid in Surviving Liver.—Dogs' livers were perfused with Ringer's solution to which tryptophan or indolpyrocatechin had been added. The mechanism of the resulting synthetic production of cynurenic acid is discussed.

Formation of Fat from Protein.—Mishikata reports that maggots fed on blood fibrin—which contains absolutely no carbohydrate—all developed fat. The possibility of production of fat from protein thus seems to be established.

Colorimetric Determination of Epinephrin.—Kodama has applied to the Folin, Cannon and Denis method of epinephrin determination, Takata's standard color test for uric acid determination, slightly modifying the technic. He explains that the method has many advantages over the original Folin method.

Tohoku Journal of Experimental Medicine, Sendai

4: 1-148 (April 30) 1923. German, French, English Edition

Hemolysis by Pneumococci. T. Takami.—p. 1.
Agglutination of Dysentery Bacilli. Y. Ogasawara.—p. 8.
Agglutination of Paradysentery Bacilli. K. Aoki.—p. 12.
Action of Drugs on Blood Pressure. M. Yokota.—p. 23.
Action of Aconitin on Intestinal Motor Function. M. Yokota.—p. 52.
Resorption of Typhoid and Paratyphoid Bacilli. S. Katsura.—p. 58.
*Signs of Death by Drowning. K. Yamakami.—p. 88.
*Pharmacologic Efficacy of Digitalis Leaf. M. Watanabe.—p. 98.

Determination of Death by Drowning.—Yamakami's analysis of the various signs of death from submersion shows that none of those in vogue is constant, and none is absolutely reliable. But he asserts that a pronounced difference in the sodium chlorid content of the blood in the two ventricles testifies almost certainly to recent death from drowning. His research thus confirms Gettler's, which was reported in THE JOURNAL, Nov. 19, 1921, p. 1650.

Efficacy of Digitalis Leaf.—Watanabe's extensive research has demonstrated the advantages of testing digitalis by adding the drug to Ringer's solution in which an excised auricle of a frog's heart is being kept alive. The time needed to cause the arrest of the auricle is recorded, and also the quantity of strophanthin which is required to have the same arresting effect in the same length of time. This method of titration eliminates errors from difference in the rate of absorption and in the sensibility of the animals. Among the points learned by this improved method he mentions that if the packing is perfectly air-tight, the drug loses very little in efficacy in spite of frequent openings, provided that each time it is well closed again. Otherwise it loses its efficacy, sometimes entirely, by the end of the year. When the infusion stands, if the reaction is neutral or alkaline, the efficacy rapidly diminishes to about two thirds in three days. On the other hand, with an acid reaction, the efficacy gradually increases, and there is no loss even in seven days. Hydrochloric acid in a concentration of less than 0.5 per cent. seems to be the optimum.

Mededeelingen v. d. Burg. Geneesk. Dienst, Batavia

343-473, 1922. English Edition

Annual Report of the Civil Medical Service in the Netherlands East Indies for the Year 1920.—p. 343.

Acta Medica Scandinavica, Stockholm

58, Fourth Supplement: 1-224 (March 21) 1923

*The Blood Sugar in Man. Karen Marie Hansen.—p. 1.

The Blood Sugar in Man.—Hansen's monograph is in English. The variations in the sugar content of the blood under different conditions in the healthy, the diabetic and others are discussed from various standpoints. A functional test is proposed for diabetes, the "one-gram curve." It is based on the assumption that the rise in the level of the blood sugar after administration of glucose, while fasting in the morning, is always the same per gram of glucose in the same person. The one-gram rise must be regarded as a kind of inverse expression of the power of hormone production. After a few days of absence of glycosuria, the fasting patient is given 10 or 20 gm. of glucose, and samples of blood are taken at intervals of a couple of minutes at first and then every five minutes. In normal persons, the organism speeds up the removal of the sugar from the blood to such an extent that the concentration in the blood does not rise above 0.18 per cent. This power of accelerating the removal of the glucose from the blood stream is much impaired in diabetes. Another point brought out by this research is that the blood sugar after intake of glucose increases in waves. Ignorance of these oscillations has led to mistaken conclusions in previous researches, as figures were recorded from the peaks or the valleys of the moment.

Hospitalstidende, Copenhagen

66: 297-312 (April 18) 1923

*Ammonia Content of the Blood. Bisgaard and Nørvig.—p. 306. Conc'n p. 313.

Methods for Determining the Ammonia Content of the Blood.—Bisgaard and Nørvig speak of two new methods for determining the ammonia content of the blood: the Henriques and Christiansen aeration method, and the Iversen micromethod. They obtained the same results as Nash and Benedict with their short aeration period, but with the three hours' aeration of Henriques and Christiansen, they obtained the same high figures as in their previous publications.

66: 313-328 (April 25) 1923

Adenoids and Exudative Diathesis. V. Schmidt.—p. 318. Conc'n p. 329.

66: 329-344 (May 2) 1923

*Operations for Ureter Calculus. Holst and Felding.—p. 336. Conc'n p. 345.

Diagnosis of Stone in the Ureter, with Report on Eighteen Operations.—Holst and Felding review their experience with thirty-three cases of a calculus in the ureter. Operative treatment of stone in the ureter is generally indicated because of present and future danger of infection of the corresponding kidney, and of hydronephrosis or anuria. Eleven of the seventeen patients operated on had infected urine, and two had anuria. Two patients died, one with acute pyelonephritis in the corresponding kidney, the other kidney being rudimentary. The other patient succumbed to genital tuberculosis, for which he had been treated two years.

66: 345-360 (May 9) 1923

*Tumor Metastasis with Acute Anemia. V. Ellermann.—p. 352.
*Wassermann Tests of the Blind and Deaf-Mutes. H. Boas.—p. 357.

Acute Anemia with Marrow Metastasis of Gastric Cancer.—Ellerman's patient, aged 46, had neuralgic pains in the bones with ecchymoses, the case being clinically diagnosed as myeloblastic leukemia. In the course of ten days the hemoglobin percentage declined from 89 to 18, and blood tests showed anisocytosis, erythroblasts and some myeloblasts, with normal leukocytes. There were no necrotic processes in mouth or throat, and no enlargement of the spleen; stomach examination showed achylia, but no retention. Necropsy revealed carcinoma in the stomach with metastasis in liver, lymph glands and bone marrow. He believes that severe anemia in cancer may be attributable to metastasis in the marrow, diagnosis of such cases being frequently supported by erythroblasts in the blood.

Wassermann Reaction in the Blind and in Deaf-Mutes in Denmark.—Boas compares the findings of Thomsen and

Leschly in 1911, of no positive reaction among 146 blind persons, and 5 positive reactions among 344 deaf-mutes, with his recent findings of 5 positive reactions among 157 blind, and no positive response among 277 deaf-mutes. He says there is no reason to suppose that hereditary syphilis is more frequent now than formerly.

66: 361-376 (May 16) 1923

*Wound of Brain Through Mouth. Fabricius-Møller and Winther.—p. 361.

Wound in the Brain Made by Stab of Foil Through the Mouth.—Fabricius-Møller and Winther report a case so singular that the literature, including that of the late war, shows only one similar. While fencing, the blunt tip of the antagonist's foil was pushed through the mouth, penetrated the base of the skull, and directly or indirectly injured the brain. The boy, aged 13, became unconscious but revived quickly and seemed normal for six hours, when aphasia and stupor set in, followed in five hours by right hemiplegia, with spasms in the lower extremities, which have increased during the last few months. Roentgenography revealed nothing abnormal, but the nature of the hemiplegia indicates lesions of the cerebral cortex, corona radiata, or the internal capsule. The pathologic picture indicates subdural hemorrhage in which the blood has gradually spread over large areas of the brain convolutions and caused slight pressure on Broca's, Wernicke's, or other centers. This would explain the present spastic condition, while the paresis may be due to direct lesions of nerve tracts near the base. They believe that the present condition has a dual cause of both extracerebral hemorrhage, probably subdural, and a slight contusion of the brain tissue, and that the exacerbation of symptoms indicates an intracranial pathologic process in which parts of the brain are subject to pressure from a cyst, abscess or hematoma, for which operation may be indicated.

66: 377-392 (May 23) 1923

*Typhus, History and Statistics. A. Norgaard.—p. 377, Conc'n, p. 393.

Typhus.—Norgaard says there has not been a single case of typhus in Denmark since 1907, while Russia had 45,000 deaths from this disease during the period 1905-1911, and Poland 11,000 (2,000 in Galicia). In Serbia, every fifth person was attacked by typhus from December, 1914, to June, 1915, and 135,000 died. Of 70,000 Austrian war prisoners in Serbia, 30,000 died from typhus. Of 340 Serbian physicians, dying from typhus, 160 died in actual service. In 1918-1919, about 47,000 cases were reported in Petrograd and the mortality rate from this disease was 9 per cent., while in Moscow, 104,000 were infected. In Poland, typhus is considered a winter disease, contrary to cholera, which is a summer malady, the explanation being that the Poles shed their sheepskin coats with warm weather and water becomes more available when the ice melts. Physicians for war prisoners took 0.2 gm. quinin a day to make their blood less tasty. The logic of this is not obvious, since the lice would not know without tasting. In Russia, practitioners spray petroleum on their underwear. He says the reason there was no death among the 227 typhus patients treated at the Danish Hospital in Poland in 1921, though the mortality rate was high in nearby hospitals, was due to an energetic digitalis therapy.

Hygiea, Stockholm

85: 401-448 (May 31) 1923

*Uveitis with Parotitis. F. Berg.—p. 401.
*Abortive Treatment of Syphilis. U. Müllern-Aspegren.—p. **421.**

"Uveoparotid Fever."—Berg reports a case of subacute febrile uveoparotitis, with bilateral parotitis and iridocyclitis, but without iris nodules and without facial paresis, in a woman, aged 23. It otherwise corresponds to the three cases described by Heerfordt in 1909. He reviews nearly forty cases, occurring mostly between the ages of 11 and 35, recorded in the literature, summarizing the symptoms of this fairly definite clinical picture. Because of the similarity of the iridocyclitis in this uveoparotitis to tuberculous iridocyclitis, even when the iris tubercles are absent, he assumes a tuberculous etiology, though syphilis may show a similar picture. This position is sustained by the seventy-five cases of tuberculous Mikulicz' disease, compiled by Schmalfuss. He believes that the facial paresis is a complication of the parotitis.

Abortive Arsphenamin Treatment of Syphilis.—Müllern-Aspegren, on the basis of his own experience (all relapses within the first year), and that of the Serologic Institute of Copenhagen (77 per cent. of the recurrences within two years after treatment), says it is safe to consider a person cured if no serologic or clinical symptoms have appeared within two years after the last injection. Later examinations of 141 seronegative and eighty-one seropositive patients with primary syphilis showed 2.4 and 9 per cent. recurrences, respectively.

Ugeskrift for Læger, Copenhagen

85: 349-372 (May 17) 1923

*Arc Light Treatment in Non-Tuberculous Dermatitis. S. Lomholt.—p. 349. Conc'n p. 390.
*Basal Metabolism in Ichthyosis. Marie Krogh and With.—p. 353.
Schick Immunization Against Diphtheria. H. Levinsen.—p. 357.
*Etiology of Wrinkles. C. Engelbreth.—p. 358.
*Death From Quinidin Treatment for Arrhythmia. T. Plum.—p. 359.

Concentrated Carbon Arc Light Treatment of Nontuberculous Dermatitis.—Lomholt analyzes the results in 42 cases treated at the Finsen Light Institute from September, 1921, to April, 1922. Of the total number of patients, 13 had neurodermatitis; 9 dry eczema (among them 2 who had been under treatment for five and six years by roentgen and other methods); 14 had weeping eczema, all chronic, and 5 had acute eczema. Doses varied from 10 to 30 minutes, repeated from two to four times, with satisfactory results in all instances. Since that time he has treated 37 other patients, among them a man, aged 63, with lichen ruber hypertrophicus of fourteen years' standing. After 15 minutes' exposure the skin became almost natural and the intense itching disappeared. Jansen's histologic investigations showed that the Finsen light in two hour doses penetrates from 0.5 to 1 mm. into the skin, and that the effects of the rays are elective, cells being destroyed while the supporting tissues remain nearly unaffected. For this reason, permanent injury of the skin is never caused by the Finsen light. Doses used for treatment of epidermis vary from ten to thirty and occasionally sixty minutes, with 55 amperes. Chronic eczemas in which infiltration and lichenization of the skin are the chief changes, generally yield to the Finsen light treatment though they are refractory to both roentgen rays and ointments. Abolition or reduction of pruritus and objective benefit may be expected, in the chronic, stationary and torpid cases. The Finsen treatment was equally successful in 11 cases of xanthoma.

Basal Metabolism in Ichthyosis.—Krogh and With, on the basis of twenty-one investigations, found a relation between ichthyosis and hypofunctioning of the thyroid glands, and that thyroid preparations favorably affected this disease. Thyroid treatment is indicated when the metabolism is below normal, but should be stopped as soon as the normal is reached.

Cause of Wrinkles.—Engelbreth says that wrinkles come within the field of medicine, and that they are due not so much to old age as to the conditions created in the corium by the chemical rays of the sunlight.

Fatal Embolism After Quinidin Treatment for Arrhythmia.—Plum reports the death of a woman, aged 34, after injection of 1.2 gm. quinidin sulphate in the course of two days. She had a chronic mitral defect which had caused auricular fibrillation, but there was no acute endocarditis nor recent pericarditis, and compensation was tolerable, though necropsy showed adhesions at the base. The valvular disease was complicated by an exacerbation of a chronic cholecystitis. This had calmed down, and she had been treated with a digitalis preparation eight days before starting the quinidin. The heart action improved to 108, pulse 96, but the improvement was followed immediately by cerebral embolism, fatal in seventeen hours. This case belongs to the first group of Schwensen's classification of cases dangerous for quinidin treatment, cases in which thrombi, formed in the dilated fibrillating auricles, are dislodged on resumption of normal auricular activity.

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THE PRESENT SCOPE OF UROLOGY *

HENRY G. BUGBEE, M.D.
NEW YORK

While it is a short word, "scope" has a broad meaning, namely, (1) object, (2) opportunity for action, and (3) extent or sweep. What is the scope of urology today? Are we urologists living up to our possibilities?

Our object should be to acquire an accurate and extensive knowledge of the urinary tract, its physiology, pathology and resulting symptomatology, and to apply judgment and skill in the eradication of the lesions presented, with the lowest possible mortality and morbidity. The opportunity for action is large, being present throughout the patient's life, and the extent of the field, with its various ramifications, presents a close interlocking with general medicine and the other specialties. In other words, the urologist, with his special knowledge, must view the patient through the eyes of the general practitioner.

There are certain points regarding present-day specialization which are possibly more pertinent to urology than to any other specialty. Why has urology been one of the last of the major specialties to become recognized as a definite branch of medicine and surgery? Has it not been due to the fact that the organs involved are so vital and so intimately connected with the remainder of the body that judgment in treating diseases, as well as skill in operating on lesions, is essential to the proper management of urologic cases?

Not until instruments of precision requiring special skill for their manipulation and wide experience for the correct interpretation of findings made possible the intimate study of the urinary tract was urology recognized. Even today, a considerable percentage of the profession at large accepts the special information acquired in a given case by the urologist, and applies the necessary therapeutics and mechanical therapy.

How may the urologist strengthen his position? While many of the intricate problems of urology have been solved by the urologist through his special knowledge and skill acquired by intensive study and repetition in manipulation, he must maintain a close association with general medicine and the other specialties in order to acquire a proper perspective. A realization of the close relationship between the urinary tract and the remainder of the body is most important. Laboratory and mechanical tests must be given their relative value; surgery must be employed with judgment, and the patient must be considered as a human being. Sometimes the latter is forgotten in the zeal for applying new methods of diagnosis and therapy.

Researches resulting in the elucidation of urologic problems and results from special therapy and operations must, in the hands of the urologist, be so far superior to those attained by others that there will be no question of his position in the profession today.

Unquestionably, cooperation should be the guiding spirit in our work. If the urologist can add a link to the working knowledge of an intricate case, or by some special manipulation aid in the relief of symptoms, he may be filling his position in practice. The attitude of either assuming command in a case or standing aloof is often contrary to the best interest of the patient and the profession; yet, on the other hand, the profession should recognize not only special knowledge but also the value of its application and the skill of the specialist, allowing the patient to benefit by such when the individual urologist has proved his worth.

While group medicine presents many advantages, these possibilities must be considered: the tendency to study the patient in sections in a more or less disconnected manner, rather than as a whole; to study the pathologic condition to the exclusion of the physiologic; to rely on laboratories and technicians to the exclusion of a careful study of the patient, his environment and temperament, and to separate treatment from diagnosis. I would not minimize the necessity for obtaining all possible data regarding a case so long as the methods employed are to the benefit of the patient and are not experimental or those involving possible harm.

The making of routine pyelograms, the extensive use of pneumoroentgenography, cystoscopic manipulations roughly carried out at improper times, as in the presence of acute bladder infections or pronounced congestion of the prostate, the performing of pelvic lavage as a routine in all acute kidney infections without previously employing medical treatment, and the performing, as a routine, of radical operations on prostate, bladder or kidney, when in selected cases a step-by-step procedure practically elminates the operative risk, are manifestations of poor judgment and will work to the detriment of urology.

In no other class of cases is it more important to obtain a complete history and to carry out a thorough physical examination. The close association between urologic pathology and disturbed physiology, as well as pathologic lesions of other organs of the body, has been proved beyond doubt. The study and care of urologic cases by the urologist in the general medical and surgical wards of the hospital rather than in special wards are often beneficial, as they foster a closer association of the urologist with the general staff and an opportunity of teaching the interns and nurses. In other words, any association which broadens one's vision by personal contact with those engaged in other branches of practice means a better urologist and better care of the urologic patient.

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* Chairman's address, read before the Section on Urology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

A word regarding certain present-day urologic studies may not be out of place. First, I would mention the field of urology in children. Congenital lesions of the urinary tract are not uncommon. Many children die with unknown pathologic conditions. Malformations which might have been corrected if recognized early often are discovered only when permanent kidney damage has resulted. Renal infections and urinary calculi in children are of frequent occurrence. Cystoscopy in children is as satisfactory as in adults. This field should be broadened in the next few years by more extensive and careful study, thus helping to clear up the pathology and treatment of these vital conditions which may appear at any time after birth.

The proper teaching of sex hygiene would go far toward controlling the spread of venereal disease, the treatment of which should be preventive rather than actual. The realization of the value of maintaining good bodily health by certain fixed principles of proper intake, body elimination, exercise, prevention of focal infections by the care of the teeth and tonsils, and the early discovery of tuberculous foci will go far toward eliminating the urologic lesions of early adult and middle life, such as kidney infections, calculi and tuberculosis.

Instruction of the obstetrician as to the causation of kidney infections and elimination of such factors, the proper prophylaxis and a more careful study of the urinary tract at the outset of pregnancy will go far toward preventing complicating infections of the child-bearing period.

When the laity reaches the point at which it has confidence in the knowledge and stability of the urologist and appreciates the value of a periodic examination and a urinalysis by him, many lesions will be discovered and eradicated in their incipience. How important this will prove to be in prostatic disease, new growths, calculi and infections.

In new growths of the prostate and bladder we have a problem which can be solved only by careful study and technic and by honest reports of cases, with such observations extending over sufficient periods of time. Each line of treatment, whether by surgery alone or by a combination of surgery, radium and deep therapy, must be considered without prejudice. Patients with these distressing conditions must be taken into the confidence of the urologist. False hopes should not be aroused, yet in each individual case the measures that promise the best results should be instituted, and the one aim in view should be that of ultimately curing the patient.

Prostatic surgery has been placed on a high plane, owing to cognizance of the fact that it is not a local disease. While removal of the gland causing obstruction will ultimately, in a large percentage of cases, cure the patient, the obstruction has brought about a systemic condition, the former lack of appreciation of which retarded progress in the proper handling of such cases until the urologists, step by step, have established a monument to the specialty.

Instruments of precision may easily become instruments of confusion when unguided by intellect. How true this is of cystoscopy. The hands of a surgeon are necessary for the proper manipulation of the cystoscope, and only the knowledge gained by a wide experience, balanced by good judgment, will tell to what extent cystoscopic manipulations are justifiable. Information gained from cystoscopy must be correlated with sound judgment.

Bladder surgery has been revolutionized by cystoscopy; kidney and ureteral physiology, pathology and treatment, both intra-ureteral and renal, as well as the surgery of the upper urinary tract, are largely precise and scientific. Owing to cystoscopy and roentgenography, knowledge of the interrelation between kidney and systemic disease and a working knowledge of the urinary tract in its entirety are constantly being elevated to a higher plane.

Bladder ulcer, supposedly cured only by resection, is now recognized as a secondary lesion which recurs unless the primary focus of infection is eliminated. Variations in the caliber of the ureters are better understood, owing to progress in experimentation and research and the broader vision of the urologist, especially in the study of the female urinary tract. Many ureteral calculi are allowed to pass or are aided in their descent by manipulation. Few movable kidneys are treated by operation; but the influence of such a condition on diseases of the kidney is better understood. Seldom is a kidney operated on for infection without a working knowledge of the causes of infection leading to other parts of the body. Not all renal calculi are removed; and tuberculosis of the urinary organs is regarded as a surgical condition in a tuberculous patient, both of which require the proper care. Rare lesions are being constantly reported, some isolated in the urinary tract and brought to light by superimposed pathologic findings; others as part of a systemic condition discovered through thorough examinations.

Where is there a more fascinating or broader field for work, a field requiring more breadth of knowledge and vision, better judgment and greater skill? It is a specialty that cannot be entered lightly. A thorough groundwork in the theory and practice of general medicine, surgery and pathology is an essential foundation for superimposed special knowledge and skill. A specialty recognized by the profession only through deeds can be maintained only by continued study of the intricate problems involved (in close association with those in other branches of the profession), such problems being always considered in their relation to the body as a whole; also by an exhibition of rare judgment in the handling of medical and surgical conditions of the greatest complexity and gravity and by producing results.

40 East Forty-First Street.

"Cures" of Hay-Fever.—Unless the physician is familiar with the natural course of hay-fever and the influence of weather and other extraneous conditions, the apparent beneficial results of treatment may be misleading. The numerous so-called "cures" of hay-fever depend mainly on these natural causes for their apparent benefits. In no other disease is it so important to take cognizance of the numerous circumstances that may affect the course of hay-fever, and the successful immunologist should be fully equipped for making careful records in order to attain success in the mastery of this disease.—*Pub. Health Rep.* **38**:1574 (July 13) 1923.

THE TOTAL AND THE NITROGENOUS METABOLISM IN EXOPHTHALMIC GOITER *

WALTER M. BOOTHBY, M.D.
AND
IRENE SANDIFORD, Ph.D.
ROCHESTER, MINN.

Friedrich Müller,[1] in 1893, demonstrated a general increase in metabolism in exophthalmic goiter by showing that a patient with this disease lost weight and nitrogenous substances on a diet more than sufficient to prevent such losses in a normal individual. Since that time the conception has been prevalent that the increase in the basal metabolism is generally accompanied by, and even dependent on, an increase in the rate of destruction of the patient's own protein tissue. However, as shown by the studies of Magnus-Levy,[2] of Falta [3] and of Du Bois,[4] who likewise have presented summaries of the subject, an increased protein destruction does not always occur, and these authors are rather guarded in their conclusions. Magnus-Levy says:

> Sometimes, at least, a deleterious influence is exerted by the disease upon the protein metabolism. To establish a state of nitrogenous equilibrium it is necessary not only to increase the intake of calories enormously, but especially to increase the intake of protein much more than in health. When a loss of protein occurs in disease independently of a diminution of diet, it is usual to designate this loss as of "toxic" origin. This is also the customary explanation in Graves' disease. But by the term "toxic protein distintegration" it must not be meant that such a process is invariable, and that it cannot by any means be avoided. Indeed, May has shown by his experiments upon animals suffering from fever that loss of protein can be prevented. And other observers have proved the same thing in Graves' disease, especially where a state of superalimentation is induced.

On account of the importance of a correct understanding of the total and the nitrogenous metabolism in exophthalmic goiter, from both the practical and the theoretical points of view, it was thought advisable to reinvestigate the subject. For this purpose a small metabolism ward of four beds was established adjoining the metabolism laboratory, and with its own special diet kitchen. In this ward nine patients, who had marked and unquestionable exophthalmic goiter, have so far been studied. The food was prepared from known recipes, the ingredients of which were weighed, and its protein, fat, carbohydrate and total calory value calculated from Atwater and Bryant's tables. In the later experiments, some of the principal items comprising the diet were analyzed for nitrogen by the Kjeldahl method; the fats were determined by ether extraction and the carbohydrate estimated by difference from the determination of the total calorific value found by combustion in a Parr adiabatic bomb calorimeter. As considerable use was made of "40 per cent." cream in the construction of the diet, the cream was analyzed daily for the fat content by the Babcock method. All food not eaten was reweighed, and the corresponding calories were deducted.

Every effort was made to insure the completeness of the twenty-four hour urine specimen. Male subjects are greatly to be preferred, not only on account of ease in collecting the entire quantity of urine, but also because the loss of nitrogenous material at the time of menstruation is avoided. Each day the total nitrogen of the urine was determined by the Kjeldahl method, and the urea nitrogen, ammonia nitrogen, creatinin, uric acid and sugar by the Folin method; occasionally the amino-acid nitrogen (Folin) was likewise determined. On each patient a complete blood analysis by the Folin system was made at short intervals throughout the period of investigation. The basal metabolic rate and respiratory quotients were determined in duplicate periods each day, except immediately after operation, by the open or gasometer method, with analysis of the expired air according to the technic that we have previously described.[5]

TABLE 1.—*Total Metabolism Experiment in Case 9*

Date	Weight, Kg.	Respiratory Quotient	Basal Metabolic Rate, per Cent.	Basal 24 Hour Calories	Average Daily Food Intake: Calories	Protein, Gm.	Fat, Gm.	Carbohydrate, Gm.	Excreta Nitrogen, Gm.	Nitrogen Balance, Gm.
4/24/23	64.4	0.72	+94	3,112	.....	..	...	...	....	.....
4/27/23	62.4	0.81	+95	3,079	.....	..	...	...	....	.....
4/28/23	62.0	0.76	+67	2,609	3,745	64	228	351	15.7	—5.5
4/29/23	....	....	....	.....	4,346	82	275	354	16.0	—2.9
4/30/23	63.0	0.75	+58	2,507	4,592	80	292	378	10.0	+2.8
5/ 1/23	62.5	0.78	+60	2.505	4,548	78	289	377	8.4	+4.1
5/ 2/23	62.9	0.80	+50	2,368	4,704	81	304	378	8.6	+4.4
5/ 3/23	62.7	0.78	+50	2,363	5,009	86	305	445	8.1	+5.7
5/ 4/23	62.4	0.72	+52	2,380	4,700	65	323	350	6.9	+3.5
5/ 5/23	62.3	0.75	+47	2,318	4.731	67	311	382	6.4	+4.3
5/ 6/23	....	....	....	.....	4 968	71	297	467	6.5	+4.9
5/ 7/23	Ligation left superior thyroid artery						...	...	2.9	—2.9
5/ 8/23	....	....	....	.....	2,076	50	153	110	9.3	—1.3
5/ 9/23	....	....	....	.....	4,223	61	258	384	7.5	+2.3
5/10/23	....	....	....	.....	3,983	60	272	294	3.9	+5.8
5/11/23	62.9	0.88	+28	2,028	4,294	59	285	342	7.4	+2.1
5/12/23	62.9	0.77	+43	2,254	4,079	71	239	379	7.9	+3.5
5/13/23	....	....	....	.....	4,446	68	264	418	7.8	+3.1
5/14/23	Ligation right superior thyroid artery						...	...	4.8	—4.8
5/15/23	....	....	....	.....	2,805	56	179	222	6.8	+2.1
5/16/23	....	....	....	.....	4,572	65	313	340	8.0	+2.5
5/17/23	62.1	0.76	+42	2,220	3,466	60	213	302	8.9	+0.7
5/18/23	62.3	0.75	+32	2,082	.....	..	...	...	...	.....

The feces were not analyzed, nor was any attempt made to determine the quantity of nitrogen lost by sweating or desquamation. In calculating the nitrogen balance, 10 per cent. of the food nitrogen was added to the urinary nitrogen, and the result assumed to be the total nitrogen elimination.

In reviewing the accuracy of our data as regards the nitrogen ingested and eliminated, it seems probable that the average error in the nitrogen balance is approximately 1 gm.; only occasionally can this error materially exceed 2 gm. The error was estimated as follows: No material error occurs in the Kjeldahl determination of urinary nitrogen, and accidental errors were excluded by making duplicate determinations. With the precautions taken in collecting the urine, it would be impossible in any case to lose more than 10 per cent., while in the greater number it is unlikely that the loss, on the average, exceeded 1 per cent. The estimation of the fecal nitrogen at 10 per cent. of the food nitrogen is probably in most cases correct within plus or minus 5 per cent.; it certainly would not exceed 20 per cent. of the food nitrogen in any case. Although patients with exophthalmic goiter perspire freely, only occasionally is the skin more than moist, even in summer time, under conditions of resting in bed, so that the error produced by neglecting this factor, could not, according to the available data on skin elimination, exceed on the average 0.1 gm. daily. Such precautions were taken in analyzing important items of the food, and in preparing and weighing the diet, that an error in the estimation of the nitrogen of food could hardly exceed plus or minus 10 per cent. of the total, and for the long periods studied it seems highly probable that the average error would be much smaller. While the sum of all these errors may be slightly more than 2 gm., yet they will rarely be all in one direction, and will thus offset one another.

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* From the Section on Clinical Metabolism, Mayo Clinic.

* Read before the Section on Practice of Medicine at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

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[5] Boothby, W. M., and Sandiford, Irene: Laboratory Manual of the Technic of Basal Metabolic Rate Determinations, Philadelphia, W. B. Saunders Company, 1920.

Table 2.—*Total Metabolism in Nine Patients with Exophthalmic Goiter*

Case	Sex*	Age, Years	Comment†	Duration of Period, Days	Weight, Kg.	Respiratory Quotient	Basal Metabolic Rate, per Cent.	Basal 24 Hour Calories	Average Daily Food Intake				Excreta Nitrogen, Gm.	Nitrogen Balance, Gm.	Average Daily Loss or Gain in Weight, Gm.
									Calories	Protein, Gm.	Fat, Gm.	Carbohydrate, Gm.			
1	♀	56	Roentgen-ray treatments	20	46.7	0.77	+40	1,703	2,885	92	130	341	8.7	+6.1	+135
2	♀	35	Period includes two ligations	23	48.3	0.77	+50	1,924	3,654	111	172	391	14.8	+2.2	0
3	♀	20	Before surgery	11	42.8	0.76	+84	2,171	5.403	136	323	448	15.2	+6.6	+224
			After hot water injection	6	45.2	0.78	+72	2,092	4,956	117	297	419	13.8	+4.9	
			After first ligation	4	44.0	0.75	+78	2,138	4,389	99	267	366	11.5	+4.3	0
			After second ligation	9	44.3	0.77	+55	1,864	3,696	83	220	320	8.3	+4.9	0
				— 30											
4	♀	36	Before surgery	11	46.7	0.77	+61	1,953	2,510	80	188	350	11.5	+1.2	0
			After ligation left superior	18	44.5	0.76	+57	1,870	2,057	57	104	207	10.3	—1.3	—200
			After ligation right superior	7	42.5	0.80	+47	1,708	1,868	58	80	187	6.2	+3.1	0
			After double inferior ligation	5	41.6	0.74	+45	1,661	1,434	42	74	139	6.1	+0.6	—440
				— 41											
			Three months later	6	53.0	0.75	+44	1,836	2,598	83	155	201	10.7	+2.5	0
			After thyroidectomy	7	51.7	0.78	+20	1,521	1,645	47	85	159	7.2	+0.4	—157
				— 13											
5	♀	41	First period before surgery	7	28.5	1.00	+55	1,507	3,299	93	180	305	6.7	+8.1	+128
			Second period before surgery	7	30.3	0.93	+56	1,567	3,306	93	164	341	7.1	+7.8	+371
			Third period before surgery	7	31.8	0.89	+67	1,724	4,247	110	234	396	9.3	+8.2	+86
			Fourth period before surgery	7	33.3	0.95	+66	1,736	3,528	99	199	285	9.5	+6.4	+257
			Fifth period before surgery	5	33.6	0.81	+42	1,487	3,721	109	214	315	9.7	+7.7	0
				— 33											
6	♂	44	First period before surgery	5	54.0	0.77	+75	2,606	3,372	100	191	291	15.0	+1.0	0
			Second period before surgery	6	53.9	0.79	+62	2,417	4,037	121	226	362	14.1	+5.3	0
			After first ligation	7	54.8	0.82	+62	2,412	3,987	121	212	371	13.5	+5.9	+86
			After second ligation	8	54.0	0.77	+92	2,854	3,359	107	186	292	15.6	+1.5	—100
				— 26											
7	♀	31	Before surgery	5	48.9	0.82	+70	2,098	3,617	84	173	406	12.1	+1.4	0
			After first ligation	8	48.5	0.81	+53	1,888	3,523	81	151	434	9.2	+3.8	0
			After second ligation	3	48.8	0.83	+47	1,815	3,361	82	153	390	10.0	+3.1	0
				— 16											
8	♀	15	Previous to pyelitis	18	27.3	0.76	+31	1,445	1,323	34	62	149	4.3	+1.6	—144
			After onset of pyelitis to death	24	....	0.75	+29	1,400?	1,020?	29?	51?	105?	4.9?	—0.2?	
				— 42											
9	♂	48	Before surgery	9	62.5	0.76	+55	2,449	4,594	75	292	387	9.6	+2.4	0
			After first ligation	7	62.9	0.83	+36	2,161	3,300	53	210	275	6.7	+1.8	+86
			After second ligation	4	62.2	0.76	+37	2,165	2,711	45	176	216	7.1	+0.1	—200
				— 20											

* In this column, ♂ indicates male; ♀, female.
† In this column is indicated the main form of treatment that the patient underwent during that period; with the exception of Case 4, in which there was a three months' interval between two studies, all the periods were consecutive.

Although the complete data from the experiments are voluminous, the main points can be derived from the essential data in one case given in Table 1, and from the summary of the results of the nine cases presented in Table 2.

The outstanding and essential fact is that, on a protein intake varying between 34 and 136 gm., it was possible to maintain at least nitrogen equilibrium, and usually to obtain a positive nitrogen balance well in excess of the probable maximum experimental error, provided sufficient carbohydrate and fat were likewise administered. On account of the decreased weight of the subjects, the protein intake varied, as a rule, between 1 and 2 gm. for each kilogram; in a few instances, a little more than 3 gm. for each kilogram was given. The proportion of protein was, however, very low when compared with the mass of food taken, and it proved exceedingly difficult to provide large, appetizing and attractive diets, which would appeal to the patient for many days, with less protein than was used in the majority of instances. Even those diets containing more than 100 gm. of protein would, if based on the amount of food ordinarily served to hospital patients, have a protein content in the region of 50 gm.; for example, the 136 gm. of protein in 5,403 calories of the first period for Case 3 would be equivalent to only 50 gm. in a 2,000 calory diet.

There was only occasionally a negative nitrogen balance: this was unimportant if it occurred immediately following a sudden and marked reduction in the protein intake, but might be of more fundamental significance if it occurred as a result of a gastro-intestinal crisis, such as followed the first ligation in Case 4. Although the gastro-intestinal crisis was of toxic origin, yet the negative nitrogen balance was due to failure or, rather, inability to take food, and therefore should not be looked on in the light of a primary toxic protein disintegration, but as similar to the negative nitrogen balance always found during starvation. In this case the total nitrogen eliminated corresponded quite closely to that found by Benedict [6] in his experiment on prolonged fasting in a normal person.

Another important fact shown by these experiments is the large number of calories of fat and carbohydrate necessary to prevent loss of body weight, even when nitrogen equilibrium is maintained.

As shown in Table 2, these patients with exophthalmic goiter ingested, in many instances for long periods, a daily ration greater than that supplied to soldiers in the field on active duty. Considering that the patients were usually weak, small and emaciated, and were in bed, or at the most up for only a few hours each day, the average daily total calories necessary to prevent loss of weight is exceedingly high. Most of the patients weighed less than 50 kg., so that the number of calories for each kilogram is particularly high.

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[6] Benedict, F. G.: A Study of Prolonged Fasting, Washington, 1915, Carnegie Inst., Pub. 203.

The ingestion of very large amounts of food has been termed "bulimia," and the general impression obtained from most references on the subject is that it is usually a manifestation of an hysterical neurosis, or a psychosis. Such an interpretation cannot be denied as a possibility in insane persons, but it should be adopted only as a last resort, and after careful basal metabolic rate determinations have been made, and the probability of the presence of an unrecognized syndrome of exophthalmic goiter or adenomatous goiter with hyperthyroidism considered. No case of "idiopathic bulimia" of hysterical origin has passed through the Mayo Clinic, during the last three years. The idea that the excessive appetite in patients with exophthalmic goiter was an hysterical manifestation probably arose from misinterpreting the nervous manifestations of patients with exophthalmic goiter as primary, and from overlooking the fact that these individuals were hyperthyroid with an increased metabolism, and in consequence required large amounts of food to maintain existence. Like the increased action of the heart in exophthalmic goiter and in adenomatous goiter with hyperthyroidism, the increased appetite and food consumption are to be regarded, in the main, as a normal physiologic response of the organism to the demands made on it.

Table 3.—*Calory Balance Sheet: Food Intake and Calculated Expenditure*

		Calories
Food consumed (average for 17 days)		5,245
Estimated metabolism:		
Basal requirement	2,150	
Protein deposit, 38 gm.	156	
Fat deposit, 115 gm.	1,070	
Specific dynamic action of food	525	
Thirty per cent. of basal for movements	645	
Total	——	4,546
Balance to be accounted for		699

The results of the blood chemistry studies made at frequent intervals during the course of these experiments, supplemented by the data obtained in many other cases, were entirely negative, and showed no variation significant of an alteration in the character of the intermediary metabolism. The concentration in the blood was within normal limits for urea, creatinin, amino-acids, nonprotein nitrogen and sugar.

As soon as it was established that patients with exophthalmic goiter actually required such large amounts of food, an attempt was made to account for the excess intake. For example, in the first two periods of Case 3 there is a daily average gain in nitrogen of 6 gm., equivalent to 38 gm. of protein (forming 109 gm. of flesh), or 156 calories. Assuming the daily gain in body weight of 224 gm., except that accounted for by flesh, to be due to fat, then the amount of fat deposited will amount to 115 gm., or 1,070 calories. It is usually estimated that the basal metabolism is elevated approximately 10 per cent. by specific dynamic action of food; it is probably safer to assume, however, that 10 per cent. of the food intake is lost in the specific dynamic action; therefore, probably about 500 calories can be accounted for in this manner. With normal individuals in bed, it may be assumed that the energy expended in movements is less than 10 per cent. of the twenty-four hour basal heat production; a liberal allowance for the extra movements of patients with exophthalmic goiter would be twice this or 20 per cent.; another 10 per cent. might be added, if the patient is up and about the room, making a total of 30 per cent. The probable total metabolism in round numbers can, therefore, on the foregoing assumptions, be computed as shown in Table 3.

Table 4.—*Cost of Work Expressed at Net Gram Calories for Each Horizontal Kilogram-Meter*

Diagnosis	Cases	Average Basal Metabolic Rate	Gm. Calories for Each Horizontal Kilogram-meter	Deviation From Normal
Normal	5	—10	1.20	....
Diabetes mellitus	4	—13	1.09	—10
Myelogenous leukemia	2	+20	1.10	— 8
Anorexia nervosa	1	—22	1.12	— 7
Lymphatic leukemia	1	+65	1.19	— 1
Addison's disease	1	— 8	1.27	+ 6
Chronic nervous exhaustion	1	+ 5	1.34	+12
Myxedema	5	—28	1.36	+13
Hypertension	3	+ 4	1.43	+19
Carcinoma of the thyroid	1	+43	2.31	+93
Exophthalmic goiter	12	+52	2.24	+87
Adenoma with hyperthyroidism	1	+47	2.86	+138

A total estimated metabolism of 4,546 calories is, with slight changes, the maximal amount that can be accounted for by the ordinarily accepted methods of calculation. In this instance, as the daily average food intake for seventeen days was 5,245 calories, 699 calories daily remains unaccounted for; and unless the order of magnitude of one of the assumed values used in the calculations in Table 3 is altered, it is impossible to see how so much food could have been utilized day after day.

Table 5.—*Cost of Work in a Case of Exophthalmic Goiter (S. H., a man, aged twenty-five years)*

Date	Weight, Kg.	Respiratory Quotient	Total Calories for Each Hour	Metabolic and Basal Metabolic Rate, per Cent.	Steps for Each Minute	Horizontal Kilometers for Each Hour	Net Gram Calories for Each Horizontal Kilogram-meter
12/ 7/22	70.2	0.81	115	+ 59	..	.....	....
12/ 9/22	70.0	0.78	122	+ 71	..	.....	....
12/11/22	69.0	0.79	114	+ 59	..	.....	....
		0.81	232	+221	30	0.791	2.16
12/12/22	70.5	0.74	104	+ 44	..	.....	....
		0.86	217	+199	27	0.787	2.04
		0.78	219	+201	24	0.787	2.07
12/13/22	69.9	0.79	108	+ 51	..	.....	....
12/14/22	Thyroidectomy						
12/18/22	66.1	0.74	104	+ 48	..	.....	....
12/20/22	65.8	0.76	88.1	+ 25	..	.....	....
		0.76	179	+156	26	0.797	1.73
		0.74	180	+156	24	0.800	1.75
12/21/22	66.8	0.74	87.6	+ 24	..	.....	....
12/22/22	67.2	0.79	83.6	+ 18	..	.....	....
		0.74	179	+152	24	0.802	1.77
12/23/22	67.5	0.82	87.0	+ 22	..	.....	....
		0.78	171	+140	25	0.802	1.55
12/26/22	68.5	0.85	80.9	+ 12	..	.....	....
		0.81	161	+124	24	0.791	1.48
12/27/22	69.0	0.82	79.3	+ 10	..	.....	....
		0.89	156	+116	25	0.793	1.40
12/28/22	69.9	0.84	76.6	+ 6	..	.....	....
		0.87	156	+116	24	0.797	1.43
12/29/22	69.5	0.90	78.1	+ 8	..	.....	....
		0.84	159	+121	24	0.797	1.46
12/30/22	69.6	0.89	77.3	+ 7	..	.....	....
		0.82	151	+108	24	0.785	1.35

It was for the purpose of clearing up this discrepancy that, on the suggestion of Plummer,[7] it was determined to find out whether or not the human machine, when hyperthyroid, possesses its normal efficiency, or whether it might prove to be, under these circumstances, a very inefficient mechanism. Therefore, the cost of work was measured by determining the metabolism while walking at a constant rate on a treadmill, on five normal subjects, on eighteen patients having miscellaneous types of diseases, and on fourteen patients having either exophthalmic goiter or adenomatous goiter with hyperthyroidism, including one with carcinoma of the thyroid. The results, expressed as net gram-calories for each horizontal kilogram-meter, are summarized in Table 4, and the essential data on one subject are given in Table 5.

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[7] Plummer, H. S., and Boothby, W. M.: The Cost of Work in Exophthalmic Goiter, Am. J. Physiol. **63**: 406-407 (Feb.) 1923.

These results show that patients with severe exophthalmic goiter and adenomatous goiter with hyperthyroidism are hardly more than one half as efficient in their muscular movements as are normal persons, and therefore require approximately twice as many calories to perform a given piece of work, such as turning over in bed, and raising the arms. Consequently, in the calculation, we are justified in doubling the number of calories utilized by these patients in their movements in bed and around the room, making 1,290 calories. If 1,290 calories is substituted for 645 calories in Table 3, the total amounts to 5,191 calories, which approximately balances the food intake of 5,245 calories. In exophthalmic goiter, the very high calory diet needed by these patients to maintain weight can, therefore, be accounted for, provided allowance is made in the calculation for muscular inefficiency as well as for the increase in the basal metabolism.

REPORT OF CASES

Case 1.—Mrs. J. L. F., aged 56, came to the clinic in January, 1920, having had symptoms of exophthalmic goiter for three years. Her weight was only 102 pounds (46 kg.), in spite of considerable edema of the extremities. Marked auricular fibrillation and cardiac dilatation were present. The basal metabolic rate was + 45. The left superior thyroid artery was ligated, February 3, and the right, February 10, with only moderate reactions. The patient was dismissed from the hospital, February 18, with instructions to return in three months for thyroidectomy. While at home she did not improve much, and the cardiac decompensation increased. When she returned, May 14, her cardiac condition was serious, with auricular fibrillation, a heart rate of from 205 to 216, marked pulse deficit, edema and ascites. The basal metabolic rate ranged from + 70 to + 50. Under rest and roentgen-ray treatment, she gradually improved, and thyroidectomy was performed, Feb. 21, 1921, with only a moderately severe reaction. She left the hospital, March 28, with a basal metabolic rate of + 29. The metabolism studies in this case were carried out between Dec. 1 and 21, 1920. The gain in weight was somewhat masked by variation in the extent of the edema and ascites.

Case 2.—Mrs. C. A. N., aged 35, entered the clinic, Dec. 30, 1920, having had symptoms of exophthalmic goiter for four months. She had lost considerable weight (106 pounds, or 48 kg.) and her basal metabolic rate was 80 per cent above normal. Ligations of the superior thyroid arteries were performed, January 18 and February 1, and on February 6 the patient was dismissed with instructions to return in three months. On her return, May 28, 1920, her condition was much improved, a thyroidectomy was promptly performed, and she was dismissed shortly afterward. The metabolism studies reported were carried out at the time of her first visit between January 14 and February 5, and included the period in which the ligations were performed. She had a large positive nitrogen balance, with gain in weight, except for several days following each ligation, when loss in weight and a negative balance occurred on account of the restriction of food necessary at those times.

Case 3.—Miss V. W., aged 20, entered the clinic, June 30, 1921, having had symptoms of exophthalmic goiter for seven months. She had a basal metabolic rate in the eighties and nineties, and on one occasion it was + 108. She weighed only 65 pounds (29.5 kg.). She had several roentgen-ray treatments, and slow but steady improvement was evidenced chiefly by gain in weight. The basal metabolic rate had quite rapidly dropped to the eighties, and remained in that region until after the second ligation, November 5, when it rapidly dropped to + 51 and + 49 per cent. She was allowed to go home, November 14, and she returned, Feb. 17, 1922, greatly improved. The basal metabolic rate was in the low twenties, and she had gained 40 pounds (18 kg.). Thyroidectomy was performed in a few days, and the patient was dismissed from the hospital seven days later. The metabolism studies reported were made between October 16 and November 14, a period which included three surgical procedures. The period before operation was one of marked improvement clinically, with gain in weight and positive nitrogen balance. The patient's appetite was ravenous, she enjoyed her large diets, and she appeared to be greatly benefited thereby. She was not urged to eat more than she desired.

Case 4.—Mrs. F. K., aged 36, came to the clinic, May 29, 1922, having had symptoms of exophthalmic goiter for one year, with marked exacerbation during the last two months. She had an intense nervous type of hyperthyroidism, with a basal metabolic rate ranging from + 50 to + 70, and occasionally to + 75. June 15, the left superior thyroid artery was ligated; following the ligation there was a severe reaction with nausea, vomiting and restlessness. Twenty-four hours later, an attack of paroxysmal auricular flutter suddenly developed, and lasted three days. July 3, the right superior artery was ligated, and on July 10, both inferior arteries, without incident. July 16, the patient was dismissed from the hospital in good condition, with a basal metabolic rate of + 38 per cent. She returned to the clinic, October 17, greatly improved. She had gained 30 pounds (13.6 kg.), but there had been no further drop in the basal metabolic rate. Thyroidectomy was performed, October 27, and she was dismissed from the hospital in good condition, November 3, with a normal metabolic rate. This patient's metabolism was studied at both visits, totaling fifty-four days. It was possible to keep the weight constant, and to obtain a slight positive nitrogen balance on both occasions before operation. That there was a general improvement at the time of the second visit is shown by the fact that approximately 2,598 calories instead of 3,510 calories sufficed to maintain the weight and a nitrogen balance, on a protein intake which was essentially the same during the two studies (from 80 to 83 gm.). The effect of withdrawing food is illustrated in the period following the first ligation, when a negative nitrogen balance developed with loss in weight; this was particularly marked during the first three days, when the total calories amounted to only 77, 278 and 936 calories, with a protein intake of 0.5, 2 and 25 gm., and with a negative nitrogen balance of 12, 14 and 5 gm., respectively. The first part of this period illustrates the rapidity with which loss of weight can occur, and also shows that when the protein intake is suddenly reduced, a large negative nitrogen balance develops. However, as illustrated by a later case, as soon as equilibrium is established, the negative nitrogen balance is at least not large.

Case 5.—Mrs. R. C., aged 41, entered the clinic, Aug. 23, 1922, having had symptoms of severe exophthalmic goiter since April, 1916. Her weight had dropped from 120 to 65 pounds (from 54.4 to 29.5 kg.), and she had been confined to bed for many months; in February, 1917, she had been operated on (probably ligations of the superior thyroid vessels). Following the operation, the patient had improved, and was well for five years. In June, 1922, the symptoms returned with great severity; she entered a hospital in Denver, and received radium treatment, August 5. On arrival here, August 23, her condition was desperate, and marked by nausea, vomiting, jaundice, intense nervousness and depression. She weighed only 59 pounds (26.8 kg.). Her basal metabolic rate was in the fifties. After slight improvement as the result of rest and the administration of iodin, the metabolism experiment here reported was started, and was continued for thirty-three days, during which time her general condition improved rapidly, and she gained 13 pounds (5.9 kg.). October 2, all four thyroid vessels were ligated, with only slight postoperative reaction, although she mentioned once or twice slight tingling of the fingers, with transient cramps in the hands. October 8, she left the hospital in fine condition, with a basal metabolic rate that had decreased to + 38 per cent. March 5, 1923, she returned in excellent condition, her weight having increased to 95 pounds (43 kg.). Thyroidectomy was performed, March 12, with very slight postoperative reaction, although again she developed slight evidence of parathyroid tetany which was readily controlled by a milk diet. March 19, she was dismissed from the hospital.

March 23, the patient was readmitted to the clinic because of severe and typical parathyroid tetany. This was controlled with some difficulty by the administration of large doses of calcium lactate, and she was held in the hospital until April 22, when she was permitted to return home, still taking large doses of calcium lactate as well as parathyroid tablets. The metabolism studies illustrate the possibility of obtaining a large positive nitrogen balance which averaged 8.4 gm. daily on a diet containing 100 gm. of protein, and totaling 3,614 calories.

Case 6.—J. F., a man, aged 44, entered the clinic, Oct. 16, 1922, having had definite symptoms of exophthalmic goiter for sixteen months. The condition may have been present for five years. During the last year he had been confined to bed a considerable part of the time; at intervals of about three months he appeared to have exacerbations. At no time had he had gastro-intestinal disturbances, and his loss in weight had not been excessive, as he had been able to take large quantities of food.

On admission, his basal metabolic rate was approximately 100 per cent. above normal, he was extremely nervous, and there was slight cardiac dilatation and decompensation. He improved quite rapidly, the nervousness diminished, and the basal metabolic rate decreased to the fifties following the administration of compound solution of iodin. November 3, the left superior thyroid artery was ligated; only slight reaction followed. Compound solution of iodin was not administered after the ligation, and there was a gradual increase in the basal metabolic rate from + 55, November 6, to + 76 and + 68 per cent., November 8 and 9. The right superior thyroid vessel was ligated, November 10, with considerably more reaction than after the first ligation. There was a progressive increase in the pulse rate, and an increase in the basal metabolic rate to + 106 per cent., November 14, on which day compound solution of iodin was again administered. This treatment was followed by a fall in the basal rate to + 63 per cent., November 18, when the patient was dismissed from the hospital. He returned, Feb. 22, 1923, somewhat improved, and having gained 5 pounds (2.3 kg.). His basal metabolic rate was + 86 per cent.; but after the administration of compound solution of iodin, it dropped to + 48 per cent., March 5, with marked clinical improvement. March 7, thyroidectomy was performed with only moderate reaction, and the patient was dismissed, March 14, in good condition, and improving rapidly. The metabolism studies reported were made on his first visit, between October 23 and November 17, a period which included his two ligations. Before operation, his weight was readily maintained, with a slight positive nitrogen balance, by moderately large diets of 3,372 and 4,037 calories, containing 120 and 121 gm. of protein. As he developed no reaction following the first ligation, improvement continued, and with the exception of the day of operation, he took over 4,000 calories, with a gain both in weight and nitrogen. After the second ligation, however, on account of the severe character of the reaction, which did not reach its height until the fourth day, there was loss of weight, and on three days a slight negative nitrogen balance, in spite of a protein intake of 100 gm. and 3,300 calories. The evidence obtained in this case of the favorable and beneficial effect of compound solution of iodin on the metabolic processes, intensity and toxicity of hyperthyroidism is quite striking.

Case 7.—Mrs. A. E. L., aged 31, entered the clinic, July 3, 1922, having had definite symptoms of exophthalmic goiter for six months. The condition had probably existed for more than two years. Her general and cardiac condition were good, and there was only a moderate loss in weight. The basal metabolic rate was in the sixties. July 14, the left superior thyroid artery was ligated. Considerable improvement followed, and the basal metabolic rate dropped to the fifties. The right superior thyroid artery was ligated, July 22, and the patient dismissed from the hospital, July 26, in good condition. She was instructed to return in three months. Her weight and nitrogen balance were maintained on from 3,300 to 3,600 calories, and from 81 to 84 gm. of protein daily.

Case 8.—Miss A. W., aged 15, entered the clinic, July 11, 1922, having had symptoms of exophthalmic goiter for seven months. For about a week before admission, she had had severe nausea and vomiting, and on entrance was in a severe gastro-intestinal crisis, with a basal metabolic rate of + 52 and + 61 per cent., and weighing only 67 pounds (30.4 kg.). There was some improvement during the next three weeks following the administration of compound solution of iodin, and one roentgen-ray treatment. Although she continued to lose weight (56 pounds or 25.4 kg.) and strength, her basal metabolic rate dropped nearly to normal. August 2, she had a severe chill, and her temperature suddenly rose to 105.8 (rectal), continued to vacillate around 104 for a week, and then gradually dropped to nearly normal until the prelethal elevation occurred. The compound solution of iodin was discontinued on the day of the chill. A gram-negative bacillus bacteremia was demonstrated shortly after the onset of the infection, and the diagnosis of pyelitis was made; this was later confirmed by necropsy. Up to the time of the pyelitis, our data are fairly accurate; after that date, on account of the vomiting and incontinence, they are only approximate. After the onset of the pyelitis, the patient was not weighed, but her emaciation was extreme, and it is probable that her weight fell to approximately 40 pounds (18 kg.). Although the data in regard to the nitrogen balance are rendered inaccurate on account of loss of urine by incontinence, and loss of food by vomiting, yet we feel that they justify the assumption that in all probability the negative nitrogen balance was not very large, was secondary to the infection, and was not the primary cause of the progressive failure and death.

Case 9.—J. R., a man, aged 48, came to the clinic, April 23, 1923, having had definite symptoms of exophthalmic goiter for two years. The onset of the condition was probably one or two years earlier. The patient's normal weight was over 190 pounds (86 kg.), but at the time of examination was 137 (62 kg.). His basal metabolic rate was + 94 per cent., and he was extremely nervous. Following the administration of compound solution of iodin, his general condition rapidly improved, and the basal metabolic rate dropped to + 47 per cent. just before the ligation of the left superior thyroid artery, May 7. The postoperative reaction was slight; improvement continued, and on May 14, the right superior thyroid artery was ligated. May 18, the patient was dismissed, and advised to return in three months. At this time his condition was excellent and his basal metabolic rate had decreased to + 32 per cent. The decrease in the metabolic rate was accompanied by an increase in his efficiency as a machine, as shown by experiments with the treadmill.

CONCLUSIONS

The evidence here presented indicates that there is no measurable increase in the endogenous protein metabolism in exophthalmic goiter: therefore, it cannot be the cause of the increased basal metabolism in this disease. The cells consume at an accelerated rate whatever type of food is brought them, but in none of our experiments is there any evidence to indicate that any of the three food substances fat, carbohydrate or protein is burned in a qualitatively abnormal manner. As in the normal subject, the body's own stores of these substances are not drawn on except to meet deficiencies in food intake. However, unless the daily calory requirement is supplied by a large food intake, loss of weight and a general weakened condition with decreased resistance are more rapidly developed, and of a more intense form than that seen in normal subjects as the result of undernourishment. It is our experience that patients with exophthalmic goiter who are losing weight are more dangerous operative risks than those who are well nourished, or gaining in weight. Therefore, measures directed toward preventing and, if possible, restoring loss of weight should be instituted before operative procedures are undertaken, if the lowest possible surgical mortality rate is to be attained.

ABSTRACT OF DISCUSSION

Dr. Lovell Langstroth, San Francisco: Two very significant lessons can be drawn from the paper. First, it is important in its relation to the general subject of clinical medicine. For a long time there has been a tendency in clinical medicine to look on laboratory work, especially in the elemental sciences, as rather beneath the dignity of the clinician. Work of this type brings clearly to our minds the fact that progress in internal medicine must come from people who have the time and the type of mind that can solve this type of problem. Another significant fact is the relation of this work to the study of internal secretions. Endocrinology has been exploited widely in the last few years, and I cannot help feeling that it has been exploited by a type of clinician who is, perhaps, least suited to work out problems of this type. This paper shows the type of scientific mind that must be applied to a problem as delicate as that of the thyroid, to win any success. The same thing applies to the isolation and use of insulin, which has so lately come into prominence.

Dr. J. Marion Read, San Francisco: Patients who have a high basal metabolic rate, if they are to be kept in balance, must be fed up to that rate. A patient with a basal metabolic heat output of 2,500 calories a day must receive at least 2,500 calories in diet to remain in balance. There was a time when we treated typhoid patients by starving them; and then, ten or twelve years ago, when we began to feed them, they did very much better. So also will these exophthalmic goiter patients, in fact, any patients with increased metabolic rates do better when they are fed up to their requirements. One point in Dr. Boothby's paper particularly interested me, and that was regarding the efficiency of these patients in doing work. As we all know, the efficiency of the human mechanism as a machine for doing work depends, very largely, on the integrity of the thyroid and suprarenal glands. Dr. Boothby has shown definitely that these patients with exophthalmic goiter are not efficient machines. That would seem to indicate, if one may draw inferences, that exophthalmic goiter represents a qualitative, rather than a quantitative, change in the thyroid secretions. I would interpret it, therefore, as constituting another link in that constantly growing chain of evidence that seems to lead in that direction.

Dr. W. M. Boothby, Rochester, Minn.: I wish to point out that in a general hospital it is particularly difficult to be certain that patients with exophthalmic goiter actually receive sufficient food. In the general hospital, the entire personnel has been imbued with the fear of overfeeding patients, and the average diet is between 1,800 and 2,200 calories. The hospital administration must be informed of the necessity of large calory diets for patients with exophthalmic goiter; otherwise, economic difficulties are apt to arise when it is discovered that certain wards are requisitioning much more food per patient than other wards.

Diphtheria in Brazil.—Diphtheria was apparently introduced in Brazil sometime in the fifties in the last century. The first real epidemic in Rio (June-October, 1874) caused thirty-two deaths. At S. Paulo, it began making its presence felt from January, 1892, being apparently imported by immigrants just arrived from Europe. These are the conclusions reached by Dr. J. de Toledo Pizá, who has made an extensive study of diphtheria as regards S. Paulo. At the Isolation Hospital, the death rate decreased from an average 12.8 per hundred admittances in the period 1910-1914 to 4.35 in 1915-1918, following the use of large doses of diphtheria antitoxin.

THE REMOVAL OF TONSILS

WITH SPECIAL REFERENCE TO METHODS OTHER THAN COMPLETE ENUCLEATION *

BURT RUSSELL SHURLY, M.D.
DETROIT

Since the writings of Celsus and a description of his finger enucleation, more than 2,000 years ago, the throat surgeon has been interested in the destruction of pathologic tonsil tissue of Waldeyer's ring. Tons of so-called literature have filled our medical journals from the earliest time, and numerous instruments and methods have been presented to our numerous societies in an effort to improve our knowledge and technic in the ever interesting tonsil problem.

In spite of years of research, the physiologic function remains a study and a choice of theories, and we have failed to stabilize and standardize our thought and method of procedure that it may prove acceptable and satisfactory to all.

The school of experience, the propaganda of education among the profession and laity, and a collective investigation of our great special societies, together with a careful inventory of results of success and failure, should give us evidence and rules that are standard guides of efficiency and are sufficient and satisfactory. We have definitely learned that certain anesthetics and methods are dangerous or failures. With a sense of responsibility, these must be thrown aside and forever relegated to the ash heap of uselessness.

A perusal of tonsil literature during the last quarter century, with its many examples of radicalism and conservatism, with its illustrations of hundreds of new, now useless, instruments, with its story of frequent imaginative results and methods without logic is, nevertheless, a tale of scientific progress. The useless procedures, to supply a demand, that promised absorption of pathologic tonsils, such as arsenical paste, iodin, electrolysis, and the galvanocautery, received a long trial, failed, and are now only memories of early laryngology. During this period there was a prevalent idea among the laity that the removal of tonsils lessened the powers of sexual function. Today we are again asked to meet and classify the value of new methods of absorption, to establish the proper therapeutic indications, and to tabulate the results from the use of radium or the roentgen ray.

While it is true that hundreds of cases are now under treatment by these methods, which, in my opinion, should have tonsil enucleation, it is only fair to meet this problem on a scientific basis and inquire and observe as to the true value and indications of the procedure. It is the duty of the laryngologist to operate on all patients that he conscientiously believes require this service. It is also his duty to classify and refer those that may obtain better and safer relief by means of the roentgen ray. We have no quarrel with the roentgen-ray expert, if he can prove a better result than ours. On this scientific study alone we must stand.

It is unfair to take advantage of the fear by the laity of anesthesia, operative procedure and the hospital to draw cases to roentgen-ray men unless a scientific statistical demonstration beyond experiment can justify the method.

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* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

When Witherbee published his report of results in the treatment of tonsils by the roentgen ray, I immediately sent my roentgenologist to New York to learn the technic and apply the method in a series of cases and obtain, if possible, an opinion of its value.

The problem of enucleation in indicated cases must necessarily be viewed from three standpoints: the laity, the general practitioner and the pediatrician or other specialist. The laity must consent to the operation. This is often purely a psychologic problem, and depends on the successful result with a friend or a member of the family. The general practitioner may be for or against operation as influenced by fortunate or unfortunate personal experience on those among his clientele. He may have decided notions in opposition to certain methods of technic. The pediatrician demands finer details of classification as to the selection of the class of cases, age and time; he may require a special preparation of the patient. The judgment of the specialist is therefore limited in a number of referred cases, but he may be allowed to follow his own methods among those who come directly to him.

The roentgen-ray method is therefore adapted to bad operative risks and to an increasing class with pathologic tonsils who, from fear or under the instruction of some medical mind, friend or cult, will not consent to operation. The dangers, the mistakes, the fatalities and the poor results have indeed had their influence in the demand for a procedure with safety. Operation may not be performed purely as a prophylactic operation. This state of mind is somewhat of our own making. The furore for tonsillectomy, the craze to remove tonsil remnants, the poor work in the removal of adenoids by the general surgeon, and those unprepared, the constant reoperation without a more careful physical survey have discouraged many people, and these faults must be remedied.

The contraindications and choice of anesthesia demand more attention. Too many patients with active pulmonary tuberculosis are operated on under ether, and too many pulmonary abscesses, as an infection from the inspiration of septic material, develop under general anesthesia.

Tonsillectomy is a major and hospital operation. These and many other reasons have created a public demand for greater caution. So great has the furore for operation become that laymen have recommended it extensively to those who are feeling bad. It is therefore necessary to guard conscientiously the contraindications and produce a better attitude within and without the profession toward its true and wonderful value.

The selective and destructive action of the roentgen ray on cellular tissue was observed by Hemicke, in 1905. J. B. Murphy, in 1914, reported a series of animal experiments showing a disappearance of lymphoid tissue without injury to organs. The Rockefeller Institute took up the problem with the hope that irradiation would replace surgery. Its first report claimed that the size of the tonsil was reduced greatly in some cases, that the tonsil became smoother and more firm. These effects were observed to increase over a period of several months, and it was reported that the result approximated the senile tonsil. The crypts opened for better drainage, and even *Streptococcus hemolyticus* disappeared. Adenoid treatment was almost negative. These rather startling reports created great interest, and many observers have been at work. The technic of Witherbee was adopted, and cases in which irradiation was employed by Hickey, Evans and Clift, the latter of my hospital staff, have offered an opportunity for observation and continued interest.

I cannot agree with the enthusiasm of the roentgenologist. I incline, rather, to accept the reports of the series at the Massachusetts General Hospital under Barnes and McMillan. Their treatment included ten or twelve exposures each. In none of the cases did the lymphoid tissue disappear. The hypertrophied tonsils decreased to what might be called normal size. The decrease in my cases averaged about 50 per cent. A varying decrease is noted. Microscopic examination showed no atrophy of lymphoid tissue and no increase of fibrous tissue. My clinical observation after treatment showed that purulent and cheesy material could be expressed from the crypts, and infection remained on expression about the pillars. Many of my patients developed acute follicular tonsillitis directly after irradiation and some weeks later, similar to the tonsillar infection after the use of the galvanocautery in chronic intumescent rhinitis. With the contraction of the tonsil tissue we would expect greater drainage from the crypts, and this may explain any benefit; but, at present, we have no evidence that the effect is permanent or other than temporary. If acute tonsillitis is to develop after treatment, it may be that our remote danger of systemic infection may be increased.

There is no evidence to show that the infection of the crypts is removed by the roentgen ray, although a preliminary report by Hickey on diphtheria carriers proved some marked results. Unless the tonsil can be sterilized, it remains a menace to the system, and as a method to succeed surgery the roentgen ray fails. I believe that the roentgen-ray man is over enthusiastic and radical. I would take issue with Evans in his conclusions that the throat is sterilized by irradiation in all cases, or that irradiation is always the treatment for simple lymphoid hypertrophy in child and adult. It is absurd, unscientific, radical and unpardonable for Witherbee or any roentgen-ray man to state that the roentgen ray takes the place of tonsillectomy in spite of his so-called insinuated handwriting on the wall. It is fair to give each method the place that it deserves by the evidence of a study of results, and abide a time for detection of errors in scientific deductions.

Those with a type of mind who seek the wildcat oil well and gold mine pay dearly for their folly. In our profession, the expense is not so great, but the damage may be everlasting.

My experience with radium is very limited. It possesses the advantage of direct exposure to the tonsil without a wider area, although more liable to burn. Williams reports good results with 50 mg. of radium bromid. The use of these methods by experts is certainly within the zone of safety. That infected tonsils should come out must be an unvarying rule unless valid contraindications exist. The results speak for themselves. No argument or statistical study is necessary. The judgment and experience of the surgeon alone can decide this question.

There are without doubt a limited small number of cases that are bad operative risks—the bleeder; the patient with advanced pulmonary tuberculosis, cardiac disease, nephritis or diabetes; the hysterical patient with imaginative "throat trouble"; the borderline case in which the relationship to a tonsillar condition or focal infection is questionable; the neurotic, the senile and those suffering from the complex of fear. These patients should be given the trial of irradiation. They should receive much suggestive and real benefit. This treatment as a therapeutic aid has a well defined place, and that classification should be made by the internist and laryngologist.

There are numerous questions that must be answered before radical statements are justifiable. How many treatments are best: three, six or fourteen? How long will the results last? What microscopic changes result in the different types of tonsil after treatment? What kinds of infections are modified and which destroyed? If irradiation kills all lymphocytes and lymphoblasts of the germinal layer producing atrophy, are not some reproduced?

CONCLUSIONS

After twenty-five years' experience with this work, I believe that the Sluder method for children and the tonsil knife or scissors in adults offer the best methods of enucleation. Careful inspection and reinspection for remnants in the velar lobe, at the base and along the pillars will result in fewer secondary operations.

Ether is the choice of anesthesia for children, and the reclining position on the side lessens danger.

In adults, procain, 0.5 per cent., the sitting position and dissection are most advantageous.

Tonsillectomy requires constant and careful after-observation and after-treatment to lessen infection and prevent adhesions.

Irradiation should be limited to cases that present well defined contraindications to anesthesia or tonsillectomy.

ABSTRACT OF DISCUSSION

Dr. George H. Kress, Los Angeles: Dr. Shurly's paper calls attention to a comparatively new method of tonsil eradication, which is now undergoing considerable exploitation by some of our roentgenologist colleagues. As stated by the author, the time element will be necessary before a final conclusion may be arrived at in regard to its safety and as to its effectiveness; and, as emphasized by him, careful and painstaking analyses should be made on these points by laryngologists and roentgenologists. The danger of the new method lies partly in the fact that its use will not be limited to well trained roentgenologists but that it will receive wide use and perhaps superexploitation by a host of practitioners, regulars, chiropractors and others, whom roentgen-ray instrument makers have persuaded to purchase machines, and who will find in roentgen-ray tonsil therapy a large field from which to reap commercial returns. But here also, the good and bad results will show, and will serve to collect evidence that will permit us to come to definite conclusions on the whole method. Deep ray therapy, whether with roentgen ray or radium, needs much knowledge and practice, and even those who are well trained have, at times, unfortunate end-results. If Dr. Shurly's recommendations are carried out, we should be able, in a year or so, to come to some definite and accurate conclusions as to the value and safety of this new method.

Dr. E. R. Lewis, Los Angeles: About a year and a half ago I undertook a very careful study, hoping to find that we had a useful addition to our armamentarium. That hope was not borne out, I am sorry to say. In the first place, I think it is illogical to undertake to reach the tonsil by the route that has been used by Witherbee and his followers. The procedure is based on the belief that the roentgen ray is capable of producing selective destruction of lymphoid tissue. Either that is true or it is not true. If it is not true, it is useless. If it is capable of producing selective destruction of lymphoid tissue, it is not justifiable as it is used, for this reason. The only justification that exists for the removal of any essential organ of the body is that something will take its place. In the case of the tonsil there is a series of lymph nodes in the cervical region; the most exposed is the one to succumb to infection first. If a tonsil is diseased to the point at which it is not recoverable, then its removal is justified; but it is justified only because we have back of the tonsil a second and third and fourth line of lymph nodes which can take up the function of the tonsil. The proposition is to send a ray from the fourth to the third and to the second line and ultimately reach the outpost, in the order of its destroying lymphoid tissue. This order of destruction is illogical. Other important tissues are unintentionally irradiated incidentally to irradiating the tonsils, namely, the thymus and thyroid, and later on the pituitary, a very important element in this procedure. A profound influence is produced in a hyperthyroid case by irradiating the thyroid, and yet in treatment of the tonsils the rays are sent through the thyroid and other glands, and no attention is paid to the alterations produced in those important tissues. Furthermore, it does not work. I have had occasion to see a number of cases in which cure was effected by roentgen ray, which came to operation later on. Only those who are familiar with the physiology and pathology of the situation should direct the use of any such powerful agent as the roentgen ray. I think that its use here is dangerous and unwarranted.

Dr. W. S. Tomlin, Indianapolis: I have observed some cases that have been treated with the roentgen ray, and they have not shown very satisfactory results. Most of them undergo the changes that the author has named senile changes. These senile changes are not satisfactory so far as infection is concerned; in many aged persons, systemic results from infection are found just the same as in younger persons whose tonsils are enlarged. In fact, in examining cases that show systemic infection I have been surprised at the large percentage of small tonsils that show systemic infection, when large ones did not. As to the contraindications for other methods of removal, we find them constantly revised. Many cases formerly considered as not good surgical risks later are regarded as good risks. Patients who are bedfast may have tonsils removed in bed without changing their position, so that the roentgen ray and other methods which might be thought indicated are not at all necessary. Certainly, if the infection is severe, the removal of the hypertrophy with the roentgen ray would not meet the indications at all.

Dr. George McCoy, Los Angeles: The main object of any procedure in regard to the tonsil is to get rid of the poison that the tonsil is giving off, and the way to get rid of that poison is to get rid of the germs that live in the tonsil. Any procedure that leaves a portion of the tonsil leaves a nidus for the germs.

Dr. Lee Cohen, Baltimore: I wish to sound a note of warning against the use of radium in or about the tonsil for the relief of any tonsillar condition. About a year and a half ago a woman, aged 45, came to me with a beginning carcinoma at the base of the tonsil. She was in very good physical condition; the pulse was absolutely normal, and there were no signs of cachexia. This woman was subjected to irradiation under one of the most expert radiologists in our city, and after two exposures a week apart, her heart began to run away from the effect of the radium on the pneumogastric nerve, and within five weeks she had died from cardiac paralysis.

Dr. Cullen F. Welty, San Francisco: I approve of everything Dr. Shurly said, and I would go one step farther. I think it is high time that we should insist on this because of the fact that if we begin to use the roentgen ray and radium we may do much more damage by their use than is done by operations. As to contraindications, I can scarcely see a contraindication to the removal of a tonsil that is diseased, regardless of the condition of the patient. I have had some trying cases that were seemingly hopeless to start with. If the patients are so desperately ill they will die anyway, and it would be better to take a chance by getting rid of the tonsils than to allow the patient to die of this condition. Local anesthesia should always be used.

Dr. George F. Keiper, La Fayette, Ind.: If I mistake not, it is generally agreed that the careless, repeated use of roentgen-ray applications will sterilize the patient against reproduction. On that account, we should be very chary about using any such method on growing children, and especially on girls.

Dr. Sanford Blum, San Francisco: After so much has been said in the discussion about the best methods of destroying the tonsils, I almost hesitate to touch on one of the first points that Dr. Shurly made in his paper; namely, the function and physiology of the tonsil. To me that is of considerable importance. Henke, Lenhart and others injected various substances into the gums and nasal mucous membrane, and recovered them in the tonsils. In 1915, I published a preliminary report in which I stated my belief that the tonsil functions as an eliminative organ for the cervical glands. I based my statement on certain experiments I had done on guinea-pigs. I injected starch and various bacteria into the cervical glands, and recovered them from the tonsils. I promised at the time to continue these experiments, and I wish merely to report a little progress, namely, that I have injected charcoal into the cervical glands of human beings somewhat less than an hour prior to tonsillectomy, then obtained the tonsils after they were removed, and found the charcoal in the parenchyma of the tonsil. This would indicate at least that there is a certain flow toward the tonsil as well as from it; if, indeed, there is any away from it.

Dr. M. R. Bren, Palo Alto, Calif.: I was stationed at a tuberculosis hospital in New Mexico at the time there was quite a bit of newspaper notoriety in regard to roentgen-ray treatment of the tonsils. We had a number of cases that I considered rather poor operative risks, since I hesitate to remove tonsils in active tuberculosis, especially advanced cases. Being overwhelmed with requests from patients for roentgen-ray treatment, I consented, as I desired to test its efficiency. About fifty patients were given exposures, ranging in number from eight to fifteen, and in no case was the expected or hoped for result obtained. I want to be fair and qualify my statement by saying that I did not give these treatments myself; consequently I am unaware of the technic employed, and it is possible that faulty technic was the cause of failure; at all events, there was no evidence, macroscopically, of any change in the tonsils following treatment. Many of these cases came to operation, after arrest of the lung condition, and the tonsils were removed successfully. It seems to me that one of our greatest problems as regards the tonsil especially in view of the experiments of the last speaker is to save those tonsils that are "not guilty." I believe that we should search carefully for all possible foci of infection when we cannot demonstrate to our own satisfaction that the tonsil is at fault, before we perform any unnecessary operation on the tonsil.

Dr. Burt R. Shurly, Detroit: My associate, Dr. Clift, has a record of about 200 cases that have been treated, and his work is a real contribution to the subject. I am sorry that he is not here.

Carbon Monoxid in Tobacco Smoke.—The question whether the carbon monoxid in tobacco smoke constitutes a hazard to the smoker in confined indoor spaces seems to have been settled as a result of tests just completed by the Department of the Interior at the experiment station of the Bureau of Mines at Pittsburgh. The danger is negligible. The tests were made on three men confined in a closed chamber whose dimensions were 1,000 cubic feet. They smoked for an hour and a half at cigarets of every variety. Following this, the smokers drew energetically at a variety of cigars. Finally they puffed at pipes. At the conclusion of the performance, the air of the closed chamber had become so smoky that it was impossible to see across the room. The atmosphere was so irritating to the eyes that it was necessary to wear goggles. Samples of the atmosphere and blood samples of the smokers were then taken for analysis. It was found that in no instance did the carbon monoxid content of the air exceed 0.01 per cent. The maximum blood saturation was 5 per cent. Some of the subjects supposedly inhaled their smoke, but the tests indicated that such inhalation, though it may have extended to the bronchial tubes, did not penetrate throughout the lungs. The tests indicate that carbon monoxid hazard from smoking indoors or in mines is negligible in itself.

CLINICAL PICTURE OF STREPTOCOCCIC OSTEOMYELITIS OF THE TEMPORAL BONE *

HARRY BOYD-SNEE, M.D.
SOUTH BEND, IND.

In what follows I have endeavored to present the clinical picture of a disease of the temporal bone which is to be recognized and diagnosticated as a clinical entity, and what I have to say on the subject will refer particularly to the disease as I have observed it to manifest itself in a large group of cases that I have encountered in military and civil practice. The period covers from November, 1917, to the present time.

The group comprises altogether 285 persons. The fact that the disease was found on both sides in thirty-five made it possible to explore the region and authenticate the diagnosis in 320 instances. The ages of these patients varied from 6 months to 60 years. The findings in the examinations made of the material recovered and designated preoperative, operative and postmortem have been consistently characteristic in every case, and on the anatomicopathologic and the bacteriologic findings the specific diagnosis of acute streptococcic osteomyelitis rests.

In 186 instances, accurate preoperative bacteriologic findings were established culturally from the exudate recovered from the tympanic cavity. Neglect to secure specimens of the tympanic exudate, or worthless specimens which were contaminated through faulty technic, was the case in 134; nonetheless, the operative and postmortem material recovered from the latter patients identified the disease.

In every case but one attention was first attracted to the region by the development of an acute otitis media or an acute exacerbation of a chronic otitis media. The otitides supervened in the course of the following acute infectious diseases: measles, 87; acute nasopharyngitis (streptococcic), 120; acute streptococcic bronchitis, 12; scarlatina, 20; streptococcic pneumonia, 15; influenza, 27, and epidemic parotitis, 2.

The exceptions were two. In one of these, a retro-auricular subperiosteal abscess developed as a complication in a case in the empyema service. In this patient the middle ear on the affected side appeared to be normal, which fact was established by inspection and functional tests to the satisfaction of several members of the otolaryngologic staff; nevertheless, when I explored the region through an operative wound, I uncovered a thrombosed emissary-mastoid vein associated with a perisinuous abscess and a perisinusitis of the wall of the sigmoid sinus. The other was in an infant, aged 6 months, presenting bilateral involvement, the right side showing a typical acute suppurative otitis media, while on the left side the middle ear appeared to be normal even in the presence of a retro-auricular subperiosteal abscess, which was found to connect with an extensive osteitis of the pars squama, this in turn covering an extradural abscess in the middle fossa.

In 160 patients, twenty-six presenting bilateral complication, I have had an opportunity to check the bone findings against the preoperative middle ear findings in 186 instances. In every instance the streptococcus was recovered from the tympanic exudate before the operation, and the same organism was again recovered, either in pure culture or in culture mixed with other pyogenic organisms, from the infected cancellous bone through the operative wound. The gross pathologic changes exposed in these operations were characteristic vascular infiltration of the pneumatic and medullary spaces with granulations and exudate. The histopathologic findings in the material removed from these infiltrated areas were reported as showing round cell and leukocyte infiltration. Thrombosis of the venules was recognized in some cases in which the specimens were recovered in an early operation before suppuration and necrosis had supervened to obliterate that feature. Cultures from the different areas explored invariably showed streptococci.

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Supported by these findings, I feel justified in making this statement: Recovery of the streptococcus from the tympanic exudate in the presence of an acute inflammatory reaction in the middle ear is pathognomonic of acute osteomyelitis in the bone beyond the boundaries of the middle ear tract, comprehending the medullary and pneumatic spaces in the petrous and squamous portions as well as the mastoid process of the temporal bone. If this conclusion can be accepted, and it has been established in 100 corroborative middle ear and bone findings in this particular group, then the diagnosis will carry with it everything in the way of complications as they were exhibited in the cases. Further, let me say that recovery of the streptococcus from the tympanic exudate at once excludes the diagnosis of acute otitis media, per se, with its limitations, and also the diagnosis of acute mastoiditis for the same reason, since neither diagnosis comprehends the localities in which the disease has been found to exist. On the other hand, the diagnosis of acute streptococcic osteomyelitis of the temporal bone covers the exact pathologic condition found and signifies a regional infection without limitations. Let me add that it is an anticipating diagnosis carrying with it a guarded prognosis, for it anticipates any of the complications, no matter whether regional or general, which appeared clinically in this group of cases.

The infected region in every case was reached through an operative wound, and the pathologic changes uncovered varied with the case and in bilateral operations were not identical. The variations in type will be best understood if I consider the subject in regular sequence as the different elements of the bone suffered through invasion by the streptococcus. Invasion occurred by contiguity or was hematogenous. The immediate effect on the tissues invaded was characterized by the development of an inflammatory reaction involving primarily the vascular structures of the bone. The bone marrow in the medullary spaces and the mucosal lining of the pneumatic cells were the first tissues to suffer in the reaction, and the condition was identified by characteristic vascular infiltration of the medullary and pneumatic spaces, with granulations bathed in a mucosanguineous exudate. The periosteum participated in the initial reaction in only a few instances; it was distinguished as primary in several of the cases in which otitis media developed as a complication in the course of scarlatina. The dura became primarily involved in two cases. Evidence of such involvement was disclosed at necropsy. In this discussion I shall consider periostitis and external pachymeningitis as secondary complications rather than primary manifestations of invasion of the temporal bone by streptococci.

The causal agents in this initial process appear to have been the streptococcus, as this organism was recovered in pure culture from the infected medullary spaces in every case in which the diseased region was reached before suppuration supervened, and during the period in which the inflammatory reaction was limited to the vascular structures. The infective microorganisms reached the region in two ways, namely, by direct extension from the adjacent infected middle ear tract or through the infected blood stream.

These are the pathologic and bacteriologic findings in the cases I have diagnosed acute, uncomplicated streptococcic osteomyelitis of the temporal bone.

Sooner or later the bone itself became involved secondarily, osteitis supervening, as was evidenced by disintegration of the trabeculae and erosion of the denser compact bone. With the development of osteitis, the meninges and the periosteum became secondarily involved, per extensionem. In the event of intracranial extension, the neighboring structures in the adjacent region suffered in proportion to the extent and character of the tissues invaded, and the following complications developed: external pachymeningitis, perisinuitis, thrombosinuitis, leptomeningitis, encephalitis, bulbomyelitis and encephalomyelitis. Direct intracranial extension occurred clinically in forty-eight patients, nearly 17 per cent., involvement manifesting itself as follows: perisinuitis, 22; thrombophlebitis of the sigmoid sinus, 5; thrombophlebitis of the superior petrosal sinus, 1; extradural abscess in the middle cranial fossa, 7; temporosphenoidal cerebral abscess, 7; cerebellar abscess, 1, and streptococcic leptomeningitis, 28. On the other hand, when extension developed extracranially, the complications varied according to the locality and the tissues affected, and are recorded as periostitis, dermatitis infectiosa, myositis, thrombophlebitis, lymphangitis and lymphadenitis; appearing clinically as retro-auricular subperiosteal abscess, 8; parietal abscess, 3; subtemporal abscess, 2; cervical abscess, 8; retropharyngeal abscess, 1; facial paralysis, 10; erysipelas, 18; suppurative labyrinthitis, 1, and serous labyrinthitis, 2.

The foregoing comprehends the regional complications which developed through direct extension of the inflammatory process from the primary focus of infection in the temporal bone.

Through the blood stream, remote organs and tissues suffered from metastases and from endotoxicosis and bacteremia, appearing as metastatic abscess, arthritis, neuritis, nephritis, pyelitis, pleuritis, pulmonitis, endocarditis, myocarditis, cellulitis and general or circumscribed erythematous dermatitis. These complications are proof that bacterial toxins and bacteria, as well as infective emboli from the primary focus, gained access to the lymph channels and blood vessels and entered the general circulation.

The causal agents were found to be the streptococcus in mixed strains or the streptococcus mixed with other pyogenic cocci (staphylococci and pneumococci) or bacilli (influenzae, pyocyaneus and diphtheroids).

In cases of secondary mixed infection it was not uncommon to have the specimen of the tympanic exudate reported as negative for the streptococcus, and the reason is that the secondary infecting organism will often submerge the primary infecting streptococcus, and the latter may remain hidden until the secondary infection has cleared in the middle ear tract, after which it may be recovered. I have seen several competent otologists misled and follow cases of this character through to what they interpreted as a complete recovery from an uncomplicated, acute, suppurative otitis media and discharge the patients as cured, only to have a recurrence of the disease manifest itself in a variable period after apparent recovery. Eleven cases of this character are included in this group.

What has been said sets forth the pathologic and bacteriologic findings in the cases of the group which I designate acute, complicated, suppurative streptococcic osteomyelitis of the temporal bone.

The clinical picture of acute, uncomplicated streptococcic osteomyelitis of the temporal bone may be said to be that of acute suppurative otitis media, and there is no variation. Objectively, the reaction in the middle ear tract, as we observe it in the tympanic cavity and the tympanic membrane, is the only manifestation, and recovery of the streptococcus from the tympanic exudate in the presence of this inflammatory reaction is the only indication of bone involvement.

The symptomatology in acute, complicated, suppurative streptococcic osteomyelitis of the temporal bone is variable and will coincide with whatever complication, single or multiple, supervenes. In these cases of mixed infection, general and local symptoms appear in regular order as extension progresses. The time when we may expect to observe external localized evidence of disease, such as sagging of the posterosuperior meatal wall, or to elicit tenderness on pressure over the mastoid or antral regions, is only after osteitis has supervened and the periosteum has become secondarily involved; likewise, symptoms indicative of meningeal irritation appear when the inner plate suffers erosion with coincident dural involvement.

The classical symptomatology of acute, suppurative mastoiditis is no guide in the diagnosis of this atypical phenomenon; there need be no sagging, no tenderness on pressure, no elevation of temperature, and no change in the structures over the mastoid; leukocytosis is a variable incident, and yet, whenever the streptococcus has been demonstrated in the course of an acute, suppurative otitis media, even if subsequently other organisms have submerged that bacterium and even if complete resolution as far as the middle ear is concerned has been established, nevertheless a focal infection still exists beyond this area in the bone marrow and in the mucosal lining of the pneumatic cells of the temporal bone.

The findings in roentgenograms were variable. They were reliable and corroborative only in the cases of the suppurative type of the disease, but were not so valuable in a diagnostic way if the plates were taken before the period characterized by suppuration and coincident bone destruction.

The termination was fatal in thirty-one, making the mortality 11 per cent. Death in twenty-nine was the result of an intracranial streptococcic suppuration in connection with the primary streptococcic osteomyelitis. Twenty-eight of these were streptococcic leptomeningitis, and one pyemia, the latter in connection with a septic thrombosis of the lateral sinus. The connection between the primary osteomyelitis and terminal complication was definitely established by necropsy findings in twenty-four instances. Two patients died of pneumonias which had no demonstrable connection with the primary osteomyelitis.

From this we perceive that 93 per cent. of the total mortality was a result of intracranial streptococcic suppuration, and 90 per cent. a result of streptococcic leptomeningitis. In eight of the cases of fatal suppurative leptomeningitis, we were able to discern that the terminal meningeal complication developed subsequent to an intercurrent brain abscess, and in five it followed septic thrombosis of the lateral sinus. In only one case in the entire group did the suppuration proceed intracranially by way of the labyrinth.

In the material utilized in this work, the streptococcus organism has been identified as a gram-positive diplococcus recovered from cultures from which the pneumococcus has been excluded by test. It has typed variously as *Streptococcus mucosus-capsulatus, Streptococcus viridans, Streptococcus pyogenes, Streptococcus hemolyticus* and *Streptococcus nonhemolyticus.*

CONCLUSIONS

1. Streptococcic osteomyelitis of the temporal bone is a clinical entity which is to be recognized and diagnosticated.

2. The etiologic factor is the streptococcus organism; it may be of any type.

3. Recovery of the streptococcus organism from the tympanic exudate in the presence of an acute inflammatory reaction in the middle ear is sufficient evidence to support the diagnosis.

ABSTRACT OF DISCUSSION

Dr. Harold M. Hays, New York: There are different types of mastoiditis, and frequently the pathologic picture varies, according to the type of epidemic and the virulence of the organism. Two types of mastoiditis cloud the pathologic picture: first, the very acute mastoiditis for which we must operate at an early date. There is not much breaking down of cells. In the other type there is definite destruction of all the cells in the mastoid bone, and this destruction extends down to the plate over the sigmoid sinus. In this case there is a definite osteomyelitis. In 1920, in New York, we had a severe epidemic of mastoiditis, the infecting organism in almost all instances being *Streptococcus hemolyticus.* Many of these cases developed complications. In my own practice I thought it was a unique experience and that I might have been at fault, but other men had the same trouble. Many of these patients, mostly children, had to be operated on again. It was surprising to find definite clinical pictures in many instances; for example, pain radiating over the eye; pain behind the mastoid bone, and infection of the sinuses and beyond the dural plate. When these patients were operated on again we frequently had to go forward into the zygomatic process in front of the ear, and there was no question that definite osteomyelitis of the temporal bone and beyond existed. Dr. Fraser of Edinburgh gave demonstrations in Atlantic City a month ago, showing that acute mastoiditis almost always extends beyond the point of operation, and that in attempting to remove the diseased bone we must go between the semicircular canal and parts that are far beyond the reach of instruments; in other words, that Nature must clear up some of the disease process. Frequently, cases of acute mastoiditis are apparently cured without operation. Later on, an acute condition develops, we operate, and are surprised to find a hard bone that has no cells at all. I think that this demonstrates that an osteomyelitis must have existed at some time. It is important that we should differentiate these cases. I do not think the type of the organism makes as much difference as its virulence. I maintained many years ago that frequently an osteomyelitis of the temporal bone does take place. I should like to ask whether roentgenograms were made in these cases, and what the findings were.

Dr. Cullen F. Welty, San Francisco: In eighteen years of practice I have not lost a single case of acute mastoid disease from any cause whatsoever. I have done about 800 operations. In an individual case of acute mastoiditis, the patient must show an improvement in temperature, pain or tenderness and leukocyte count every twenty-four hours. The most important symptom is bulging of the posterior, superior wall. When this increases under observation, and other things are going well, I have considered it an operative case. I have not done a second paracentesis for many years past. A few patients are operated on as early as the third day; 65 per cent. are operated on about the tenth day; the remainder are divided between that and the forty-second day. I have always said that every patient should be operated on, for reasons too numerous to mention here. As to pathology, I find pus in all my cases, not granulation tissue with no other finding, nor swollen mucous membrane, but pus the result of some infection. I have not had to reoperate in a single case of acute mastoiditis in the last ten years. All these are rather remarkable statements, and I am going into detail because I think it will be of benefit to every one. I have said that such things are possible and I want others to have the same confidence in bringing these cases to a successful issue that I have. It all depends on the thoroughness of the operation. By this I mean that hard bone must be exposed; or, rather, the entire mastoid cavity is to be a shell of hard bone. By hard bone I mean that a very small hook-spoked probe (I call it a searcher) is not arrested. As long as this searcher is arrested, more and more bone will be removed. Many times the eye will not discover the places offering resistance to the probe, and sometimes this leads to an abscess cavity or another cell that contains pus, and sometimes to an extradural abscess with extensive destruction of the sinus wall. I believe so thoroughly in all these different procedures that it would be difficult to convince me to the contrary. Furthermore, I believe that these very careful and painstaking procedures make for success, regardless of the kind of infection.

Dr. Charles W. Richardson, Washington, D. C.: I have from earlier days been interested in osteomyelitis of the flat bones. Unless we consider that there are many types of infection due to various types of bacteria in the temporal bone, we must accept the dictum of Dr. Boyd-Snee. I believe there are different types. I believe that there is a true osteomyelitis of the temporal bone which is different from other types of infection of this bone. I beg to differ also from the statement that there is no clinical manifestation of elevated temperature. I think we have in these cases (all those that I have seen and diagnosed as this condition) a very decided temperature wave. In fact, in every case in which there was a decided temperature wave, there was this osteomyelitis or infection of the sigmoid sinus. In the operation after we have cleaned out all the diseased area, apparently, if we wait a few moments and watch the wound, we shall see here and there over the surface little points of pus come out of the diploe. This pus is coming out of the haversian canals or from minute pneumatic spaces. This condition comes more frequently in the diploic than in the pneumatic cell mastoids. In operating, it will be necessary to follow the diseased area until we get to clean bone. The micro-organism usually found is the streptococcus. This condition must be followed to its termination in the diseased bone, and unless we proceed to a definite end in this operation we shall fail. This is what I would describe as osteomyelitis of the flat bone, similar to osteomyelitis as it occurs in long bones.

Dr. Henry G. Mundt, Chicago: I agree with everything Dr. Boyd-Snee said relative to the streptococcus, and if we are willing to assume that the streptococcus does produce an osteomyelitis in 100 per cent. of cases, then one needs to wait no longer than to find the streptococcus in the tympanum for an indication for operation. The material presented has been gone over carefully enough to afford a basis for some conclusions. I do not think that the author said that a patient may not have a high temperature. My interpretation of his paper is that the finding of the streptococcus in the middle ear, barring all other indications, is an indication for operation on the temporal bone. I believe that in almost all cases the streptococcus does produce osteomyelitis. If we find a pure culture of streptococcus in the middle ear we have an involvement of the temporal bone; and if that involvement is going to supervene, we need wait for nothing more—no tenderness, no swelling. If we do wait, the classical symptoms of involvement of the mastoid and other portions of the temporal bone will be manifested.

Dr. John W. Carmack, Indianapolis: I have had somewhat the same experience as Dr. Boyd-Snee. It seems to me that in a surgical mastoid involvement such as osteomyelitis of the temporal bone, the difference in virulence of the organism is the dominant feature. In the fall of 1918, we had what was termed by some a mastoiditis epidemic. There was a great increase in the number of hemolytic streptococcus cases in the army camps, and this was in a camp far removed from that of Dr. Boyd-Snee. Each year since then, in the winter, in Indiana, we have had a recurrence of the hemolytic type of streptococcus cases. We know that in the nonhemolytic type, in the pneumococcus and in the staphylococcic type of infection, immunity results, a natural building up and elimination of that infection. In the hemolytic type of infection, such as we had in 1918 and have had sporadically each year since, Nature does not produce a natural immunity either in the body as a whole or in the local mastoid area to any considerable degree. In the past, the nonhemolytic type of infection has been permitted to form a line of demarcation, and we can let that patient go a week or ten days without serious trouble at all. The other type, in which there is neither a walling-off nor production of immunity, we cannot wait. The early evidence of osteomyelitis in the temporal bone, or even the finding of *Streptococcus hemolyticus* in the exudate from the area, is sufficient to warrant intervention. That is the type that we must take into account and operate in early if we hope to get results. The next biggest thing, after getting rid of all the infected tissue, is leaving that wound open. *Streptococcus hemolyticus* is active when it is confined, either in the mastoid or in the antrum. When we get free drainage from the area, free aeration, then the mastoid wound may be left open. Leaving the wound wide open, with free drainage, is the biggest factor in preventing extension.

Dr. Philip C. Means, Santa Barbara, Calif.: Many of us feel that we have seen streptococcic infections of the mastoid area that have not quite had this picture. I should like to emphasize the point made by Dr. Hays, that there may be a type of infection that has a selective action. Rosenow found that certain strains show certain action and do so always. He has done some work on dogs, taking the infection from a tooth of a man with kidney stone and putting it into a devitalized tooth of a healthy dog, and in every case stone formed in the kidneys. It seems to me that maybe this shows that it possibly was a type of streptococcus with a selective action, and Dr. Boyd-Snee got results that we do not always see.

Dr. H. V. Dutrow, Dayton, Ohio: In listening to this paper and the discussion, it seems to me that one might get the impression that every case in which we find streptococci in the external auditory canal is a case for radical surgical treatment. Nothing can be farther from the truth. All of us see many cases of streptococcic middle ear infection that have no symptoms whatever of mastoiditis or involvement of the temporal bone. We should follow the infected area as far as it goes. All of us have had cases from time to time in which the infection extended into the zygomatic process far forward in front of the ear and posteriorly toward the occipital protuberance. I simply wish to stress this point: that not every case of streptococcic infection of the middle ear is a case for radical surgical treatment. One should be governed in all cases by the classical signs and symptoms of acute mastoiditis.

Dr. Harry Boyd-Snee, South Bend, Ind.: Answering Dr. Hay's question, the roentgenograms were of value only in the cases in which the disease had advanced to the point of suppuration which was characterized by bone destruction. In the early stages when there was vascular infiltration or uncomplicated streptococcic osteomyelitis, the roentgenograms were of no value. If I could have gone farther in my reading, far enough to point out the mortality and necropsy findings, I could have thrown more light on the subject. Thirty-one patients died. Twenty-nine of these deaths were the result of intracranial streptococcic suppuration. Twenty-eight cases terminated in a fatal streptococcic leptomeningitis. One patient died of a general pyemia in connection with septic thrombosis of the lateral sinus. Two patients died of pneumonia; in neither was there any demonstrable connection with the primary osteomyelitis, as both cases developed in an epidemic, three and six weeks, respectively, subsequent to operation. I have recovered the streptococcus from the middle ear exudate; I have later found the streptococcus intracranially in various suppurations. I have attempted from postmortem observations to trace back those intracranial complications, and in every instance I have been led directly to a primary osteomyelitis in the temporal bone. I have recovered and identified the same organism intracranially that I recovered from the tympanic exudate. My purpose in presenting this paper is to call attention to the significance of the streptococcus organism in the tympanic exudate. My findings are concerned with material recovered at necropsies and at operations, as well as the tympanic exudate.

POST-TRAUMATIC BONE TUMORS *

S. D. FOSTER, M.D.
Surgeon, Flower Hospital
TOLEDO, OHIO

The actual part that trauma plays as a causative factor in any human disease would be an interesting matter of research. Any solution of continuity of tissue invariably brings to that place the condition of lowered resistance, if it does not actually become the place of least resistance.

There has been a general supposition that repeated slight trauma is the cause of carcinoma, while it is one severe blow that causes sarcoma. Such reasoning must be based on the coincidences that have happened in many cases, rather than any scientific research. We do know that these malignancies are post-traumatic. That is all we know of the bone tumor to be reported in this paper.

The intelligent roentgen-ray readings have been the most wonderful addition to the diagnostic armamentarium. These, with the minute history of the relation of the tumor to the haversian system, as well as whether or not it is medullary or cortical, usually enable us to classify any tumor properly. However, the final step is the examination of some tissue under the microscope. Even with this, there is often a great diversity of opinion among pathologists.

This accounts for so many reported cures of bone sarcoma, although final cures in sarcoma are not over 4 per cent. For these reasons, Dr. Bloodgood, in Cleveland, said that he had seen and operated on a local patient some time before, but that he was not now sure that it was sarcoma.

From the histologic make-up, all primary tumors of bone are of the connective tissue type or group; but the secondary tumors may be of the epithelial type.

He thinks that, if the age is under 15 and the growth is central, it is not sarcoma. Again, multiple periosteal lesions are benign, primarily, at least. Diagnosis must have the aid of palpation, with the roentgen ray, including the opposite corresponding bone. In the roentgenogram at the joint, if more than one bone is involved, the condition is infectious rather than malignant. The most common central bone lesion s a benign bone cyst. Next is the giant cell tumor, ong since proved to be benign, which predominates in persons over 15. Myxoma may occur at any age, and is the most difficult to cure without amputation.

Under the question of bone tumor following trauma, Bissell reports six cases in detail, in each of which sarcoma developed at the site of fractures. At the time of fracture, all the patients were young, vigorous and healthy with one exception, a woman of 50. In every case but one, the lesion was in a long bone. The original injury was slight, suggesting some underlying constitutional condition. However, a malignancy is not a common sequel to bone injury. It is not the force of the injury or the gravity of the accident that produces the sarcoma.

To Bland-Sutton,[1] the relation of injury to sarcoma is a matter of some importance. He quotes cases familiar to all, wherein persons have received injuries to bones; and, often within a few days, a tumor appears, which is then or soon becomes sarcomatous. He says that every pathologic museum of any note contains specimens of sarcoma growing in the bones of the head and limbs as a sequel to a severe single injury. The majority of surgeons believe that a single intensive injury may occasionally induce the growth of a sarcomatous tumor; but there is a wide diversity of opinion as to the exact conditions under which any given case of tumor is to be regarded as of traumatic origin. All agree that the situation of the tumor must correspond to the site of injury; but there is no definite agreement among surgeons as to how long an interval may elapse between the injury and the appearance of the tumor.

The most puzzling cases for the histopathologist are those in which there is an exuberant formation of reparative tissue around a fracture. Often this forms a sarcoma-like mass, which microscopically is indistinguishable from sarcomatous tissue. This condition has been described by Shattuck with great skill and acumen. Pollard also has described a remarkable case. One of the most extraordinary examples is a tumor which slowly formed within the shaft of the tibia after a fracture, and grew for ten years. The leg was amputated by Eve, who described the tumor as a slowly growing spindle-cell sarcoma.

Periosteal sarcomas spread through the periosteum, infiltrate the muscles, and invade the veins. When the overlying skin is involved, the lymphatics are infected with the disease. It is for these reasons that surgeons amputate the limb in such a manner that, whenever possible, they remove the whole of the affected bone.

The results of amputation for sarcoma are depressing. The contradictory results of such operations of opposite methods of treatment can be explained only on the ground that sarcomas of apparently identical microscopic structure vary greatly in malignancy.

Cohn[2] reports a case in which a patient fell on his outstretched hand. First treatment was for a sprain. Nine months later he had great disability of the forearm. A roentgenogram showed a bony tumor between the radius and the ulna. Extirpation revealed the tumor attached only to the ulna. It was a fungous growth, probably the result of an injury to the interosseous ligament, tearing it from the ulna, together with a splinter of bone. It is his hypothesis that a bony tumor came from the detached nucleus. It is certain, however, that a benign tumor, involving no fracture, followed an injury of indirect nature. The tumor contained centers of softening, and consisted chiefly of osseous and cartilaginous tissue.

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* Read before the Section on Surgery, General and Abdominal, at he Seventy-Fourth Annual Session of the American Medical Associa- ion, San Francisco, June, 1923.

1. Bland-Sutton: Tumors Innocent and Malignant.
2. Cohn: Traumatic Bone Tumors

Rocher,[3] describing his army experience, stated that "contusions, abrasions or furrows following tangential wounds of the bone by balls or fragments of shell sometimes develop bony tumors. The new growth is formed either under traumatism alone, or of traumatism followed by infection." He observed nine such cases: In four of them, the periosteoma formed under aseptic conditions; in five, the traumatic focus suppurated long and abundantly. "In the infectious periosteoma, the bony tumor develops insidiously under the picture of diffuse swelling of the tissues, and can be palpated easily as soon as the infectious phenomena subside. The stylet encounters denuded bone. Or the mass may be too deep for palpation, and can be found only by the roentgen ray. It may be in the form of a triangular spear or sometimes that of a pedunculated cauliflower. Traumatism with irritation of the osteogenic bed seems indisputable in these cases. It was possible in one case to speculate on the transformation of a traumatic myositic focus by reason of the form of the bony growth and its relation to the deltoid muscle." In one case, the roentgen ray showed a bony bridge across the inner pelvis following the track of the projectile. One patient had total sciatic paralysis from an osteoma within that nerve. Another had a genuine bone plate ensheathing three fifths of the surface of that nerve, the bony plate being in the shape of a tile. One of the tumors was in the deltoid region, one on the shaft of the humerus, one on the radius, one on the iliac crest, and three were on the larger trochanter and one on the lesser.

In his research on osteoma of the anterior brachialis, Bardon saw a woman, aged 26, who had a myosteoma in the insertion fibers of the anterior brachialis. It was found and removed four months after luxation of the elbow. It was the size of a nut and of bony consistency. One year later it gave no signs of recurrence. Destot and M. Billet show the condition of malignancy in rare cases. Helgeinreiner reports two cases of traumatic osteoma. One of the patients had been kicked by a horse ten months previously. The result was a tumor 17 cm. long, extending toward the knee and into the extensor muscles. It was osseous, tongue-shaped and "feathering." The other one came from a shot three months before. Its progress could be followed clinically and by the roentgen ray. It was the size of a fist, with the roentgenogram showing bone in the central portions.

Schmidt, in describing a peculiar growth following a gunshot wound, describes a case in which the thigh was injured. This growth extended almost at right angles from the middle of the femur to the wound of exit. Connective tissue united the two wounds. The splinter was covered with periosteum and enveloped in connective tissue. The cross-section was oval and showed a number of nutrient foramina. The growth was probably from a tangential wound of the femur with the detachment of a bit of periosteum, which propagated in the line of least resistance. The blind hollow at the free end appears to represent the beginning of a medullary cavity.

Morgan and McGill, in discussing spurlike formations of bone following amputations, have made interesting notations. In discussing the frequency of bony spurs in amputation stumps, especially in war work, they say: "Most observers, such as Binnie, Hirsch, Bunge, Mauclair, Kocher and Farebeuf, consider these spurs the results of bone formation, caused by irritation of the periosteum, particularly with long continued sepsis." In connection with the occurrence of spurs following the osteoplastic or the subperiosteal methods of operation, they continue: "An interesting comparison may be made between these spurs and the so-called exostoses, which form as a result of injury to the periosteum from a blow, or when a bone is fractured."

REPORT OF CASE

J. R. B., a man, aged 30, a painter and paper hanger, whose family history was negative as to tuberculosis, syphilis and tumors, either benign or malignant, had his foot crushed, Feb. 23, 1920, but the roentgen ray revealed no fractures. November 29, I performed the operation for right femoral hernia, of which there had been no sign of recurrence. March 20, 1922, he came to my office with a deep abscess in the lower third of the left arm. There was a history of injury to that region, Feb. 22, 1922, as he reached around the eaves while painting a building. I incised this abscess under local anesthesia, but two days later I was compelled to make the incision down to the bone in order to get proper drainage. This was dressed with balsam of Peru, and gradually the incision closed. He kept at work under ordinary home care. I heard nothing more from him until he came to my office, May 24, with a hard bony tumor at the site of the former incision. This was three months after the time that I opened the abscess, and practically four months after the original injury.

This tumor was of bony hardness; the surface was irregular; it was not attached to the skin except at the line of the old incision, but it was firmly attached to the bone. The roentgen ray showed a bony tumor attached to the left humerus at its lower third. The attachment to the bone was small in comparison to the size of the tumor, and it seemed to be in the shape of a neck or constriction. Bence-Jones bodies were reported once, but were never found before or since, so I think we may rule them out.

The patient was presented to the bone tumor clinic at Cleveland, May 13. Dr. Bloodgood said that in his thirty-five years' work on bone tumors, he had never seen such a case with that history. The probable diagnosis was periosteal osteoma. He said that though not malignant, it was extremely liable to recur.

June 19, I removed the tumor after first endeavoring to push aside the periosteum. The tumor at its base was extremely hard, the bone forceps only with great difficulty snipping it. The area from which the tumor had been removed was thoroughly burned with the actual cautery. Horsley's wax was applied, and then the periosteum was sutured over it. Over this the muscles were approximated, and the skin was closed without a drain.

The man was soon back at work, and so far has had little inconvenience or pain.

SUMMARY AND CONCLUSIONS

There has been a general belief among medical men that there is a very definite relation between trauma and bone tumors.

As far as I have searched the literature, there is no experimental proof that injury has caused bone tumors.

Some writers think there is an underlying constitutional factor, which with the trauma, causes bone tumors.

During the war work many cases of bone tumors were reported, following injury, either with or without infection; but most of these war wounds were infected from the onset.

The greatest task in this study is in the line of diagnosis.

In view of the high mortality of sarcoma, especially as to its final results, it would seem advisable to take some extra time to make sure of the diagnosis. It would be better to save a limb in a benign case, even with the slight added danger from the time taken to make this diagnosis as complete as possible.

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[3] Rocher: Nine Cases of Traumatic Ostoma.

The Colton.

ABSTRACT OF DISCUSSION

Dr. J. F. Percy, Los Angeles: Bone, especially the jaw, should not be touched with a cold saw, chisel or drill until the malignancy has first been destroyed with a red hot cautery. This is especially true of the removal of teeth. These should, before their removal, be made hot in order to destroy the surrounding malignant cells with the accompanying pus organisms. A very practical way of doing this is to play an oxyacetylene flame on the bones or teeth that are to be sterilized with the apparatus used by jewelers to weld metals. This method avoids the dissemination of the cancer cells in bone in the same way that the cautery knife prevents the scattering of infections, malignant or otherwise, in the soft tissues.

Dr. J. C. Bloodgood, Baltimore: Dr. Foster's case is unusual, because the bone formation in the arm followed the incision of an abscess in which the shaft of the humerus was cut with the knife. The differential diagnosis between benign ossifying periostitis and ossifying sarcoma is a very difficult one. I have discussed this in detail in the *Journal of Radiology* for February, 1923. Dr. Foster's discussion of post-traumatic bone tumors is important in relation to accident insurance and workmen's compensation. The evidence seems to establish that both benign and malignant lesions of bone may follow trauma. Dr. Morton's cases are clearly described, and if we wish to make progress in the earlier and more accurate diagnosis of diseases of bone, we need in the literature more communications of this type.

Dr. S. D. Foster, Toledo, Ohio: I want to clear one point about the conclusions I stated. I said that the whole story was to be worked out with the making of a diagnosis from the roentgenogram and from the history, if possible, to prevent the loss of the limb in a benign tumor, and that was what we were working on in this one case.

MINERS' SILICOSIS: ITS PATHOLOGY, SYMPTOMATOLOGY AND PREVENTION *

ROBERT T. LEGGE, M.D.
BERKELEY, CALIF.

Dust as a causative agent in the production of lung diseases has been known by writers of medicine from early times. Ramazzini, that pioneer observer of diseases of artificers, published in 1700 a treatise on the effect of dust inhalation. Stratton, in 1838, proposed the name of anthracosis to designate the condition found in coal miners as a result of inhaling coal dust, the term silicosis being applied to miners' consumption produced by quartz, flint and other silicon dusts. Probably the application of the term pneumonoconiosis, as proposed by Zenker in 1867, should be the proper nomenclature in occupational medicine for all inorganic and organic dusts that produce lung disease among workers.

The experimental work and observations of Haldane[1] and of Mavrogordato[2] particularly revealed a new aspect of the problem as to how pneumonoconiosis is developed, and in view of the recent investigations of the fundamental changes arising from dust inhalation, these findings should be more generally recognized. They noted, in the case of coal miners, that the carbon particles inhaled produced a violent reaction when brought in contact with the bronchial alveoli, which stimulated phagocytosis, taking up the dust particles in the endeavor to eliminate them. Other dusts, however, and among them crystalline silica, and quartz dust especially, when inhaled, produce a milder reaction and are less readily phagocytosed, a condition which prevents their autolysis and causes an accumulation in the lymph channels with the resulting fibrotic changes. It is for this reason that anthracosis, from both a morbidity and mortality standpoint, is not as hazardous as silicosis.

The amorphous forms of silicates seem to be innocuous through lack of possessing the physical or chemical qualities of crystalline silica, which is the harmful and damaging agent in the lung. It is the latter form, as Haldane has pointed out, which is clinically recognized as not being readily eliminated, and which, owing to its nonabsorptive character, is less possible of being phagocytized.

Fenn[3] prepared suspensions of carbon and quartz and showed that the polymorphonuclear leukocytes of the rat ingested carbon four times as readily as they did quartz. Drinker's[4] explanation as to the manner in which dust invasion is routed during inspiration is interesting. The natural tendency of the tissues is to consider dust as a foreign body, whereby a process of elimination is effected. The wandering phagocytes in the alveoli act as scavengers, and, by their ameboid movement, carry these particles up the bronchioles with the aid of the ciliated epithelium and are expectorated in coughing; the greatest menace to this process being the phagocytes, which, in the case of silica, prevent their autolysis or digestion in the lymph, thus causing their accumulation in the lymph channels, which they eventually fill up and block. Behaving as foreign bodies in the lymphatics, they cause fibrotic changes to occur, in which the cells themselves emerge into fixed connective tissue cells and ultimately into coarse, white fibers, thus completely and perhaps permanently obstructing the lymph channel. The lung roots, the gland, and even the blood vessels are converted into a solid rod of fibrous tissues.

Gye and Kettle,[5] from experimental evidence, have shown that silica is conspicuous and alone capable of inducing fibrosis because of its chemical action, and not in virtue of its physical properties; and they reason that silicotic fibrosis aids in the establishment of tuberculosis by destroying the natural immunity as a result of the destructive action of the cells by the silica. A focus of necrosis is produced in which the tubercle bacilli can multiply.

Lanza[6] noted, among the zinc miners in southwestern Missouri, that pulmonary changes are usually manifested only after about four or five years, while the observations made by investigators in the quartz mines of the Pacific coast show that evidence of silicosis can be detected in the workers in from six to eighteen months. Ordinarily, the progress of the disease is slow; but when induration of the pulmonary structures is established, it tends to advance more rapidly.

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* Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

[1] Haldane: Effects of Dust Inhalation, Engineering & Mining J., 1918.

[2] Mavrogordato, A.: Experiments on Effects of Dust Inhalation, J. Hyg. **17**: 439 (Oct.) 1918.

[3] Fenn, W. O.: Phagocytosis of Solid Particles, J. Gen. Physiol. **3**: 465 (March) 1921.

[4] Drinker, C. K.: Modern Views upon Development of Lung Fibrosis, J. Indust. Hyg. **3**: 295 (Feb.) 1922.

[5] Gye, W. E., and Kettle, E. H.: Pathology of Miners' Phthisis, Lancet **2**: 855 (Oct. 21) 1922.

[6] Higgins, Lanza, Laney and Rice: Siliceous Dust in Relation to Pulmonary Disease Among Miners in Joplin, Missouri.

SYMPTOMATOLOGY

In the incipient, or first, stage, the chest expansion is usually about 2½ inches. The worker becomes anemic, loses weight, and has dyspnea and cough. These are the principal symptoms. The physical evidences adduced by percussion are negative in the early stage, although auscultation may reveal a few râles in the bronchial tract, the apexes usually being clear. A characteristic symptom is the bluish green sputum, which, in the majority of cases, is negative for tubercle bacilli, and which, if found present, is due to a reactivation from a former infection.

The physical findings frequently are negative during this stage when fibrosis has actively begun. The most valuable instrument in diagnosis during this period is the roentgen ray, which in experienced hands can detect densities which should be interpreted as early deposits of dust. These variations in density increase as the different stages progress, until pronounced mottling at the hilum and the involvement of the glands with the contraction due to fibrosis can be definitely filmed, as observed in the advanced cases.

During the second stage, as the pulmonary involvement advances, there is a feeling of tightness and constriction of the chest. The expansion is limited to about 1 inch. Dyspnea becomes more marked and is ascribed to the loss of pulmonary elasticity and consequent diminished chest expansion. The cough is more severe; the expectorations are greater in amount, and at times streaked with blood. Naturally, the patient is easily fatigued and has loss of appetite and loss of weight. Elevation of temperature is slight, the patient frequently being afebrile. The roentgenologic examination reveals a more extensive mottling throughout the lung; invariably a greater distribution is noted in the right lung.

In the third stage, the symptoms are more aggravated and are characterized by very marked dyspnea and profuse expectoration after coughing, frequently with hemorrhages. Inspection reveals the chest expansion to be negligible, the interspaces increased and the apexes retracted. A noticeable pathognomonic condition observed in one third of all the cases is the adherence of the right diaphragm, due to the presence of adhesions, thereby lessening the functional capacity and causing a pronounced dyspnea. This was also observed by Landis.[7] Dulness on percussion is more marked on account of the extensive fibrosis, especially over the midportion of the lungs. Sibilant and sonorous râles are found on auscultation, as in cases of bronchial asthma. Digestive disturbances, such as vomiting in the morning, probably due to coughing, are experienced. These patients cannot tolerate coffee for some reason and usually dispense with breakfast. The loss of weight is pronounced. Fatigue and anemia become greater as the disease advances. Fluoroscopic examinations show fibrotic changes resulting in greater density, and the lung retracted as a result of the contracted bands, especially at the diaphragm.

In one of my cases, that of a miner engaged at the mother lode in California, the patient was in the first stage, but markedly anemic, which raises an interesting question as to this manifestation: In the first place, all persons working in the dark and not coming in contact with sunlight have a peculiar pallor; and secondly, as in the case of this patient who had the disease also, one must be suspicious of hookworm disease, which is quite common in California quartz mines. A stool examination is necessarily important so as to rule out uncinariasis.

From a public health standpoint, microscopic examinations of the sputum should be conducted regularly, so as to differentiate miners' silicosis from pthisis; especially is this precaution necessary to prevent tuberculosis in children in the homes of suffering miners.

Prevention is the only measure that offers a solution in this disease. This applies to the worker who is already a sufferer and to the environment in which the miner labors. The sufferer can never be cured of his fibrosis by any therapeutic methods. His only salvation is to change his vocation to a less laborious outdoor job, free from dust, with a view of preserving what normal lung tissue there is left. Such symptoms and defects as are present should be relieved by hygienic and general measures. Medical supervision by trained medical experts is absolutely essential, with periodic and complete physical and roentgen-ray chest examinations.

As to environment, which, in the last analysis, is the actual cause of silicosis, two methods of prevention are applicable: mechanical exhaust ventilation and the wet process. The latter method, that of wet stopers or drills, which are constantly injected with water, has greatly reduced the dust content in the air breathed by miners. It has been definitely proved by observers in the California quartz mines that the underground atmosphere contains about 50 per cent. more moisture than the mines in the sister state of Nevada, where the incidence of miners' silicosis is greater, and where a very large percentage of the miners have evidence of the disease—a convincing proof of the potency of moisture in reducing dust content in mines. A full hour for dinner and recreation above ground in the fresh air and sunshine will mitigate the incidence of the disease. During this period, blasting, sprinkling and the mechanical exhaust coil make a safer place for the worker to return to. And lastly, better housing, company cafeterias, public health nursing, medical supervision and education of the workers as to the dangers of silicosis dust inhalations will work wonders toward the control and abolition of this deadly disease.

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[7] Landis, H. R. M.: The Pathology and Clinical Manifestations Following the Inhalation of Dust, J. Indust. Hyg. **1**: 117 (July) 1919.

New Method to Protect Engine Crews in Tunnels.—The Bureau of Mines and the Union Pacific Railroad conducted an investigation to determine the cause of gassing accidents while passing through railroad tunnels. On forty trips conducted in cabs of locomotives passing through tunnels, carbon monoxid was found present on thirty-four. The operation of twenty-four trains in a normal running time of six minutes through the Aspen tunnel, Wyoming, showed cab temperatures of 114, and a relative humidity of 90 per cent. The maximum dry-bulb temperature recorded 136 F. Physiologic tests showed that the conditions in the cabs might cause asphyxiation or exhaustion in twenty minutes, as might be the case when the engine is stalled. Using the exhaust in conjunction with a hood attached to the top of the locomotive stack, to throw the smoke back over the top of the cab, was very effective in reducing the temperature and improving the atmospheric conditions. The most satisfactory method found for improving the atmosphere found in tunnels was by supplying air through respirators attached to the train air-brake pipe line. During the passage of the locomotive through the tunnel, the wearer held the funnel to his face, and breathed fresh air thus supplied from the train pipe.

FOUR DEATHS CAUSED BY SODIUM FLUORID *

WILLIAM D. McNALLY, M.D.
CHICAGO

The literature contains very little regarding poisoning by sodium fluorid, and most textbooks on toxicology have failed to record deaths by this poisoning.

Sodium fluorid (NaF), a white powder crystallizing in colorless cubes, with a specific gravity of 2.766, which, on heating, melt at about 900 C., volatilizing slightly at a lower temperature, of an acrid bitter taste, is soluble 1 part in 25 parts of water.[1] It is a general protoplasmic poison having a strong local irritant action. It exerts an alkaloid-like action, in addition to the changes in the tissues wrought by the loss of calcium, similar to that of oxalic acid poisoning. In the lower organisms not requiring lime, oxalic acid, in contrast with the fluorids, does not exert this alkaloid-like action.[2] One part of the salt in 200 parts of water, or one part in 500 of a fermentable liquid such as a sour mash of distilleries, stops the growth of bacteria. Tappeiner [3] believes the local and antiseptic action due to change of salts to hydrofluoric acid. It has an inhibiting action on lipase.[4]

When fluorids are given in small amounts, they are absorbed and deposited for the most part in the bones. The bones become unusually hard, white and brittle, and small white crystals have been noted, probably calcium fluorid.[5] Crystals have also been deposited in the liver in sodium silicofluorid poisoning.[6] A loss of chlorin and calcium in the bones followed the intramuscular injection in animals of from 1 to 2 mg. per kilogram of weight.[7] Schultz [8] found that subcutaneous injections of sodium fluorid acted on the central nervous system. A paralysis of the brain and spinal cord was noted. The end of its action was a muscular paralysis, and in cold blooded animals, extreme stiffness or numbness of the muscle, profuse flow of saliva, and a hemorrhage of the gastric mucosa. Sodium fluorid, from 15 to 150 mg. per kilogram of weight, eaten with food for a long period of time results in progressive impairment of growth and food consumption.[9] The addition of solutions of sodium fluorid to methemoglobin forms fluormethemoglobin, which is a little more red than methemoglobin, having a characteristic absorption spectrum in the orange, and a second one in the blue which is more difficult to see.[10]

A small amount of fluorid is normally found in the bones and teeth.[11] The bones and teeth of dogs do not contain more than 0.3 per cent. of fluorin. The fluorin content was raised to 1.73 per cent in bones and 1.29 per cent. in teeth, in feeding dogs sodium fluorid.[12] The diaphyses of fresh bone contain four times as much as the epiphyses.[13] Dry flat bones are poorer in fluorid than the diaphyses of long bones. Fluorid is a constant constituent of food,[14] the amount ranging from 0.059 to 13.87 mg. in 100 gm. of the dried material. Fluorid is most abundant in the leaves. The skins of the banana and apple contain more than ten times as much as the pulp. Traces of fluorids are found in potable waters.[15] Small quantities are found in the epidermis, hair,[16] thymus, testis, blood, milk and in all the organs. Gautier [17] found from 0.57 to 8.0 mg. per hundred grams of dried tissue. Those of low vitality contain the most fluorin.

Fluorin exists in two chief forms; in the most important tissues it is combined with phosphorus in a nitrogenous organic substance, and in the epidermal tissues in an inorganic combination with phosphorus resembling apatite.[18] Zdarek [18] determined fluorin gravimetrically as calcium fluorid in the ash of the organs of two healthy men accidentally killed, the kidney, liver and spleen containing the greatest amounts. The kidney contained 1.34 and 1.54 mg., the spleen 0.82 and 2.35 mg., and the liver 0.68 and 0.80 mg., respectively, per hundred grams of dried tissue. The fresh blood of one patient contained 0.21 mg. in 100 gm. Sodium fluorid is used as a wood preservative;[19] with sulphuric acid in the etching of glass; as a food preservative,[20] and as an insecticide. The amount of sodium fluorid varies from 16 to 63.6 per cent. in roach powders. It is in the latter connection that we are chiefly interested from a toxicologic standpoint. Hydrofluoric acid has been responsible for a few deaths and many serious cases of poisoning.[21] Sodium fluorid has not been regarded as a poison, but it is time that manufacturers and dispensers of insecticides label their products "Poison," and inform the public that the insecticides contain certain substances capable of causing death or seriously affecting the health of the individual when it is taken by mistake for a baking powder or a laxative.

Stanton and Kahn [22] report an instance of the poisoning of a child, aged 19 months, with a roach powder containing from 40 to 50 per cent. sodium fluorid. The child recovered on the eighth day. Vallée [23] records the poisoning of a family of five from eating pastry containing sodium fluorid. Each cake contained 0.228 gm. of sodium fluorid. One member of the family ate two cakes, containing, in all, 0.456 gm. of sodium fluorid. All recovered. Schyzzer [24] reports that a man, aged 38, was poisoned by consuming large quantities of beer containing sodium fluorid. Fluorid was found in the urine and the blood. Hickey [25] records the death of a girl, aged 10 years, who was given one teaspoonful of sodium fluorid by mistake for potassium and sodium tartrate (Rochelle salt), and died in one hour. Two other people, a man and wife between 50 and 60 years of age, who took 2 teaspoonfuls of

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* From the Department of Materia Medica and Toxicology, Rush Medical College.

[1] One hundred parts saturated solution contains 4.3 gm. of NaF at 18 C. (Myleius and Funk, Ber. d. deutsch. chem. Gesellsch. **30**: 1718, 1897).

[2] Loew: Allg. bot. Ztg. **94**: 330, 1905.

[3] Tappeiner: Arch. f. exper. Path. u. Pharmakol. **26**: 108, 1890.

[4] Amberg and Lovenhart: J. Biol. Chem. **4**: 149, 1908.

[5] Tappeiner and Brandl: Ztschr. f. Biol. **28**: 518, 1891.

[6] Carlau: Ein Beitrag zur Kenntnis der Leber veränderungen durch Gifte, Diss., Rostock, 1903.

[7] Schwyzer, F.: Biochem. Ztschr. **60**: 32, 1914.

[8] Schultz: Arch. f. exper. Path. u. Pharmakol. **21**: 326, 1889.

[9] Schettler, Wetzel and Solliman: J. Pharm. **17**: 225, 1921.

[10] Kobert: Kompendium der Toxicologie, Ed. 5, 1912, p. 205.

[11] Gabriel: Ztschr. f. physiol. chem. **18**: 261, 1894. Harms: Ztschr. f. Biol. **38**: 487, 1899. Jodlbauer: Ibid. **41**: 487, 1901; **44**: 259, 1902.

[12] Sonntag, G.: Arb. a. d. kais. Gesellsch. **50**: 307, 1916; Chem. Zentralbl. **1**: 1095, 1916.

[13] Gautier and Clausman: Compt. rend. Acad. d. sc. **156**: 1425, 1913.

[14] Gautier and Clausman: Comp. rend. Acad. d. sc. **162**: 105, 1916.

[15] Charles: Rev. chim. applicado **4**: 181, 1919. Gautier and Clausman: Comp. rend. Acad. d. sc. **158**: 1389, 1631, 1914.

[16] Kickton and Belinke: Ztschr. f. nahr. Genüss. **20**: 193, 1910.

[17] Gautier: Compt. rend. Soc. de biol. **76**: 107, 1914; Compt. rend. Acad. d. sc. **156**: 1425, 1913.

[18] Zdarek: Physiol. Chem. **69**: 127, 1910.

[19] Teesdale: U. S. Forest Products, Wood Preserving **3**: 80, 1916; **4**: 6, 1917.

[20] Bloxam: Chem. Ztg., 1893, p. 1244. Efront: Compt. rend. Acad. d. sc. **18**: 1420, 1894.

[21] Kobert: Lehrbuch der Intoxikationen, 1906, p. 201.

[22] Stanton, J. N., and Kahn, Max: Sodium Fluorid Poisoning, J. A. M. A. **64**: 1985 (June 12) 1915.

[23] Vallée: J. de pharm. et de chim. **7**: 5, 1920.

[24] Schyzzer: New York M. J. **24**: 1, 1901.

[25] Hickey: Bull. Massachusetts Board of Health, 1911, p. 341.

potassium and sodium tartrate were severely poisoned, recovering two days later. A chemical examination of the potassium and sodium tartrate, purchased at the same drug store, showed it to contain a large proportion of sodium fluorid. Investigation revealed that the poison was obtained from an artists' supply store. Two barrels were in the same room, each containing a white powder, one sodium fluorid and the other sodium and potassium tartrate.

Baldwin[26] has reported a number of cases of poisoning and death from accidental ingestion of sodium fluorid. In one case, a man ate three or four pancakes prepared by using a roach powder in mistake for baking powder. Death occurred in ten or twelve hours. The fatal dose was estimated at 10 gm. Others of the family ate less of the pancakes, and recovered in two days.

In another instance, about 26 gm. of sodium fluorid was used instead of baking powder. Four members of a family ate nine, six, five and one cake, respectively. If the mixing was done thoroughly, the dose would have been 9, 6, 5 and 1 gm. All became sick, recovering in a few days, except the mother, who did not fully recover for one month. About 50 grains were taken in mistake for potassium and sodium tartrate by an intoxicated man. He was taken with violent vomiting and purging, but recovered in two days.

*Presence of Sodium Fluorid in Four Cases**

	Case 1	Case 2	Case 3	Case 4
Stomach	0.0329	0.2432	0.2096	0.1343
Liver	0.0056	0.0154	0.2524	......
Kidney	Trace	R 0.1306 L 0.1234	0.0712	......
Bowel	0.0218	0.2388	0.4864	......
Bowel content	......	0.0094	......	......
Spleen	......	0.2354	......	......
Pancreas	......	Negative	......	......
Blood	......	0.1446	......	......
Lung	......	0.1560	......	......
Heart	......	0.1946	......	......

* Sodium fluorid in grams per hundred grams of tissue. R, right kidney; L, left kidney.

REPORT OF CASES

The three accidental deaths and one suicide here reported from the use of sodium fluorid occurred in Chicago and came before the coroner's office.

Case 1.—C. Y., a woman, aged 59, made an omelet, Feb. 16, 1921, using an unknown amount of roach powder in place of starch. A few minutes later, 6:30 p. m., she complained of a chilly feeling and weakness. There were no gastro-intestinal symptoms. The patient died at 10 p. m. Necropsy on the embalmed body gave no noteworthy alterations of the organs of the thorax and abdomen, except in the stomach and bowel. The stomach walls were edematous, with areas of congestion and small hemorrhages. The mucosa of the small bowel was congested and edematous. A chemical examination of the organs demonstrated the presence of sodium fluorid. The powder used for starch contained 63.64 per cent. of sodium fluorid.

Case 2.—M. C., a woman, aged 45, took from 4.5 to 5 gm. of a white powder for a laxative at 3 p. m., Feb. 5, 1923. In a few minutes she was found in the bath room, complaining of nausea and cramps. There was an excessive thirst. She complained of muscular weakness, and was unable to walk. There was vomiting of bloody fluid, diarrhea, paralysis of the facial muscles, and loss of speech. A physician was not called until 5 o'clock. The patient died at 7, four hours after the poison was taken. The patient had a roentgen-ray burn on the left side of the neck which was being treated as a possible carcinoma. The cause of death on the burial certificate was given as carcinoma. Six weeks later the body was exhumed, and no evidence of carcinoma was found. The gross pathologic changes were similar to those recorded in the preceding necropsy. A chemical examination of the organs revealed the presence of sodium fluorid as shown in the table.

Case 3.—A. C., a woman, aged 36, sister of the preceding patient, took 17 gm. of the same laxative in a glass of water at 7 p. m., March 14, 1923. The taste was bitter and caused severe burning, pain and a feeling of nausea. Within five minutes, severe vomiting occurred; in ten minutes, the patient was moaning, with great pain over the whole abdomen; she became very pale, and then purple spots appeared on the face. Ptyalism was noted. The lower extremities became paralyzed, with simultaneous loss of speech. Excessive cold perspiration was wiped off the face by a sister, who put the same handkerchief to her face and noted a burning sensation. The fluorid was probably excreted in the sweat. The vomitus was bloody. There was great thirst the same as in Case 2. Death occurred in three quarters of an hour. Gastric lavage, syrup of ipecac and 1/10 grain of apomorphin were used for treatment.

A postmortem showed that there were no external visible marks of violence on the body. The lungs presented an acute edema. The heart grossly was without changes of note. The liver, spleen, pancreas, suprarenals and urinary bladder presented no gross changes. The gastric mucosa was hemorrhagic, the wall edematous and the mucosa in part necrotic. The mucosa of the duodenum and the jejunum was edematous. The stomach contained about 100 c.c. of turbid, sanguineous fluid of an alkaline reaction.

A chemical examination of the stomach, liver, kidneys and bowel showed the presence of sodium fluorid. The white substance in a wrongly labeled bottle contained 90 per cent. of sodium fluorid.

Case 4.—A. S., a woman, aged 19, took 2 teaspoonfuls of a rat poison with suicidal intent. A severe burning pain in the stomach, vomiting and diarrhea, with muscular paralysis and loss of speech, occurred as in the previous cases. An examination of the principal organs of the thorax and abdomen gave evidence of congestion and marked hyperemia. The stomach walls were edematous, with a few small scattered hemorrhages. A chemical examination of the stomach gave tests for sodium fluorid.

COMMENT

In mammals, sodium fluorid causes salivation, gastro-enteritis, dyspnea, convulsions and failure of the heart and respiration. In man, the chief symptoms are burning in the stomach and bowel, muscular paralysis, vomiting and diarrhea, and failure of the heart and respiration. Salivation was noted in only one case, while convulsions were not noted in any case.

It is interesting to note that in all cases death occurred in from three-fourths hour to four hours, with the exception of Baldwin's case (from ten to twelve hours), and that the lethal dose was between 5 and 10 gm. Intravenous injection in dogs of 0.05 and 0.1 gm. of sodium fluorid per kilogram of body weight are fatal. With white rats the lethal dose I found to be 0.1 gm. of the chemically pure salt per kilogram of weight when given by mouth, death being delayed for from eight to twenty-six hours. In the nonfatal cases of poisoning, recovery occurred in from two days to one month. The toxicity of the sodium fluorid varies considerably in the different animals used, and probably is more a factor of the purity of the salt used. Tappenier found 0.15 gm. per kilogram of weight, Blauzat, 0.08 gm. per kilogram, while Brandl gave from 0.50 to 0.60 gm. per kilogram without the least accident. The values found by Rabuteau[27] were in error, as his sodium fluorid was found to be impure.[28]

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[26] Baldwin: J. Am. Chem. Soc. **21**: 517, 1899.

[27] Rabuteau: Etude expérimentale sur les effets physiologiques des fluorures et des composés métalliques en general, Paris, 1867.

[28] Schultz: Arch. f. exper. Path. u. Pharmakol. **25**: 236, 1889.

The action of hydrofluoric acid and sodium fluorid are similar. The latter is reabsorbed in the stomach, so it does not make any difference whether it is given intravenously or by mouth, the same changes being found in the stomach mucosa.

Schultz[28] found that, when subcutaneously injected, the lethal dose for rabbits was 0.2 to 0.4 gm.; for dogs, 0.3 gm.; for frogs, 0.005 gm. Heidenhain[29] found from 0.05 to 0.10 gm. per kilogram of weight to be fatal to dogs when injected into the blood stream. Weinland[30] found that sodium fluorid in 2.10 per cent. strength killed the mucous membrane from the throat of a frog in one minute; sodium iodid, 7.5 per cent., in ten minutes; sodium bromid, in forty-five minutes; sodium chlorid, 2.9 per cent., in sixty minutes. Grutzner,[31] using equimolecular proportions of the foregoing salts, found the same order of sensitiveness for nerves. Czrellitzer[32] concludes, after reviewing the work of others, that sodium fluorid is an active poison for micro-organisms of all kinds, algae, nerves and muscles of the higher organisms.

Many mistakes in the future could be obviated if all the insecticides were colored with 10 per cent. lamp black or other coloring matter.

In suspected cases of poisoning, the soluble sodium salt may be rendered inert by conversion to the insoluble calcium fluorid by copious and repeated gastric lavage with lime water or a weak solution of calcium chlorid.

RADIOLOGIC GASTRO-INTESTINAL STUDIES IN EPILEPSY *

WARD W. HARRYMAN, M.D.
AND
SAM W. DONALDSON, M.D.
Instructor in Neurology and Instructor in Roentgenology, Respectively,
University of Michigan Medical School
ANN ARBOR, MICH.

Chronic constipation as an exciting factor is a frequent complaint of patients with epileptiform seizures. It is noted by clinicians that attacks may be controlled or decreased in frequency by careful catharsis.[1] Whether constipation is an exciting cause of the attacks in patients with epilepsy is not known as an established fact. Numerous cases have been reported in which patients have been entirely relieved of their seizures following surgical procedure, i. e., colostomy,[2] the operation being indicated by the findings of chronic colonic stasis, or by daily rectal injections. It therefore seemed desirable to study the amount of colonic stasis found in a series of epileptic patients entering the University Hospital for treatment. These were, so far as any gastro-intestinal symptoms were concerned, entirely unselected. The findings were distinctly surprising, and cast doubt on the rationality of indiscriminate gastro-intestinal operations in these cases.

In most of the modern textbooks, when considering the treatment and management of epileptiform seizures, there is particular emphasis relative to avoidance of "constipation."

A review of the literature of roentgenographic findings in intestinal stasis shows several types and phenomena of "constipation," dyschezia of Hertz,[3] mechanical obstruction, ptosis, and those of reflex origin from abdominal pathologic conditions;[4] but a correlation of these findings with constitutional states is somewhat meager, and is usually of a negative character.

The trend of opinion in literature is inclined to lead one to believe that there exists a colonic stasis in "constipation" associated with epilepsy. However, even though practically all of the patients referred to the department of roentgenology complained of "constipation," but not always in direct relationship with attacks, it was found that instead of a colonic stasis, a hypermotility of the large bowel existed in more than 50 per cent. of the cases, with a normal motility in others.

Motility Index and Roentgen-Ray Findings in the First Fifty Consecutive Cases of One Hundred and Twenty-Five

Patient	Sex*	Age Years	Motility	Roentgen-Ray Diagnosis
1	♂	16	00010?	No diagnosis
2	♀	18	000100	Chronic appendix adhesions
3	♂	17	00000X	No diagnosis
4	♂	25	000100	Chronic appendix
5	♀	27	00000X	Negative
6	♂	..	000001	Negative
7	♂	20	000000	Negative
8	♂	..	0001XX	No diagnosis
9	♂	27	01010?	Chronic appendix adhesions
10	♀	16	011?00	Jejunal dyspepsia
11	♀	45	00000X	Chronic appendix
12	♂	29	00X0XX	Negative
13	♂	..	000000	Chronic appendix
14	♂	..	0001X0	Chronic appendix
15	♂	20	00X?0?	Negative
16	♂	56	00010X	Adhesions
17	♀	47	000100	No diagnosis
18	♂	31	000?0?	Adhesions
19	♀	31	000000	Ptosis
20	♂	23	000000	Negative
21	♂	..	0XX000	Duodenal ulcer
22	♂	..	000000	No diagnosis
23	♂	..	000?00	Negative
24	♂	16	0001?X	Chronic appendix
25	♂	46	001100	Negative
26	♀	25	01110X	Negative
27	♂	..	0001XX	Chronic appendix adhesions
28	♀	29	00000X	No diagnosis
29	♂	20	00000X	Negative
30	♂	18	00XX0X	Negative
31	♂	..	00?100	No diagnosis
32	♂	21	0000?X	No diagnosis
33	♂	21	000000	Chronic appendix
34	♀	..	000000	Negative
35	♂	..	00000?	Negative
36	♂	40	0000X?	Chronic appendix
37	♂	19	000000	No diagnosis
38	♀	14	000100	Negative
39	♂	15	00000X	Chronic appendix
40	♀	46	001100	Jejunal dyspepsia
41	♂	15	00000X	Chronic appendix
42	♂	..	00?0?X	Negative
43	♀	27	000??X	No diagnosis
44	♀	29	001100	Adhesions
45	♂	36	00X100	No diagnosis
46	♂	..	00000X	Chronic appendix
47	♀	26	00000X	Negative
48	♂	..	0XX00X	Duodenal ulcer
49	♂	19	00X000	Negative
50	♂	33	0000XX	No diagnosis

* In this column ♂ indicates male, and ♀, female.

The following instructions are furnished to all patients having roentgen-ray examinations: The examination extends over a period of at least twenty-four hours, after the first observation, and, in many cases, it must be extended for forty-eight hours. Preparation is begun on the previous day. On the day preceding the first examination, the 12 o'clock or noon meal is taken as usual, but the customary evening meal is omitted. At 9 p. m., the full meal is taken, including meat and potatoes, or other food, to suit the taste and capacity of the individual, disregarding any previous diet restrictions or medication. We wish the patient to have the equivalent of what he would consider the best meal of the day. With the meal, the barium powder must be taken in water, milk, lactone, mashed potatoes or some other suitable vehicle.

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[29] Heidenhain: Arch. f. d. ges. Physiol. **56**: 579, 1894.

[30] Weinland: Arch. d. ges. Physiol. **58**: 105, 1894.

[31] Grutzner: Arch. f. d. ges. Physiol. **53**: 83, 1892.

[32] Czrellitzer: Zur Kentniss des Fluornatrium, Inaug. Diss., Breslau, 1895.

* From the Departments of Neurology and Roentgenology in the Hospital of the University of Michigan.

[1] Hurst, A. F.: Constipation and Allied Intestinal Disorders, London, Frewde, 1909, p. 359.

[2] Reed, C. A. L.: Constipation and Intestinal Infection in Epileptics, J. A. M. A. **67**: 1157 (Oct. 14) 1916.

[3] Hertz, A. F.: Chronic Intestinal Stasis, Brit. M. J. **1**: 817 (April 10) 1913.

[4] Case, J. T.: The Roentgenologic Findings in Malignant Obstruction of the Colon, Lancet-Clinic **111**: 216-19, 1914. Carmen, R. D.: The Roentgen Diagnosis of Diseases of the Alimentary Canal, Ed. 2, Philadelphia, W. B. Saunders Company, 1920, pp. 586-598. Skinner, E. H.: The X-Ray Examination of Habitual Constipation, J. Missouri M. A. **10**: 51-7, 1913-1914. Einhorn, Max: Intestinal Stasis, J. A. M. A. **62**: 1111 (Sept. 26) 1914. Jordan, A. C.: Radiography in Intestinal Stasis, Lancet **2**: 1824-1828, 1911.

At 9 a. m. the next day, the patient is required to report at the roentgen-ray room for the first examinations. A preliminary fluoroscopic examination is made in the erect position; a suspension of barium sulphate is given, and the esophageal and stomach function is noted. Two 8-ounce glasses of barium lactone are then given: The patient is examined in the erect position and then in the dorsal, and a plate is taken in the prone position.

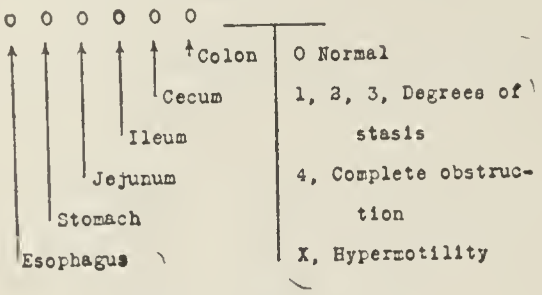

Chart 1.—Motility index.

No food is taken from the time of the second observation and plate, until another plate is made in the prone position six hours later. After the second plate is made, the patient may eat anything he pleases and whenever he wishes, reporting for the third plate at 8:30 a. m. the next morning. The patient is instructed to take no laxative or cathartic during the period of the examination. Water or weak tea is allowed at any time.

Conclusions are drawn from both screen and plate observations, and, as this paper deals only with the motility, a detailed explanation of the other points considered in the examination and in the drawing of conclusions will not be discussed, as they are quite familiar to most physicians.

We have been taught that the movements of the large bowel are mainly to and fro movements. There seems to be a point not far from the hepatic flexure which serves as a pacemaker for the entire bowel. In the proximal portion, the cecum and ascendens, the normal direction of peristalsis is upward, that of the colon distal to this point is downward. Therefore, the contents of the cecum are constantly being returned to the lower portion of the cecum, and find their way out only as they are crowded forward by the addition of material coming from the ileum. So we see the passive filling of the transversus with a mass of material that is already fairly well desiccated and being retained there as in a reservoir. In the meantime, the contents of the cecum are constantly being mixed with new material, and the individual particles may remain for a considerable period of time, awaiting their turn to escape, or return into the ileum.[5]

In the transversus, the progress is very slow indeed. From time to time, a vigorous peristalsis arises in the region of the hepatic flexure, which sweeps everything before it into the pelvic colon or the rectum. These so-called mass movements, comparable to the "rushes" of the small bowel, do not occur more than a few times a day, possibly only once, unless initiated by manipulation of the abdomen. In case these mass movements are long deferred, the bowel contents may passively extend into the descendens, and into the pelvic colon, but, as a rule, this portion of the large intestine is comparatively empty.[6] There has also been described the factor of a peripheral current about a central cylindric fecal mass in the colon.[7]

The theory has been advanced that an irritative lesion involving the hepatic flexure in the neighborhood of this pacemaker leads to an increased frequency of the mass movements with a corresponding hastening of barium shadows through the transversus; while a depressing or inhibiting lesion would lead to a stasis in the transversus. Some support is lent to this theory by the fact that the transversus is less apt to contain barium in gallbladder disease, although, of course, one might be led to expect that either an irritative or an inhibiting lesion might be found in this region, with opposite results.

The fundamental principle of gastro-intestinal disease is that the motility of the bowel is increased below the level of injury or irritation and diminished to the point of complete stasis about it.[7] Therefore, the cases here presented which show definite pathologic changes must be taken into consideration.

As a matter of record of the findings noted in all gastro-intestinal examinations, in order that conclusions may be drawn from all points and angles showing a divergence from the normal in the motility of the esophagus, stomach, upper small bowel, terminal ileum, cecum and colon, a normal motility index has been devised and is in use in this laboratory. The accompanying charts are practically self-explanatory; that is, six points of motility are taken, zero being considered normal, and the numerals 1, 2, 3 and 4 as degrees of stasis, while an X in any of the six places means a hypermotility of that portion of the gastro-intestinal tract.

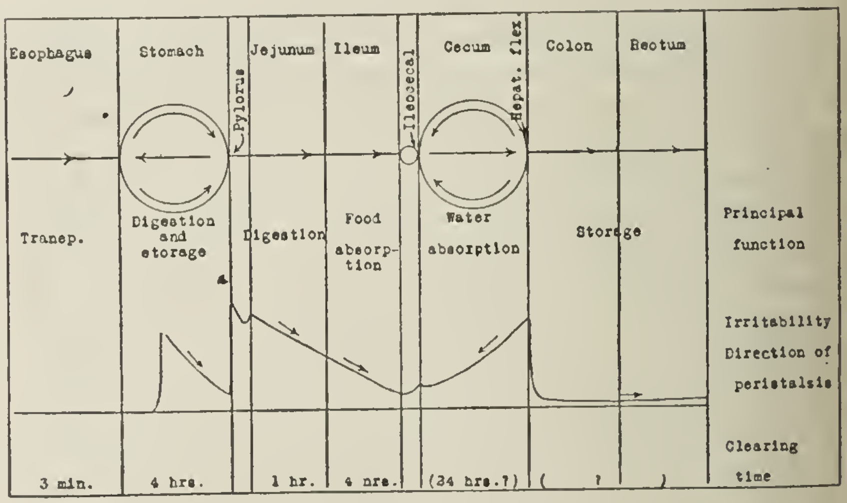

Chart 2.—Six point index.

Chart 2 designates the six portions of the tract to be considered, their principal functions, the direction of peristalsis (shown as a curve), and the clearing time; that is, if any of these six points are clear after the period shown, they are considered as zero for those places. If they are empty before the time allowed, X is inserted in the corresponding place in the six point index. In stasis, the proper digit is used to denote the amount of stasis. Necessarily, there is a certain personal equation which enters this index reading, and it may be here stated that the results, or indexes of the patients here submitted, have been given by five different members of the roentgen-ray staff, extending over a period of time which these cases cover.

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[5] Case, J. T.: A Critical Study of Intestinal Stasis with New Variations Respecting the Causes of Ideal Stasis, Arch. Roentgen Ray **19**: 45 (July) 1914.

[6] Van Zwaluwenburg, J. G.: Unpublished lecture notes.

[7] Mills, R. W.: X-Ray Evidence of Abdominal Small Intestine States Embodying a Hypothesis of the Transmission of Gastro-Intestinal Tension, Am. J. Roentgenol. **9**: 199 (April) 1922.

It will be noted in the accompanying table that the main point which we wish to bring out is that in a considerable number of these patients, who are all epileptic, there is shown in the motility index an X denoting hypermotility of the colon, and in some instances an X in the last two places, denoting hypermotility of both cecum and colon.

This series was selected irrespective of any other conditions present. It will be noted that about three fourths of these patients are males; but the same percentage exists in practically all of the various services of this hospital. The age period also varies, and it will be noted that the greater number of cases shown gives the age at which epileptiform seizures most commonly appear.

CONCLUSIONS

1. No definite evidence of colonic stasis is found by roentgen-ray examination of the gastro-intestinal tract of epileptics.
2. The term "constipation" is a complaint of the patient and associated with a cathartic habit. It does not indicate colonic stasis.
3. There are no indications for surgical procedure to relieve these patients of colonic stasis, since a true colonic stasis does not exist.

THE VALUE OF THE KAHN PRECIPITATION TEST FOR SYPHILIS *

H. K. DETWEILER, M.D. (TOR.)
Senior Demonstrator in Medicine, University of Toronto
TORONTO

Owing to the difficult and time-consuming technic and to the existence of a very small but real element of error in the Wassermann test, investigators have been searching for years for a diagnostic method for syphilis which would prove still more accurate and less laborious. Most of these efforts have centered around a flocculation or precipitation phenomenon, which occurs as a colloidal reaction in connection with mixtures of certain antigens and syphilitic serums.

Space does not permit a discussion of the various methods brought forward to date. It will suffice to say that the precipitation test proposed by Kahn [1] offers certain advantages over the others in the matter of ease of performance and interpretation and possibly in accuracy. Our experience, as well as that of Keim and Wile [2] leads us to believe that more attention should be given this method, and the present critical analysis of our results is submitted with this end in view.

The actual test is extremely simple. The serum is inactivated at 56 C. in the water bath for thirty minutes as for the Wassermann test. To 0.3 c.c. of serum in a three-eighths inch test-tube is added 0.05 c.c. of the diluted antigen. The tube is shaken vigorously for three minutes and placed in the incubator at 37 C. overnight. (Too narrow a test tube renders shaking difficult.) It should not be agitated before the result is read in the morning.

A strongly positive reaction is evidenced by the presence of one or more large clumps of precipitate which may be floating at the top, or throughout the liquid, or may be lying at the bottom. In the latter case, very slight agitation will at once reveal its presence. We have found it convenient to designate the result as four plus when all the precipitate is gathered into one large clump; three plus when in several large clumps; two plus when the precipitate is easily seen as a fairly coarse flocculation, and one plus when in the form of a fine granular suspension visible to the naked eye but best viewed by the aid of a watchmaker's lens. A negative serum appears quite free of precipitation.

Analysis of One Thousand Five Hundred and Forty Parallel Tests

	Proved Cases of Syphilis	Unproved Cases of Syphilis	Nonsyphilitic Cases*
Wassermann test, positive...	447	11	.....
Wassermann test, negative...	19 (Treated or early cases)	..	1,065
Kahn test, positive..........	414	11	11 (One plus)
Kahn test, negative.........	39 (Treated or early cases)	..	1,065

* Including thoroughly treated cases yielding both negative Wassermann and negative Kahn tests.

RESULTS

We have now used this test in parallel with the Wassermann reaction [3] in nearly 2,000 consecutive serums submitted from the wards and outpatient department of the Toronto General Hospital. At the present time, the first 1,500 of these tests have been subjected to careful analysis, with the results recorded in the accompanying table.

In the 1,540 parallel tests, there was agreement between the two procedures in 1,459 serums, or 94.2 per cent. Of the ninety discrepancies, fifty-one were instances of a positive Wassermann test with a negative Kahn test. Of these, all but eleven were in proved cases of syphilis, most of them treated. The unproved cases were regarded as probably syphilitic because of the finding of persistent complement fixation in each case. The remaining thirty-nine discrepancies were instances of a positive Kahn test with a negative Wassermann test. Of these, slightly less than one half were in proved cases of syphilis.

It will be noted that the percentage of agreements in this series (94.2) is remarkably close to the figures given in the series reported by Dreyer and Ward,[4] Wang,[5] Sachs and Georgi,[6] and Nathan and Weichbrodt.[7] The actual percentage, however, is of little importance, unless the proportion of syphilitic cases in the series, and especially the proportion of positive treated cases, is stated. The reason for this is that very few discrepancies appear in the nonsyphilitic serums, and if the series is made up mostly of these, the percentage of agreements is bound to be very high. For example, Moody [8] reports 98 per cent. agreements in 1,500 cases, only 15 per cent. of which, however, were syphilitic. In the tests here reported, there were at least 466 syphilitic serums, out of a total of 1,540, making a percentage of a little over 30, the majority of which were treated. In the series reported by Dreyer and Ward, as well as that of Wang, the proportion of syphilitic serums was approximately one third of the total number.

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* From the Clinical Laboratories of the Department of Medicine, University of Toronto.

[1] Kahn, R. L.: Simple Quantitative Precipitation Reaction for Syphilis, Arch. Dermat. & Syph. **5**: 570 (May) 1922; **5**: 734 (June) 1922.

[2] Keim, H. L., and Wile, U. J.: Kahn Precipitation Test in the Diagnosis of Syphilis, J. A. M. A. **79**: 870 (Sept. 9) 1922.

[3] The technic of the Wassermann test as performed in our laboratory has been described in the literature on different occasions, and need not be detailed here. The antigen employed is a cholesterinized alcoholic extract of human heart. The serum amounts are 0.2, 0.1 and 0.05 c.c.

[4] Dreyer, Georges, and Ward, H. K.: Lancet **1**: 956 (May 7) 1921.

[5] Wang, C. Y.: Lancet **1**: 274 (Feb. 11) 1922.

[6] Sachs, H., and Georgi, W.: Med. Klin. **14**: 805, 1918.

[7] Nathan and Weichbrodt: München. med. Wchnschr. **65**: 1280.

Out of ten instances in 1,540 tests, in which the Wassermann reaction was very strongly positive and the Kahn test negative, five patients had been treated; one had a history of syphilis; one had a history of exposures; one had a case of pyelitis with fever, and two had no history of syphilis.

Out of forty-one instances in 1,540 tests in which the Wassermann reaction was less strongly positive and the Kahn test negative, twenty-eight patients had been treated; four presented early primary syphilis; two had provocative cases; one had a case of tabes; one was pregnant; in two, Wassermann fixation was questionable, and three had no history of syphilis.

Out of five instances in 1,540 tests in which four plus or three plus Kahn tests were found, with a negative Wassermann reaction, one patient had been treated; one had a syphilitic husband and had later given a weakly positive Wassermann reaction in the blood and a strongly positive Wassermann reaction in the cerebrospinal fluid; one had a case of paraphimosis, with no definite history of syphilis; one had a case of arthritis, and one had no history of syphilis.

Out of thirty-four instances in 1,540 tests in which the Kahn test was two plus or one plus, with a negative Wassermann reaction, sixteen patients had been treated; one presented early primary syphilis; one had a case of cerebral tumor, and sixteen gave no history of syphilis. In nearly all these patients, the reaction was only one plus and could not lead to error if the same precaution in interpretation is taken as in the case of slight complement fixation.

In six instances of pneumonia in which the Wassermann test yielded a certain amount of nonspecific fixation during the height of the fever and then became negative, the Kahn test was negative throughout. It would seem, therefore, that this procedure is of definite value in checking up nonspecific results in such cases. In several instances of pneumonia in which both tests were positive, subsequent investigation proved the existence of syphilis. In the one case of pregnancy in which a nonspecific fixation was obtained in the Wassermann test, the Kahn test was also positive, becoming negative along with the former after the patient was delivered. In all the cases of tuberculosis in the series, several of which were advanced, both tests were negative.

CONCLUSIONS

In a critical survey of our results, a number of outstanding points appear to warrant emphasis:

1. It will be seen that while the Kahn precipitation test affords results remarkably parallel with the Wassermann test, it is not yet the equal of the latter in reliability, at least in our hands. It fails principally in three classes of cases: (*a*) treated syphilis; (*b*) early primary syphilis, and (*c*) cerebrospinal syphilis. Here the failure is the more serious, since the test cannot be applied successfully to the cerebrospinal fluid.

2. Many of the discrepancies in treated cases were instances of negative Kahn tests with the Wassermann fixation as weak as 1 0 0.

3. It must be remembered that in the cases marked "no history of syphilis," one is depending for the most part on the hospital interns, some of whom are careful and trustworthy, and some apparently very unreliable. Nevertheless, the Wassermann reaction was positive and the Kahn test negative in four cases with "no history of syphilis," whereas the converse was true in sixteen cases with the same history.

4. It would seem that, just as in nonspecific fixations in the Wassermann test which commonly read up to 3 2 0 or thereabouts, a small precipitation, such as one plus, in the absence of a history of syphilis should not be taken too seriously.

5. In a large hospital, in which many specimens of blood are handled, we have long made it a rule that in all cases of Wassermann-positive blood without history or signs of syphilis the test is to be repeated before the report is finally made. This is to avoid errors resulting from mixing specimens, and misinterpretation of nonspecific fixations. In such cases, a confirmatory Kahn test is of the greatest importance, and tends to increase one's confidence in the Wassermann reading, in spite of absence of history or signs. We therefore now perform the two tests in parallel as a routine in the Toronto General Hospital.

6. The ease with which this test is done makes it practicable for use in laboratories and offices in which facilities for performing the Wassermann test are lacking. Carefully conducted, it is almost as reliable as the latter.

112 College Street.

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8. Moody, W. B.: Precipitin Reaction for Syphilis, J. A. M. A. **80**: 383 (Feb. 10) 1923.

ANTACID GASTRIC THERAPY, WITH ESPECIAL REFERENCE TO THE USE OF NEUTRAL ANTACIDS

JOHN L. KANTOR, Ph.D., M.D.
Chief in Gastro-Intestinal Diseases, Vanderbilt Clinic, Columbia University College of Physicians and Surgeons; Associate Gastro-Enterologist, Montefiore Hospital for Chronic Diseases
NEW YORK

It is common knowledge that many cases of pain after meals are relieved by the administration of alkalis. In such instances, an underlying hyperacidity is generally assumed to exist, and the symptomatic relief is usually explained thus: The excess of acid acts as an irritant. This irritation causes a spasm of the gastric musculature, including that of the orifices of the stomach. The increased intragastric tension is painful. The administration of an alkali reduces the acidity, lessens the spasm, and dissipates the pain.

That such an explanation can be but partially true would appear from the following considerations: It cannot explain the lasting effect of the relief, since it has been shown that within a short time (e. g., one-half hour) the original gastric acidity may be reproduced; in fact, often exceeded. Similarly, after a complete clinical cure, the gastric acidity may be higher than ever. Just how do alkalis control pain in the presence of normal, subnormal or absent gastric acidity? Finally, to which of the several known effects of alkali action is the pain-stilling feature to be attributed?

The last question brings us perhaps nearest the crux of the matter. Taking the most commonly used alkali, sodium bicarbonate, we find that its therapeutic effects may be attributed to one or more of these qualities: (1) its action as a local antacid; (2) its action as a systemic alkali, or (3) its action as a carminative. Moreover, to explain its action in a case of achylia gastrica, one might assume the existence of some specific local alkaline (but not antacid) action. Finally, there may be considered the possible influence of the sodium ions on the general metabolism.

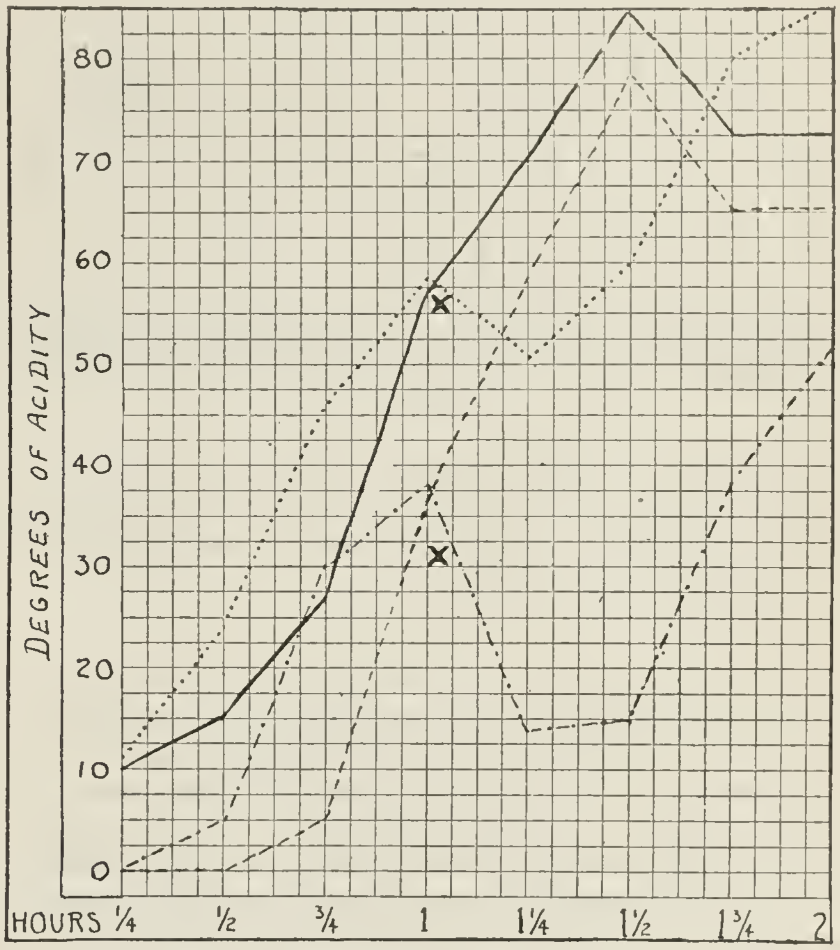
The same type of reasoning would apply to the use of other alkaline salts. Thus, magnesium oxid acts (1) as a local antacid; (2) as a systemic alkali, and (3) as a cathartic by virtue of its magnesium ions. In short, take what alkali we will, we find that its action is multiple rather than single, late as well as immediate, remote as well as local. It is this very multiplicity of action, desirable as it may be in some instances, that is a potential source of therapeutic confusion and embarrassment. Even lay patients will often wonder whether, in the course of time, "the soda may not wear off the lining of the stomach," and physicians have long raised the question whether alkalization of the gastric contents may not be regarded, to say the least, as "unphysiologic." Recently, more particular attention has been focused on the matter of systemic alkalization. Thus, Hardt and Rivers,[1] analyzing a series of cases of peptic ulcer that were treated by the Sippy method, found that some patients developed definite symptoms of toxemia associated with renal changes and with alteration in the blood chemistry. These disorders occurred whether there had been previous renal complications or not.

On the other hand, it is claimed by Le Noir [2] that alkalis (sodium bicarbonate) may act beneficially in gastric ulcer by overcoming hepatic insufficiency and acidosis, and that because of possible irritating local action, their administration by mouth is to be replaced, in appropriate cases, by their injection by rectum.

Such considerations as these lead us to the conclusion that the last word in alkaline therapy is still unsaid, and therefore any effort to simplify the factors in the problem should be welcome. Accordingly, it appears appropriate to call attention to the fact, pointed out recently by Greenwald,[3] that the secondary and tertiary phosphates of magnesium and calcium act as local antacids without producing systemic alkalization. Being themselves neutral in reaction and insoluble except in an excess of free acid, they can never alkalize the gastric contents. Their activity is limited to depressing sharply the free acidity without altering to any such great extent the total acidity. These facts become evident from a glance at the accompanying table. The curve after a "fractional" test meal shows the marked depression of free acidity obtained by administering a teaspoonful of bone ash (calcium phosphate) to a patient with hyperacidity and hyperchlorhydria. The subsequent rise in acidity is similar to that observed after the administration of an alkaline antacid.

CLINICAL OBSERVATIONS

My experience with these neutral antacids covers a period of more than two years. The present study is based on a review of twenty private cases, and approximately 200 cases at the Vanderbilt Clinic. At first, bone ash (crude calcium phosphate) was used; later, pure calcium phosphate and magnesium phosphate were employed. Both the dibasic ($MgHPO_4$, $CaHPO_4$) and the tribasic ($Mg_3[PO_4]_2$, $Ca_3[PO_4]_2$) forms were employed, the latter being, of course, the more effective neutralizer. The calcium salts being slightly constipating, and the magnesium being laxative in action, the tendency of the patient either to constipation or to diarrhea was used as a guide to the choice of the appropriate drug in the particular case. The dose of either compound was from one-third teaspoonful to two teaspoonfuls (1 to 6 gm.) three times a day after meals. No ill results have been observed, nor, indeed, do they seem possible, since, in addition to their action on acid gastric juice and on the bowels, these drugs have no known effect on the economy, it having been definitely shown that they are not excreted through the urine. The salts are tasteless, and may be administered in bulk or in capsules, as preferred. Care should be taken that the neutral (tasteless) and not the acid (sour) phosphates be dispensed by the druggist.



Curve of fractional test meal after administration of 3 gm. of bone ash (calcium phosphate) showing sharp and prolonged depression of free acidity with subsequent rise, in a case of hyperchlorhydria and hyperacidity. Control curves: continuous line, total acidity; dash line, free acidity. Experimental results: dotted line, total acidity; dot and dash line, free acidity; *X*, time of administration of drug.

For the control of the common symptoms of hyperacidity, such as pain, heartburn, sour belching, distress and gas, the neutral antacids are clinically effective in most cases. In a few instances, however, these symptoms are either not completely controlled or are not so rapidly relieved as by the alkaline antacids. Such cases are generally, but not invariably, those in which a carminative action seems necessary. However, it has been observed that, once initial relief is obtained by any method, permanent comfort can generally be assured by the subsequent use of the neutral antacids, thus making for real physiologic and therapeutic economy. I am now making use of this principle in my treatment of ulcer cases, along the general lines of the Sippy method. When possible, neutral antacids are administered in place of alkalis from the beginning. If symptoms are not controlled, the original alkaline therapy is carried out until they are controlled, at which time the neutral antacids are substituted with occasional assistance from the alkalis only when necessary. It is felt that in this way neutralization of the gastric juice—should such an ideal be regarded as desirable—can be carried out for longer periods and more safely than if alkalis alone were relied on for this purpose. This caution should seem all the more justifiable, because, as a general proposition, our knowledge of the etiology of peptic ulcer is still so incomplete that an attempt at the absolute control, on purely theoretical grounds, of any one possible factor—such as that of acidity by alkalization or by continuous lavage—should be regarded with reasonable circumspection.

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[1] Hardt, L. L., and Rivers, A. B.: Toxic Manifestations Following the Alkaline Treatment of Peptic Ulcer, Arch. Int. Med. **31**: 171-180 (Feb.) 1923.

[2] Le Noir, P.: Bicarbonate de soude et traitement de l'ulcère gastroduodénal; son administration par voie rectale, Bull. de l'Acad. de méd. **88**: 157-160 (Oct. 24) 1922.

[3] Greenwald, I.: Gastric Antacids Which Cannot Act as Systemic Alkalis, Proc. Soc. Exper. Biol. & Med., to be published.

Neutralizing Effects of Calcium Phosphate and Magnesium Phosphate as Compared with Sodium Bicarbonate and Magnesium Oxid *

	$Ca_3(PO_4)_2$			$Mg_3(PO_4)_2$			$NaHCO_3$			MgO		
Amt., Gm.	Free HCl	Total Acid	p_H	Free HCl	Total Acid	p_H	Free HCl	Total Acid	p_H	Free HCl	Total Acid	p_H
0.1	44	55	1.3	45	50	1.4	44	46	1.4	13	14	1.9
0.2	36	55	1.7	35	45	1.6	32	35	1.5	—2	—0.4	8.0
0.5	24	53	1.8	9	35	2.8	—3	—2	8.2	—4	—2.3	9.1
1.0	9	52	2.6	—9	23	6.0	—65	—3	8.4			
4.0	2	51	3.3	—16	6	6.7						

* Increasing amounts of the salts were added to 100 c.c. of 0.555 normal hydrochloric acid at 37 C., and the mixture filtered after being stirred for ten minutes. The results are expressed in cubic centimeters of 0.1 normal sodium hydroxid required for 100 c.c., and as negative logarithms of hydrogen ion concentration (after Greenwald).

SUMMARY

1. The therapeutic action of alkalis administered in gastric disorders is complex and depends on many factors, some of which are as yet little understood.
2. There are certain possible dangers inherent in the administration of alkaline antacids. Such dangers are the unphysiologic alkalization of the gastric contents, and the disturbance of general metabolism with particular strain on the excretory functions.
3. The use of the neutral antacids (phosphates of calcium and magnesium) is free from the dangers mentioned above.
4. Limited clinical experience has shown the general efficacy of these antacids. They would appear to be particularly useful in cases in which prolonged reduction of excessive gastric acidity is deemed advisable.

Levulose Tolerance Test for Hepatic Efficiency.—The claims put forward by Maclean, Spence and Brett as to the value of the levulose tolerance test as a means of estimating the efficiency of the liver are fully corroborated by my work. Contrary to certain criticisms that have been made recently, the test forms a valuable indication of hepatic disease in certain cases where there is no clinical evidence of damage to the liver. And, further, it is of value in chronic as well as in acute cases of liver disease, though the response is less marked in the former. In cases of chronic sprue there is no considerable degree of liver inefficiency. In amebiasis the liver is affected in greater or less degree in the large majority, if not in all cases. The test forms a very valuable means of detecting the degree of hepatic inefficiency in this disease, and of showing whether after a course of treatment the efficiency of the liver has been restored.—G. Covell: *Guy's Hosp. Rep.* **73**:367 (July) 1923.

THE ANTIRACHITIC INFLUENCE OF EGG YOLK

HORTON CASPARIS, M.D.
P. G. SHIPLEY, M.D.
AND
BENJAMIN KRAMER, M.D.
BALTIMORE

It is a recognized fact that active rickets is relatively uncommon after the second year. This has been attributed by many to the more liberal diet that children receive at this period of life. Exactly what particular foodstuff is responsible for the antirachitic effect has not been determined. Still [1] says, "Next to milk I know of no food which is of more value in the prevention of rickets and in the cure of it than yolk of egg." The same author, however, says further, "There seems to be no specific virtue in cod liver oil; any other oil will do equally well." Doubtless other people have used egg for the same purpose.

No objective evidence of the value of any one of the ordinary foodstuffs in curing rickets in children has ever been presented. Mellanby [2] was the first to show that a dog made rachitic by diet can be cured by adding egg yolk to the rickets-producing diet. In his experiments, the substitution of whole milk for separated milk produced a similar beneficial effect. Recent clinical studies and metabolism experiments with children lead to the inevitable conclusion that milk is a poor antirachitic agent. One year ago, Howland and Kramer [3] presented evidence that the administration, to children suffering with rickets complicated by tetany, of a certain diet that contained purées (vegetables) and egg, had the same effect on the calcium and inorganic phosphorus of the serum as cod liver oil. This observation, which was purely accidental, led us to an investigation of the antirachitic properties of individual articles of the child's dietary.

Howland and Kramer [4] recently reported that animals made rachitic by diet were cured by substituting in the diet 10 per cent. egg yolk for a similar amount of gelatin. Healing of the rickets of children was also accomplished by adding one or two eggs a day to their diet. These observations, and a number made since then, furnish the basis of the present paper.[5]

Seven children, all colored, suffering with rickets, usually of a severe degree, were fed on milk and cereals to which one or two eggs a day were added. All the children with but one exception took the egg well. This child refused the egg for several weeks, but took farina and milk. The rickets was not improved. Later the egg was well taken, and the rickets soon began to heal.

No allergic reactions were observed in any of the children. The usual technic of such studies was observed. Roentgenograms of the extremities were taken on admission and at subsequent intervals, and the blood serum was analyzed for calcium and inorganic phosphorus at the same time. Definite healing could be demonstrated by the roentgenogram within three weeks after egg was made a part of the diet, and the inorganic phosphorus of the serum increased from the low level of active rickets to the normal of 5 or more milligrams per hundred cubic centimeters of serum.

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[1] Still, G. F.: Common Disorders and Diseases of Childhood, Ed. 3, London, 1915, pp. 104 and 105.

[2] Mellanby, E.: Experimental Rickets, Special Report Series 61, Medical Research Council, London, p. 65.

[3] Howland, John; and Kramer, Benjamin: Factors Concerned in the Calcification of Bone, Proc. Am. Pediatric Soc., 1922, p. 204.

[4] Howland, John; and Kramer, Benjamin: Preliminary Report of Experiments on the Antirachitic Effect of Egg Yolk, read before the Society for Experimental Biology and Medicine, April, 1923.

[5] A. F. Hess (Proc. Soc. Exper. Biol. & Med. [April 18] 1923, p. 369) has reported a study of the value of egg yolk in the prevention of rickets in animals and children. The statement is also made that egg yolk will cure rickets that has already developed, but no data are given.

McCollum[6] and his collaborators have shown that rats fed on a diet low in phosphorus and fat soluble A, and high in calcium, that known as Diet 3143, will develop rickets with absolute regularity. With equal uniformity, the serum of such animals has a calcium concentration of about 10.5 mg. per hundred cubic centimeters and an inorganic phosphorus concentration of 2.5 mg. In the basal diet of two groups of such animals, 10 per cent. of egg yolk was substituted for gelatin. This was fed for six days, and then the animals were killed. The bones showed definite anatomic evidence of healing, and the inorganic phosphorus of the blood serum had risen to 4 or more milligrams per hundred cubic centimeters of serum, while the calcium concentration remained unchanged. The results with children and rats are summarized in the accompanying table.

Treatment by Egg Yolk of Rickets in Children and of Experimental Rickets in Animals

		In Mg. Per 100 C.c. Serum						
Case	Date of Blood Analysis	Calcium	Inorganic Phosphorus	Product	Diet	Roentgenographic Findings	Date	Treatment Begun
1	3/14/23	9.8	4.2	41	Egg, farina, milk	Rickets	3/14/23	3/14/23
	3/26/23	10.6	5.0	53	Egg, farina, milk	Healing rickets	3/24/23	
	4/ 4/23	10.4	6.1	64	Egg, farina, milk	Healing rickets	4/ 2/23	
2	3/15/23	9.3	3.5	33	Farina, egg	Rickets	3/ 5/23	3/15/23
	4/ 4/23	8.8	4.7	41	Farina, egg	Rickets	4/10/23	
	4/23/23	10.3	5.6	58	Farina, egg	Healing rickets	4/23/23	
	5/ 4/23	9.6	5.8	56	Farina, egg	Healing rickets	5/ 2/23	
3	4/ 7/23	7.2	2.0	14	Milk, farina, egg	Rickets	4/ 4/23	4/ 6/23
	4/23/23	8.6	3.0	25	Milk, farina, egg	Rickets	4/23/23	
	5/ 4/23	10.4	5.8	60	Milk. farina, egg	Healing rickets	5/ 2/23	
4	4/ 7/23	9.4	3.4	32	Milk, farina, toast, egg	Rickets	4/ 7/23	4/10/23
	4/23/23	9.8	3.4	33	Milk, farina, toast, egg	Rickets	4/23/23	
	5/ 4/23	11.2	5.1	57	Milk, farina, toast, egg	Healing rickets	5/ 2/23	
5	4/11/23	8.4	3.7	31	Milk, farina, toast, egg	Rickets	4/10/23	4/15/23
	4/23/23	10.3	3.5	36	Milk, farina, toast, egg	Rickets	4/24/23	
	5/ 4/23	10.2	5.3	54	Milk, farina, toast, egg	Healing rickets	5/ 3/23	
6	5/ 8/23	10.2	3.5	36	Milk, farina, egg	Rickets	4/23/23	
	5/14/23	10.2	4.3	44	Milk, farina, egg	Healing rickets	5/17/23	
	5/23/23	11.0	5.8	64	Milk, farina, egg	Healing rickets	5/22/23	
7	4/26/23	8.8	3.0	26	Egg refused, milk and farina	Very severe rickets (fractures)	4/26/23	
	5/14/23	9.0	2.7	25	Egg taken	Very severe rickets (fractures)	5/ 9/23	5 /9/23
	5/29/23	9.8	4.1	40				
	6/ 7/23	10.0	4.3	43		Healing rickets	6/ 7/23	

Animals	Calcium	Phosphorus	Product	Diet	Anatomic Diagnosis
Control rats...........	10.5	2.5	26	High calcium, low protein, low fat soluble A	Rickets
Treated rats...........	11.0	4.0	44	+ Egg yolk, 10% for 6 days	Healing rickets
Treated rats...........	11.0	4.8	53	+ Egg yolk, 10% for 6 days	Healing rickets

It is interesting, in the light of these findings, to note that for centuries in rural England a food which must have had a very high antirachitic potency as well as a very high caloric value was universally eaten by children as well as adults. This food was known variously as "furmity" or "frumenty," "an wholesome food," says Domini Holliday. The recipe for this food as given by Salmon[7] was as follows:

> Take some new milk or cream and boil it with whole spice (nutmeg, cinnamon, clove). Then put in your wheat or pearled barley boiled very tender in several waters; when it has boiled a while, thicken it with the yolks of eggs well beaten, sweeten it with sugar, and serve it in with fine sugar on the brims of the dish.

CONCLUSIONS

1. Rickets is not beneficially influenced by a diet of milk and cereals.
2. The addition of one or two eggs a day to such a diet will initiate healing, which is usually evident within three weeks after the egg feeding is begun.
3. The chemical changes in the blood serum and the roentgenographic changes in the bones are similar to those which follow the administration of cod liver oil.
4. The addition of 10 per cent. egg yolk to a rickets-producing diet will initiate healing of rickets in the rat in six days.

AN OVARIAN HORMONE

PRELIMINARY REPORT ON ITS LOCALIZATION, EXTRACTION AND PARTIAL PURIFICATION, AND ACTION IN TEST ANIMALS *

EDGAR ALLEN, Ph.D.
AND
EDWARD A. DOISY, Ph.D.
ST. LOUIS

The fact that double ovariectomy abolishes the cyclic changes which normally occur in the genital tract of female mammals demonstrates that these changes are due to some influence from the ovaries. That this influence is hormonal in nature is indicated by the maintenance of cyclic changes by autotransplantation of the ovaries to other sites in the body.[1] Many attempts have been made to localize the seat of production of an internal secretion in definite ovarian structures. The follicles, the corpora lutea[2] developing in them after ovulation, and the interstitial tissue[3] have all been cited as possible sources, and many different ovarian preparations have been used clinically in the belief that therapeutic effects were being secured from accompanying hormones.

But there appears to be no conclusive evidence of either a definite localization of the hypothetic hormone or of the specific effect claimed for the commercial ovarian extracts in wide clinical use. The recent reviews of Frank[4] and of Novak[5] may be cited to illustrate the well founded skepticism concerning the activity of commercial preparations. The reason for this distrust is the absence of any suitable test for the activity of ovarian extracts. Without a practicable test, the search for any hormone is obviously a very haphazard and uncertain task. With a suitable test it has been relatively easy to establish the seat of production of the ovarian hormone of estrus, to observe its effect on animals, and to study methods for its extraction and preliminary purification.

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[6] McCollum, E. V.; Simmonds, Nina; Shipley, P. G., and Park, E. A.: Studies on Experimental Rickets, VII, The Production of Rickets by Diets Low in Phosphorus and Fat-Soluble A, J. Biol. Chem. **48**: 507 (Aug.) 1921.

[7] Salmon, William: The Family Dictionary, London, 1705.

* From the Departments of Anatomy, Biologic Chemistry and Surgery, Washington University Medical School, St. Louis, with the assistance of Byron F. Francis, Harry V. Gibson, Leroy L. Robertson, Cleon E. Colgate and William B. Kountz.

[1] Marshall, F. H. A.: The Physiology of Reproduction, 1922, p. 320.

[2] Fraenkel, Ludwig: Die Function des Corpus Luteum, Arch. f. Gynäk. **68**: 438, 1903.

[3] Marshall and Runciman: On the Ovarian Factor Concerned in the Recurrence of the Oestrous Cycle, J. Physiol. **49**: 17 (Dec. 22) 1914.

THE TEST METHOD

In 1917, Stockard and Papanicolaou[6] described an exact method for following estrual changes in the living guinea-pig. This method has been applied to the correlation of estrual phenomena in the genital organs of the rat[7] and the mouse.[8] During the anabolic phase of the cycle in these rodents, the epithelium of the vagina grows to a considerable thickness and a cornified layer similar to that in the epidermis develops. During the catabolic phase, the outer layers of this epithelium degenerate and are removed by leukocytic action. These changes provide a definite succession of cell types in the vaginal lumen, each one characteristic of a certain phase of the cycle. Thus the microscopic examination of vaginal smears is a reliable indicator of the estrual condition of the living animal.

Since these cyclic phenomena in the genital tract cease after double ovariectomy,[9] their induction by the injection of ovarian extracts constitutes a positive test for the efficiency of those extracts. The estrual cycle of the mouse and the rat is of four to six days' duration, and this short period makes them especially suitable for test animals.

LOCALIZATION OF THE HORMONE OF ESTRUS

From the results of an earlier investigation by one of us[8] on the estrual cycle in the mouse, it was concluded that the corpora lutea of estrus[10] and the interstitial tissue could be excluded as possible sources of the hormone of estrus and that this was produced in the follicles. Among earlier workers, Frank[4] reported very briefly inducing uterine hyperemia in two normal virgin rabbits by the injection of liquor folliculi. Although his results appear to be positive, the ovaries were not removed from his test animals, and one cannot be quite sure that the changes described were not caused by the activity of the ovaries. Previously, Frank and several writers mentioned by him (especially Hermann[11]) had reported similar results from the injection of material obtained from the corpus luteum and the placenta (Hermann spayed some of his test animals). Consequently, this test does not seem to be specific for the hormone of estrus.

PRELIMINARY EXPERIMENTS

Our first experiments were carried out with liquor folliculi from hog ovaries, which are a readily available source for the isolation of the contents of the follicles. Since the estrual cycle in the sow is of three weeks' duration,[12] and large follicles are present in the ovaries during only a part of this time, only one in every three or four ovaries is a profitable source of liquor folliculi.[13] A selection is made of ovaries containing follicles larger than 5 mm. in diameter. The follicular contents (liquor folliculi, follicle cells and occasional ova) are aspirated through a hypodermic needle into a suction bottle. At least 100 c.c. of readily workable material can be obtained from one pound of carefully selected ovaries.

In the first series of experiments, nine mice and rats were prepared for use as test animals by double ovariectomy. A week later they were given three injections at intervals of five hours of liquor folliculi aspirated from large follicles. These injections were made subcutaneously with the expectation that slow absorption from this region would be more closely comparable to the secretion of the hormone in normal animals. From forty to forty-eight hours after the first injection, all of the animals receiving liquor folliculi were in full estrus, as determined by microscopic examination of the smears. As a check on these results, the animals were killed and the uterus and vagina of each studied histologically. They were in a typical estrual condition as described for these rodents.[14]

Since the liquor aspirated from the follicles contains follicle cells and some ova, tests were next made with centrifugated liquor and Berkefeldt filtrate. Positive results in these experiments showed that the hormone is extracellular and present in the liquor folliculi. Realizing that liquor folliculi with its large protein content would be unsuitable for continued injections into patients and test animals, we began the preparation of extracts.

METHOD OF EXTRACTION

Fresh liquor folliculi is added to a double volume of 95 per cent. alcohol and allowed to stand until the proteins are coagulated (about twenty-four hours). The coagulum is filtered off. The filtrate, which is practically protein free, contains the active constituent. Further extraction of the coagulated protein with boiling alcohol yields an additional amount of the hormone. The alcohol is distilled off (the hormone being thermostable), and the residual aqueous suspension extracted with ether. The ether extract is evaporated, and the solids are dried in a vacuum desiccator. The residue is dissolved in a minimal quantity of ether, and a double volume of acetone is added. To insure completeness of separation, the solution and precipitation are repeated twice. The precipitate, which consists of lipoids (lecithin and cephalin), shows no activity in the test animal. The combined filtrates are evaporated, and the residue is dried. By boiling out the solid material with 95 per cent. alcohol, the active substance is obtained free from protein but contaminated with a little fatty material. The alcohol is evaporated off, and the minute yield of oily residue taken up in purified corn oil or emulsified in dilute sodium carbonate. This constitutes a partially purified preparation of this follicular hormone, the subcutaneous injection of which produces no ill effects in our test animals.

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[4] Frank, R. T.: The Ovary and the Endocrinologist, J. A. M. A. **78**: 181 (Jan. 21) 1922.

[5] Novak, Emil: An Appraisal of Ovarian Therapy, Endocrinology **6**: 599 (Sept.) 1922.

[6] Stockard, C. R., and Papanicolaou, G. N.: Existence of a Typical Oestrous Cycle in the Guinea-Pig, with a Study of Its Histological and Physiological Changes, Am. J. Anat. **22**: 225 (Sept.) 1917.

[7] Long, J. A., and Evans, H. M.: The Oestrous Cycle in the Rat and Its Associated Phenomena, Mem. Univ. California **6**: 1922.

[8] Allen, Edgar: The Oestrous Cycle in the Mouse, Am. J. Anat. **30**: 297 (May) 1922; Racial and Familial Cyclic Inheritance and Other Evidence from the Mouse Concerning the Cause of Oestrous Phenomena, Am. J. Anat., to be published.

[9] This has recently been checked in the rat (Long and Evans, Footnote 7) and in the mouse (Allen, Footnote 8).

[10] The distinction is clearly drawn here between the corpora lutea of estrus and those of pregnancy. Only nonpregnant animals were referred to in the earlier paper.

[11] Hermann, E.: Ueber eine wirksame Substanz im Eierstocke und in der Placenta, Monatschr. f. Geburtsh. u. Gynäk. **41**: 1 (Jan.) 1915.

[12] Corner, G. W.: The Ovarian Cycle in Swine, Science **53**: 420 (April 29) 1921.

[13] This may be one reason for the conflicting reports of the therapeutic value of commercial extracts from ovaries unselected as to follicular development.

[14] Stockard and Papanicolaou (Footnote 6). Long and Evans (Footnote 7). Allen (Footnote 8).

A few points of chemical interest may be added. This hormone seems to be stable toward dilute alkali when boiled with it in alcoholic solution. The active substance resembles the neutral fats somewhat in that it is soluble in alcohol, acetone, chloroform and ether and it may be extracted from aqueous mediums by both ether and chloroform. Strongly acidic or basic groups seem to be absent, since it can be extracted with ether from either dilute acid or alkali. Most of our better preparations fail to give the biuret reaction, thus indicating the absence of protein and polypeptids.

ACTION IN TEST ANIMALS

Further animal experiments have confirmed our early results, and we are now in a position to make the following preliminary announcement concerning this follicular hormone and its action:

1. From one to three injections of this extract into spayed animals produce typical estrual hyperemia, growth, and hypersecretion in the genital tract and growth in the mammary glands. These changes include thickening and cornification in the vaginal walls, which constitutes a test easily followed in the living animal. After a time the effect of these injections wears off and typical degenerative changes set in. This hormone seems to be an efficient substitute for the endocrine function of the ovaries of the nonpregnant animal. It is probable that its alternate presence and absence in the circulation is sufficient to explain the mechanism of estrual phenomena in the genital tract in the absence of pregnancy.

2. While these spayed animals are in a condition of artificially induced estrus, they can be mated with normal vigorous males. They experience typical mating instincts, the spayed females taking the initiative in the courtship and showing no aversion to advances by the male. Successful copulation occurs, followed, as in normal animals, by the formation of typical vaginal plugs. Since these animals will copulate only when in estrus, the conclusion seems justified that this follicular hormone is the cause of estrual or mating instincts.

3. Several injections of active extracts were made into animals immediately after weaning, at an age of from 3 to 4 weeks. They became sexually mature[15] in from two to four days, at least twenty to forty days before the usual time of the attainment of puberty. These experiments were controlled by uninjected litter sisters which did not prematurely attain to puberty. From these experiments it is concluded that the attainment of sexual maturity, involving possibly the development of the secondary sexual characters, is brought about by a hormone from the follicles, although the consummation of their maturation is in some way restrained.[16]

4. So far we have obtained only negative results from our extracts of corpora lutea and commercial extracts of ovaries, corpora lutea, and ovarian residue from three of the largest firms manufacturing biologic products.

5. It is probable that this hormone is produced under the influence of maturing ova by their follicle cells. Since it is obtained from the ovaries of hogs and cattle and produces results in the mouse and rat, it is not species specific. It is probably produced in all ovaries as their ova mature, and therefore is probably common to all female animals.

The details of the experimental evidence for the foregoing statements will be published at an early date. Tests of the therapeutic value of this hormone are now being carried on.

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[15] The attainment of sexual maturity is defined here as the opening of the vaginal orifice at the appearance of the first estrus.

[16] Allen, Edgar: Ovogenesis During Sexual Maturity, Am. J. Anat. **31**: 441 (May) 1923. It is tentatively suggested that the development of the follicles in the immature ovary is restrained by the nutritional demands of rapid prepubertal body growth which limit the amount of nutriment necessary for the full development of the follicles and their contained ova.

GRADUAL EMPTYING OF THE OVERDISTENDED BLADDER

HERMON C. BUMPUS, JR., M.D.
Member of Section on Urology, Mayo Clinic
AND
GORDON S. FOULDS, M.B. (Tor.)
Fellow in Urology, the Mayo Foundation
ROCHESTER, MINN.

It is generally recognized that the removal of urine from a chronically overdistended bladder is often followed by untoward symptoms, or death. If the bladder is emptied rapidly and completely at one time, the sudden reduction of the intravesical pressure results in immediate congestion throughout the urinary tract, with resulting edema and hemorrhage, which may be so severe as completely to suppress renal function by increasing the pressure within the renal capsule to a point incompatible with glomerular and tubular function. Even though the process may not go on to complete suppression of urine, the congestion and edema make the urinary tract a fertile field for infection, a complication which is borne very poorly by this class of patients, and is the undoubted cause of many of the fatalities.

O'Conor[1] has shown that, coincident with emptying the bladder of residual urine, there is a decided fall in blood pressure. Thus, to the difficulty of filtering urine through a congested renal parenchyma is added the lowering of the pressure behind this filter, still further embarrassing the mechanism of excretion. O'Conor found that this drop in blood pressure reached its lowest point in 75 per cent. of his patients at the end of forty-eight hours.

If a procedure could be adopted that would delay this period of falling blood pressure, and so prolong it that the new level was not reached for several days, instead of in the first forty-eight hours, it should greatly aid in keeping at a maximum the amount of urine excreted during the period when the urinary tract is adjusting itself to the new conditions of pressure. In 1920, Von Zwalenburg[2] described such a method of emptying overdistended bladders without at any time reducing the intravesical pressure suddenly. This method has since been used at the Mayo Clinic in the treatment of eighty-three patients. The results in twenty of these have previously been reported.[3]

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[1] O'Conor, V. J.: Observations on the Blood Pressure in Cases of Prostatic Obstruction, Arch. Surg. **1**: 359-367 (Sept.) 1920.

[2] Van Zwalenburg, Cornelius: Emptying a Chronically Distended Bladder, J. A. M. A. **75**: 1711-1712 (Dec. 18) 1920.

[3] Foulds, G. S.: The Gradual Withdrawal of Residual Urine from the Chronically Overdistended Bladder, J. Urol. **5**: 453-459 (May) 1921.

METHOD

A soft rubber catheter is introduced into the bladder and fastened in place; a clamp is attached to the distal end to prevent the loss of any urine. The catheter is then connected to a rubber tube filled with water, which leads through a simple manometer to a receptacle, usually an ordinary enema can, placed about 6 feet above the floor. The system being completed (Fig. 1), the clamp on the catheter is released and the pressure in the bladder read on the manometer, after which the receptacle is lowered so that the outlet of the system is about 3 cm. above the level of the fluid in the manometer. By this arrangement, the urine will just trickle over, on deep inspiration, and the entire urinary tract will continue to function under its usual pressure.

Sudden edema and congestion incident to the removal of even a small amount of urine has not occurred. After rest in bed it will be noted that the original bladder pressure, as registered on the manometer, gradually falls, and the level of the receptacle may then be suitably lowered, care being taken to keep the receptacle a few centimeters higher than the reading on the manometer, in order that the urinary tract may at all times be working against a continuous, though lowering pressure. By this method, the time of emptying the bladder may vary from two days to a week; usually, however, it takes from three to five days. The blood pressure, instead of falling suddenly, decreases more gradually, and edema and congestion of the urinary tract are reduced to a minimum.

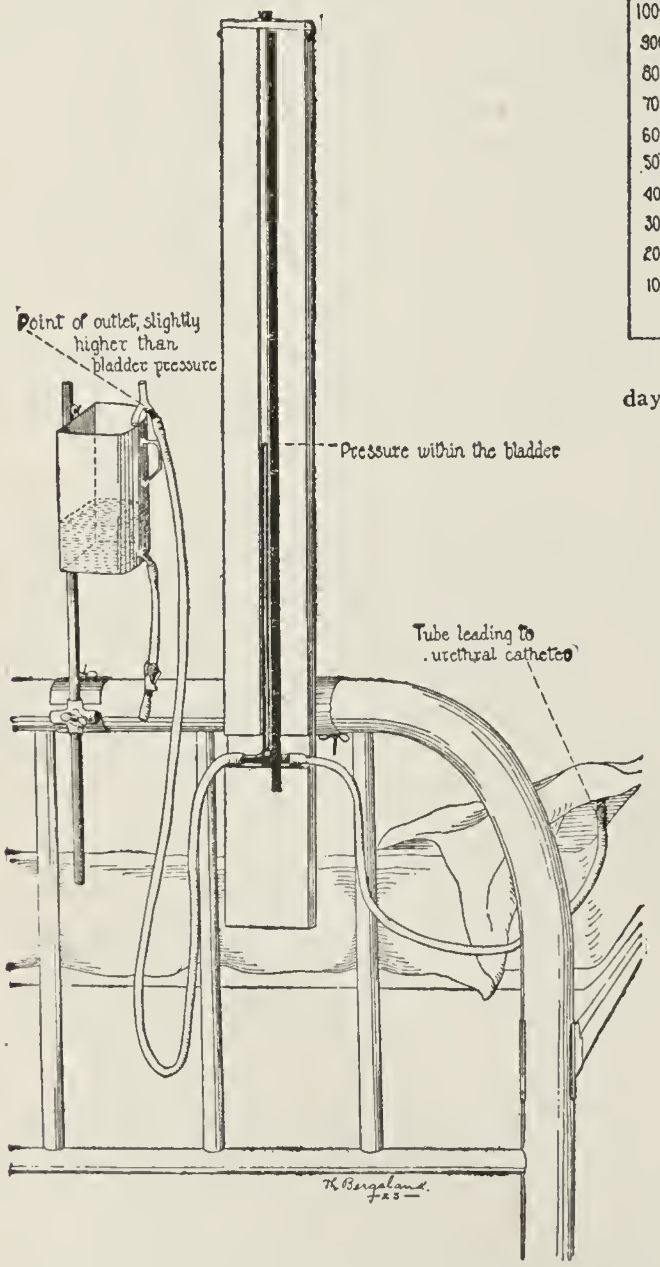
Point of outlet, slightly higher than bladder pressure
Pressure within the bladder
Tube leading to urethral catheter
K. Bergeland. 1-23

Fig. 1.—Apparatus as used in the gradual withdrawal of residual urine.

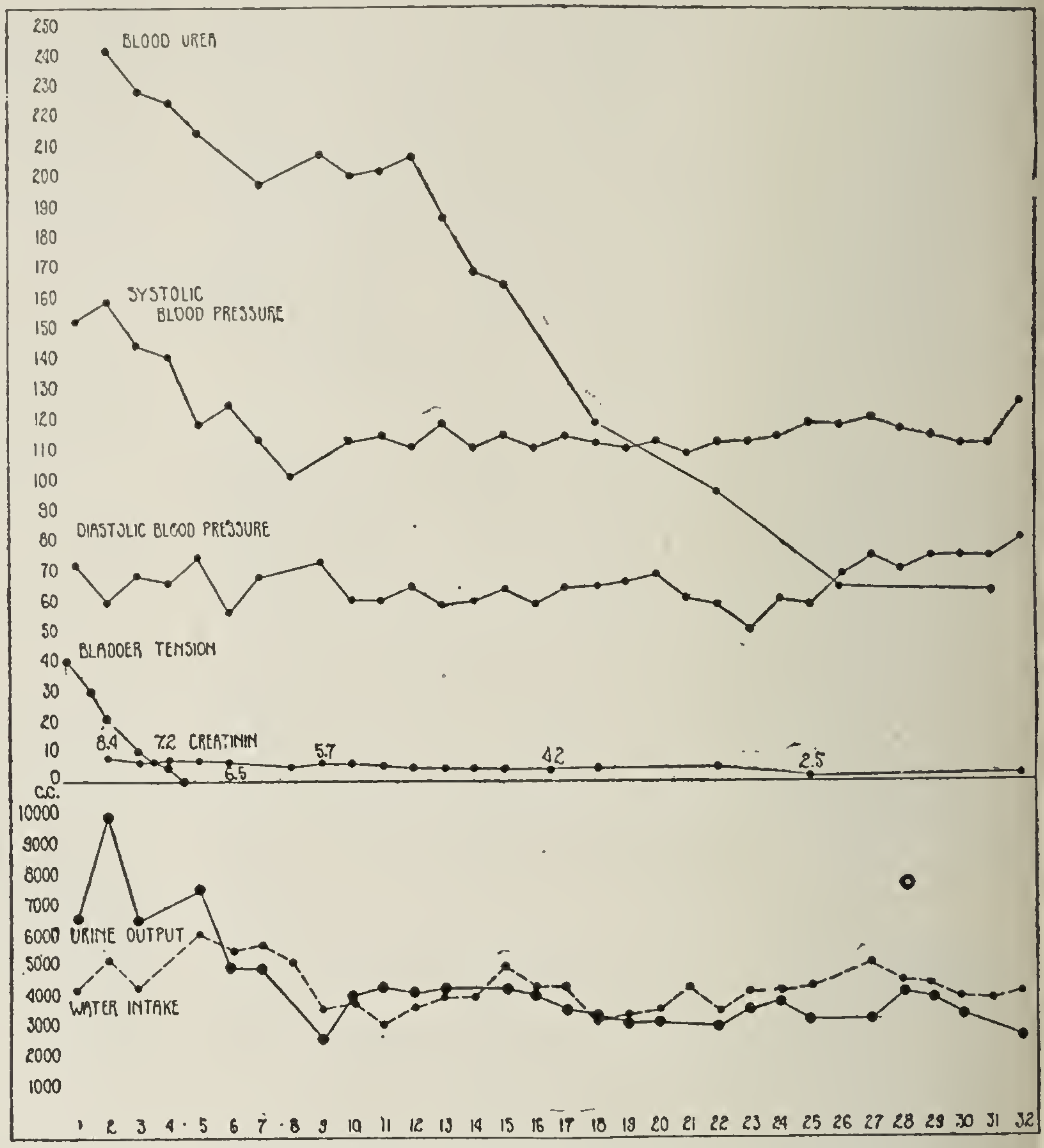

Fig. 2.—Bedside chart showing time consumed in lowering of bladder tension (five days), and drop in blood pressure (eight days).

Seventy-one of the eighty-three patients treated by this method had benign hypertrophy of the prostate; eleven had carcinoma of the prostate, and one had a urethral stricture of long standing. The oldest patient was 88 years, and the youngest 48 (the stricture case); the average age was 57 years. Almost without exception, the patients were in very poor general condition; many were definitely uremic on admission to the hospital. The majority had had definite retention and overflow for at least two or three months, and several for more than two years. In many instances it was difficult to get a clear history to indicate the duration of the urinary retention.

In all of the patients, the bladder was distended sufficiently to be demonstrated by percussion or palpation above the level of the symphysis pubis. In forty-six it extended as a typical pyriform tumor reaching the level of the umbilicus.

The renal function of the patients was generally very poor; the specific gravity of the urine was low, averaging 1.012; the average output of phenolsulphonephthalein in two hours was 10.59 per cent., and the average blood urea 95.85 mg. for each 100 c.c. of blood. The creatinin estimation varied between 1.5 and 8.7 mg. for each 100 c.c. of blood, the usual amount being from 2 to 4 mg.

RESULTS

Careful records were kept of the diastolic and systolic blood pressure, the intake and output of fluids, and the ntravesical tension. Blood urea and creatinin estimations were at first made daily; later, twice a week. These data have been charted, and typical charts are eproduced (Figs. 2 and 3). The charts show that the ritical period with these patients is at the time the blood pressure has reached its lowest point. The longer this is delayed, the greater the amount of urine excreted, nd the more rapid the fall in blood urea content. Thus, if at the period of minimal blood pressure the urine output has also markedly declined and the urea is ising, the prognosis is very grave. If, however, with the falling blood pressure, the urine output is sustained and the urea diminishing, then the prognosis is good, rrespective of the amount of urea.

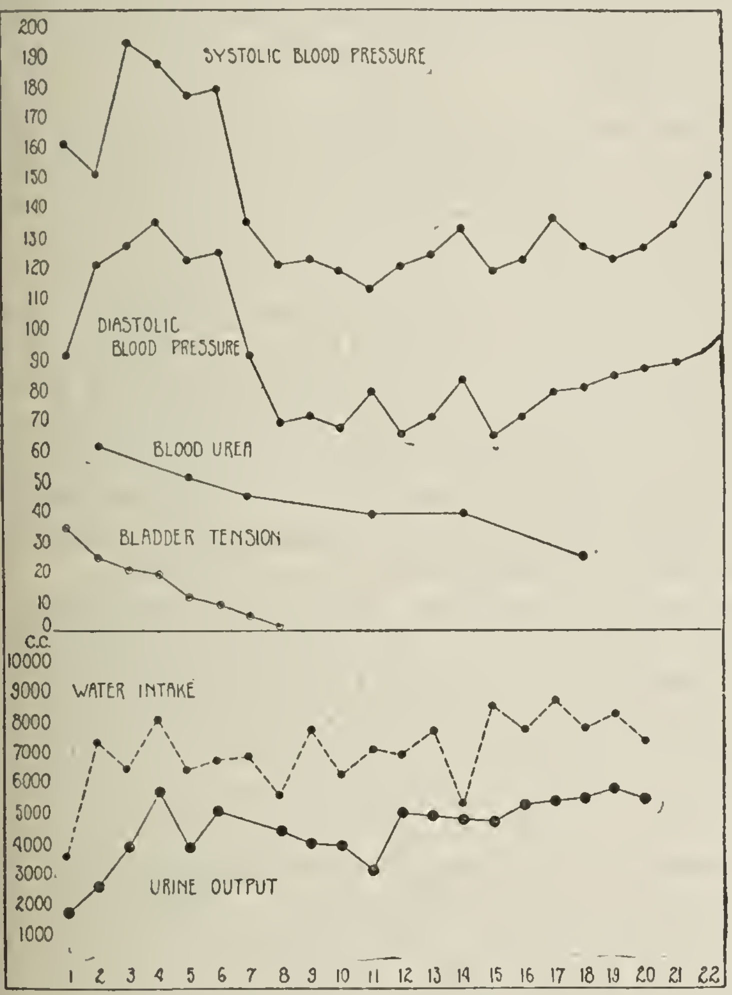

Fig. 3.—Bedside chart showing time consumed in lowering bladder ension (eight days), and drop in blood pressure (eight days).

The intravesical tension varies greatly in different patients, the lowest tension being 10 cm. and the highest 50 cm.; the usual readings are between 20 and 30 cm. If the retention is chronic, the tension is usually average or low; if acute, it is generally higher.

The reaction to catheterization and emptying the bladder was usually very slight. Occasionally there was a slight fever to 100 or 101, rarely higher, or associated with chills. After the bladder was emptied, it was kept empty by an indwelling catheter, which was usually well borne. The progress of the patients was generally very satisfactory, and the usual preoperative procedures were carried out as in the less severe cases. Renal function improved in almost all cases; the average phenolsulphonephthalein output in two hours increased from 10.59 to 40.42 per cent. The blood urea average fell from 95.85 to 52 mg. for each 100 c.c. of blood. Eleven patients had hematuria; four of these had a history of hematuria, or were bleeding before manipulation was undertaken, and one had a carcinoma of the bladder, hypertrophied prostate, and retention of urine.

Primary one-stage prostatectomies were performed on twenty-eight of the eighty-three patients, and two-stage prostatectomies on fourteen, making forty-two successful prostatectomies. Suprapubic drainage operations were performed on nine patients; in two instances the stab drainage was done primarily and the method applied directly to the suprapubic drainage tube. Twenty-six patients were sent home with indwelling catheters, because they were considered poor risks for surgery, or because they had malignant prostates. Some of these will probably be able to have prostatectomies later. Two patients are still in the hospital. Four patients died: two immediately on the emptying of the bladder, one from peritonitis following an acute ruptured appendix, and one from advanced carcinoma of the prostate, metastasis and prostatic abscess. Therefore, only two patients (2.5 per cent.) died from the effects of emptying the overdistended bladder. We believe that the 2.5 per cent. mortality in this type of case indicates the effectiveness of the method, and warrants its more universal adoption.

A SIMPLE METHOD OF APPROXIMATING THE PROPER RATION FOR A DIABETIC PATIENT

J. H. KELLOGG, M.D.
BATTLE CREEK, MICH.

The difficulty in arranging the ration, or bill of fare, in a new case of diabetes is to know where to begin. The ordinary "cut and try" method often involves a great waste of time and may work to the serious disadvantage of the patient. This method is clumsy and unscientific, and is about as reasonable as would be the action of a tailor if, instead of measuring his customer for a coat, he should make a guess as to the dimension of the garment, make and try it on, and if he found it a misfit, make another, and if he found this a misfit, proceed to make still another, so continuing until by gradual approximations a proper fit might in time be attained, and then charging up to the patient the total cost of the time and material employed in wasteful experimentation.

All competent internists who have had much to do with the treatment of diabetic patients by modern methods have abandoned the routine, drastic starvation of the Guelpa-Allen method. It seems to be a general practice, however, to begin with the average patient by putting him on a very low ration and then working up until the limit of carbohydrate tolerance is reached. In addition to loss of time, this method may involve unnecessary loss of flesh and sometimes of strength and vital resistance, which it may be difficult, if not impossible, to regain, and so should be limited in use to cases in which the carbohydrate tolerance is so low as to make it necessary.

By the use of mathematical formulas (Woodyatt) or computations by the aid of tables (Holmes), a suitable ration may be arrived at when the carbohydrate tolerance is known, this determining factor being ascertained by simply subtracting the urinary sugar from the total carbohydrate of the diet, taking account of the carbohydrate content of the protein and the fat, together with the starch, sugar and dextrin. While accurate and scientific and an immense advantage over the "cut and try" methods in common vogue, this method involves so much figuring and reference to tables that a very busy internist who has to deal with a considerable number of diabetic patients will be tempted, when crowded for time, to lapse into the old empiric way of guessing at the patient's requirement instead of making a close approximation to his needs by the application of a more exact and scientific method.

I have prepared a table by the use of which the laborious calculations referred to may be saved. The table presents several hundred daily rations which have been calculated for different degrees of sugar tolerance, from 200 gm. to 10 gm., and for different quantities of protein varying from 80 gm. to 10 gm.

The basis of the calculations by which the figures given in the table have been arrived at is to be found in the following well known facts which have been established by modern metabolism studies:

1. One gram of carbohydrate will suffice for the burning of from 1⅔ to 3 or 4 gm. of fat. The lower figure is very conservative.
2. Protein is ketogenic to the extent of 46 per cent. of its weight, the equivalent of 51 per cent. of fat.
3. Protein, when metabolized, yields 58 per cent. of its weight of carbohydrate.
4. Fat, when metabolized, yields 10 per cent. of its weight of carbohydrate (glycerol).

In arranging a diet for a diabetic patient, first consideration must be given to the amount of protein, which should be sufficient to meet the needs of the body without loading it with an excess. Sherman has shown that 0.5 gm. of protein per kilogram of body weight (1 calory per pound) is sufficient to meet all physiologic needs. Newburgh finds that 0.66 gm. per kilogram of body weight (1.2 calories per pound) is ample. Woodyatt employs 1 gm. per kilogram of body weight, and some practitioners recommend a still higher intake of protein. All are agreed, however, that excess of protein is injurious in diabetes, a fact pointed out by von Noorden many years ago. Since Folin has shown that all surplus protein is directly eliminated by the kidneys after having been converted into urea by the liver without making any useful contribution to the body needs, I consider it wise to keep the protein intake as low as compatible with the satisfaction of physiologic requirements, and hence accept as a good basis two-thirds gram of protein for each kilogram of body weight, or approximately one-third gram of protein for each pound of body weight. This amount is found ample, provided the proteins employed are of high quality.

By the aid of the foregoing data, with the patient's sugar tolerance known it is easy to calculate at once a diet that will supply such quantities of protein, carbohydrate and fat as the patient should be able to utilize without the appearance of sugar in the urine and without the production of acidosis.

We first ascertain the patient's sugar tolerance. To do this, it is only necessary to know exactly what he eats during twenty-four hours and how much, and the amount of sugar in the urine of twenty-four hours. Let us suppose, for example, that the patient's diet contains: protein, 70 gm. (2³⁄₁₀ ounces), 280 calories; fats, 165 gm. (5½ ounces), 1,485 calories; carbohydrates, 62 gm. (2 ounces), 248 calories; total calories, 2,013. Examination of the urine shows 70 gm. of sugar.

To find the carbohydrate tolerance we first find the total amount of carbohydrate in his diet. This is not fully represented by the amount of starch and sugar eaten. When metabolized in the body, the protein yields 58 per cent.; carbohydrate and the fats, 10 per cent. The total sugar of the diet, then, will be approximately 41 gm. from the protein ($70 \times 0.58 = 40.6$); 16.5 gm., from the fat ($165 \div 10 = 16.5$), and 62 carbohydrate —in all, in round numbers, 120 gm. ($41 + 16.5 + 62 = 119.5$). If from this we subtract the 70 gm. of urinary sugar, we have left 50 gm. as the sugar tolerance of the patient.

Knowing the sugar tolerance, we can now proceed to formulate at once a dietary which the patient should be able to utilize without the appearance of sugar in the urine. First, we will fix the protein at such a point as will be sufficient to meet the patient's actual requirements, or two-thirds gm. per kilogram of his normal body weight. Supposing, then, the patient's normal weight to be 60 kg., or 132 pounds, we will fix the protein at 40 gm.

Next we will determine the fats. The amount of fat the patient can burn is determined by his carbohydrate tolerance. Assuming that 1 gm. of carbohydrate will insure the complete oxidation of 1⅔ gm. of fat, the patient's sugar tolerance, being 50 gm., can easily burn one and two-thirds as much fat, or 83 gm. However, we cannot add this amount of fat in substance to his bill of fare since it must be remembered that protein contains a molecular group which in metabolism behaves like fat. This amounts to 51 per cent. of the protein, practically one-half its weight. The protein being 40 gm., we must subtract half of this from 83, leaving 63 gm. as the fat of the ration ($83 — 20 = 63$).

Now we may find the carbohydrate constituent of the diet. For this, it is only necessary to subtract from the carbohydrate tolerance (50) the carbohydrate of the protein, which is 23 ($40 \times 0.58 = 23.2$) and that of the fat, which is 6 ($63 \div 10 = 6.3$). This gives 21 gm. ($50 — 29 = 21$) as the amount of carbohydrate in substance which may be included in the day's ration. The ration which should free the patient's urine from sugar will thus be: protein, 40 gm., 160 calories; fats, 63 gm., 567 calories; carbohydrates, 21 gm., 84 calories; total calories, 811. This diet, of course, is not sufficient for a maintenance ration, as it affords little more than half the energy required by the basal metabolism of a man weighing 60 kg. It will free the urine of sugar, however, and will give the pancreas relief from the overwork to which it has been subjected, without the reducing fast required by the Guelpa-Allen method, and may be increased by the addition of fat and carbohydrate through the use of insulin, adding about 2 gm. of carbohydrate for each unit of insulin given.

A RATION TABLE WHICH INSURES MATHEMATICAL PRECISION WITHOUT THE USE OF FORMULAS

As a labor-saving device, I have prepared the accompanying table, which gives a series of several hundred rations based on the protein intake and the carbohydrate tolerance. The use of this table will permit the selection of a suitable balanced ration without the necessity of making the calculations detailed above, thus saving considerable time, a matter of serious moment when cases are awaiting attention.

First of all, the patient's sugar tolerance must be found. This is easily done: From the table a ration is selected which will supply about the number of calories required by the basal metabolism of the patient. For a patient 5 feet 4 inches (162.6 cm.) high, weighing 60 kg. (132 pounds), this will be about 150 calories (Du Bois). Taking the patient's protein requirement as 40 gm. (two-thirds of his weight in kilograms), we locate on the chart Ration 40-90 as furnishing the requisite number of calories. This ration supplies: protein, 40 gm.; fat, 130 gm.; carbohydrate, 53 gm.; calories, 1,542. It is only necessary to put the patient on this ration for twenty-four hours and determine the urinary sugar and subtract this from the known carbohydrate content of the ration. Supposing the urinary sugar for twenty-four hours to be 40 gm., and subtracting this from 90, we have 50 gm. as the patient's sugar tolerance.

Carbohydrate Tolerance......		10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200
Protein 80	Fats............	...	...	...	...	...	60	77	94	110	127	144	160	177	194	210	227	244	260	277	293
	Carbohydrates..	...	...	...	...	...	8	16	25	23	41	50	58	66	75	83	91	100	108	116	125
	Calories.........	...	...	...	...	...	892	1,077	1,266	1,442	1,627	1,816	1,992	2,177	2,366	2,542	2,727	2,916	3,092	3,277	3,457
Protein 75	Fats............	...	...	...	...	47	63	80	97	113	130	147	163	180	197	213	230	247	263	280	296
	Carbohydrates..	...	...	...	...	2	10	18	27	35	43	52	60	68	77	85	93	102	110	118	127
	Calories.........	...	...	...	...	731	907	1,092	1,281	1,457	1,642	1,831	2,007	2,192	2,381	2,557	2,742	2,931	3,107	3,292	3,472
Protein 70	Fats............	...	...	...	...	49	65	82	99	115	132	149	165	182	199	215	232	249	265	282	298
	Carbohydrates..	...	...	...	...	4	12	20	29	37	45	54	62	70	79	87	95	104	112	120	129
	Calories.........	...	...	...	...	737	913	1.098	1,287	1,463	1,648	1,837	2,013	2,198	2,387	2,563	2,748	2,937	3,113	3,298	3,478
Protein 65	Fats............	...	...	...	...	52	68	85	102	118	135	152	168	185	201	217	234	251	268	285	301
	Carbohydrates..	...	...	...	...	7	15	23	32	40	48	57	65	73	82	90	98	107	115	123	132
	Calories.........	...	...	...	...	756	932	1,117	1,306	1,482	1,667	1,852	2,028	2,213	2,393	2,569	2,754	2,943	3,132	3,317	3,497
Protein 60	Fats............	...	...	...	37	54	70	87	104	120	136	154	170	187	203	219	236	253	270	287	
	Carbohydrates..	...	...	...	1	10	18	26	35	43	51	60	68	76	85	93	101	109	118	126	
	Calories.........	...	...	...	577	758	938	1,123	1,312	1,488	1,668	1,866	2,042	2,227	2,407	2,583	2,768	2,953	3,142	3,327	
Protein 55	Fats............	...	...	...	39	56	73	90	106	123	139	156	172	189	205	221	238	255	272		
	Carbohydrates..	...	...	...	4	12	21	29	37	45	53	62	70	79	88	96	104	112	121		
	Calories.........	...	...	...	587	772	961	1,146	1,322	1,507	1,683	1,872	2,048	2,237	2,417	2,593	2,778	2,963	3,152		
Protein 50	Fats............	...	...	...	42	59	76	92	108	124	141	158	175	192	208	224	241	258			
	Carbohydrates..	...	...	...	7	15	23	31	40	48	56	64	73	81	90	98	107	115			
	Calories.........	...	...	...	606	791	976	1,152	1.332	1,508	1,689	1,878	2,067	2,252	2,432	2,608	2,797	2,982			
Protein 45	Fats............	...	...	28	44	61	78	94	111	127	144	160	177	193	210	226	243				
	Carbohydrates..	...	...	1	10	18	26	34	42	50	58	66	75	84	93	101	110				
	Calories.........	...	...	436	616	801	996	1,162	1,347	1,523	1,708	1,884	2,073	2,253	2,442	2,618	2,807				
Protein 40	Fats............	...	...	30	47	63	81	97	113	130	146	163	180	196	213	229					
	Carbohydrates..	...	...	4	12	21	28	36	45	53	61	69	78	86	96	104					
	Calories.........	...	...	446	631	811	1,001	1,177	1,357	1,542	1,718	1,903	2,092	2,268	2,461	2,637					
Protein 35	Fats............	...	...	33	49	66	83	99	116	133	149	166	183	199	215						
	Carbohydrates..	...	...	7	15	23	31	39	48	56	64	72	81	89	99						
	Calories.........	...	...	465	641	826	1,011	1,187	1,372	1,557	1,733	1,922	2,111	2,287	2,471						
Protein 30	Fats............	...	18	35	52	69	85	101	118	135	152	168	185	202							
	Carbohydrates..	...	1	9	18	26	34	42	51	59	67	75	84	92							
	Calories.........	...	286	471	660	845	1,021	1,197	1,386	1,571	1,756	1,932	2,121	2,306							
Protein 25	Fats............	...	20	37	54	71	87	103	120	137	154	171	187								
	Carbohydrates..	...	4	12	21	29	37	45	53	61	70	78	86								
	Calories.........	...	296	481	670	855	1 031	1,207	1,392	1,577	1,766	1,951	2,127								
Protein 20	Fats............	...	23	40	57	73	90	106	123	140	156	174									
	Carbohydrates..	...	6	14	23	31	39	47	56	64	73	81									
	Calories.........	...	311	496	685	861	1,046	1,222	1,411	1,596	1,776	1,970									
Protein 15	Fats............	8	25	42	59	76	92	108	125	142	159										
	Carbohydrates..	0	8	16	25	33	41	49	58	63	75										
	Calories.........	132	317	502	691	876	1,052	1,228	1,417	1,602	1,791										
Protein 10	Fats............	11	28	45	62	79	95	111	128	145											
	Carbohydrates..	3	11	19	28	36	44	52	61	69											
	Calories.........	151	336	521	710	895	1,071	1,247	1,436	1,621											

Rations for diabetic patients balanced for sugar tolerance and acidosis.

Referring again to the table, we find in the column under 50, Ration 40-50: protein, 40 gm.; fat, 63 gm.; carbohydrate, 21 gm.; calories, 811. On this ration, the patient should be sugar free. Thus the use of the table avoids the necessity for time-consuming calculations and the appropriate initial ration for any degree of sugar tolerance may be quickly arrived at.

Having found the ration on which the patient is sugar free, one next has to raise the energy value of the diet to the actual body requirement as rapidly as possible. Here is where insulin comes in as a time-saving and life-saving remedy of priceless value. If the patient is given 5 units of insulin, his sugar tolerance will be increased 10 or 11 gm. Following the table, we shall find the appropriate ration in the 60 column on the 40 protein line, Ration 40-60. This raises the calory intake to 1,001, an increase of 190 calories. The addition of another 5 units of insulin raises the ration to 40-70, with 1,177 calories. Thus, within a few days the ration may be brought up to the patient's full basal requirement, say 1,542 calories, which is provided by Ration 40-90, with 20 units of insulin. From this point on the fats need not be increased. The protein, of course, remains fixed at 40 gm.

We have now found a solid scientific basis on which to build the patient's daily ration and bills of fare. It is now only necessary to increase the carbohydrate intake by the further daily increase of the dose of insulin by 5 units. For every 5 units of insulin, 10 or 11 gm. of carbohydrate may be added to the ration. With 40 units of insulin, the ration would become: protein, 40 gm.; fats, 130 gm.; carbohydrate, 93 gm.; calories, 1,702.

As there is often a marked gain in sugar tolerance under the use of insulin with a scientifically adjusted dietary, it is wise to lessen the insulin or to omit it altogether for a day, after some weeks, and determine anew the sugar tolerance. This determination may be used as a basis for a new ration-building process which will be carried out as before.

In very bad cases, with a sugar tolerance as low as 20 gm., for example, the protein must necessarily be very low, not more than 20 or 25 gm., and sometimes as low as 10 or 15 gm. for a few days at the start. In these cases the table renders especially valuable service, as will be shown by an example. Supposing the carbohydrate tolerance is found to be 10. The initial ration selected will be 10-10: protein, 10 gm.; fats, 11 gm.; carbohydrate, 3 gm.; calories, 151. This is a starvation ration and must be increased as rapidly as possible. It is first of all important to increase the protein to the fundamental requirement. Giving 5 units of insulin will raise the tolerance to 20, which will enable the patient to take Ration 30-20: protein, 30 gm.; fat, 18 gm.; carbohydrate, 1 gm.; calories, 286. This ration affords nearly twice as many calories as the former and gives 30 gm. of protein. Adding another 5 units to the total daily dose of insulin will raise the tolerance to 30 and give the 60 kg. patient 40 gm. of protein, which is sufficient. The complete ration will now be (40-30): protein, 40 gm.; fats, 30 gm.; carbohydrate, 4 gm.; calories, 446.

The protein of the ration is now fixed, and we may begin at once to build up the ration by daily additions of insulin as before until the basal requirement is reached, then gradually adding carbohydrate until the normal diet is approached as nearly as the patient's carbohydrate tolerance will permit.

If at any time sugar appears in the urine, a new determination of the sugar tolerance is made and a new ration selected.

The rations shown in the table being in physiologic balance under the given conditions of protein intake and carbohydrate tolerance, they may be used as a check on the daily bills of fare, and will quickly show in what direction modification is required.

Suppose, for example, the patient's carbohydrate tolerance is found to be 50 and the protein intake 60. Reference to the table will show that such a patient should be sugar free with Ration 60-50, consisting of: protein, 60 gm.; fat, 54 gm.; carbohydrate, 10 gm.; calories, 758.

If, instead of this ration, the patient is receiving, say: protein, 60 gm.; fat, 70 gm.; carbohydrate, 20 gm., by comparison it will be seen at once where the trouble is (excess of both fat and carbohydrate), and if the patient is put on the diet indicated in the table, he will almost certainly at once become sugar free. Thus if the table is used, it may be seen at once whether the pancreas is being subjected to a strain likely to injure it or whether, on the other hand, there is a wider margin between the sugar tolerance and the actual intake of carbohydrate than is necessary.

By a little practice the table may be used in such a way as greatly to facilitate the fixing of the initial diet and also in the daily adjustment of the diet which changes in the patient's carbohydrate tolerance may necessitate. The table will be found useful also in checking up the patient. When his tolerance is known and a ration has been selected for him from the table, the appearance of sugar in the urine will probably mean a surreptitious intake of carbohydrate in some form; or, the failure of the ration selected from the table to make the urine sugar free may indicate that the patient failed to save the whole amount of urine passed, so that too large a figure has been used for the carbohydrate tolerance.

As an aid to the use of the table, I have had arranged a series of corresponding, daily bills of fare by the use of which the adjustment of the diet for any case may be very quickly accomplished and without calculation of calories.

AN EPIDEMIC OF MILD FEVER OF UNKNOWN NATURE *

F. M. HANGER, Jr., M.D.
C. C. McCOY, M.D.
AND
A. M. FRANTZ, M.D.
NEW YORK

Since June 6, 1923, sixteen patients admitted to the Presbyterian Hospital, New York, have presented symptoms and courses so similar to one another, and yet not corresponding to any picture found by us in the literature, that we have come to regard them as representing a new and distinct clinical entity. For the purpose of calling attention to the condition and learning, if possible, the opinion of others who may have seen similar cases, we are reporting in brief our experience.

The characteristic features of the malady as we have seen it, are: (1) occurrence in the young; (2) sudden onset; (3) pain referred to the chest or upper abdomen; (4) a rather high fever with few other general constitutional symptoms; (5) a disappearance of the pain and fever within twenty-four hours, with frequent recurrence on the third or fourth day after the onset; (6) a speedy and uncomplicated recovery.

A TYPICAL HISTORY

A. W., a previously healthy school girl, aged 16, one evening developed a sharp pain in the epigastrium and lower anterior chest. The pain was aggravated by walking or deep breathing. She had no cough or symptoms referable to the upper respiratory tract, and no urinary or gastro-intestinal disturbances. She awoke next morning feeling feverish and generally miserable, and the pain was worse. That afternoon she was admitted to the hospital. The temperature curve is reproduced in Chart 1. The patient was normally developed, and cried out with pain. Her face was flushed and the tongue was coated, but nothing was found to explain the symptoms. Next day she was free from fever and very comfortable. But after thirty-six hours, the temperature rose to 103.4; at this time she had slight pain in the lower anterior right side of the chest. She developed a herpetiform eruption on the nose. On the fifth day her temperature became normal and remained so. Since then, over a month ago, she has been entirely free from symptoms.

Blood count on admission showed 9,300 leukocytes with 87 per cent. polymorphonuclears; during the second rise in temperature, the leukocytes were 5,300, with 90 per cent. polymorphonuclears. The blood culture was negative, and roentgen-ray examination of the chest showed no pathologic changes. The red blood cells were found in one centrifugated specimen of urine; these were not found in subsequent examinations.

OBSERVATIONS

Age and Sex Incidence.—The average age of the patients in our small series was 13 years, the extremes being 4 and 32. The sexes were about equally represented.

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* From the Department of Medicine of Columbia University, College of Physicians and Surgeons, and the Presbyterian Hospital.

Onset.—This was sudden in every case; usually the patients were able to recall the precise time of the beginning of the pain, which was, without exception, the initial symptom. Chill, vomiting and headache may be present, as is common at the onset of many acute febrile attacks.

Symptoms.—Fever: At the time of admission to the hospital, which was either with the pain of onset or with that of recrudescence on the third or fourth day, the temperature averaged 103, the extremes being 100.6 and 104.5. The sequence of (1) initial sudden elevation for from twenty-four to thirty-six hours, (2) essentially normal temperature for from thirty-six to forty-eight hours, (3) abrupt rise for another few hours, and then (4) sudden defervescence marking the termination of the illness, has been observed in almost every case. Chart 1 presents a typical temperature curve.

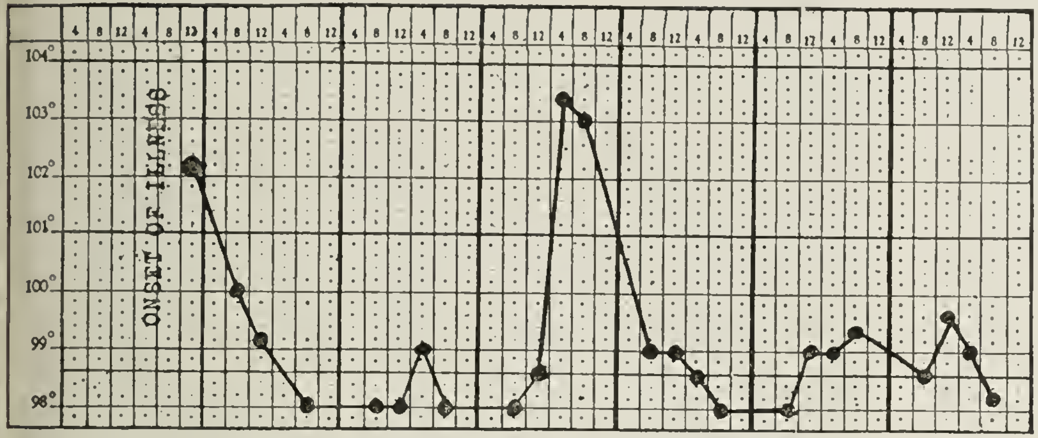

Chart 1.—Temperature in the case reported.

The chief variations from the course described are (1) a final drop of the temperature to normal on the second day with no relapse; (2) the presence of some fever between the initial and final peak of temperature.

Pain: The outstanding and characterizing symptom has been pain, usually localized to one side or the other of the lower anterior chest, but in a few cases referred to the upper midabdomen. This pain has invariably the character of being aggravated by any bodily movement involving the trunk, particularly by deep respiration. In the cases in which the localization has been abdominal, it has been retrosternal as well. The pain is usually sharp, but may be a dull ache. It is often very difficult for the patients to localize it. There was found in several cases slight tenderness over the region of the pain. Bowel movements do not seem to affect it. It does not always remain in the same region: one patient had pain in his right chest at the onset, and with the second rise of temperature had a similar pain on the opposite side. The occurrence of the pain has been synchronous with that of the fever; in the afebrile interim there has been usually no discomfort of any sort, while with the secondary rise in temperature the pain has recurred.

A striking feature has been the absence of marked prostration which characterizes such brief fevers as influenza, dengue and sand fly fever. None of our patients complained of back or limb pains, and headache was rather uncommon. There has been no cough, coryza, sore throat or expectoration. Abdominal cramps, diarrhea and constipation have not been noted. There have been no urinary symptoms.

Physical Signs.—The skin was generally flushed, but there has been no skin eruption except for herpes, or any exanthem on the mucous membrane. The tongue was usually heavily coated except on the edges. There was no pharyngitis. The lungs have always been clear, and in no case has a friction rub been heard. The pulse has been rapid, running parallel with the temperature. The cases with abdominal pain showed considerable stiffness of the abdomen, and the differential diagnosis from appendicitis was not always easy, though tenderness was never marked. The spleen was not enlarged. In fact, no definite physical sign has been elicited.

Convalescence.—This is surprisingly prompt. The patients feel perfectly well from the hour that the pain and fever subside.

Laboratory Findings.—The leukocytes were usually within normal limits, though several cases showed a transient elevation at the onset as high as 14,000; the polymorphonuclears varied form 62 to 93 per cent. There was no remarkable eosinophilia, and the blood showed no parasites.

Urine.—A faint trace of albumin during the fever was common. An interesting finding in several of our cases was the presence, on microscopic examination, of a few blood cells, which disappeared at the end of the illness. There were very few white blood cells and rarely any casts.

The stools were grossly negative.

Fluoroscopic and roentgen-ray studies, made in nearly every case, showed no evidence of pulmonary or pleural disease; there was no limitation of the diaphragmatic excursion, which was equal on the two sides.

Final bacteriologic data are not yet complete and will be reported later. Blood cultures, taken in most cases, were always negative, as were the Widal and para-Widal reactions.

COMMENT

Many epidemics of fever of short duration have been reported in the literature, some quite distinctive in their clinical picture, but we cannot find this syndrome described. We believe it to be a clinical entity of infectious nature. Three of our patients came from the same family; two of them were taken ill at the same time, and the other, two days later. Another patient reported that his brother had a similar disease three days previously. Still another moved from a summer resort in New Jersey to avoid the epidemic prevalent there, but was taken with pain in the chest, and fever the following day. Several physicians report that there are many cases with these clinical features in the cities along the shore of New Jersey, and the daily papers are discussing an epidemic of a queer malady, "devil's

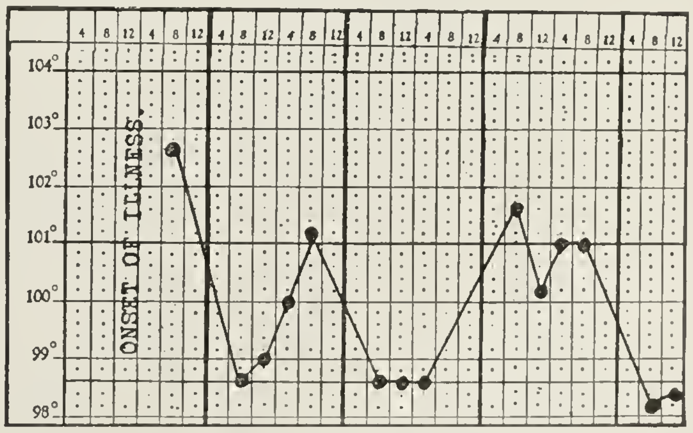

Chart 2.—A typical temperature curve.

grip," which seems to resemble our cases. No history suggestive of the mode of transmission has been obtained. Some patients have been bitten by mosquitoes, some by sand flies, and some have had no insect bites. The patients have come from widely separated communities and strata of society. Most of them have not been out of New York City. Their diets have been of all types.

SUMMARY

In a small series of cases, apparently part of a fairly widespread epidemic, there has been a syndrome sufficiently constant and recognizable to constitute a clinical entity. It is characterized by sudden onset, with pain in the chest or epigastrium and fever of brief duration, with a tendency to recrudescence on the third day.

For the purpose of convenience, we have come to designate it in this clinic as epidemic pleurodynia.

NASAL SINUSITIS PRODUCED BY DIETS DEFICIENT IN FAT-SOLUBLE A VITAMIN *

AMY L. DANIELS, Ph.D.
AND
MARGARET E. ARMSTRONG, M.D.
WITH THE COOPERATION OF
MARY K. HUTTON, B.S.
IOWA CITY

In studying the effects on rats of diets low in the fat-soluble vitamin (vitamin A[1]), it has been observed that these animals frequently suffer from what appears to be a nutritive disaster, manifested by stationary weight, or sudden loss in weight and death before the appearance of the characteristic eye infection, xerophthalmia. Similar results have been observed by a number of other workers. For example, Emmett[2] found that of 122 rats fed low fat-soluble A diets, 98.2 per cent. developed xerophthalmia, while out of 136 animals on vitamin A free diets in Osborne and Mendel's[3] group, only sixty-nine developed the disease. Walker,[4] who also observed that the lack of the fat-soluble A vitamin produced xerophthalmia in a variable percentage of experimental animals, suggests that hereditary predisposition may explain the dissimilar results obtained by the different investigators.

With the exception of the specific pathologic changes in the eye tissues and lacrimal glands of animals suffering from xerophthalmia, there have been noted few characteristic pathologic findings in other tissues. Haladay[5] observed that the nasal passages became involved, and that a characteristic respiratory infection usually appeared in the advanced stages of the eye infection. Emmett and Allen[6] found no outstanding pathologic changes in the tissue of the low fat-soluble A fed rats. There were no fatty changes in the various organs, no hypertrophy and no atrophy. The spleen, ileum, colon and kidney showed some congestion, and there was moderate nerve degeneration of the optics. MacKay and MacPherson[7] fed kittens diets low in the fat soluble A vitamin. These suffered from abdominal distention and diarrhea. At postmortem, the walls of the intestines were observed to be thin, extremely like those of children suffering from celiac disease. Werkman[8] found rats and rabbits on vitamin A low diets less resistant to infection with the anthrax bacillus and the pneumococcus.

In our animals, the first symptoms of a dietary deficiency, namely, failure to gain on the low fat-soluble A diets, were often accompanied by certain well-defined symptoms—loss of appetite, snuffles and subseqeuntly labored breathing. These conditions confronted us so often that we questioned whether they were the result of the dietary deficiency per se, or were due to an infection in an undernourished animal. It is perhaps significant that, in a colony of between 400 and 500 animals, those on the low fat-soluble A diets are the only ones that ever manifest such symptoms.

The food of the animals on the vitamin A low diets contained an adequate amount of the various food constituents—protein, carbohydrate, fat, inorganic salts and vitamin B (obtained from yeast). Since the casein which furnished the protein was extracted with hot alcohol for twenty-four hours and ether, U. S. P., for forty-eight hours in a Soxhlet apparatus, and only 10 per cent. of lard was included in the ration, it is obvious that an extremely small amount of the fat-soluble vitamin was present in the food. The young of stock animals, placed on this ration at the age of 4 and 5 weeks, respectively, grew at a normal rate for from two to three months, at the end of which time the weight became more or less stationary and then dropped suddenly unless cod liver oil or some other source of fat-soluble A was added to the diet. If the dietary change was made in time, the appetite improved, the snuffles disappeared and the animals gained in weight. When no food containing vitamin A was given, or when the dietary treatment was delayed, the animals remained in a moribund condition for a few days, lost weight rapidly, and finally died. At necropsy, some of these animals gave evidence of lung infection. The cause of death in others was not apparent; the lungs, heart, kidney and intestines were seemingly normal. If death in these was the result of an infection, this was located in some hitherto unsuspected place.

In dissecting the skulls of animals with the characteristic eye infection produced by diets deficient in the fat-soluble vitamin, it was observed that in all cases the paranasal sinuses and the mastoid cells contained purulent material. These findings led us to suspect that, in those animals receiving the low fat-soluble A diet which had died from no perceptible cause, the infection was located in the upper respiratory passages. In order to determine this, the following study was made.

The heads of sixteen young rats which had been fed for varying lengths of time on diets low in the fat-soluble vitamin A, but having what was considered an ample amount of all other food elements, were examined both grossly and microscopically. As controls, the heads of twenty-nine adult rats were also examined. Of these, six had received our stock ration, which con-

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* From the Department of Nutrition, Child Welfare Research Station, and the Department of Ophthalmology, Otolaryngology, and Oral Surgery, State University of Iowa College of Medicine.

[1] The term fat-soluble A is used in the generic sense.

[2] Emmett, A. D.: The Fat-Soluble A Vitamine and Xerophthalmia, Science **52**: 157, 1920.

[3] Osborne, T. B., and Mendel, L. B.: Ophthalmia and Diet, J. A. M. A. **76**: 905 (April 2) 1921.

[4] Walker, Sydney, Jr.: The Relationship Between Xerophthalmia and Fat-Soluble A, J. A. M. A. **78**: 273 (Jan. 28) 1922.

[5] Haladay, H. A.: Physiological Test of Cod-Liver Oil for Vitamines, Squibb Memoranda **2**: 6, 1923.

[6] Emmett, A. D., and Allen, F. P.: Pathogenesis Due to Vitamine Deficiency in the Rat, J. Biol. Chem. **41**: xxi-lxxi, 1920.

[7] MacKay, H., and MacPherson, M.: The Effect on Kittens of a Diet Deficient in Animal Fat, Bio-Chem. J. **15**: 18, 1921.

[8] Werkman, C. H.: Immunologic Significance of Vitamins: Influence of Lack of Vitamins on Resistance of Rat, Rabbit and Pigeon to Bacterial Infection, J. Infect. Dis. **32**: 255 (April) 1923.

sists of cracked yellow corn, cooked soy beans, a small amount of tricalcium phosphate, and whole milk ad libitum. Ten animals had been given from infancy a diet low in the antineuritic vitamin (water-soluble B) but having an ample amount of vitamin A and all the other essential food constituents; twelve had been fed on McCollum's [9] low calcium diet, to which had been added 5 per cent. of butter oil. The second generation gave every indication of extreme rickets. The histologic picture of the bones of the first generation was suggestive. The heads of both were examined. One of the group was a second generation animal on a low phosphorus diet. It was distinctly undernourished—at 17 weeks weighing only 35 gm.

Of the sixteen rats fed on this low fat-soluble vitamin diet, twelve were kept on the ration for periods varying from eight to ten weeks, at the end of which time they were rapidly losing weight, and had developed snuffles. Seven of them had lesions involving one or both eyes, and several others had pigmented skin lesions on the eyelids and feet. These were killed, and their heads were subected to gross and microscopic examination. In each case, a longitudinal section was made through the head, exposing the entire nasal mucosa. Without a single exception, the mucosa was found to be covered wtih a thick, creamy exudate which filled the meatus.

The middle ears of six of these rats were examined, and all were found filled with pus. Three of the rats had abscesses on the tongue near the base.

Two rats were kept on the low fat-soluble vitamin A diet for periods of nine and eleven weeks, respectively, at which time they began to lose weight, developed snuffles and showed signs of general physical weakness. Cod liver oil was then added to their rations. They responded immediately. Their snuffles disappeared and they began to gain in weight. Two weeks later, they were killed. Both had marked purulent inflammation of the nasal mucosa. The middle ears of both were filled with pus.

Three of the rats fed on this low fat-soluble vitamin diet were killed before there was any evidence of physical breakdown. They were gaining in weight; their appetites were good and there were no indications of snuffles. One of them killed after being on the ration only four weeks showed no signs of nasal inflammation. The other two rats killed at six and eight weeks, respectively, showed marked purulent inflammation of the nasal mucosa. One of them had pus in the middle ear and an abscess at the base of the tongue.

The microscopic examination of the nasal mucosa of the animals confirmed the gross finding. The nasal passages and sinuses were filled with pus cells; the mucosa was also infiltrated with polymorphonuclear cells. The epithelium was ragged, and in some areas desquamated. The middle ears were examined microscopically, and the exudate which filled them was found to be largely polymorphonuclear cells.

One of the rats had eye lesions so far advanced that on microscopic examination the entire organ appeared as a mere mass of slightly granular necrotic tissue, which stained faintly and was interspersed with polymorphonuclear cells. Only small fragments of the sclera could be distinguished. In two of the rats, the lesions were similar but a little less advanced. The lens remained in situ. A little of the margins of the cornea remained, but necrosis and purulent exudate obscured the remainder of the structure.

Five of the rats had eye lesions of much less severity. Grossly, the cornea appeared slightly blurred. Microscopic examination showed that there was some irregular thickening of the epithelium covering the cornea, and some slight infiltration of the cornea with round cells, fibroblasts and even a few polymorphonuclear cells. Between the lens and the cornea, polymorphonuclear cells were found.

The abscess in the tongue gave the microscopic picture of an acute pyogenic reaction.

Of the twenty-nine rats examined as controls, only five showed a little reddening of the nasal mucosa, but in these there was no visible exudate, no sign of middle ear infection, and no abscesses at the base of the tongue. The other twenty-four animals were quite free from any signs of mastoid or nasal sinus infection.

From our findings it would seem that the fat-soluble vitamin A plays an important rôle in the immunity of the organism to pyogenic infections, and the general breakdown of the organism following the ingestion of diets low in the fat-soluble vitamin is secondary to such infection. A diet lacking in fat-soluble A makes possible the bacterial invasion of the mucous membranes of the ear and nasal cavities. As the infection advances, it leads to an apparent nutritional disaster. However, the loss of weight generally observed in animals on these vitamin A low diets seems to be due, not to a lack of the specific substance, at present designated as vitamin A, but to infection in an animal whose resistance is lowered by faulty diet. This is shown by the fact that, except in the mildest infections, made manifest by the stationary weight, the addition of a substance containing vitamin A will not restore the animal to a normal condition.

In confirmation of the observation of other workers, it appears that some constituent of cod liver oil or butter oil plays an important part in maintaining the resistance of the body to bacterial invasion. While it has long been assumed that certain fats, especially cod liver oil, exert a curative effect in tuberculosis, as well as in other infections, the findings in our low fat-soluble A animals seem to give experimental evidence for the many clinical observations.

That our animals on the low calcium diets failed to develop an infection of the nasal and aural passages suggests that the well known low resistance in rickets is the result of a deficiency in the fat-soluble A vitamin or some substance associated with it, and not to the calcium deficiency. In this connection, one is led to wonder whether the excessive reaction to infection which takes place in the artificially fed baby is due to the fact that the protective substance (fat-soluble A) has been given in insufficient quantities or has not been absorbed from the alimentary tract in sufficient quantity.

Sex Instinct and Sociological Conditions.—There is an ever growing disharmony between the physiologic conditions of the sex instinct and sociological conditions. The nongratification of this instinctive desire may be the source of a mental conflict accompanied by fear and anxiety in a large number of men and women, especially the latter. It must be a constant experience to find in the history and behavior a sexual basis for the mental trouble of patients who are suffering from either a psychoneurosis (for example, hysteria, hypochondriasis, or neurasthenia) or a psychosis (religious mania, manic-depressive insanity, involutional melancholia, or primary dementia).—F. W. Mott, *Brit. M. J.* **1**:407 (March 10) 1923.

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[9] McCollum, E. V.; Simmonds, Nina, and Parsons, H. T.; Shipley, P. G., and Park, E. A.: Studies on Experimental Rickets, J. Biol. Chem. **45**: 333 (Jan.) 1921.

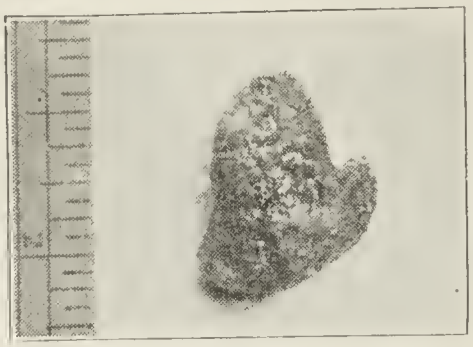
Clinical Notes, Suggestions, and New Instruments

AN INTERESTING CASE OF "SILENT" RENAL CALCULUS

Augustus Harris, M.D., Brooklyn

K. H., a youth, aged 18, referred by Dr. G. B. Reitz, Feb. 8, 1922, complaining of frequency and urgency of urination of three months' duration, had pyuria, but no burning, hematuria or urethritis. There was no complaint of pain in either the back or abdomen. Cystoscopic examination revealed a moderately severe cystitis. Catheters were passed to both renal pelves without obstruction, and with intermittent drip of clear urine from both sides. Renal functional tests were negative. A diagnosis was then made of cystitis, and treatment was outlined to be given by the family physician.

After treatment over a period of a few months, the symptoms improved considerably but later recurred. Cystoscopic examination in November, 1922, then revealed the presence of a right-sided pyelitis, with slight delay in the function of the right kidney. The left kidney was normal. Also blood pressure and blood Wassermann tests were negative. Inoculated guinea-pigs were later found free from tuberculosis at necropsy. Cultures of urines both from the bladder and from the right kidney, taken at different times, showed the presence of *Staphylococcus albus.* Roentgen-ray examinations revealed the shadow of a calculus in about the center of the right kidney. Pyelography a few days later showed the shadow of bromid solution in the pelvis to coalesce with that of the stone.



Calcium carbonate stone removed from right kidney.

Therefore, on Nov. 17, 1922, operation was performed on the right kidney, using the Mayo retroperitoneal incision. The operation was about as usual, and the kidney was delivered with slight difficulty after palpation of the calculus through the substance of the kidney. It was so situated as not to be reached through a pyelotomy incision. The eye end of a large, straight needle was then passed through the cortex to the stone, and a partial nephrotomy incision about 5 cm. long was then made over the stone just large enough to permit of its removal. The stone was wedge shaped, somewhat like an arrow head, and was rather fixed in its position with its broadest side outward. The kidney tissue appeared healthy. The calices were then explored and irrigated, and the kidney wound was closed with mattress sutures. The wound was closed in the usual manner, and a cigaret drain was used.

The urine was slightly bloody for three or four days after the operation, and during this time there was a slight urinous odor from the dressing. Convalescence was rapid and uneventful, and the patient was discharged from the hospital on the thirteenth day after operation.

Treatment was directed to the remaining pyelitis and cystitis until the urine was entirely free from pus. The patient is in excellent condition, and has been doing his usual work for many months. It has been noted that the urine since operation is often slightly alkaline, and we have attempted particularly to keep it acid.

The stone was rather light in weight, grayish white, somewhat rough, pronged and moderately hard, but fairly easily disintegrated. Chemical analysis by Dr. W. W. Hala showed that it consisted of almost pure calcium carbonate, with a slight admixture of ammonium urate and calcium and magnesium phosphates.

It is interesting to note that the fixed position of the stone in the kidney away from the pelvis explained the absence of pain in this case; also that the chemical structure was calcium carbonate, a type which is often not included in textbooks under the varieties of calculi. This type is, indeed, quite rare.

306 Park Place.

SIMPLIFIED APPARATUS FOR ALVEOLAR CARBON DIOXID DETERMINATION

Warren T. Vaughan, M.D., Richmond, Va.

The use of insulin has excited renewed interest in the study of diabetes. Cases with acidosis have often been treated in localities where there are no facilities for determination of blood carbon dioxid tension. Except in comatose patients, the estimation of alveolar carbon dioxid tension will satisfy all clinical requirements. For this I have found the Marriott apparatus satisfactory. Most of the apparatus is contained in a small box measuring 4 by 13 by 20 cm., which can easily be carried in a consultation bag. In addition, it is necessary to have a rubber bladder, a bulb for filling it with air, a length of rubber tubing, and a bottle containing the color reagent.

These extras require additional space, and are sometimes forgotten and left at the office. A satisfactory substitute for the rubber bag is the cuff of an ordinary sphygmomanometer, which may be inflated with the sphygmomanometer air pump. The color reagent may be placed in glass ampules, each containing enough for duplicate examinations. They are sealed in the office and placed in the box containing the remainder of the apparatus. Although the short length of rubber tubing will fit satisfactorily within the box, in its absence a tourniquet, which is usually at hand, may be substituted. If the glass mouth piece is broken or mislaid, the patient's glass drinking tube will do.

With these simplifications, the entire special apparatus is contained in the small box described.

404 Professional Building.

CASE OF DECIDUAL TEETH ERUPTION AT BIRTH

George W. Cusick, M.D., Princeton, Iowa

Owing to the rarity of the condition and the scarcity of reports in the literature available, I should judge it worth while to report a case of decidual teeth erupted at birth.

The child was delivered in the left occipito-anterior position after a labor of three hours' duration. The mother, a tertipara, aged 23, reports that her first child was delivered while she was standing, and that she was in labor forty-eight hours with her second, though instruments were not used in either case and both children were normal. This child had the left forearm flexed with the hand palm down on the shoulder, but the delivery was easy without any trauma.

The child was normal in all respects except for a swelling, the size of a large pea on the lower gum, in which the central incisor teeth could be seen and felt. The child refused to nurse, and no means whatever could induce him to take the breast. Fourteen hours later the swelling was incised and the two teeth were in plain view. The left lay horizontal and free in the center of the swelling, the right, in the normal position. Both were easily removed with thumb forceps without any appreciable bleeding, and the tissues were closed at once. The next attempt to nurse the baby was successful, and he has to continue to nurse vigorously ever since. Both teeth were fully developed and of the full size of the usual decidual incisors.

Diseases in Ancient Egypt.—Smith and Jones during the archeological survey of Nubia, prior to the erection of the Assuan dam, examined 6,000 bodies, dating from 10000 B. C. to 30 B. C., and reported no traces of syphilis, rickets and only one case of tuberculosis.—R. L. Moodie: Paleopathology, University of Illinois, Urbana, Ill., 1923.

New and Nonofficial Remedies

LACTIC ACID-PRODUCING ORGANISMS AND PREPARATIONS

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report.

W. A. Puckner, Secretary.

Milk soured by acid-producing organisms which are more or less natural to ordinary commercial milk, or by certain types or species which are intentionally added with or without the association of alcohol-producing yeasts (kefir, kumyss), has been used as a food for centuries. This more or less extensive practice is due to the fact that the products were palatable to many, or rested on the assumption among the laity, as well as physicians, that they were beneficial in the correction of certain disorders of the gastro-intestinal tract. A great stimulus to the employment of fermented milks was given by the theories of Metchnikoff regarding intestinal putrefaction. These theories were in part that if the products of so-called "intestinal putrefaction," elaborated chiefly in the large intestine, were absorbed, by their action on the walls of the blood vessels they produced arteriosclerosis and premature senility. He also advanced the theory that the growth of the proteolytic bacteria which elaborated these poisons could be modified or prevented by the presence in the intestines of lactic acid-producing bacteria. For this purpose he advocated the use of *Bacillus bulgaricus*.

During recent years, reports have been published from different laboratories which indicate that the growth in the intestinal canal of the normally present *Bacillus acidophilus* may be increased so as to make it the predominating organism, by the administration of lactose (sugar of milk), by milk inoculated and fermented with *Bacillus acidophilus*, or by the administration of viable cultures of *Bacillus acidophilus* in conjunction with lactose. Growing out of the claims of favorable therapeutic action which are based on more or less extensive experimental data, the use of so-called Bacillus acidophilus milk and other products prepared with *B. acidophilus* has become quite widespread in this country. While no one subscribes seriously today to the original theories of Metchnikoff, there are many who believe that the regulation of types of bacteria and of the bacterial activities in the intestine is of much importance from the health standpoint. Since *B. acidophilus* and its very close neighbor, *B. bifidus*, are very common and as a rule the predominating types in the intestines of breast-fed infants, and furthermore, since extensive experiments have been made which show these organisms to be of a strictly nonputrefactive and apparently harmless nature, added weight is given by many to the claims made as to actual therapeutic value.

There is evidence that the administration of sour milk is at times beneficial. This is particularly true in pediatrics, in which field fermented milks have found a wide application. Sour milk and sour milk products are used in cases of vomiting, and of acute diarrhea, as well as in chronic disturbances of the gastro-intestinal tract. On what the particular value of sour milks as such depends is not known at the present time. There can be no doubt that a wide clinical observation gives a basis for the opinion that, for certain types of gastric and intestinal disturbance, fermented milk accomplishes more than sweet milk with a similar fat, sugar and protein content. No one will, of course, deny the great value of milk as a growth-producing and energy-yielding food, whether the milk is sweet or whether it is soured by any of the so-called "lactic acid bacteria."

Recent observations made at various laboratories seem to indicate that, in contrast with *B. acidophilus*, *B. bulgaricus* cannot be implanted or made to proliferate in the intestine, even when administered in large numbers. Much doubt is cast, therefore, on any alleged physiologic action that this organism was claimed to have in the intestine. It is for this reason, and because *B. acidophilus*, according to numerous reports, can be successfully implanted, that preference is now given by many in the use of lactic acid bacillus cultures to those prepared with *B. acidophilus*.

There is little, if indeed any, satisfactory proof that liquid cultures or aqueous suspensions of lactic acid-producing organisms are of real value as local applications to mucous membranes or in arresting putrefaction or suppuration in wounds, abscesses and sinuses. In such conditions, their use appears to be still in the experimental stage.

Sour or fermented milk may be administered in the form of buttermilk or naturally soured skim milk, the lactic acid being produced by *Streptococcus lacticus*, which occurs commonly in milk and other dairy products and grows readily at ordinary room temperature; also in the form of sour milk produced by *Bacillus bulgaricus*.

To these may be now added the so-called Bacillus acidophilus milk which is prepared by the inoculation of milk which has been previously sterilized or heated for about an hour, at or near boiling temperature, with a pure starter made by inoculating pressure-sterilized milk with viable *B. acidophilus* and incubating at from 35 to 37 C. for from twenty to twenty-four hours. On the completion of proper ripening, which should take place within from twenty to twenty-four hours at from 35 to 37 C., a product is obtained which is slightly sour to the taste and has a characteristic odor not very unlike ordinary pure buttermilk. There is a slight separation of whey, but, on thoroughly mixing, the product has a uniform creamy consistency. Bacillus acidophilus milk is produced in various laboratories and dairies, though in many instances with partial success only. It may be made from fresh skim milk, whole milk, or from skim milk to which varying amounts of cream have been added. In all milk culture work, mass inoculation with the use of a sterile pipet is necessary. The preparation of uniform pure Bacillus acidophilus milk requires adequate facilities, the aid of a trained technician, and close adherence to instructions.

Bacillus acidophilus and *Bacillus bulgaricus* belong to a group of bacteria, the lactobacillus group, which has not until recently received much scientific attention, but which is widely distributed in nature. Both are long and fairly slender bacilli, which at times have a tendency to filament formation. They are preferably micro-aerophilic, but grow well under ordinary aerobic conditions. They are gram-positive, though in old cultures individual rods or filaments may at times fail to retain the stain. In spite of claims to the contrary, branching may be observed only occasionally, the branched forms resembling more or less another organism of this group, *Bacillus bifidus*, which quite commonly reveals branching.

Both organisms require carbohydrates for their successful cultivation. Glucose, galactose and lactose broth are fairly suitable, but much less favorable than milk or milk whey. Milk is a particularly good medium for the preservation of viability. For isolation purposes and for colony study, whey-agar and galactose or lactose agar may be used to advantage.

Bacillus acidophilus and *Bacillus bulgaricus* have very many points in common. They differ, however, in the following respects: 1. *B. acidophilus* is relatively slow in acid production in milk, the amount of acid produced during twenty-four hours' incubation rarely exceeding 1 per cent., whereas milk cultures of *B. bulgaricus* may attain an acidity of 3 per cent. in the same period of time. 2. Except in the case of so-called border strains, *B. acidophilus* attacks maltose with acid production, while *B. bulgaricus* is unable to do so. 3. *B. acidophilus* is of intestinal origin and, therefore, can adapt itself to intestinal conditions, whereas *B. bulgaricus* is an ordinary saprophyte and is unable to develop or even to maintain itself in the digestive tract.

The group of lactobacilli is probably one large group which consists of many varieties, in the same way as the *B. coli* and the streptococcus groups. Certain members of the lactobacillus group (acidophilus and bifidus types) are found in the feces of man and animals. Others (bulgaricus type) are very common in cow barns and in dairies, and in the various dairy products. The well-known *Bacillus bulgaricus* is the predominating organism in the oriental sour milk products, and it is to this type of the lactobacillus group that these products in a large measure owe their characteristic properties. All cultures of *B. acidophilus* and *B. bulgaricus* deteriorate with age, and, therefore, should be used soon after they are prepared. While viability appears to be preserved best in milk cultures, even these should have a brief expiration limit, and should be kept at relatively low temperature. Experience has shown that *B. bulgaricus* and *B. acidophilus* are short-lived in so-called tablets and powders. Bacteriologic examination of such powders and tablets, and of various broth cultures, has often shown them to contain, at the most, but few living aciduric organisms. All lactic-acid ferment preparations should be kept at or near ice-chest temperature and marked with an expiration date.

Origin of Thymus Carcinoma.—The view that the reticulum of the thymus is a form of squamous epithelium is borne out by two facts. The first of these is the manner in which Hassall's corpuscles are produced by the physiological differentiation of its cells. Again, additional support is given by the basal-celled carcinomata of this organ, several recorded specimens of which contained evidence of attempts at differentiation into fibrillated squamous epithelium. These tumors do not, in my opinion, originate in the corpuscles of Hassall, although the question if they do or do not is really quite immaterial to my argument, since the corpuscles themselves are now known to be derived from the cells of the reticulum.—G. W. Nicholson: *Guy's Hosp. Report.* **73**:307 (July) 1923.

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SATURDAY, SEPTEMBER 8, 1923

IONIZED CALCIUM IN THE BLOOD

The modification of neuromuscular excitability by changes in the chemical make-up of the fluids that bathe the irritable tissues is a phenomenon now familiar to all students of physiology. In general, the action of sodium and potassium is stimulating, whereas that of the alkali earths calcium and magnesium is depressant. It has therefore become a popular view in recent years that the stable condition of the neuromuscular apparatus from the standpoint of irritability depends on the "balance" of these elements so that their antagonistic effects are properly compensated. Accordingly, one may assume that normally the blood and tissue fluids represent "physiologically balanced" solutions. This view has been strengthened by the now well established observation that in cases of infantile tetany the blood serum usually contains less calcium than the serum of healthy infants or those suffering from ailments other than tetany, often containing only half as much. Evidence of appreciable alterations in the content of the other bases—alkalis or magnesium—has not been recorded. Consequently, the low calcium content seems to be indicated as a most probable cause of the increased neuromuscular irritability found in tetany.

Relief of the condition just described is afforded by the administration of calcium salts, the chlorid being commonly employed for this purpose. More recently it has been demonstrated that both ammonium chlorid and hydrochloric acid can also bring about therapeutic success in the treatment of tetany. By those who have looked on tetany as a symptom of alkalosis, the efficacy of the free acid will be explained on the basis of its "neutralizing" effect. Since, however, the hydrochloric acid is ordinarily administered along with milk, which contains rather insoluble salts of calcium, it is readily conceivable that the acid increases the absorption of the latter as the more soluble calcium chlorid. As a matter of fact, ingestion of hydrochloric acid in cases of infantile tetany is followed by an increase in the calcium content of the blood serum.

The beneficial effects of ammonium chlorid are not thus easily explained. In a study of the problems involved, Gamble, Tisdall and Ross[1] have observed that calcium chlorid, in consequence of the relatively much greater absorption of the chlorid (Cl^-) ion than the calcium (Ca^{++}) ion, behaves as does an acid substance. The effect on the acid-base metabolism of the ingestion of 1 gm. of calcium chlorid is described as of the same extent as would be produced by placing in the milk 75 c.c. of tenth-normal hydrochloric acid. The "acid effect" functions to increase the hydrogen-ion concentration of the blood plasma and to produce an increased ionization of calcium. Consequently, as Gamble and Ross contend, whenever an "increased" metabolism of hydrochloric acid is brought about, a physiologically adequate concentration of ionized calcium is secured from a lowered total calcium content.

THE CORPUS LUTEUM AND THE UTERUS

The 1923 edition of New and Nonofficial Remedies, published by the American Medical Association, states that ovarian therapy is still on trial. This might well be expected in view of the paucity of knowledge about ovarian function. For some time it has been recognized that the ovaries probably produce internal secretions or liberate hormones of some sort that are necessary for the proper activities of the uterus; and it has further been suspected that these chemical products may have obscure effects on metabolism and the nervous system. Persons who have not given detailed attention to ovarian problems often fail to realize that the organs engaged in ovulation are notably complex in structure. The discharge of the ovum leads to the formation of the corpus luteum, which has of late come into prominence in the physiology of the sexual cycle. There is experimental evidence that so long as the corpora lutea survive, further ovulation is prevented. Apparently they supply something which inhibits the maturing of the ovarian follicles, leading to the discharge of the ovum.

Leo Loeb, who has devoted much attention to this subject at the Washington University in St. Louis, has lately reached the conclusion that in mammals two distinct phases can generally be distinguished in the sexual cycle.[2] The first is dominated by an ovarian factor other than the corpus luteum, in all probability by the maturing follicles, the walls of which secrete a substance causing various kinds of circulatory changes, growth processes, and possibly certain psychic alterations. It is responsible for proliferation in the mammary gland, in the vagina, and also in the uterine wall. This substance calls forth the changes in the ovary that culminate in ovulation. The second cycle is dominated by a product of the corpus luteum which sensitizes the uterus and facilitates the fixation and development of the fertilized ovum. It prevents ovulation, and this function is held in abeyance until the corpus luteum degenerates—a process following in the usual routine of events.

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[1] Gamble, J. L., and Ross, G. S.: Studies of Tetany, II, Am. J. Dis. Child. **25**: 470 (June) 1923. Gamble, J. L.; Ross, G. S., and Tisdall, F. F.: Studies of Tetany, I, ibid., p. 455.

[2] Loeb, Leo: The Mechanism of the Sexual Cycle and the Specificity of Growth Substances, Proc. Soc. Exper. Biol. & Med. **20**: 443 (May) 1923.

Recent experiments of Loeb[3] have demonstrated, for one species at least, that after extirpation of the uterus there is a long continued preservation and function of the corpus luteum. This is analogous to what occurs during pregnancy when the integrity of the corpus luteum probably occasions an inhibition of ovulation and other functions that would otherwise continue to appear in a routine way. The persistence of the corpus luteum after hysterectomy cannot be a matter of physiologic indifference to the female, particularly when it is realized that growth processes do not occur in the vagina, and estruation is prevented. Loeb regards it as not probable that in principle the effect of the uterus on the corpus luteum differs in different species. It is worthy of note, therefore, that in experimental animals the full effects of hysterectomy on the function of the corpus luteum are not observed if a part of the uterus is retained at the operation. Perhaps when these interrelationships in the sexual cycle of the female are better known, and probably only then, the therapeutic use of ovarian products can be placed on a more certain foundation than it rests on at present.

EMPIRICISM AND SCIENCE IN MEDICINE

Progress in medicine during recent years has been due in large measure to the efforts of two somewhat distinct groups of workers. One of these includes the clinicians, whose primary interest centers in the care and treatment of the sick. The other group is represented by the so-called laboratory workers—persons engaged in the study of the disciplines fundamental to medicine and sometimes inaptly termed preclinical sciences. In his address as chairman of the Section on Pathology and Physiology at the San Francisco session, Luckhardt[4] lamented the fact that the efforts of these two groups have rarely been concerted. No one can review the history of modern medicine without gaining the conviction that both types of workers have promoted its practice; and it requires no large perspicacity to discern that all of them are important in the advancement of the profession. Hence it was a timely note sounded by Luckhardt when he insisted that the mutual misunderstanding, so prevalent among even the best representatives of both groups, is due to profound ignorance of each other's work. As a rule, he says, the laboratory man has never had an occasion to observe with what care and scientific acumen the good clinician gathers and weighs his data before instituting a rational and effective therapy. The clinician, on the other hand, rarely is in a position to observe and appreciate the resource, patience and pertinacity required of the laboratory man in order to solve a research problem the results of which are subsequently so readily susceptible of practical application.

An illustration of the effect of this reciprocal derogatory attitude appears in the history of cod liver oil as a remedy, recently reviewed by Guy[5] of Yale University School of Medicine. She points out that Rosenstern wrote in 1910: "Cod liver oil is in the forefront of children's remedies. For long it has been struggling against the skepticism of exact science." This comment deserves to be driven home to those who tend to develop that most reactionary it-can't-be-done attitude. Guy reminds us that in each country the experience was the same: Cod liver oil was used by the fishing people and peasantry; and then accidentally observed by some physician, tried by him, and so made known generally to the profession. At first, it was used in chronic rheumatism and gout; then, naturally enough, in other bone and joint diseases, notably rickets and osteomalacia (which was considered closely allied to gout); then in scrofula, because of its supposed identity with rickets, and finally in other forms of tuberculosis.

Today, even though we cannot "explain" the action of cod liver oil, its beneficial action in various conditions has been placed on a rational basis. The "healing potency" can be demonstrated by measurable changes under controlled conditions. The results of carefully planned experiments on laboratory animals have been brought to bear on clinical experience, so that one is justified in concluding with Park, Guy and Powers[6] of Yale that, in the presence of calcium or phosphorus starvation, cod liver oil enables the animal to get along as if the calcium or phosphorus were supplied in sufficient or almost sufficient quantity in the diet. Obviously, they say, cod liver oil makes the metabolic processes of the body in respect to these two elements vastly more efficient, even though it does not supply them.

The clinician's observation, long unsupported and even disparaged by the worker in the chemical laboratory, has thus "come into its own." Mental aloofness and a hypercritical attitude have become obliterated in the common belief in established facts. Let us, however, not on that account overexalt empiric methods or undervalue a rigorously critical attitude. The latter has more than once saved us from quackery and charlatanism, from painful error or dangerous overconfidence. The cults always delight to stress the historic incidents of the failures of the scientist to grasp a truth that was subsequently proclaimed far and wide. But even the rankest empiricist is quick to discover a palpable fraud. Metallic tractors, electric belts and even subtle electronic currents are schemes of deception which do not require scientific training and clinical insight, but merely common honesty for their undoing.

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[3] Loeb, Leo: The Effect of Extirpation of the Uterus on the Life and Function of the Corpus Luteum in the Guinea-Pig, Proc. Soc. Exper. Biol. & Med. **20**: 441 (May) 1923.

[4] Luckhardt, A. B.: The Progress of Medicine, J. A. M. A. **81**: 347 (Aug. 4) 1923.

[5] Guy, Ruth A.: The History of Cod Liver Oil as a Remedy, Am. J. Dis. Child. **26**: 112 (Aug.) 1923.

[6] Park, E. A.; Guy, Ruth A., and Powers, G. F.: A Proof of the Regulatory Influence of Cod Liver Oil on Calcium and Phosphorus Metabolism, Am. J. Dis. Child. **26**: 103 (Aug.) 1923.

CALCIUM DEMANDS IN PREGNANCY

The medical literature of the present time is replete with discussions of the biochemical rôle of the element calcium. The indispensability of calcium for satisfactory growth has long been realized. It forms an essential and considerable part of the bony skeleton, in which it cannot be replaced by any other element, even such as the alkali earths magnesium and strontium. The extent to which calcium is available for bone growth depends not merely on the amount that is supplied through dietary channels to the organism, but equally on the presence of certain factors that promote its deposition in the bones. One of these extraneous factors is represented by radiant energy; a comparable influence attaches to certain dietary components, notably to egg yolk and cod liver oil. These furnish something to the organism whereby, when the supply of calcium is not abundant, the body is enabled to assimilate and hold lime salts more efficiently. In fact, Park, Guy and Powers[1] have argued that the similarity between the action of cod liver oil and that of radiant energy in rickets is so close that a connection must exist between them. So far as the calcium and phosphorus metabolism of the body is concerned, cod liver oil seems to be a substitute for radiant energy. These investigators are, in fact, eager to ascertain whether, in the near future, a relation between cod liver oil and radiant energy will not be established of such nature that their effects will be explicable on a single basis.

When optimal conditions of diet, including an abundance of calcium, phosphorus and the organic, or so-called antirachitic, factor prevail, radiant energy appears to offer no additional advantage for bone growth. At any rate, Goldblatt and Soames[2] of the Lister Institute in London observed that animals on such a ration grew equally well whether kept in darkness or in daylight supplemented by irradiation from a mercury vapor quartz lamp; and the development and calcification of their bones were normal. Apparently, the conditions are favorable so long as the blood exhibits its normal content of the requisite bone-producing elements. It might be expected that this could become reduced under conditions, as in pregnancy, in which large drafts must be taking place. By estimating the amount of calcium in fetuses of different ages, it has been found that after about the seventh month there is an abrupt alteration, represented by an increment in the calcium retention, which must mean a sudden change in the demands on the maternal stores of that element. From a study of the blood of pregnant women at the Royal Free Hospital in London, Widdows[3] has detected a tendency to a decrease of the calcium content toward the last months of pregnancy, and a general tendency to a rise directly after confinement.

If this is confirmed, the results indicate anew the importance of a sufficiency of calcium in the diet of the mother during the period of larger demand referred to; otherwise, as Widdows and many others have urged, the calcium needs of the fetus may be supplied by withdrawing unduly large amounts from the lime-bearing tissues of the mother. The actual daily increment retained by the average human fetus after the two hundred and tenth day approximates more than 600 mg. As the variation in the calcium content of the maternal serum is, at most, never very marked even in the days of such demands, the latter must be met by a perfectly balanced calcium metabolism. This is another illustration of the splendid adjustment of the human organism to the varied demands on it.

Current Comment

REFLEX CHANGES IN NASAL VOLUME DURING BREATHING

The remarkable adaptive processes that are found in the living organism must be a never failing source of interest to the student of physiology. The known instances are numerous, and new instances are frequently being brought to our attention. Thus, there may be a compensatory hypertrophy of one part to make up for a defective function in another. The blood supply to various organs and tissues is adjusted in abundance to correspond with the varied demands for activity that are made on them from time to time. Consequently, when functional performance is speeded up in the digestive glands, for instance, the semipallor of their resting state is replaced by the blush of a more liberal circulation. Again, at higher altitudes the lowered partial pressure of the indispensable oxygen speedily elicits an increase in erythrocytes whereby the oxygenating capacity of the blood is enhanced. The alternation of inhibition and stimulation, of muscular rest and contraction, in the orderly progress of peristalsis also is wonderfully adapted to the propulsion of food masses in the alimentary tract. Recently, Tatum[4] of the University of Chicago has described altered resistance to the passage of air through the nasal channels under different conditions of need for pulmonary ventilation. Variations in respiratory efficiency, represented by such extremes as overventilation of the lungs by excessive breathing, on the one hand, or obstruction to respiration, on the other, produce a change in the nasal resistance to air. These volume changes in the nasal chambers, involving the widening of the nasal air passage in conditions such as require increased ventilation of the blood, are reflex in character, the seat of action doubtless being the vasomotor center. It is, indeed, somewhat remarkable to find an adaptive reflex mechanism which, as Tatum interprets it, lessens nasal resistance when respiratory need is increased, and possibly by a more passive process brings about increased resistance in the converse condition.

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[1] Park, E. A.; Guy, R. A., and Powers, G. F.: A Proof of the Regulatory Influence of Cod Liver Oil on Calcium and Phosphorus Metabolism, Am. J. Dis. Child. **26**: 103 (Aug.) 1923.

[2] Goldblatt, H., and Soames, K. M.: A Study of Rats on a Normal Diet Irradiated Daily by the Mercury Vapour Quartz Lamp or Kept in Darkness, Biochem. J. **17**: 294, 1923.

[3] Widdows, S. T.: Calcium Content of the Blood During Pregnancy, Biochem. J. **17**: 34, 1923.

[4] Tatum, A. L.: The Effect of Deficient and Excessive Pulmonary Ventilation on Nasal Volume, Am. J. Physiol. **65**: 229 (July) 1923.

GLYCOLYSIS IN DIABETES

The discovery of insulin has awakened a new interest in the theories of diabetes, and has stimulated the further study of the behavior of sugar in the body. It has long been known that glucose disappears after a time from samples of normal blood that have been allowed to stand in vitro, the process being designated as glycolysis. The French clinician Lépine[1] has long maintained that the blood of diabetic persons is less capable of active glycolysis than is the blood of nondiabetic persons. Little attention has been directed to this view by most investigators, because they have been inclined to look to the tissues rather than to the circulating fluids of the body for the explanation of the diabetic diathesis. A return to the earlier contention has been initiated by the widely quoted researches of Winter and Smith[2] in England, indicating a difference between the carbohydrates of the normal and those of the diabetic person. Normally the blood sugar is alleged to be γ-glucose, whereas the blood sugar of persons suffering from a severe grade of diabetes mellitus is probably $\alpha\beta$-glucose or possibly a polysaccharid. The English investigators assume the existence of an enzyme capable of transforming the $\alpha\beta$ form of glucose into the γ form, but believe that such an agent must be furnished to the blood by some tissue. By the use of delicate methods of analysis, Denis and Giles[3] of Tulane University, New Orleans, have found anew that glycolysis is much more active in normal blood than in that of persons suffering from fairly severe diabetes. In the blood from extreme cases no extravascular glycolysis whatever may be detectable. These findings are explained, in the light of Winter and Smith's studies, on the assumption that γ-glucose—the blood sugar found in normal human beings—is the only form readily attacked by glycolytic enzymes. The amount of glycolysis bears no relation to the concentration of the blood sugar. It appears from the latest studies that after successful treatment the glycolytic power of the diabetic blood increases—a finding interpreted on the assumption that the blood sugar of the diabetic thus becomes not only quantitatively, but also qualitatively, more nearly like that of the normal person. A diminished glycolytic power of blood from patients with diabetes has also lately been reported by Thalhimer and Perry[4] of Milwaukee, but their interpretation has been somewhat different.

STREPTOCOCCI AND URINARY CALCULI

The debated questions regarding the elective localization of certain types of bacteria in the body, and the possible significance of this in connection with infections, are again raised by the recent reports of Rosenow and Meisser[1] of the Mayo Foundation. In 1916, Rosenow presented evidence indicating the possibility of producing gallstones experimentally in animals by infection with streptococci from cases of cholecystitis in man. The latest experiments seem to demonstrate the comparable formation of urinary calculi by the invasion of the organism with the bacteria isolated from the urine and foci of infection in persons suffering from nephrolithiasis. A special interest attaches to these studies in that the foci of infection in the experimental animals were created around the teeth, the latter first being devitalized. The experimentally produced chronic foci, aside from being the source of the streptococcus which tended to localize electively in the urinary tract, appeared to have a generally deleterious effect. In this, many clinicians will recognize situations comparable to what they have encountered in man. Rosenow and Meisser observed that the experimentally produced calculi were similar in physical properties and chemical composition to those found in the nephrolithiasis of man. Hence they urge that the factor of focal and other infections be given thorough consideration in the management of such cases. If certain streptococci have the specific power to incite the conditions necessary for calculus formation, it is quite possible, as Rosenow and Meisser suggest, that a stone-forming infection may account for the prevalence of nephrolithiasis in certain localities. Their demonstration of the presence of the micro-organisms precisely where precipitation and crystallization begin suggests strongly that the mechanism of the production of stone is largely a local process, and that the reactions brought about produce the physicochemical conditions, such as the nucleus and organic framework, necessary for the formation of calculi. More general effects are, of course, not thereby excluded.

SAFE DRIVERS

As deaths and accidents from careless automobile driving mount to more and more striking figures, new panaceas are offered for the correction of the evil. Stringent laws and severe punishments have had some mitigating effects, but in addition there appears to be necessary some method for providing that those who attempt to drive motor vehicles are mentally and physically competent. Establishment of a suitable standard would in itself be an important accomplishment. For example: What should be the minimum age for those entrusted with motor vehicles? What standard of eyesight is necessary before a person can safely judge distances? How much hearing is necessary to permit a driver to accommodate his position to the warning signals coming to him from other vehicles from behind or to the side? How rapid and satisfactory must the

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[1] Lépine, R.: Le diabète sucré, Paris, 1909.

[2] Winter, L. B., and Smith, W.: J. Physiol. **57**: 100 (Dec.) 1922.

[3] Denis, W., and Giles, U.: On Glycolysis in Diabetic and Nondiabetic Blood, J. Biol. Chem. **56**: 739 (July) 1923.

[4] Thalhimer, William; and Perry, Margaret C.: Diminished Glycolysis in the Blood in Diabetes, J. A. M. A. **80**: 1614 (June 2) 1923.

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[1] Rosenow, E. C., and Meisser, J. G.: The Production of Urinary Calculi by the Devitalization and Infection of Teeth in Dogs with Streptococci from Cases of Nephrolithiasis, Arch. Int. Med. **31**: 807 (June) 1923.

mental reaction of the driver be to enable him to judge whether or not he can pass a grade crossing before it is reached by an approaching train, and to act quickly in case of emergency? Certainly, the time is ripe for the establishment of such standards and for insistence that those who drive fast-moving motor vehicles pass the test. Is it not absurd that evidence of competence should be required of professional drivers, whereas any amateur may drive without proof of his fitness?

THE GOITER SURVEY IN GRAND RAPIDS

Since the recent editorial note on goiter prophylaxis,[1] the results of a goiter survey of the school children of Grand Rapids, Mich., have been announced.[2] The work seems to have been more extensive than earlier surveys, including boys as well as girls, and extending through all classes in private, parochial and public schools. Among 26,215 pupils examined, 30 per cent. had enlarged thyroids. Thirty-two per cent. of those affected were boys and 67 per cent. were girls. The ratio of boys to girls was about 1:2, although the moderate and marked enlargements were probably in about the same ratio that Kimball found (1:6). Above 10 years of age, the number of girls affected was about two and a half times the number of boys. In high schools, the percentage of pupils affected ranged from 39 to 60. In view of these findings, the city health department has undertaken to prevent simple goiter by the administration of 10 mg. of iodin weekly throughout the school year. The results of the prophylaxis are, of course, not yet available.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

Child Welfare Bill Passed.—The bill to appropriate $50,000 for the child welfare department, with an additional $50,000 when, in the judgment of the governor, conditions warrant it, and an annual appropriation of $100,000 after the first year's appropriation, was passed by the house, August 22, by a vote of 72 to 8.

Southeastern Alabama Counties Medical Associations.—The southeastern Alabama medical societies held a joint annual meeting and picnic at Flemings Mill, August 21, under the presidency of Dr. James M. Watkins, Troy. Barbour, Bullock, Coffee, Covington, Crenshaw, Dale, Henry, Geneva, Houston, Montgomery and Pike counties were represented. More than 700 guests attended the barbecue dinner. Dr. Seale Harris, Birmingham, and Dr. Samuel W. Welch, Montgomery, state health officer, gave addresses. Dr. James J. Winn, Clayton, aged 81, a practitioner for sixty-three years, also spoke.

Proposed Legislation.—A committee composed of Dr. Seale Harris, Dr. Benjamin L. Wyman, Dr. Dyer F. Talley, Dr. William C. Gewin, Dr. Joseph D. Heacock and others was appointed at a meeting of the Jefferson County Medical Society at Birmingham, August 13, to work in the interest of a bill proposed to amend the state health laws, so that county boards of health have authority to arrange their own budgets. The committee will go to Montgomery, if necessary, to present the bill. Dr. Judson D. Dowling, health officer, Birmingham, stated that all employees in the city and county health departments had signed a petition to the legislature, asking that a bill be passed removing employees of the department from political control. The proposed amendments will give the board of health the same authority over appropriations for health purposes that the board of education has over school funds.

ARIZONA

Personal.—Dr. Alfred C. Kingsley has resigned as superintendent of the Arizona State Hospital for the Insane, Phoenix, and is temporarily taking charge of the Magma Hospital, Superior, while Dr. Chester R. Swackhamer is taking a vacation.

New Board of Medical Examiners.—The new board of medical examiners went into office, July 1. The personnel of the board is as follows: president, Dr. Harry T. Southworth, Prescott; vice president, Dr. William O. Sweek, Phoenix, and secretary, Dr. A. Garfield Schnabel, Tucson.

CALIFORNIA

Judgment Revoking Naturopath's License Reversed.—The judgment of the superior court, setting aside the state board of medical examiners' revocation of license to practice naturopathy held by Roy Millsap, Los Angeles, was reversed by the second district court of appeal in a decision rendered by Justice Curtiss, August 27, according to reports. The decision of the higher courts directs the superior court to dismiss the proceedings.

Dr. Morrison Resigns.—Dr. Henry E. Morrison, superintendent of the Sacramento Hospital, Sacramento, has resigned following his "exoneration" by the grand jury when charged with mismanagement of the institution. Last May student nurses charged, it is reported, that Dr. Morrison's conduct was unbecoming, and that the institution was mismanaged. The entire student body, with one exception, and all of the graduate nurses, resigned some weeks ago.

DISTRICT OF COLUMBIA

New Exhibit at Smithsonian Institute.—A new permanent health exhibit will be established at the Smithsonian Institute, Washington, showing methods used in teaching child hygiene. The exhibit is conducted by the American Child Health Association, and is in four sections. One shows methods of prenatal care and instruction for mothers; another, the care of babies during the first months of life; one illustrates games and story methods for training children of preschool age; another consists of "rare objects" related to health. Other essential health practices, such as sleep, bathing and exercise, will be similarly presented in terms of child interests.

FLORIDA

Society News.—The Hillsboro County Medical Society held its annual picnic, July 12, at Lake Stemper, near Tampa.——Columbia County Medical Society is now holding two meetings a month in conjunction with the staff of the U. S. Veteran's Hospital No. 63, Lake City. Two clinical cases are presented at each meeting, one by a representative of the government institution, and one by a civilian practitioner.

GEORGIA

County Physicians Organize.—At the annual convention of county commissioners at Americus, the Association of the County Physicians of the State of Georgia was organized for the purpose of bringing about a closer relationship between the county commissioners of the state and the county physicians.

Better Baby Bill Fails.—The bill to appropriate funds to match federal funds provided under the Sheppard-Towner Law failed in the house of representatives, August 11. Representative Huxford opposed the act, declaring that it had its inception in some socialistic theory. The bill originally called for $24,530 for each of the years 1924 and 1925 to match a like amount of federal funds, but an amendment was adopted reducing the amount to $5,000 for each of the two years.

IDAHO

Hospital Head Named.—Dr. Richard G. Eaton, assistant superintendent, Easton State Hospital, Medical Lake, Washington, has been appointed superintendent of the Idaho Insane Asylum, Blackfoot, to succeed Dr. Clayton A. Hoover, who resigned recently.

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[1] Iodin as a Prophylactic for Goiter, Current Comment, J. A. M. A. **81**: 582 (Aug. 18) 1923.

[2] Reed, Torrance; and Clay, H. T.: A Survey of Thyroid Enlargement Among the School Children of Grand Rapids, J. Michigan State M. S. **22**: 323 (Aug.) 1923.

ILLINOIS

Hospital News.—A building to accommodate 150 patients and a home for nurses will be erected at the Methodist Hospital of Central Illinois, Peoria.——The David Prince Sanatorium, Springfield, was recently damaged by fire to the extent of $50,000. The institution will be rebuilt.

Health Exhibits at Amusement Park.—At the official Illinois state educational exhibit in Exposition Park, Aurora, free medical examinations are made and advice given under the direction of the department of public health by Dr. A. J. Markley, Belvidere, and a staff of Aurora physicians. The department of public welfare is exhibiting a collection of work contributed by the men and women in the state institutions for the blind and insane. In connection with the department of social hygiene, there is an exhibit explaining educational methods of eradicating venereal disease; in the afternoon and evening moving pictures are used to show occupational therapy in state hospitals, and the proper care of babies in summer.

Care of Insane War Veterans.—General Hines, director of the U. S. Veterans' Bureau, Washington, D. C., announced, August 29, that insane veterans of the World War now in other than government institutions in and near Chicago will be cared for at Dwight, Maywood and at the Great Lakes Naval Training Station, where facilities will be provided. As a result of the survey of the number and condition of these men, Director Hines has asked the navy department to hold the tract at the Great Lakes station which it had proposed to sell. He will request Congress to appropriate sufficient funds for the repair and upkeep of the buildings. There are now about 6,000 veterans of the World War in contract hospitals. Of the 560 cases of insane ex-service men in Illinois, the less serious cases will be cared for at Dwight.

INDIANA

Illegal Practitioner Arrested.—According to reports, A. Witkowski, Hammond, was arrested, August 25, on warrants sworn out by the Indiana State Medical Association for practicing medicine without a license. Witkowski was recently driven out of Chicago, where he had a branch office. His alleged theory of treatment is that if a sick person is kept in close proximity to a healthy animal, the animal will absorb the disease.

IOWA

Poliomyelitis Appears.—Eleven cases of infantile paralysis have been reported to the health department at Council Bluffs during the last two weeks.

MAINE

Personal.—Dr. Earle P. Gregory, Fryeburg, has been appointed medical examiner for Oxford County.

MARYLAND

Hospital News.—Additional dormitories will be erected at the Crownsville State Hospital, Crownsville, at a cost of $200,000, it is announced by Dr. Robert P. Winterode, superintendent.——The lot adjoining the Western Maryland Hospital, Cumberland, has been purchased for the purpose of erecting an additional wing in the near future.

Change in Editorial Board of Psychiatric Journal.—At the seventy-ninth annual meeting of the American Psychiatric Association in Detroit, Dr. George H. Kirby, director of the Psychiatric Institute of the New York State Hospitals, Wards Island, New York, was appointed a member of the editorial board of the *American Journal of Psychiatry* in place of the late Dr. J. Montgomery Mosher.——Friends and fellow workers of Dr. Henry M. Hurd, Baltimore, recently gave a dinner in honor of his eightieth birthday. Dr. Hurd was for many years editor in chief of the *American Journal of Psychiatry* and is now editor emeritus. The journal is entering its eightieth volume, the first number having appeared in July, 1844, as the *American Journal of Insanity*. This name was changed in 1921 when the American Medico-Psychological Association became the American Psychiatric Association.

MASSACHUSETTS

Illegal Practitioner Fined.—According to reports, Ned M. Gilman, Leominster, chiropractor, was fined $100 by Judge Thayer in the superior court, August 22, for practicing medicine without a license.

Personal.—Dr. Charles H. Phillips, chairman of the board of health, Beverly, has resigned and will reside in California.——Dr. Frederick J. Bailey, Dorchester, has been appointed deputy health commissioner of child hygiene by Mayor Curley.——Dr. Abraham S. Morris has resigned as city physician of Haverhill. Drs. Myron Livingston and David Zelig have been appointed city physicians to succeed Dr. Morris.——Dr. Frank S. Atwood, Salem, was reappointed medical examiner for the sixteenth Sussex district.

MICHIGAN

Mental Test for Automobile Drivers.—Following the report of 160 persons killed and 4,060 injured since January 1 in traffic accidents, the police commissioner of Detroit has ordered that applicants for licenses to drive automobiles will be required to pass an examination to show whether they know the standard traffic laws and whether they are mentally capable of understanding and observing the laws. Dr. Arnold L. Jacoby, city psychiatric physician, will conduct the mental tests. A recent canvass by the police department showed that barely 20 per cent. of the drivers are familiar with even the most important of the traffic laws. The Detroit Automobile Club has given the city 2,500 additional "stop" street signs which are being installed by the traffic bureau of the police department.

MINNESOTA

Mental Hygiene Department Established.—A psychopathic department has been established at the Minnesota General Hospital, Minneapolis, under the law of 1923. The law states that this institution is to be administered for the care, observation, study and treatment of defective persons as defined in existing statutes, and such other persons as are afflicted or supposed to be afflicted with any other abnormal mental condition. Persons addicted to drugs may also be admitted to the institution. The law carries an initial appropriation of $15,000.

MISSOURI

Trachoma Hospital Opened.—A new hospital for the treatment of trachoma has been opened at Rolla by the U. S. Public Health Service.

New Nurses Board.—Governor Hyde has appointed the following members of the new nurses board under the revised law passed at the last session of the legislature: Miss Bella O'Neil of Mullanphy Hospital, St. Louis; Miss Louise Ament of the Lutheran Hospital, St. Louis; Miss Rose Hales, St. Joseph, and Miss Mary G. Bearman, Kansas City. The governor will establish a precedent by appointing a physician on the board, but so far the appointment has not been announced.

MONTANA

Personal.—Dr. William H. Pickett, Bolivar, public health officer with the Missouri State Board of Health, has been appointed successor to Dr. George A. Fuson, who recently resigned as city-county health officer of Great Falls and Cascade County.

NEBRASKA

Water Famine in Omaha.—It is estimated that 20,000 people have been thrown out of work, and that the loss to the city would reach $5,000,000 by the recent water famine in Omaha, caused by a cave-in of the mud banks of the Missouri River adjacent to the plant of the city water supply, August 20. A test of the city water showed that the fluid was 43 per cent. mud. The only water to be had has come through a 3,000 foot fire hose stretched across a bridge from Council Bluffs, and people stood all night waiting for a drink. The city health inspector has issued a statement declaring that the city is threatened with an epidemic of typhoid fever (several cases having already occurred), and has warned citizens not to drink the water. Packing houses, laundries and other plants have closed their doors. The Methodist Hospital announced, August 23, that the clinic was postponing all but emergency operations, owing to the water shortage.

NEW JERSEY

Hospital News.—A new addition will be erected for the Hospital and Home for Crippled Children, Newark.——Plans are being prepared for a hospital for chronic and convalescent patients to be erected on the city's property at Ivy Hill. The new institution is designed to relieve the congestion at the Newark City Hospital.

New York City

Memorial to Physician.—The Jewish Hospital, Brooklyn, will name a building at the hospital as a memorial to Dr. Leon Louria, who died in the institution, August 27 (The Journal, this issue, p. 846). Dr. Louria had been attending physician to the Jewish Hospital since 1901.

New Dental School of Columbia University.—The College of Dental and Oral Surgery, New York, founded in 1852, is about to become extinct, having been consolidated with the dental school of Columbia University. The real estate of both earlier corporations at Fifty-Ninth Street and at Thirty-Fifth Street is included in the combination.

NORTH DAKOTA

Medical Examiners Named.—Governor Nestos has appointed Dr. Murdock MacGregor, Fargo; Dr. Henry H. Healy, Grand Forks, and Dr. John E. Countryman, Grafton, as members of the state board of medical examiners for terms of three years each, succeeding, respectively, Dr. Joseph C. Suter, Grafton; Dr. Albert W. Skelsey, Fargo, and Dr. Archie D. McCannel, Minot.

OHIO

Chiropractors Prefer Jail to Fines.—Three Belmont County chiropractors, G. Frank Malin, O. V. Peterson and John T. Beckett, are serving forty-two days in the county jail in preference to paying fines of $25 each, levied on them for practicing medicine without a license, it is reported.

Physicians to Aid School Board.—The Columbus Academy of Medicine has sent individual health cards to all of its members in cooperation with the schools committee of the chamber of commerce and the board of education. The health cards are for use in examining children brought to the physicians by parents who prefer having them examined by the family physician. The mayor is urging all parents to have their children examined before the beginning of the autumn school term.

"Mind Hospital" at University.—It is planned to establish a full-time "mind hospital" at the Ohio State University College of Medicine, Columbus, next year. The hospital is now operating temporarily under the supervision of Prof. E. A. Doll, former state psychologist for New Jersey. The mental habits of students will be studied and suggestions for improvement offered. This work is expected especially to benefit probation students, or those who have failed in all or a part of their work of the previous term.

OREGON

Hospital News. — The first cottage of the new children's home at Corvalis has been opened. It has a capacity of forty and was erected by the Christian Temperance Unions. There is a farm of 350 acres. Funds for two more cottages have been donated by the city of Portland.

Laws for Child Education in Oregon.—The legislature has recently passed an act providing for the enumeration, instruction and cost of instruction of crippled children within the state, whose physical condition makes it impossible for them to attend public schools. A penalty for the violation of the law is provided, and previous laws in conflict with it are repealed.——Another law passed by the 1923 legislature provides that special classes for the instruction of "educationally exceptional children" shall be established in the public schools of the state. This term includes any child from 6 to 17 years of age who is not receiving proper benefit from the ordinary instruction in the schools, either because of exceptionally keen mental qualities or because of mental or physical handicap. This law provides for a department of research and guidance in every school district with a general population of 10,000 inhabitants. The school board of directors of such districts are authorized to establish and maintain such special schools, courses, classes or instruction as they may deem necessary for the proper instruction of such exceptional children and to require the attendance of such children.

PENNSYLVANIA

Health Department Employees Dropped.—Under Governor Pinchot's program of retrenchment, six more employees of the state department of health have been dropped. This number is in addition to the forty-two health department workers dismissed, August 1. In Cambria County only thirteen physicians have been appointed as medical inspectors for the public schools instead of twenty as in previous years. A general reorganization of the state health department will be effected by the dismissals, many workers being shifted from one bureau to another in order to better distribute the work.

Philadelphia

France Honors Dr. Smith. — Dr. Edgar Fahs Smith, ex-provost of the University of Pennsylvania, Philadelphia, has been made an officer of the Legion of Honor by the French government, in recognition of his scientific work and his work in connection with the Pasteur celebration in the United States.

Drive to Aid Negroes.—The recent influx of negroes from the South, some of whom are in need of medical aid and instruction in sanitary measures, has drawn so greatly on the resources of the Frederick Douglas Memorial Hospital and Training School that a campaign to raise funds to continue social service work is necessary. The drive has been endorsed by the pastors of the negro churches of this city.

Street Accidents and Children.—Thirty-eight per cent. of the fatal accidents in the streets of Philadelphia in 1922 and the first seven months of 1923, according to figures compiled by the coroner's office, involved children under 16. One hundred and forty-six children under 16 were killed in 1922, and eighty-nine children in the first seven months of 1923. The figures reveal that many child fatalities occur at home. In 1922, there were 142 children killed by accidents in their homes, and in the first seven months of 1923, there were 112. For 1922, there were 1,087 fatal accidents to children under 16, and 729 deaths in the first seven months of 1923.

RHODE ISLAND

New Community Hospital.—The campaign for $250,000 for the erection of a new community hospital in Westerly closed, August 27, with the sum of $669,761 collected, or 168 per cent. more than the designated amount.

Personal.—Dr. Harold I. Gosline, clinical director and pathologist at the State Hospital for Mental Diseases, Howard, has accepted the position of chief psychiatrist and clinic director to the Child Guidance Clinic, Dallas, Texas.

SOUTH CAROLINA

Typhoid Fever Epidemic.—Twenty cases of typhoid fever have developed in a negro settlement in Florence, it was announced by Dr. Hayden of the state health department. The infection was fly-borne. Three deaths occurred.

UTAH

Graduate Course for Physicians.—A series of graduate lectures by Dr. George Dock, Pasadena, Calif., were given by the committee on education and graduate work of the Utah State Medical Association, from August 27 to September 1. The work comprised six clinical lectures delivered at various hospitals in Salt Lake City.

VERMONT

Anticancer Campaign.—A meeting was held at the University of Vermont College of Medicine, Burlington, August 16, for the purpose of inaugurating an intensive campaign against cancer throughout the state. Educational lectures will be given in the larger cities, pamphlets distributed and articles on the disease will be printed in the public press. Dr. Joseph C. Bloodgood, associate professor of surgery, Johns Hopkins University Medical School, Baltimore, was the principal speaker.

VIRGINIA

"Devil's Grip" Spreading. — Approximately 700 cases of so-called "devil's grip," with three deaths, were reported to the state board of health, August 24. The epidemic is reported to be spreading to the southeastern section of the state (The Journal, Aug. 25, 1923, p. 669).

WASHINGTON

Hospital News.—A new hospital was opened at Omak in July, with accommodation for twenty patients.

Personal.—Dr. Raymond J. Cary has resigned as superintendent of Oakhurst Tuberculosis Sanatorium, Elma, and will reside in Long Beach, Calif.——Dr. Howard L. Hull of U. S. Veterans' Bureau Hospital No. 85, Walla Walla, has been appointed to fill Dr. Cary's position at Oakhurst Sanatorium, and assumed his new duties, September 1.

WISCONSIN

Physician's License Revoked.—The license of Dr. Allan R. Law, Madison, was recently revoked and he was fined $500, according to reports, for performing an illegal operation.

Personal.—Dr. J. Vermeulen, Waupun, has been appointed physician at the state prison by the state board of control to succeed Dr. Wallace P. Smith.——Dr. Edwin D. McKinley, Dodgeville, has accepted a position on the McGill University Faculty of Medicine, Montreal, Canada.

CANADA

Three Million Dollar Hospital for Ottawa.—The contracts have been let for the new building of the General Protestant Hospital, Ottawa, it is announced by Dr. Donald M. Robertson, superintendent. This building will cost $3,000,000.

Insulin Free.—It is reported that the Ontario government has arranged that insulin shall be distributed free of charge on and after September 1 to all diabetic patients who are certified by their physicians as being unable to pay for treatment. The physicians will order insulin from the laboratories of the board of health located throughout Ontario.

Society News. — The seventeenth annual meeting of the Nova Scotia Medical Society was held in Windsor, Nova Scotia, July 3-5. Officers elected were: president, Dr. Owen B. Keddy, Windsor; vice presidents, Drs. Wallace N. Rehfuss, Bridgewater, and John J. Roy, Sydney, and secretary-treasurer, Dr. John G. D. Campbell, Halifax. Dr. David Cheever, Boston, addressed the meeting. The society went on record as favoring a ministry of health.——The Medico-Chirurgical Society of Quebec recently elected Dr. Edward W. Archibald, president; Dr. Samuel Hanford McKee, vice president, and Dr. Frederick H. Mackay, secretary.——At the annual meeting of the Simcoe County Medical Society at Barrie, Ont., July 6, Dr. William J. Scott, Cookstown, was elected president for the ensuing year. —— A new county association has been formed in Ontario under the presidency of Dr. Robert C. Chanonhouse, Richmond, known as the County of Carleton Medical Association. Dr. Alonzo B. Hyndman, Carp, is secretary-treasurer.——The first two meetings of the Peel County Medical Society were held, July 5 and July 13, at Brampton, Ont.——At the annual meeting of the Council of the College of Physicians and Surgeons of Ontario, Dr. Eldridge T. Kellam, Niagara Falls, was elected president, and Dr. George R. Cruickshank, Windsor, vice president.——Dr. Henry S. Hutchinson, Toronto, addressed the Stormont and Glengarry Medical Society at Alexandria, Ont., recently, on "The Modern Treatment of Nephritis."

Dalhousie University News.—Two of the new buildings for the Medical Faculty of Dalhousie University, Halifax, Nova Scotia, provided out of the gifts of the Rockefeller and Carnegie foundations, are rapidly approaching completion. The Medical Sciences Building, which houses the physiology, biochemistry, pharmacology and hygiene departments, will be completed in time for the fall session. The second building, the Public Health Clinic, will be finished early in the new year, according to reports. Plans are also practically completed by the provincial government for the addition to the Pathological Institute, and construction will be started in the near future. This new laboratory will be a brick structure 105 feet long by 60 feet wide, three stories high, and will care for the university classes in pathology, the public health laboratory work of the province, and the special work of the Victoria General Hospital. Dr. Albert G. Nicholls, professor of pathology and provincial pathologist, with Mr. W. W. Kenney, superintendent of the Victor General Hospital, recently visited the McGill University pathology building at Montreal, with a view to getting ideas for the new unit.——The fourth class to complete the course in public health nursing was graduated from Dalhousie University, July 13, at a special convocation held in the Medical Building. Dr. Benjamin Franklin Royer delivered the address. Dr. Royer, who has been director of the course since its inauguration, will now retire from this position in favor of the newly established department of health in Dalhousie University, over which Dr. Hattie will preside in his capacity as full-time professor of public health.

GENERAL

America to Aid Japan.—President Coolidge has issued a proclamation asking American aid for the Japanese. Seven American destroyers have gone to Yokohama bearing food and medical supplies for the sufferers in the Japanese earthquake zone. The American Red Cross has appropriated $110,000 for relief work and has made a universal appeal for funds. The Salvation Army has announced that it will raise $5,000,000 for the relief fund.

U. S. Red Cross Refuses to Attend Geneva Convention.—The American delegates to the International Red Cross Conference at Geneva (Col. Ernest P. Bicknell, Colonel Olds and W. G. Pearce), decided, August 30, not to attend the meeting, it is announced from the Paris headquarters. The decision was made on receipt of news that the international conference had approved the suggestion that a committee be appointed to consider fusion of the International Red Cross and the League of Red Cross societies, thus indicating the determination of the conference to pass on the question at the present session, despite the objections raised by the American and other delegations.

Bequests and Donations.—The following bequests and donations have recently been announced:

Children's Memorial Hospital and the Chicago Home for Incurables, each $100,000; Presbyterian Hospital, Chicago, and the Thornwell Orphanage, Clinton, S. C., each $50,000, and the Canton Christian College, Canton, China, $5,000, under the will of Mrs. Nettie F. McCormick of Chicago.

Beekman Street Hospital (formerly the Volunteer Hospital), New York, $50,233, by the will of Mrs. Mara Nish.

Pipestone, Minn., for the erection of a city and county hospital, $50,000, by C. H. Aston, a banker of Pipestone.

Presbyterian Hospital, Philadelphia, for the support of three free beds, $15,000, by the will of William Mulligan, and $5,000, under the will of Mary A. Clime, to endow a bed.

Culver Union Hospital, Crawfordsville, Ind., $10,000, by the will of Mrs. Sarah G. Wilson.

University of Pennsylvania, Philadelphia, for the establishment of a scholarship, $5,000, and the Hahnemann and Children's Homeopathic hospitals, Philadelphia, each $5,000, by the will of Clara W. Kilpatrick.

Lenox Hill, Beth Israel, Montefiore and the Lebanon hospitals, New York, each $1,000, by the will of Samuel Goldsticker.

New York Medical College Hospital for Women, $500, by the will of Elizabeth K. Upham.

Abraham Jacobi Memorial Fund.—At the St. Louis meeting of the American Medical Association in 1922, the Section on Diseases of Children authorized the creation of the Abraham Jacobi Memorial Fund Committee, for the establishment of a permanent fund for the section. A copy of the yearly transactions of the section is sent free to each contributor; a part or all of the expenses of a foreign guest of the section will be met by appropriations from the fund; pediatric exhibits in the Scientific Assembly of the American Medical Association will be encouraged, and, if advisable, the expense thereof paid from this fund, and wherever possible a grant will be made for the assistance of pediatric research or for charity. A new member of the committee is elected by the section each year to serve five years. The committee elects one of its members as secretary of the fund, and the oldest member in point of service on the committee acts as chairman. The following are the officers of the committee: chairman, Dr. Laurence R. Debuys, New Orleans; secretary, Dr. Frank C. Neff, Kansas City, Mo., and members, Drs. Fritz B. Talbot, Boston; Clifford G. Grulee, Chicago, and Harold K. Faber, San Francisco.

LATIN AMERICA

Practice of Medicine in Colombia.—The *Repertorio de Medicina y Cirugía* of Bogota gives the text of a law recently adopted by the government of Colombia to regulate the practice of medicine. The bill was drawn up by the Academia Nacional de Medicina, and embodies the provisions of most laws of the kind in the majority of countries.

FOREIGN

The Italian Riberi Prize.—The prize this year has been conferred on Prof. Salvatore Salinari for his work on "The Lessons of the World War on Treatment of Wounds of Bones and Joints (Prophylaxis of Infection and Hospital Care and Evacuation)."

Wheat Currency in Hungary.—Owing to the instability of the economic situation in the Hungarian provinces, the Medical Association of Szabolcs has introduced a new system of payment of medical fees. The fee for a consultation in the country districts is to be the current price of 5 kg. of wheat.

Personal.—The Baly Gold Medal of the College of Physicians of London was awarded to Mr. J. Barcroft for his work on physiology.——The Bisset-Hawkins medal, bestowed triennially for work in advancing sanitary science and promoting public health, has been awarded to Dr. T. M. Legge, London, England.

Public Health Week in Great Britain.—The annual Health Week will take place in Great Britain, October 7-13, under the auspices of the Royal Sanitary Institute. Local celebrations in each center are organized and controlled by local committees in the effort to focus public attention to matters of health and disease prevention.

Funds for Cancer Research.—Under the will of Hugh Fullerton, the sum of $25,000 was recently donated to the Manchester Christie Hospital, England, for research work on cancer. This, with a recent gift of $5,000 by Mr. Todman of Sydney, Australia, will now enable the hospital to supplement the research work on cancer conducted for many years by Dr. C. Powell White.

Institute for Cell Research at Berlin.—Our German exchanges mention that the Institute for Cancer Research at Berlin has opened a special department for cultivation of tissue cells outside the organism, along the lines followed by Carrel and Loeb. The work is in charge of Dr. Rhoda Erdmann, formerly connected with the laboratories of the Rockefeller Institute.

Code Words for Medical Telegrams Changed.—Following the faulty transmission of a code word by telegram, which led to tragic delay in administering diphtheria antitoxin to a child in England recently, the postmaster-general has announced the disuse for such telegrams of the code words for "positive" and "negative," substituting the words "present" and "not found," so that confusion is impossible.

German Society for Occupational Hygiene.—This newly founded Deutsche Gesellschaft für Gewerbe-Hygiene has organized a meeting for general discussion of "Dust in Industries and its Prevention"; "Lead Poisoning and Its Early Detection"; "Chronic Benzol Poisoning," and "Arrangements for Bathing in Industrial and Trade Establishments." This first annual meeting convenes at Würzburg, September 19 and 20, with K. B. Lehmann in the chair. It is proposed to publish a journal as the organ of the association. Membership is open to all interested in the hygiene of industries and trades of any country. The address of the association is Viktoria-Allee 9, Frankfurt a. Main.

Society News.—The twenty-third congress of the French Association of Urology will be held at the Paris Faculty of Medicine, October 10, under the presidency of Dr. André of Nancy, when the treatment of gonococcal infection by serums and vaccines will be discussed by Messrs. Minet and Debains of Paris.——The German Society for Dental Anatomy and Pathology was recently organized with Professor Römer of Leipzig as president.——A National Congress of Physical Education will be held in Bordeaux, September 24-26. The work of the congress will be divided into three sections: (1) physiology, circulation and respiration during exercise; (2) physical education, the dosage of exercise for the child, and (3) choice of sports according to age. Dr. Sigalas, dean of the faculty of medicine of Bordeaux, will preside.——A National Milk Conference will be held in London, November 21, under the auspices of the National Clean Milk Association. Papers will be read on every important aspect of pasteurization.——The twenty-second Flemish Medical Congress was held at Antwerp, August 11-12. Professor Swaardemaker, Utrecht, spoke on "The Physiology of the Heart."——Paris was selected as the place for the third International Congress on Military Medicine and Pharmacy to meet in 1925. The second International Congress on Military Medicine and Pharmacy, which has just concluded its sessions at Rome, was described in The Journal, July 7, p. 55.——At the final sessions of the Pan-Pacific Science Congress in Sydney, Australia, September 3, it was decided to accept the invitation of the Japanese government to hold the next congress in Tokio in 1926.

Deaths in Other Countries

Dr. **G. E. Rennie**, physician to the Royal Prince Alfred Hospital, Sydney, Australia; formerly editor of the *Australian Medical Gazette*.——Dr. **Frederick Bell** of Humshaugh, England, president of the Newcastle-on-Tyne and Northern Counties Medical Society; of septic laryngitis.——Dr. **C. Girard**, formerly of Montpellier, France, aged 86.——Dr. **C. Oberg**, Hamburg.——Dr. **S. Garten**, professor of physiology at Leipzig, aged 52.——Dr. **Eiler Nielsen**, Copenhagen.——Dr. **F. Widmer**, Winterthur, Switzerland, a leader in public health affairs in his canton, aged 67.——Dr. **P. Chaslin** and Dr. **Salva Mercadé**, both of Paris.

Government Services

Army Medical Post Celebrates

The twenty-fifth anniversary of the capture of Manila by the U. S. Army, Aug. 13, 1898, was celebrated by the medical post at the Army and Navy Club, Chicago, August 13.

Coming Meeting at Carlisle Barracks

In connection with the annual meeting of the Association of Military Surgeons of the United States at Carlisle Barracks, Pa., October 4-6, accommodations for members of the association at the first service school have been announced as follows: Room, bed, bedding, towels, bedroom service and laundry, 50 cents per day. Mess and dining-room service, $1.50 per day. Bedding rolls need not be brought, and either uniform or civilian clothes may be worn.

The tentative program is:

October 4: Demonstration of new equipment for medical troops and units.

October 5: Demonstration of medical aid from the firing line back to the field hospital.

October 6: Presentation of papers; election of officers.

International Federation of War Veterans

The fourth congress of the International Federation of War Veterans was recently held in Brussels, Belgium, and the program which the American delegation presented was as follows:

1. Support of the international court of justice.
2. Codification of international law.
3. Education in the United States of a certain number of British, French, Italian and other youths of the allied nations, and reciprocal advantages for American students in those countries.

Chemical Warfare School

Instruction of a new class at the Chemical Warfare School, Edgewood Arsenal, Md., will begin, September 14, and continue for two months.

Hospital Authorized

Pursuant to instructions of the Secretary of War, the organization of General Hospital No. 32 (Indiana University School of Medicine Unit, Indianapolis) organized reserves, has been authorized.

Physical Examinations for Government Employees

A uniform program for the physical examination of all new entrants in the employment of the federal government has been inaugurated by the Civil Service Commission. All persons about to enter U. S. government service will be required to take a physical examination to be made by physicians in the U. S. Public Health Service. Heretofore, when a person entered the service, he submitted a sworn statement that he was in good health, or, in many cases, a medical certificate from his physician. The need has long been felt for expert examining boards under governmental supervision to make physical tests and keep a permanent record of each applicant's condition from the time he entered the service. The increasing liability of the government under the provisions of the employees' compensation and retirement laws has emphasized this need. The new order will make it possible to provide against the employment of persons whose physical condition might be a menace to their fellow workers. Employees will also be guarded against the danger of assignment to duties not in keeping with their physical condition. If physical defects or incipient disease is found, employees will be directed to their own physicians for care and treatment. The policy applies not only to new employees of the government, but also to such "employees as may be requested by the Civil Service Commission." Because of the great number of employees involved and the limited facilities of the U. S. Public Health Service, the adaptation of the policy to the government service in general must be gradual, it is explained by the Civil Service Commission. The policy is based on an executive order by the late President Harding, which reads:

> With the view of promoting health and efficiency and of minimizing accidents among federal employees, the Surgeon General of the U. S. Public Health Service is authorized and directed to make such physical examinations of applicants and employees as may be requested by the Civil Service Commission, and shall keep the commission advised of the localities where medical officers are available for duty.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Aug. 18, 1923.

Effects of Diet on the Structure of Teeth

Mrs. May Mellanby, whose work in connection with her husband on the dietetic causation of rickets is well known, described researches which she had made for the Medical Research Council on the growth of teeth in dogs. These showed that the amount of calcium in the diet was not the dominant factor in the calcification of teeth. The important point was the content of vitamin A, which, taken in large amounts, retained and incorporated in the tissues of the body, especially the teeth, the calcium salts in the diet. If this vitamin was deficient, the more cereal eaten the worse formed were the teeth. Both dentin and enamel were very defective on a diet of oatmeal, but when cod liver oil, rich in vitamin A, was added, these tissues were practically normal. The calcium and phosphorus of the diet did not themselves control teeth calcification; their action was subservient to other elements of the diet. The effect of oatmeal on the formation of the teeth raised the question of the excellent teeth of the Highlander at a time when this food formed a large portion of his diet. No doubt the calcifying vitamin of the herring would play an important part. Milk would also antagonize the action of oatmeal. Thus, a diet of milk, eggs, green vegetables, herring and oatmeal would be expected, on the basis of the experimental results, to produce perfectly normal teeth. On the other hand, a dietary of cereals, especially oatmeal, with such food as vegetable margarin, lard, lean meat, jam, sugar and tea, all widely used in modern dietaries, would lead to defective teeth and jaws.

The Falling Birth Rate

The Registrar-General's returns for the June quarter of the present year show that it has been one of the healthiest. The death rate was 12 per thousand, against 12.6 for the same quarter of the previous year. The infant death rate was still better; it fell to the remarkable figure of 66 per thousand births, which is 18 below the average of the preceding second quarters and the lowest on record. Against this must be set the falling birth rate, which was 20.7, and the lowest recorded in any second quarter except during the period of the war. The decline of the birth rate, which has frequently been pointed out in previous letters, is shown by the figures for the second quarters of 1920-1923: 26.6, 23.9, 21.1 and 20.7. The natural increase of population by excess of births over deaths was 82,791. The smallpox epidemic gave rise in this quarter to 707 notifications of the disease, of which 249 occurred in Gloucester. Of the Gloucester cases, eighty-three were notified as chickenpox. The London death rate reached the low figure of 10.8, which was lower than that of the general rate for England and Wales, and justifies the assertion that the metropolis is one of the healthiest parts of England.

The Pasteurization of Milk

Dr. J. M. Hamill, medical officer to the ministry of health, has made an official report on the pasteurization of milk, showing the part it may play in securing a satisfactory milk supply. The method recommended is exposure to a temperaure between 145 and 150 F. for thirty minutes. This destroys any pathogenic organisms present without appreciably changng the physical and chemical characters of the milk. *Bacillus uberculosis, B. diphtheriae, B. dysentericus, B. typhosus* and other organisms of the typhoid-paratyphoid group are destroyed. A small proportion of tubercle bacilli may escape destruction, but their virulence appears to be so reduced as to render them harmless. Certain strains of streptococci may also survive, but those believed to be responsible for septic sore throat are destroyed. The nonpathogenic organisms present are not entirely destroyed, but are reduced by as much as 99 per cent. The taste and flavor of the milk are hardly altered. The effect on the vitamins is important. Milk is rich in fat-soluble A vitamin, but also contains water-soluble B and the antiscorbutic (C) vitamin. Pasteurization has practically no effect on fat-soluble A and water-soluble B, but the antiscorbutic vitamin seems to be weakened. Destruction of vitamins appears to be due to oxidation, and is accelerated by the presence of air, which therefore should be excluded. A milk supply obtained from perfectly healthy cows under the cleanest conditions and consumed immediately with the least possible handling would be ideal. But such milk must be limited in amount, and its cost would be prohibitive to the average consumer. As England is a highly urbanized country, much of the milk supply has to be transported considerable distances, a circumstance unfavorable to its keeping qualities and often resulting in considerable loss by souring. Pasteurization may be regarded as a factor in the extension of the consumption of milk by urban dwellers. Extensive experience of the feeding of children on pasteurized milk goes to show that it is as well borne by them as raw milk, and except in regard to antiscorbutics, it appears to be equally nutritious.

The Notification of Tuberculosis

The minister of health has addressed a circular to all physicians, stating that his attention is constantly being called to the failure of some of them to notify tuberculosis. In certain districts, more than 40 per cent. of the persons dying from tuberculosis had not been previously notified as suffering from the disease. Under the tuberculosis regulations of 1913, it is the duty of every physician within forty-eight hours of becoming aware that one of his patients is suffering from tuberculosis to notify the case. The minister appreciates that there are difficulties in the notification of tuberculosis which do not arise in the other infectious diseases, and that some patients do not consult the physician until the disease is advanced. He also recognizes that in the early stages it may be difficult to arrive at a definite diagnosis, and that physicians naturally are reluctant to notify before the disease is definitely diagnosed. But he points out the necessity, in the interests of the patient, of arriving at a diagnosis in all doubtful cases as early as possible. Under the tuberculosis schemes of local authorities, facilities are provided for assistance in diagnosis, including the services of a tuberculosis officer for consultation. It is also pointed out that prompt notification of all cases of tuberculosis is of importance in the interests of the community as well as of the patient. Only thus can full cooperation between the physician, the health officer and the district tuberculosis officer be secured, in order that all possible steps may be taken to prevent the spread of infection and discover other possible cases that may have been in contact with the patient.

Sir John Bland-Sutton, President of the Royal College of Surgeons

Sir John Bland-Sutton has been elected president of the Royal College of Surgeons. The choice is peculiarly happy. The college may be regarded as a shrine to the memory of John Hunter. Its museum, the finest in the world, is but an expansion of Hunter's collection. In "Hunterian orations" and "Hunterian lectures," delivered there, the leaders of British surgery never tire of singing his praises and showing that he was the father of scientific surgery, from whom all progress springs. His method was to study all life, normal and abnormal, human and animal, so that the facts illuminated one another. Time was when our great surgeons did this and were "naturalists," to use an old-fashioned word which has passed out of use, because in this age of specialism men now concentrate on a single subject. Bland-Sutton is the last of our surgeons to carry on the Hunterian tradition. Anatomist, comparative anatomist, pathologist, comparative pathologist, naturalist and traveler, he stands alone in the breadth of his outlook on surgery. Since boyhood he has been intensely interested in the anatomy of animals and has seized every opportunity of dissecting them. When at 22 he entered the Middlesex Hospital, he had the unique distinction of being appointed prosector in his first year. In 1881 he was appointed pathologist to the Zoological Society, and soon became famous for his contributions to comparative anatomy, describing the tumors and other lesions that he found on dissecting the animals who had died in the Zoological Gardens.

His versatility is shown by mentioning a few of the most important of his many publications: "Ligaments: Their Nature and Morphology," "Evolution and Disease," "Tumors, Innocent and Malignant," "Gallstones and Diseases of the Bile Ducts," "Man and Beast in Eastern Ethiopia," "Fibroids of the Uterus" and "Injuries of Bones and Limbs by the Bullet." His interest in pathologic research is so great that he made the munificent donation of $75,000 to the Middlesex Hospital to build and equip a new museum and pathologic institute, which is now known as the Bland-Sutton Pathological Institute. Truly, if the shade of the great Hunter could visit the college which commemorates his work, he would declare that no one more worthy had ever occupied the presidential chair.

Compensation and the Prevalence of Miners' Nystagmus

The humanitarian legislation that provides compensation for workmen incapacitated by accidents or disease arising in the course of their employment is greatly abused in this country, and in many cases is a premium on idleness. Unfortunately, all our political parties seem afraid to stand up sufficiently against the loud throated "labor" leaders who advocate anything that puts money into the workman's pocket regardless of the resulting injury to the community, including the very class they desire to benefit. An illustration is supplied by the report of the Miners' Nystagmus Committee of the Medical Research Council. The committee consisted of well-known experts, such as Drs. J. S. Haldane and T. L. Llewellyn. They find an enormous amount of *compensated* incapacity from miners' nystagmus in this country as compared with France, Belgium and Germany. This is due not to an increase in the number of those affected but to an increase in those obtaining compensation, which is due to three causes. In 1913 the nomenclature of the disease was altered in the official schedule from "nystagmus" to "the disease known as miners' nystagmus, whether oscillation of the eyeballs be present or not." The result was to include cases in which compensation was claimed for psychoneurosis. Further, the maximum compensation was raised from $5 to $9 a week, and while wages and the cost of living have fallen, this compensation has remained the same. It is therefore not rare for miners disabled by some general disease not arising from their work to be obtaining compensation for nystagmus. Finally, only severe cases of nystagmus are admitted for compensation abroad, while in this country slight cases are accepted under the belief that any oscillation of the eyeballs renders the miner unsuitable for underground work and tends to get worse if the work is continued. The result of all this is that both the number of claims and the duration of the incapacity have been greatly increased. The committee finds that the compensation is in many cases unnecessary, as mild forms do not necessarily incapacitate and, indeed, often go on for years without the knowledge of the patient. The conclusion is that most patients are only partly incapacitated and would benefit physically and psychologically by work. Some require work above ground; others are firm for suitable work below ground.

PARIS

(*From Our Regular Correspondent*)

Aug. 10, 1923.

The Compulsory Notification of Syphilis

For some time there has been agitation in favor of the compulsory notification of syphilis, in view of which the *Bulletin médical* opened an inquiry on the subject. Many replies were received by this journal, all, save one, opposing such an innovation. Dr. Filderman alone declared himself an advocate of notification, which, he recommends, should be anonymous; every syphilitic should be given a number by which he shall be notified to the public authorities. The name of the patient would not be divulged unless he refused or wofully neglected treatment.

Among the responses published by the *Bulletin médical,* that of Dr. Brocq, honorary physician to the Saint Louis Hospital, deserves particular attention. Brocq readily admits that the interests of the community should take precedence over the rights of the individual. When the state of health of an individual may endanger the health of those with whom he comes in contact, it becomes not only logical but also the duty of society to watch over him, to treat him and, if necessary, to isolate him. Brocq, however, refuses to admit that medical practitioners should be compelled to report contagious diseases among their clientele of which they learn strictly in confidence. He suggests that the heads of families should be required to notify the public authorities of the existence of a contagious disease as soon as it is diagnosed by the physician.

Holding, as he does, this opinion with reference to contagious diseases in general, Brocq is even more strongly opposed to the compulsory notification of venereal diseases. He refers to the tragic death of the surgeon Delpech, professor in the medical department of the University of Montpellier, who was murdered in 1832 by a young man who immediately afterward committed suicide. The young man, one of his patients, was infected with syphilis but became engaged to a young woman of the surgeon's acquaintance. Delpech demanded that the young man should not marry the woman, but the patient refused to accept this advice. Delpech accordingly informed the woman's family of the state of affairs and the engagement was broken; hence the tragedy. "Our country has not changed," Brocq adds; "it is still the land of Delpech."

Brocq thus emphasizes his belief that the conception of privileged communication depends on the mentality of a people. There are some nations that attach very little practical importance to the doctrine of privileged communication. In France, however, he holds that this law is unassailable. It involves an oath of absolute silence tacitly taken by the physician, and obligates him toward the family into which he is introduced. Such an oath is inviolable, for it is based on the blind and complete confidence of the patient in his physician.

The difference between French and American medical mentality, to which I have previously called attention (The Journal, July 15, 1922, p. 228), finds vivid expression in the response of Dr. Carle of Lyons, who emphasizes that we must not forget that we are neither Slavs nor Scandinavians—nor even Anglo-Saxons. In France, if a law or ordinance is found after passage to be entirely inapplicable, a tacit agreement between the public and the authorities is soon reached and no further attention is paid to it. Carle regards this mentality, characteristic of the Latin race, as both practical and subtle. Some may be inclined to doubt its practical value when it paralyzes the progress of public health.

A more serious objection has been raised. In the present state of society, compulsory notification of syphilis would have the effect of keeping syphilitics away from consultation services and also from the offices of reputable physicians, and would cause them to resort to quacks, to the great detriment of their health.

The Scholar According to Charles Richet

The Hachette publishing house has begun the publication of a series of books entitled "Les caractères de ce temps" (Types of today) the various volumes of which will outline "the essential types of men that personify and go to make up the France of today." The first of these volumes, "Le Savant," is from the pen of Dr. Charles Richet, professor of physiology in the medical department of the University of Paris.

Many will contest the validity of Richet's definition of the savant. As he views it, the main characteristic of the savant is, that his work is not directed toward a practical end. The physician and the surgeon are not savants, since they are looking for something besides mere knowledge. Richet holds that Laënnec was not a savant, in spite of the fact that he discovered auscultation.

Be the definition what it may, the savant, as described by Richet, presents some rather amusing aspects. Savants are of the same clay as common mortals, he says; no better and no worse. However, they have certain peculiar virtues. For them science is a religion, and money is no object. They are absolutely honest—much more so than the members of other professions. But when they become absorbed in research, they have a tendency to neglect their professorial duties. After the vacations, they postpone as long as possible the resumption of their courses, and toward the end of the semester they close their lectures as soon as decency will permit. With their virtues they have some faults; they are susceptible, sensitive and jealous, and generally have a little more than the average stock of vanity.

Whereas in America and England, according to Richet, the great scholars are men of the world and make a good appearance in a drawing-room, in France the savant has often remained a timid creature—absent minded, inattentive—unable to discuss with animation any topics other than his specialty. He is usually decently dressed, but his attire often shows lack of attention. He generally resides in the quarter of the town in which the schools are located; of fifty members of the Institut de France, which comprises five academies: the Académie française, the Académie des sciences, the Académie des inscriptions et belles-lettres, the Académie des sciences morales et politiques, and the Académie des beaux-arts (but not the Académie de médecine), nineteen live in the fifth ward and sixteen in the sixth.

From the standpoint of scientific productivity, the mathematicians are the most precocious, since worth-while intellectual production begins with them, on the average, at the age of 25. In other fields, intellectual production begins at about the age of 35. As a rule, inventiveness decreases rapidly with age. After the close of the fifth decade, savants seldom present anything new; all they produce will be found to be a restatement of their older ideas. Victor Hugo, Voltaire and Goethe were sublime exceptions.

Tuberculosis in Rural Districts

Dr. Viarnaud of Sainte Terre, department of the Gironde, has called attention to his observation that, during recent years, the course of tuberculosis in the rural districts tends to become more and more accelerated. He states that he has noted numerous cases of rapid breakdown of the lungs in young men and women free from any familial defect. In the *Gazette hebdomadaire des sciences médicales de Bordeaux*, Prof. J. Sabrazès of Bordeaux gives an explanation of the increasing malignity of tuberculosis in rural communities. Formerly the inhabitant of a rural district lived more in the open air. His house—loosely constructed—sheltered him only at night. Nowadays, with the advent of increased prosperity, he is much more shut in. He therefore becomes more easily inoculated if there happens to be a tuberculous person under his roof. The inhibitive action of the sun on the causative organisms is reduced in the same proportion. Then, again, the peasant in the earlier days lived a more solitary life, seldom seeing any one outside his own family. Today he has become more gregarious. He is exposed to the unhealthy atmosphere of the cabaret and the motion picture theater—of crowds gathered at athletic contests, political meetings and the ever recurring local fairs and festivals. Tuberculous persons discharged from the army have also contributed to the dissemination of the disease.

The Epidemiology of Cholera

At one of the recent meetings of the Société de médecine publique, D. K. Zabolotny, a Russian professor spending a short time in Paris, communicated the results of epidemiologic researches on the recent outbreaks of cholera in Russia and Ukraine.

In Petrograd, during the epidemic of 1918, from 500 to 700 cases developed daily. As a result of the blockade, there was no bread, and the population was living on salted herring and was drinking infected water. During this epidemic, a peculiar type of bacteria carrier was demonstrated. Vibriones were not always present in the stools, but the external surface of their bodies was infected. Cholera bacilli were found on the hands of 10 per cent. of the hospital personnel. Lack of soap and water explained the persistence of this contamination of the hands. The epidemic of 1920-1921 was characterized by the spread of foci of infection throughout the country, not only in the cities but also in the villages.

The acme of the epidemic was reached in most sections during the months of July and August. The preservation of a connection during the intervals between epidemics is explained by the existence of bacteria carriers during the quiet intervals. There were a great number of healthy bacteria carriers during the epidemic of 1920-1922. At Odessa, in 1922, in addition to 3,000 patients with the disease, 1,500 healthy bacteria carriers were demonstrated. The probable cause of the epidemic at Odessa in 1922 was the infection of foodstuffs by flies, which multiplied in enormous numbers in the neglected deposits of manure and rubbish. The bad condition of the sewerage and the contamination of the streets by fecal matter owing to the lack of water favored the propagation of the epidemic, which ceased with the coming of cold weather and the consequent disappearance of the flies.

Last year, immunization with killed bacteria by mouth was tried on a large scale. Doses of from 10 to 20 c.c. of vaccine, corresponding in weight to from 0.05 to 0.10 gm. of dried bacteria, were borne without any reaction. In the serum of persons thus treated, an increase in the titer of agglutinating and bactericidal power was noted. Zabolotny holds that peroral inoculation, which is more simple and more convenient than subcutaneous inoculation, deserves to be studied to a much wider extent, in order to determine the prophylactic value of the method.

Vital Statistics for France

During the first quarter of the current year, there were registered in the ninety departments of France: 196,105 births (living infants); 190,036 deaths (19,014 infants under 1 year); 70,656 marriages, and 5,666 divorces. The excess of births over deaths, during the first three months of the year, was exceedingly low—6,069.

In the department of the Seine, there were reported, between January 1 and March 31: 19,444 births, 18,830 deaths (an excess of 614 births), 11,322 marriages and 1,432 divorces.

In Paris alone, the figures for the first quarter are: 14,489 births, 13,178 deaths (an excess of 1,311 births), 7,947 marriages and 1,048 deaths.

PRAGUE

(From Our Regular Correspondent)

Aug. 4, 1923.

Mental Hygiene

The mental hygiene movement in the Czechoslovak Republic has received an important contribution in the book entitled Protection Against Mental Diseases, by Dr. Jaroslav Stuchlik. Heretofore this has been a neglected field in the public health movement in the Czechoslovak Republic. Dr. Stuchlik, the chief physician in the state insane asylum in Kosice, explains in the introductory part of the book the aims of the mental hygiene movement, which is just as important as the campaign against infectious and social diseases, but is far less spectacular. Its great advantage, as compared with other public health campaigns, lies in the fact that it does not involve large expenditures of money. The first part of the book deals with the different diseases of the brain, which are grouped, not according to the clinical forms, but according to their etiology. There are chapters on congenital brain diseases, and diseases resulting from infectious diseases, from intoxications and from trauma. On the basis of his large experience, he also estimates the probable results of treatment, which should be begun as early as possible. There are many notes and explanations from the field of biology, psychology, heredity and sociology because the book is intended not only for physicians but also for the intellectual class of the public. At the same time, the author has issued a popular brochure on the same subject which was written for the general public with the object of rendering the mental hygiene movement popular.

Postgraduate Instruction

The ministry of health will continue this year to organize postgraduate courses for practicing physicians in cooperation with the Charles University of Prague. These courses, which have been given now for three years, have been attended with great success. Only physicians who have been practicing medicine for more than three years outside a public institution are eligible for the courses, which are given free of charge. The program of lectures is variable, comprising both theoretical and practical subjects. Each branch of medicine aims to present to its audience the recent developments in the science and their application to medical practice. In addition, the ministry of health offers scholarships to physicians from poorer districts in order to make their stay in Prague during the courses possible.

Books on Dermatology and Venerology

Dermatology and venerology constitute one branch of medicine with a complete scientific literature written in the Czech language. Only a year ago the second issue of Venerology, by Prof. V. Janosky, appeared, and recently another handbook of venerology was completed by Prof. Jaroslaw Bukovsky, which was started by Prof. F. Pecirka but was interrupted by his sudden death. The latter book is accompanied by an atlas with excellent reproductions of stereoscopic pictures. Prof. F. Samberger, who is issuing an atlas of dermatology in parts, has published the second volume of his Dermatology, which involves his new system of dermatologic diagnosis. Dr. Hynek Pelc also issued recently a study, entitled On Venereal Diseases in the Czechoslovak Republic, which is not only a survey of the arrangements for the campaign against venereal disease but also an analysis of statistical data on these diseases which were collected through the experimental reporting of these diseases. This book was also published, in abstract, in English.

BUENOS AIRES

(From Our Regular Correspondent)

July 15, 1923.

University Conditions

Discipline is gradually being restored, and the frequent and disturbing elections are being eliminated in all Argentine universities. Students are coming to realize that they go to college to be taught, and not to control and guide its policies. The Cordoba and Rosario universities have returned to normal conditions, but the problems of the Buenos Aires University are still to be solved. A recent conflict caused the resignation of the law school authorities. Not long ago, a majority of the professors in the medical school requested an amendment to the regulations providing that the majority of the executive board should be professors—at present they are in the minority—and that students should have no voice in the election of the professorial members of the board. As this plan was not even considered, a complaint was filed by the sponsors of the amendment before the superior board of the university. As a result, the executive board of the medical school and the dean tendered their resignations. The students then held public meetings asking that the resignations be not accepted and that the complaint be withdrawn. They succeeded in carrying both points, but the executive board of the school, as soon as reinstated, submitted a plan for reforms that is larger and even more radical than the previous one. This time the students have not protested. A reform of existing regulations is now pending, and discipline will doubtless be improved.

Tuberculosis Dispensary

The Argentine tuberculosis league has opened a new dispensary that was presented by Miss Eloisa Juarez Celman and Miss Victoria Aguirre. This will be the eleventh dispensary in Buenos Aires. The generosity of the donors is noteworthy, as private gifts are not so common in this country as in the United States. The new dispensary will be in charge of Dr. E. Paz.

Leprosy Conference

A national conference on the prevention of leprosy was held at Paraná, Entre Rios. A number of resolutions were adopted, and many speeches were made. It is hoped that something practical will come out of the proceedings, especially as subsequent activities will be directed by Prof. M. Aberastury.

Public Health Centralization

The national government has submitted to congress an important bill transferring hospitals, asylums, colonies and all public welfare work to the interior department, which already supervises the national health bureau and the labor bureau. This important measure may be considered as a far-reaching step toward the creation of a public health department.

Personal

Dr. Teofilo Lecour, president of the National Public Health Department, has been appointed Argentine consul at Antwerp. The vacancy thus caused will be filled shortly. The most prominent candidate is Dr. G. Aráoz Alfaro.——Dr. P. Chutro, professor of clinical surgery, has left for Europe.——Dr. J. J. Vitón and Dr. A. R. Marotta have been appointed professors of medical pathology and clinical surgery, respectively. Dr. Gonzalo Lafora of Madrid is delivering a series of lectures on neurology, psychiatry and psychanalysis.

Gas Gangrene

In addition to the organisms that cause gas gangrene commonly in Europe, a variety of *Sporogenes* has been isolated here in several cases that is highly pathogenic. Dr. A. Sordelli has studied this organism and has prepared a polyvalent antigangrene serum for this bacillus and *Bacillus welchii, B. oedematiens* and *B. histolyticus.*

BERLIN

(From Our Regular Correspondent)

Aug. 11, 1923.

Convalescents' Serum in Measles

April 24, the prophylaxis of measles was the subject of special discussion in the Prussian Central Public Health Bureau, under the chairmanship of the ministerial director, Gottstein. All present agreed that convalescents' serum possesses great value in the prophylaxis of measles, particularly for children under 4 years of age, who are especially endangered by this disease. It was decided that it would be well to establish centers where this serum could be collected and from which it could be distributed to physicians, children's clinics, crèches and homes for infants and young children, in case of an outbreak of measles or whenever protection of the children against measles should become necessary. All opposed the establishment of a state bureau of distribution, recommending rather that centers be opened in the public health and welfare bureaus of the larger cities. To these centers the hospitals of the neighborhood could furnish the serum and from these centers the surrounding district could be supplied. General practitioners could greatly aid such centers by sending to the hospitals patients (children more than 4 years old) who could be used as serum donors, and also by instructing parents in the value and use of the serum. Welfare centers could also assist materially in the education of the public.

A Health Passport

Prof. R. Martin, anthropologist at the University of Munich, recommends that all growing children be required to have a health record book (*Gesundheitsbogen*) and that they be issued a health passport (*Gesundheitspass*) showing at a glance the development of the growing body and its capacity. Whereas school physicians have hitherto taken note only of the abnormal, examination desired by Martin deals with the normal. Through weights and measurements the constitutional capacity of the subject would be established, which would be, at the same time, an "exact expression of his physical value." Martin's efforts are directed toward providing every one with the best opportunities for physical development and performance. The foundation for this lies in a thorough physical examination. From a large number of observations, Martin holds, it is possible to establish norms for the various ages and the distinctive types of person that have developed, partly on the basis of race mixtures. The health passport that would be issued to every school child would give a clear insight into his physical value, so that, at any time, a balance could be readily drawn with reference to his health and capacity. Martin plans, with the aid of teachers and athletic clubs, to introduce his researches throughout Bavaria, and recommends that the following weights and measurements be taken: stature, body weight, length of the anterior trunk wall, length of the arms and the legs; girth of chest, upper arm and thigh; horizontal circumference of the head, the maximal length and breadth of the head, the minimal breadth of the forehead; color of the eyes, hair and skin, and the relative grip of the hand. The measurements are taken with a specially constructed anthropometer. The average of the weights and measures of one hundred children of the same age taken during the same season will furnish a graphic record that will be of the greatest value not only from the point of view of race hygiene but also from the standpoint of national economy. Every individual will be told the objective standard of physical worth for which he should strive, and this will constitute an incentive to the attainment of the highest capacity and performance. Martin's system is also of great value in connection with vocational guidance.

Condition of Health of German Children

The Bureau of Husbandry of Thuringia instituted recently an inquiry into the health of the population of Thuringia. From the report, the following items are taken: In the district of Altenburg, in purely rural communities, from 11 to 12 per cent. of the children are undernourished; in the industrial regions, more than 30 per cent.; in the city of Altenburg, in the primary and grammar schools, from 26 to 27 per cent., in the higher schools from 23 to 24 per cent., among adolescents (estimated) from 15 to 20 per cent. In the towns of Wasungen and Schwalungen, the number of undernourished persons is at least 50 per cent. In Greiz, more than half of the school children are under weight and stunted in growth. From the district of Sonneberg it is reported that this year's school entrants, who were born during the year 1915-1916, are especially weak, small and undernourished. It may be said of almost all that they are below the average or undernourished, and that many lack firm bone development, indicating a tendency to rickets. In Gera, the number of children suffering from scoliosis has almost doubled. From Gerstungen is reported a marked spread of scrofula (almost 50 per cent.). In this town there is great lack of milk for infants and young children. Tuberculosis is without doubt increasing, and persons who have not yet reached full growth are affected especially, as most older tuberculous persons have succumbed to the disease. The bad conditions are due not only to undernourishment but also to lack of fuel and clothing. Especially pathetic are the reports from the districts adjoining Saxony, where the textile workers are suffering from lack of employment. In Eibenstock it is stated that only from 2 to 3 per cent. of the children are normally developed.

Marriages

Ira Luther Houghton, Baltimore, to Miss Alice Estelle Stearns of Fredericksburg, Va., September 4.

Richard J. Miller to Miss Katherine Vandervort Fahnestock, both of Harrisburg, Pa., September 4.

Edward F. Shay, Fall River, Mass., to Miss Elizabeth O'Gorman of Providence, R. I., August 25.

Alexander Herbert Barnett to Miss Margaret Gertrude Severs, both of Chicago, August 22.

Edward W. Watkins, Jr., Ellijay, Ga., to Miss Bessie McLeod of Quitman, August 8.

Meldrum Keplinge Wylder to Miss Esther Rost, both of Albuquerque, N. M., June 1.

William E. Sampliner to Miss Ruth Lawrence, both of Cleveland, August 25.

Frank Scott Gibson to Miss Louise Holtkamp, both of Cleveland, August 28.

Julius G. Levy to Miss Elizabeth Lashensky, both of Chicago, August 2.

George Everson to Mrs. Ida De Groot, both of Brooklyn, July 2.

Deaths

James Robb Church ⊕ Colonel, M. C., U. S. Army, retired, Washington, D. C.; Medical Department of Columbian University, Washington, 1893; aged 57; died, August 29. Dr. Church entered the regular army in December, 1898, as assistant surgeon and was retired from service for physical disability, Jan. 12, 1918. He was awarded the congressional medal of honor, having been recommended by the late President Roosevelt for distinguished services with the Rough Riders in Cuba. Colonel Church was secretary-treasurer of the Association of Military Surgeons of the United States and editor of the *Military Surgeon* at the time of his death.

Jackson Robert Campbell, New York; Bellevue Hospital Medical College, New York, 1884; for thirty-seven years physician to the Department of Correction; served in the M. C., U. S. Army, during the World War; formerly on the staff of the Fordham Hospital; aged 64; died, August 20, of cerebral hemorrhage, at the home of his daughter in Rye.

James Leonard Corning ⊕ New York; University of Wurzburg, Germany, 1878; member of the New York Neurological Society; on the staffs of the Hackensack, St. Francis and St. Mary's hospitals; author of "Carotid Compression," "Local Anesthesia," and other works; aged 68; died, August 25, at his summer home in Morristown, N. J.

Leon Louria ⊕ Brooklyn; University of Moscow, Russia, 1888; on the staffs of the Brownsville and East New York Hospital, the Rockaway Beach (N. Y.) Hospital, the United Israel Zion Hospital and the Jewish Hospital, where he died, August 27, aged 59, of pneumonia following an operation on the gallbladder.

William Earl McKinney, New York; University of Louisville (Ky.) Medical Department, 1914; served in the M. C., U. S. Army, with the rank of captain, during the World War; intern at the Manhattan Eye, Ear and Throat Hospital, where he died, August 20, aged 31, of pneumonia.

Richard Wiggin Dake ⊕ Nashville, Tenn.; Vanderbilt University Medical Department, 1903; served in the M. C., U. S. Army, with the rank of captain, during the World War; on the staff of the Woman's Hospital; aged 43; died, August 14, of pneumonia, at Cumberland, Md.

Fleet William Brock, Bogalusa, La.; Medical Department of the Tulane University of Louisiana, New Orleans, 1907; on the staff of the Elizabeth Sullivan Memorial Hospital; aged 42; was killed, August 21, when the automobile in which he was driving overturned.

Charles M. Brooks, Philadelphia; Hahnemann Medical College of Philadelphia, 1878; member of the Philadelphia Academy of Surgery; for twenty-two years on the staff of the Women's Homeopathic Hospital; aged 68; died, August 17, of cerebral hemorrhage.

William Franklin Ernest, Miami, Fla.; University of Louisville (Ky.) Medical Department, 1890; formerly a practitioner in Chicago, and on the staff of the Hospital for the Insane, Danville, Pa.; aged 65; died, August 29, of cerebral hemorrhage.

Trumbull Williams Cleaveland, New York; Medical Department of the University of the City of New York, 1884; member of the Medical Society of the State of New York; aged 76; died, August 25, of pulmonary edema.

M. Augusta Fairchild, Los Angeles; New York Hygeio-Therapeutic College, New York, 1861; formerly professor of gynecology at St. Louis Medical College; aged 89; died, August 13, of carcinoma of the liver.

Orion Jonathan Fay, Carleton, Mich.; University of Michigan Medical School, Ann Arbor, 1882; aged 62; died, August 17, at the University Hospital, of a skull fracture, received when thrown from an automobile.

Erwin George Seybold, Boston; Medical School of Harvard University, Boston, 1923; intern at the Peter Bent Brigham Hospital; aged 24; was drowned while bathing, August 23, in Lake Chauncey, near Westboro.

Richard C. Lyon, Naylor, Mo.; Memphis (Tenn.) Hospital Medical College, 1898; member of the Missouri State Medical Association; aged 61; died, August 4, in his office, at St. Louis, of cerebral hemorrhage.

Robert Hamilton Mackerras ⊕ Pasadena, Calif.; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1903; for ten years health officer of Sierra Madre; aged 45; died, August 16.

Martha A. Bonnell, Bradentown, Fla.; Hahnemann Medical College and Hospital, Chicago, 1897; formerly a practitioner in Chicago; aged 82; died, August 23, of gangrene of the intestine.

Elisha Aloney Rust, Moira, N. Y.; University of Vermont College of Medicine, Burlington, 1876; member of the Medical Society of the State of New York; aged 71; died, August 19.

Egerton R. Switzer, Salina, Kan.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1865; formerly county coroner; aged 86; died, August 16, of senility.

Elmer Small, Belfast, Me.; Medical School of Maine, Portland, 1870; member of the Maine Medical Association; formerly mayor of Belfast; aged 77; died, August 13.

William Church Griswold ⊕ Brooklyn; Albany (N. Y.) Medical College, 1897; aged 50; died suddenly, August 23, at his summer home in Seneca Lake, N. Y.

Amos Babcock, New Hampton, Iowa; Rush Medical College, Chicago, 1868; Civil War veteran; aged 78; died suddenly, August 23, of mitral regurgitation.

Denton W. Rudgers, Independence, Mo.; University of Buffalo Department of Medicine, 1879; aged 67; died, August 18, at Yankton, S. D., of heart disease.

Frederick William Macpherson, Lynn, Mass.; Medical School of Harvard University, Boston, 1871; aged 74; died, August 20, in Moncton, N. B., Canada.

James A. Manley, Scranton, Pa.; College of Physicians and Surgeons, Baltimore, 1884; also a pharmacist; aged 63; died suddenly, August 16, of heart disease.

Monzell M. Hoff ⊕ Philippi, W. Va.; University of Maryland School of Medicine, Baltimore, 1889; aged 64; died, August 19, of heart disease.

Jesse Milton Coburn ⊕ Norwalk, Conn.; Boston University School of Medicine, 1878; formerly mayor of South Norwalk; aged 70; died, August 13.

Leo Francis English, New York; Baltimore Medical College, 1907; aged 45; died, August 22, at a hospital in Detroit, of an overdose of drugs.

Gideon P. Kidd, Roann, Ind.; Chicago Medical College, 1874; aged 75; was found dead in his garden, August 21, of cerebral hemorrhage.

Joseph M. Stephenson, Chillicothe, Ohio; Physio-Medical College of Indiana, Indianapolis, 1893; aged 68; died, August 14, of heart disease.

John J. Cunningham, Providence, R. I.; Baltimore Medical College, 1904; aged 44; died, August 26, at his summer home in West Barrington.

Ninian F. Harrison, Detroit; Detroit College of Medicine and Surgery, 1891; aged 59; died August 15, of cerebral hemorrhage.

George William Hubbard ⊕ Springfield, Mass.; College of Physicians and Surgeons, Baltimore, 1894; aged 53; died, August 11.

James Semple Haile, Chatham, Va.; University of Maryland School of Medicine, Baltimore, 1886; aged 69; died, August 13.

John A. McBride, Carrollton, Miss.; Medical Department University of Louisiana, New Orleans, 1878; aged 67; died, August 13.

Arthur Wilkinson, Alpena, Mich.; Trinity Medical College, Toronto, Ont., Canada, 1872; aged 81; died, August 16, of senility.

James Thomas Wilkinson, Delaware, Okla. (years of practice); aged 62; died suddenly, August 19, of cerebral hemorrhage.

Eugene L. Waggoner, Los Angeles; Chicago Homeopathic Medical College, 1889; aged 65; died, August 14.

Joseph Hopson, Louisville, Ky.; Jefferson Medical College of Philadelphia, 1870; aged 76; died, August 21.

Benjamin P. Pierce, Mackinaw, Mich. (licensed, Michigan, 1900); aged 65; died, August 14.

B. S. Tinsley, Fogil, Okla. (years of practice); aged 85; died, August 11, of senility.

The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other General Material of an Informative Nature

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THE PANACEA OF MR. SPEAR

Learn, for Three Dollars, What to Do for Lice and Rejuvenation

John W. Spear of Marquette, Mich., was for many years a realtor of vision; at present he is selling the formula of a modern catholicon. Possibly Mr. Spear reached the conclusion that there was, doubtless, much easy money going to waste and that it was foolish not to get some of it. He has adapted a scheme that has been found profitable in other lines of human endeavor, to the exigencies of twentieth century quackery.

One calls to mind the story of the individual who advertised that, on receipt of $1.00, he would send a government-approved engraving of the "Father of his Country." Those who sent in the dollar received in return a two-cent postage stamp. Then there was the enterprising gentleman who advertised a device that was sure death for cockroaches. Those who bit received two small blocks of wood with instructions to put the cockroach on one of the blocks, superimpose the other and apply pressure.

Mr. Spear's scheme, if less ingenious, is even simpler. He advertises that he has made "A Wonderful Discovery," that he has cured himself of "Nervousness, Heart Trouble, Rheumatism and Catarrh," that he is convinced that the remedy with which he performed these miracles "will cure most people of their ailments." His remedy, he says, is a simple one that can be purchased anywhere; for twenty cents one can "buy enough of this remedy to last a month." But Mr. Spear does not sell the remedy. No, indeed! Nothing so ordinary. Mr. Spear has a simpler scheme. He offers to sell the "formula" to those who will remit $3.00. He who parts with his money receives a printed slip (reproduced with this article) giving the "formula" of this discovery. "Coal Oil—Nature's Wonderful Remedy."

THE APPROACH BY CIRCULAR

Early this year Mr. Spear was carrying his message of hope to the public by means of small printed circulars. This had a preliminary statement to the effect that it was different from "any circular you ever read," and the public should "read it and be convinced." This preface was attributed to three men, an ex-mayor, the proprietor of a local hotel and an attorney, who assured the public that "Spear is all right." Then followed the story of the "Great Discovery." Mr. Spear declared that he wanted "all mankind to know it," and added:

> "Some doctors would probably pay me a large sum if it could be kept a secret."

Spear's claim is that for six years he had "heart trouble"; in fact, "Dr. Janes, who attended me while Dr. Markham was away, said I had heart disease. I thought sure I was going to die, and my wife was alarmed." Having found, by accident, something that would "cure chapped hands" and also stop "winter itching," Mr. Spear reasoned: "If it would cure these things, I would try it on my heart, which I did." As a result, he now can "go fishing and hunting."

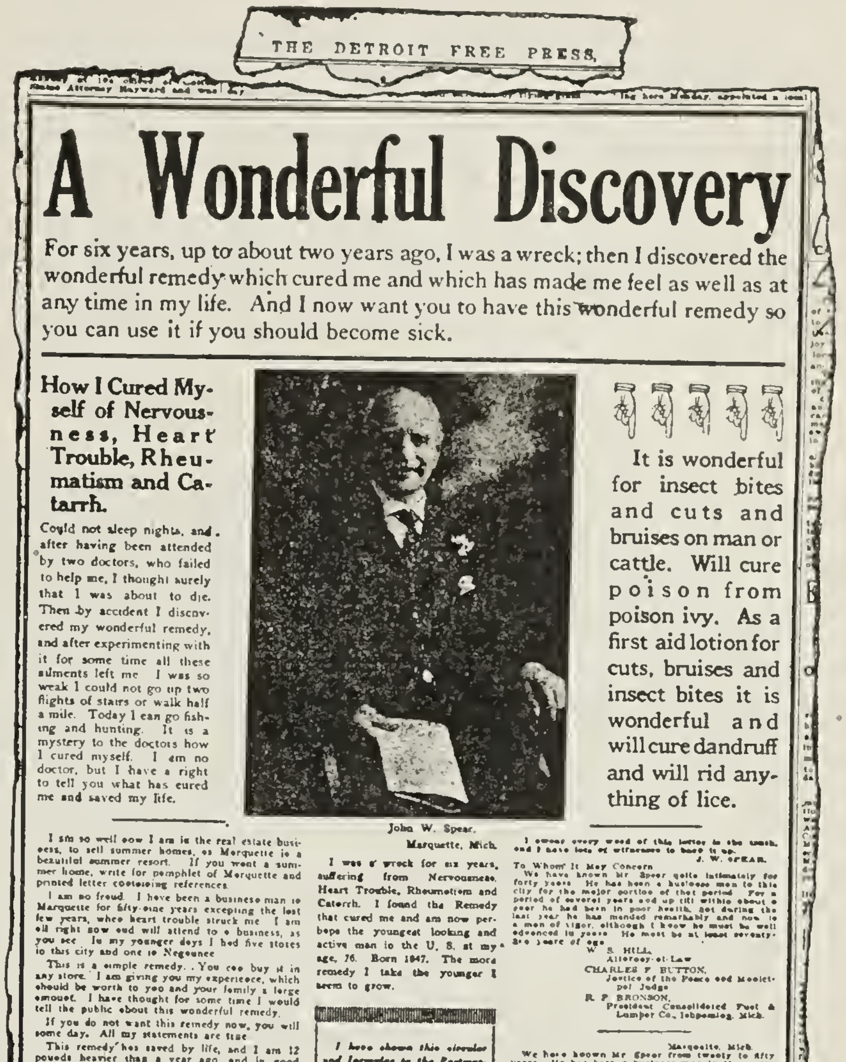
The Marquette realtor is sure that his remedy "is worth a fortune to some people," but feeling, evidently, that there may be some skepticism on the part of those who are asked to send him $3.00 for his formula, he states:

> "I am no fraud . . . I am now an old man, nearly 75, too old to lie, as I would like to go to Heaven when I die."

Mr. Spear assures the public that all his statements are true and that "you fellows who neglect to read this will never know what you have missed." He expresses the opinion that his remedy will "cure the first stage of consumption" and says that he is experimenting with it for other ailments. He feels sure that "by mixing it with water, it will cure lung trouble." He is not after your money:

> "If I was after your money, I would have you pay me $5 or $10. I am only charging about what I think will pay my expenses. I want everybody who reads this to wrap three dollars in the paper with your name and address plainly written, and I will return a printed 'Formula' telling what I used and how I used it for different ailments."

He then adds that he, himself is now so well that he is again in the real estate business and, following the habits of a life-time, suggests that "if you want a summer home write for pamphlet of Marquette." The closing part of the circular is devoted to two printed testimonials relating, not to the "formula," but to Mr. Spear. An attorney, a justice of the peace and municipal judge, and the president of a local lumber business state that they have known Mr. Spear quite intimately for forty years; that he had been in poor health for several years until within the last year since when he "has mended remarkably." The other testimonial letter, which characterizes Mr. Spear as an "upright, honest man" who "does not have to lie" and assures the public that the circular is "no humbug or swindle," is signed by two other real estate men, an insurance man and several merchants.



THE DETROIT FREE PRESS.

A Wonderful Discovery

For six years, up to about two years ago, I was a wreck; then I discovered the wonderful remedy which cured me and which has made me feel as well as at any time in my life. And I now want you to have this wonderful remedy so you can use it if you should become sick.

How I Cured Myself of Nervousness, Heart Trouble, Rheumatism and Catarrh.

Could not sleep nights, and after having been attended by two doctors, who failed to help me, I thought surely that I was about to die. Then by accident I discovered my wonderful remedy, and after experimenting with it for some time all these ailments left me. I was so weak I could not go up two flights of stairs or walk half a mile. Today I can go fishing and hunting. It is a mystery to the doctors how I cured myself. I am no doctor, but I have a right to tell you what has cured me and saved my life.

John W. Spear,
Marquette, Mich.

It is wonderful for insect bites and cuts and bruises on man or cattle. Will cure poison from poison ivy. As a first aid lotion for cuts, bruises and insect bites it is wonderful and will cure dandruff and will rid anything of lice.

I am so well now I am in the real estate business, to sell summer homes, as Marquette is a beautiful summer resort. If you want a summer home, write for pamphlet of Marquette and printed letter containing references.

I am no fraud. I have been a business man in Marquette for fifty-nine years excepting the last few years, when heart trouble struck me. I am all right now and will attend to a business, as you see. In my younger days I had five stores in this city and one in Negaunee.

This is a simple remedy. You can buy it in any store. I am giving you my experience, which should be worth to you and your family a large amount. I have thought for some time I would tell the public about this wonderful remedy.

If you do not want this remedy now, you will some day. All my statements are true.

This remedy has saved my life, and I am 12 pounds heavier than a year ago, and in good health. No doctor for two years. No heart trouble; no spitting phlegm.

I was a wreck for six years, suffering from Nervousness, Heart Trouble, Rheumatism and Catarrh. I found the Remedy that cured me and am now perhaps the youngest looking and active man in the U. S. at my age, 76. Born 1847. The more remedy I take the younger I seem to grow.

I have shown this circular and formulas to the Postmaster and he said he could see no reason why I could not send it through the mail, for he was satisfied it was true. I have also shown them to the Post Office Inspector—he said he could see no objection. I have also sent circulars and formulas to the Postmaster General and U. S. Chief Post Office Inspector at Washington.

20c will buy enough of this remedy to last a month. In formula I will give you proof that what I WRITE IS TRUE.

I swear every word of this letter is the truth, and I have lots of witnesses to back it up.
J. W. SPEAR.

To Whom It May Concern
We have known Mr. Spear quite intimately for forty years. He has been a business man in this city for the major portion of that period. For a period of several years and up till within about a year he had been in poor health, but during the last year he has mended remarkably and now is a man of vigor, although I know he must be well advanced in years. He must be at least seventy-five years of age.

W. S. HILL,
Attorney-at-Law
CHARLES F. BUTTON,
Justice of the Peace and Municipal Judge
R. P. BRONSON,
President Consolidated Fuel & Lumber Co., Ishpeming, Mich.

Marquette, Mich.
We have known Mr. Spear from twenty to fifty years. He has been a business man in Marquette for fifty-nine years, and we know him to be an upright, honest man. Mr. Spear does not have to lie, so you can depend on what he says. If you are not sick now we advise you to get the name of remedy that has cured him of heart trouble, rheumatism and catarrh. It has made a new man of him. We never saw him looking so well as he is now—seventy-six years old. The circular is different from any you ever read—no humbug or swindle.

FRANK STICKNEY, Real Estate & Insurance
JOHN H. JACOBS, Ex-Mayor
FRED F. LIZOTTE, Merchant
N. R. DUTORE, Merchant
J. H. LEWIS, Prop. Hotel Marquette
G. A. WERNER, Photographer
GEO. A. LEHNEN, Merchant
CHAS. F. WILLESEN, Merchant
JAMES W. YOUNG, Real Estate
A Hundred Others of Marquette, Mich.
CHAS. T. HAMPTON, Insurance, Iron Mountain, Mich.

Cut Out This Coupon and Mail Today

John W. Spear, Marquette, Mich.
Dear Sir:
Enclosed find $3.00, for which please send me the name of Remedy which made you a new man, and how to use it.
Name..........
Street and No..........
County..........
City.......... State..........

TESTIMONIALS

To Whom It May Concern
I met Mr. Spear some time ago and wondered what made him look so well, as I had seen him with Heart Trouble and Rheumatism. I got him to tell me what he had used. I believed him, as I had known him for over forty years. I could not get home soon enough, as I had Rheumatism a number of years. I am now improving and expect to be as well as Mr. Spear. He is looking fine.
H. LIZOTTE,
111 E. Ohio St., Marquette, Mich.

I have carried mail to Mr. Spear for many years. A few years ago he was in such a poor condition I was sure he would not last long.
Everyone is surprised at the change in him, and I firmly believe he has discovered something which has wrought the change and given him a new lease on life.
T. W. CLEARY,
311 Arch St., Marquette, Mich.

I am Mr. Spear's chore man at residence. He has sent me for Remedy—I did not know what it was for at the time. I will keep it home after this. I never saw Mr. Spear looking so well.
JOSEPH M. SMITH,
314 Baraga Ave., Marquette, Mich.

Photographic reproduction (greatly reduced) of a four column advertisement appearing in the Detroit *Free Press*, August 21, 1923. The original advertisement was 15 inches high.

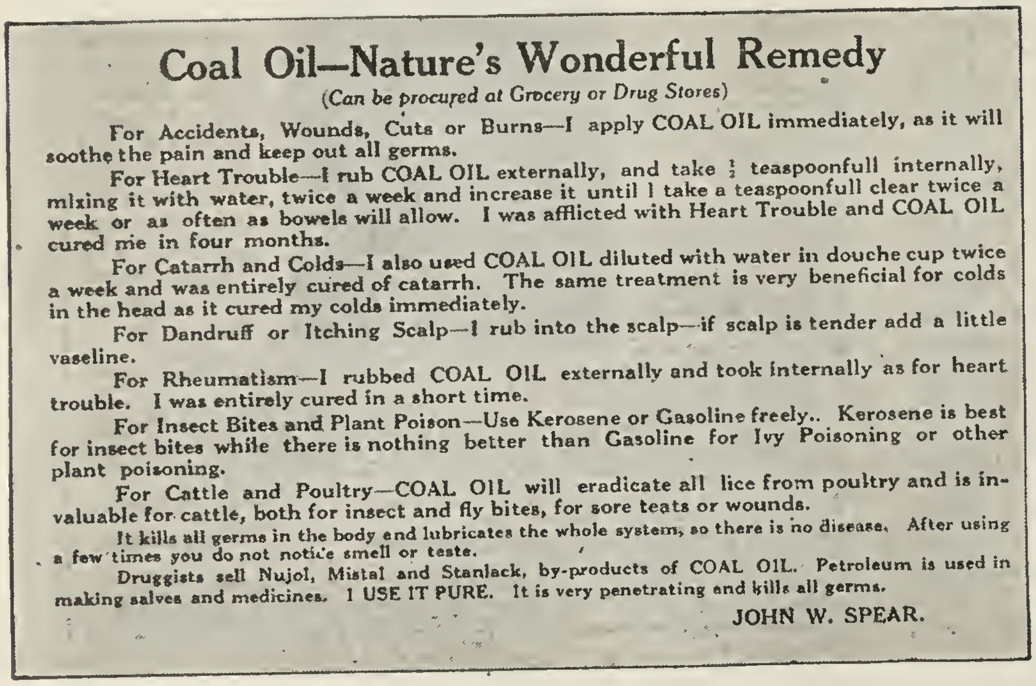
INCREASING THE ADVERTISING APPROPRIATION

Presumably, Mr. Spear found the circular just dealt with a profitable means of separating the public from its money.

At any rate, he has recently broadened his advertising field. The Detroit *Free Press* for Aug. 21, 1923, contained a Spear advertisement. We reproduce it in miniature with this article. The original was four columns wide and fifteen inches high. The "copy" is largely a reprint of the circular already referred to. He tells of the "Wonderful Remedy" which cured him of "Nervousness, Heart Trouble, Rheumatism and Catarrh"; declares that it made him "the youngest looking and acting man in the United States" for his age and says that the more of the remedy he takes the younger he seems to grow. The "Discovery" is wonderful for insect bites and cuts, will cure the effects of poison ivy, dandruff and "rid anything of lice." The advertisement further contains the two testimonial letters from local celebrities detailing the virtues of Mr. Spear. It also contains special testimonials from the local mail carrier and from "Mr. Spear's chore man," respectively.

In addition to such overwhelming testimony, Mr. Spear declares, in effect, that the business he is now engaged in in selling this "formula" is a perfectly legitimate one because the local postmaster and the local post office inspector said so. Further:

> "I have also sent circulars and formulas to the Postmaster-General and the United States Chief Post Office Inspector at Washington."



Coal Oil—Nature's Wonderful Remedy

(Can be procured at Grocery or Drug Stores)

For Accidents, Wounds, Cuts or Burns—I apply COAL OIL immediately, as it will soothe the pain and keep out all germs.

For Heart Trouble—I rub COAL OIL externally, and take ½ teaspoonfull internally, mixing it with water, twice a week and increase it until I take a teaspoonfull clear twice a week or as often as bowels will allow. I was afflicted with Heart Trouble and COAL OIL cured me in four months.

For Catarrh and Colds—I also used COAL OIL diluted with water in douche cup twice a week and was entirely cured of catarrh. The same treatment is very beneficial for colds in the head as it cured my colds immediately.

For Dandruff or Itching Scalp—I rub into the scalp—if scalp is tender add a little vaseline.

For Rheumatism—I rubbed COAL OIL externally and took internally as for heart trouble. I was entirely cured in a short time.

For Insect Bites and Plant Poison—Use Kerosene or Gasoline freely.. Kerosene is best for insect bites while there is nothing better than Gasoline for Ivy Poisoning or other plant poisoning.

For Cattle and Poultry—COAL OIL will eradicate all lice from poultry and is invaluable for cattle, both for insect and fly bites, for sore teats or wounds.

It kills all germs in the body end lubricates the whole system, so there is no disease. After using a few times you do not notice smell or teste.

Druggists sell Nujol, Mistal and Stanlack, by-products of COAL OIL. Petroleum is used in making salves and medicines. I USE IT PURE. It is very penetrating and kills all germs.

JOHN W. SPEAR.

Photographic reproduction (greatly reduced) of the printed slip that Spear sends out to those who answer his advertisement. The original measures about 5 in. by 8 in. It is printed on cheap paper. This is all you get for $3.00.

If Mr. Spear's present business is legitimate, then the promoter of wildcat stocks is a public benefactor. What shall be said of a great newspaper like the Detroit *Free Press* which furnishes the "come-on" for Spear and participates in the profits of such an outrageous piece of charlatanry?

Tuberculosis.—Tubercle bacilli are present in every tuberculous lesion. They are found in clumps in the center of miliary tubercles, in more or less considerable number in the pus of tuberculous abscesses, in the sputum of phthisical patients, in scrofulous glands and in some serous effusions, in the skin alterations of lupus and at times in the circulating blood. But it is not always easy to demonstrate them, especially in old calcified or fibrotic lesions. They can be disclosed only by inoculating the ground up contents or walls of lesions into a susceptible animal such as the guinea-pig. The bacilli are almost always enclosed within the cell elements; but when the latter die and disintegrate, the bacilli are set free and may then be excreted from the body by various normal or accidental excretory paths. By direct microscopic examination, even with the highest magnification, only the very experienced observer can determine—and then with uncertainty—whether he has to do with the tubercle bacillus or with other microbes which have the same appearance in the fresh state.—Calmette, Albert: Tubercle Bacillus Infection and Tuberculosis in Man and Animals, Baltimore, Williams & Wilkins Company, 1923.

Correspondence

HEALTH CONDITIONS AMONG THE INDIANS

To the Editor:—In The Journal, Aug. 14, 1920, appeared a communication of mine on conditions in the Indian Medical Service, which has since been reprinted in the congressional hearings on the Pueblo land question. The conditions set forth at the time have remained practically unchanged, certainly as far as the vast Navajo Reservation is concerned, with which I am most familiar.

The present situation is deplorable and is evidence of most regrettable apathy on the part of the nation which has assumed responsibility for the medical needs of the Indian population on reservations or otherwise under government jurisdiction. The physicians are inadequately compensated for arduous services, the equipment is generally poor or antiquated, and the hospital facilities are insufficient, considering the area to be served. Ambulances or other suitable forms of transportation for patients are entirely wanting, although a large number of the Indians live remote from the agencies where hospital facilities are available.

I have just returned from an extended trip through portions of the Navajo country, including several hundred miles of travel over almost impassable roads. I have seen many badly neglected cases of serious illness and much neglect of trachoma, while neglected cases of incipient phthisis are encountered everywhere. As far as it is possible to observe, the government is rendering a minimum of service, while it shirks obvious treaty and humanitarian obligations. But the first and most important need is for more hospitals and for a better paid medical and nursing staff.

On a reservation of some 15,000,000 acres live many thousands of Indians in widely scattered "hogans," with dirt floors, and as a rule in insanitary and otherwise unwholesome conditions. These "hogans" seldom contain anything else but a few sheepskins, blankets and boxes, being just a shelter, not a home. Of housing progress, there is none. Of health supervision and sanitary control, there is hardly a trace. How many Navajos there are, how many are born, how many die, no one knows and no one seems to care. What these people die from, outside of a very limited and restricted medical practice, is purely a matter of guesswork. To what extent tuberculosis prevails is also a guess.

Under these conditions it is only natural that the medicine man of old should still flourish and carry on his superstitious practices of a by-gone age. If the Indians are increasing in numbers, this is primarily due to nonintercourse with the white population and the comparative rarity of social diseases. The Navajos are one of the finest surviving types of our native population. We have an imperative duty in this matter, which will be discharged only if the organized medical profession makes its influence felt. There is, therefore, need of a thorough congressional investigation of the medical services on the Indian reservations, which, however, should be made with the aid of persons competent to ascertain the facts of the case. Having given the matter extended consideration, I feel that the following suggestions may serve as a minimum as what is most urgently needed at the present time:

1. Congress should require a complete enumeration of every Indian, of tribal or reservation, or other recognized connection, subject to government supervision and control. The present method of the commissioner of Indian affairs in estimating the Indian population is grossly deceptive, being

inclusive of negroes and whites who have not even a trace of Indian blood but have merely a legal relationship to Indian interests.

2. Congress should require the Indian commissioner to provide a complete and correct enumeration of all births and deaths among the Indian population subject to government supervision and control. The vital statistics at present collected are farcical and misleading. Thousands of Indians die without medical attention or a coroner's inquest. No study worthy of serious consideration has ever been made of the medical and mortality problems of the Indian, with a due regard to locality, tribe and degree of possible race intermixtures.

3. Congress should require the commissioner of Indian affairs to make or cause to be made an annual report on the health of the Indian population by one thoroughly qualified to do so. Such a report should contain recommendations, as regards the medical and sanitary needs of the Indian population, in matters of detail, and the true state of affairs as to population increase or decline.

4. Congress should require a complete inventory of the medical equipment and appliances on the various reservations, including a tabular analysis of the hospital provision, the treatment given, and the results secured, with a due regard to the medical and surgical nature of the case.

5. Congress should provide for the earliest possible transfer of the entire Indian Medical Service to the United States Public Health Service, under which both the physicians and nurses employed would have a higher status, better compensation, and security of office in place of the present unsatisfactory and precarious mode of arrangement.

In its final analysis, the responsibility for the health of the Indian population rests on Congress. It is for Congress to determine what our national medical policy toward the Indian shall be. At present, thousands die for want of proper attention and thousands of others suffer dreadfully the consequences of apathy and neglect. It is certainly the duty of the American medical profession to assist in bringing about the radical reforms required.

Frederick L. Hoffman, Wellesley Hills, Mass.

THE CLINICAL STUDY OF INTRACRANIAL ANEURYSMS

To the Editor:—Recent articles by Dr. C. P. Symonds and Dr. Harvey Cushing in *Guy's Hospital Reports* for April, 1923, pp. 140-163, not only present an unusually interesting series of cases, but demonstrate the possibility and means of making a diagnosis during life of this fairly common, yet too often overlooked condition. Intracranial aneurysms, which are most often at the bifurcation of the internal carotid artery, seldom become large enough to make a diagnosis possible before rupture. With rupture of the aneurysm, the patient is likely to complain of "something snapping," of occipitofrontal pain, and especially of pain in the back of the neck. Unilateral ophthalmoplegia, ptosis, immobile pupil, and disturbances of vision point to pressure in the parachiasmal region. Following the intracranial hemorrhage is the picture of increased intracranial pressure, blood in the spinal fluid, and later, xanthochromia, and often subretinal hemorrhages. A rise in temperature, and signs of meningeal irritation, with retraction of the head, may be present.

Infective endocarditis, cerebral arteriosclerosis, and a congenital weakness of the arterial wall are the recognized causes of intracranial aneurysms. Syphilis is rarely, if ever, responsible.

A remarkable fact is that out of fifteen ruptures that seem to have occurred in ten patients, only seven cases of rupture were followed by death within a few days or weeks. In all the other cases, the patients survived for more than a year, although unrelieved in two cases. At the time of writing, three patients were alive, one of whom had recovered after each of three attacks during seven years.

It would seem, then, that there must be many unrecognized cases of rupture, or of pin-point leakages, which recover for varying lengths of time. This ability to recover thus renders the problem one of more than academic interest.

Theodore C. Green, Boston.

CONTROL OF OPHTHALMIA NEONATORUM

To the Editor:—When, in 1909, a Committee on Ophthalmia Neonatorum was appointed by the American Medical Association with directions to use its effort to prevent blindness resulting from the neglect of proper care of the new-born infant's eyes, there was reason to expect that much in time might be accomplished. It was a difficult but not an impossible undertaking. The committee worked for a number of years through local and state health boards, and ophthalmologic, gynecologic and other medical societies, with a large measure of success. The percentage of admissions in the schools for the blind of children who had lost their sight from this cause was reduced during the decade and a half between the years 1908 and 1923 from 26.6 to 14.2 per cent. This was a great gain. It meant that many more were saved from a lifetime of blindness than the records indicated. But eternal vigilance is the price we must pay for protection. Just as soon as constant warnings cease, negligence again begins. Now the same careless and inefficient methods are beginning to reassert themselves.

Again, an unwarrantable number of children are being made blind from this controllable cause, and in three or four years, when the school age is reached, in the place of a continued reduction in the number of these poor sightless babies, an increase will be found in their number. That *any* child should be allowed to be made blind from this cause is a crime.

There was recently born in an accredited hospital in a large city, well supplied with skilful physicians, a strong, well-formed child. The hospital was under the care of a board of philanthropic and intelligent directors, and was visited by a regularly appointed staff. The child was illegitimate, and ophthalmia neonatorum might have been expected. It promptly developed. Inflammation went on in both eyes to corneal ulceration, staphyloma, and complete and incurable blindness. It does not appear that any prophylactic was employed when the child was born, and certainly no ophthalmologist was called in counsel until after the child's eyes were hopelessly lost. This case is by no means unique. So far have protective measures been forgotten that recent statistics from Pennsylvania show that in 1920 in only twenty cases out of thirty-five, and in 1921 in only twenty-two out of thirty-three, was any prophylactic employed, and of forty-nine cases reported aside from these left with defective vision, two were made absolutely blind.

That this should happen anywhere is, of course, unnecessary. The reasons are the same as they always have been. In many public institutions the training in the prevention and care of ophthalmia is inadequate. Recently a trained pupil nurse mistook the directions, and instead of using the silver nitrate once and repeatedly washing out the conjunctiva with boric acid solution, reversed the directions. The ensuing ulcerative keratitis destroyed the infant's eyes.

These cases are occurring, not only as formerly in the practice of midwives, but also under the regular care of even hospital physicians. The long years of wretchedness and misery entailed by one case of this kind are beyond estimate. The material expense of the maintenance of one blind person through the years of what may be a long life will amount to thousands of dollars. The stupidity of allowing such conditions to go on seems beyond belief. Continued publicity concerning the danger of conjunctivitis neonatorum, and the necessity of health boards perpetually urging prophylaxis and skilled treatment, are essential if these unnecessary losses of eyes are to cease. Cannot the organized methods that have proved so successful be reestablished, and the last 14 per cent. of blindness from this cause, which remains as a stigma on our profession, be made to disappear? Would it not be well if, under the authority of the American Medical Association, sight-saving measures should be again instituted until it should become as much a matter of routine everywhere to give the new-born infant's eyes proper care as it is now in our most modern and best managed hospitals?

F. Park Lewis, M.D., Buffalo.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

NUMBERS OF PHYSICIANS PRACTICING VARIOUS SPECIALTIES

To the Editor:—In collecting data for the directory of the Association, physicians practicing the various specialties were asked to designate the specialty to which their time was devoted. Those practicing a special line of work have been indicated as, S—Surgery, G—Gynecology, Obs—Obstetrics, etc. Have you classified these in your department of statistics? If so, will you please tell me how many men are practicing general surgery or are designated surgeons (excluding eye, ear, nose and throat specialists); how many men are practicing gynecology, or are designated gynecologists, and how many are practicing obstetrics, or are designated obstetricians. Inquirer, Pennsylvania.

Answer.—The American Medical Directory for 1923 lists 3,177 with the mark S*: practice limited to surgery; 6,810 are designated by an S: practice surgery; 191 are given G*: practice limited to gynecology, and 1,269 who are designated with G: practice gynecology; 146 are credited OB*: practice limited to obstetrics, and 1,659 to OB: include obstetrics in their practice.

CALCIUM CHLORID IN HAY-FEVER

To the Editor:—Is it a fact that calcium chlorid has been successfully used in the treatment of hay-fever? T. G., North Dakota.

Answer.—Calcium chlorid seems to be of some use in the treatment of hay-fever, but it must be taken in rather large doses during the whole season to be of much benefit—about 1 gm., from four to six times a day. The use of this drug in hay-fever is chiefly based on the work of some European investigators who have shown that the permeability of the mucous membranes and of the capillaries is decreased by the internal application of calcium chlorid. The treatment, of course, is entirely symptomatic, and no permanent relief is to be expected.

SECOND ATTACK OF ENCEPHALITIS

To the Editor:—Are there any cases on record of a second attack of acute encephalitis? Would such a second attack eventually appear in milder or severer form than the first one.

Julius Lingenfelder, M.D., Beemer, Neb.

Answer.—It is extremely difficult to distinguish between late relapses and reinfections. Two probable instances of the latter are mentioned on page 109 in the recent British report (Reports on Public Health and Medical Subjects, No. 11: Report on Encephalitis Lethargica, His Majesty's Stationery Office, London, 1922). One was the case of a man, aged 59, who was taken ill, April 30, 1920, with headache, giddiness, diplopia and lethargy, from which he slowly recovered; two years previously he had suffered ophthalmoplegia, stupor and aphasia, and was ill for about twelve months. As late relapses—even after three years—are quite frequent, we must be very cautious about accepting alleged cases of a second attack. George E. Price (The Journal, March 11, 1922, p. 716) relates a case with reappearance of symptoms, including fever, some twenty months after apparent recovery from the first attack and—probably rightly—he looks on the second attack as a relapse rather than a reinfection. It is safe to assume that reinfection practically never occurs, and that cases of an apparent second attack really are instances of latent infection with recrudescence of symptoms.

TREATMENT OF ACNE

To the Editor:—Would you be kind enough to give me some information concerning the treatment of acne vulgaris. All local and systemic treatments have been of no value. Please omit name. Inquirer.

Answer.—The most valuable single method in the treatment of acne vulgaris is the use of the roentgen ray. This is especially useful in cases in which the usual methods of local treatment have not proved successful. This agent is best employed in the fractional dose method described by MacKee, in which one-fourth unit of rotentgen ray is given according to the MacKee technic at weekly intervals until from ten to fifteen such doses have been given. Care should be taken to avoid the production of an erythema. While vaccines are not generally successful in the treatment of acne, they are occasionally useful in selected cases, particularly in those of the deep seated or indurated type. There is no successful local or internal treatment other than described in the standard textbooks on dermatology.

TREATMENT OF WHOOPING COUGH BY ROENTGEN RAY

To the Editor:—Of what value is the treatment of pertussis by the roentgen ray? I have had several children exposed with apparently good results. Adults have taken two exposures, as a rule. Please omit name. F. H. M., San Diego, Calif.

Answer.—Pediatricians who have been using the roentgen ray in the treatment of pertussis report that it may have value. This is especially true in cases showing a high white cell count with a marked increase in the percentage of lymphocytes. Except under extraordinary conditions it is not believed advisable to expose children to the roentgen ray until the paroxysmal stage, in order that they may have opportunity to develop immunity against the disease sufficient to prevent future recurrence.

Because of the dangers of this form of treatment, it should be administered by a technician versed in roentgen-ray therapy. The technic is similar to that used in the treatment of the thymus gland. In most instances only one exposure is used.

"TREATMENT OF GROUND ITCH"

To the Editor:—Dr. E. M. Thomas of Prattville, Ala. (The Journal, August 18), wants to know how, in the local treatment of ground itch, to destroy *Ancylostoma duodenale* and prevent alimentary infestation. When practicing in Alabama I accomplished this several times hy injecting 2 per cent. phenol (carbolic acid) solution with a hypodermic syringe just ahead of the lymphangitis that leads from the foot up the leg, also injecting around the dermatitis, as well as along the red line of lymphangitis.

This is best done in forty-eight hours after the itching appears, and a few drops of solution in each spot will suffice. It will be better to continue the injections over several days rather than use a toxic amount of phenol.

Subsequent feces examination will show if one has been successful.

W. C. Howell, M.D., Colorado Springs.

MUSCAE VOLITANTES—SPOTS BEFORE THE EYE

To the Editor:—Kindly give pathology and approved treatment for muscae volitantes, so called. C. C. Gray, M.D., Quincy, Ind.

Answer.—Muscae volitantes may be of the physiologic or pathologic variety. In either case, their presence becomes manifest to the patient because of the interference with the light rays to the retina; in other words, they cause a shadow to be thrown on the retina. If definite objects lie within the central part of the visual field, the slight shadows thrown by the muscae volitantes pass unnoticed because the attention of the patient is concentrated on translating the retinal impulses that define the outlines of the objects within the field of vision. But when the gaze is directed at a blank wall or the clear heavens or a white sheet of paper, the shadows stand out in fairly sharp contrast against the uniform background.

There are no pathologic changes in the physiologic type of muscae volitantes. The shadows are probably thrown by the anterior vitreous fibers that for some unknown reason become thickened or doubled on one another or when two or more vitreous fibers happen to lie in the same anteroposterior plane, thereby increasing the intensity of their normally invisible single shadows. In some persons, the vitreous seems to be slightly more fluid than in others, thereby allowing of freer movements of the vitreous fibers and hence more frequent shadow formation. In muscae volitantes of the pathologic type, the shadows are thrown by red or white blood cells, coagulated fibrin, or organized exudate in the vitreous. This may be recognized easily with the ophthalmoscope.

There is no local treatment for the first type of muscae beyond the necessary psychologic assurance of the patient that his floating specks are of no pathologic import. In the second type of muscae, the etiologic cause must be sought for and eliminated. The local use of 10 per cent. ethylmorphin hydrochlorid, deep applications of moist heat, and even the subconjunctival injections of 1 : 1,000 mercuric cyanid have been resorted to with favorable results reported in some cases. But in the majority of cases, after the cause has been removed, the muscae either become absorbed or become fixed, and cease annoying the patient within the course of some months or years.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Arizona: Phoenix, October 2-3. Sec., Dr. W. O. Sweek, 404 Heard Bldg., Phoenix.

California: San Francisco, October 15-18. Sec., Dr. Charles B. Pinkham, 906 Forum Bldg., Sacramento.

Florida: Tallahassee, October 9-10. Sec., Dr. W. M. Rowlett, Tampa.

Georgia: Atlanta, October 9-11. Sec., Dr. C. T. Nolan, Marietta.

Idaho: Boise, October 2. Dir. Mr. Chas. Laurenson, Boise.

Illinois: Chicago, October 9-11. Supt. Mr. V. C. Michels, Springfield.

Iowa: Des Moines, September 25-27. Sec., Rodney P. Fagen, State House, Des Moines.

Kansas: Topeka, October 9. Sec., Dr. Albert S. Ross, Sabetha.

Massachusetts: Boston, September 11-13. Sec., Dr. Charles E. Prior, Room 144, State House, Boston.

Michigan: Lansing, October 9. Sec., Dr. Beverly D. Harison, 707 Stroh Bldg., Detroit.

Minnesota: Minneapolis, October 2-4. Sec., Dr. Thomas S. McDavitt, 539 Lowry Bldg., St. Paul.

Montana: Helena, October 2. Sec., Dr. S. A. Cooney, 205 Power Bldg., Helena.

New Hampshire: Concord, September 13-14. Sec., Dr. Charles Duncan, Concord.

New Jersey: Trenton, October 16-17. Sec., Dr. Alexander MacAlister, State House, Trenton.

New Mexico: Santa Fe, October 8-9. Sec., Dr. W. T. Joyner, Roswell.

New York: New York, Albany, Syracuse, Buffalo, September 24. Sec., Dr. William D. Cutter, Albany.

Porto Rico: San Juan, October 2. Sec., Dr. Jorge del Toro, 1 Olimpe St., San Juan.

Massachusetts May Examination

Dr. Charles E. Prior, secretary, Massachusetts Board of Registration in Medicine, reports the oral, written and practical examination held at Boston, May 8-10, 1923. The examination covered 16 subjects and included 70 questions. An average of 75 per cent. was required to pass. Of the 35 candidates who took the physicians' and surgeons' examination, 23 passed, including 2 osteopaths, and 12 failed. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
College of Phys. and Surgs., Boston	(1916)	75
Harvard University	(1922, 2)	82.7, 89.6
Middlesex College of Med. and Surg.	(1922, 2)	75.5, 77.6
Tufts College Medical School	(1910) 83.2, (1921)	80.7
St. Louis Coll. of Phys. and Surgs.	(1922, 2)	75, 75.8
Columbia University	(1918) 88.7, (1921)	87.1
University of Pennsylvania	(1898) 75, (1922)	89.8
University of Vermont	(1918)	81.3
Licentiate of the Apothecaries Hall of Dublin, Ire.	(1913)	83
University of Naples, Italy	(1913)*	75
University of Rome, Italy	(1914)*	76.2
University of San Marcos, Lima, Peru	(1912)*	75
University of Edinburgh, Scotland	(1922)	82.1
Medico-Chirurgical Institute, Stockholm, Sweden	(1916)*	75
Central Turkey College, Ottomon University, Turkey	(1919)*	75
Osteopaths		75.6, 76.7

College FAILED	Year Grad.	Per Cent.
Middlesex College of Med. & Surg.	(1920) 71.9, (1922, 2)	68.5, 68.7
University Med. Coll. of Kansas City	(1896)	71.9
St. Louis Coll. of Phys. and Surgs. (1920) 68.7, (1921, 2) 59.7, 71.5, (1922, 4) 51.3, 67.9, 69, 69.8		
Meharry Medical College	(1921)	56.8

* Graduation not verified.

Book Notices

History of the Great War Based on Official Documents. Medical Services: General History, Volume 1. Diseases of the War, Volumes I and II. Hygiene of the War, Volumes I and II. Surgery of the War, Volumes I and II. Cloth. Price, 21 shillings, net, per volume. London: His Majesty's Stationery Office, 1923.

At the present time the British government has issued seven of the fourteen volumes of its medical history of the Great War; the American government has issued Volume I and Part 2 of Volume XV, the former just received. The statement is not made as an invidious comparison; merely as a fact. In the preface to Volume I of the British history, it is pointed out that Great Britain has not previously published a medical history of any war. The stimulus for the present series was aroused by a letter from Professor Adami, then of McGill University, to Sir William Osler, Sept. 25, 1914. Nov. 11, 1914, Surgeon General Sir Alfred Keogh appointed Capt. F. S. Brereton to undertake the duties of preparing material for such a history. He was established in an office to which the war diaries of all medical units were sent, and he was gradually provided with additional clerks until he was finally assisted by eight persons devoting full time to the compilation of the material. In addition, a statistical department was organized under Sir Walter M. Fletcher, and to this committee were turned over all statistical records and medical case sheets. Furthermore, Lieutenant Colonel Brereton enlisted the aid of others in the establishment of a museum of the war, and he was authorized to visit the different battle fronts and collect plans, sketches and photographs for a permanent collection. In 1918, a meeting was held to draw up a definite plan for preparing the present volumes. Major Gen. Sir William MacPherson was appointed editor in chief, and under his direction the writing of the history was organized, special committees being appointed in each of the subjects covered. The complete series will include four volumes on general history, two volumes on the diseases of the war, two on surgery, two on hygiene, one on pathology and medical research, and one on medical statistics and epidemiology.

GENERAL HISTORY

The first volume on general history, now at hand, deals with medical services in Great Britain and overseas, and contains an account of the medical services in operation against the German colonies in West and South Africa and in Tsingtau. The remaining volumes of the general history will deal with the medical services in France and Italy, the Mediterranean, Mesopotamia, Aden, East Africa and Russia. The book opens with a chapter on the preparation of the service for war organization. It details, step by step, the gradual organization by units, the development of new units, the provision of personnel and training. There follow sections on mobilization and hospital accommodation, and plans for the disposal of the sick and wounded. Those who recall the American difficulties in determining proper methods for the examination of recruits will read with sympathy the difficulties which Great Britain had in the same problem. It was in Great Britain that a plan was first adopted for classifying men in five classes according to their ability to serve in various capacities. It is brought out that the importance of this work was chiefly in the fact that for the first time in the history of Great Britain an inquiry was conducted into the physical health of the entire male population of military age, and that new and important facts regarding the physical standards of the nation's manhood were brought to light. A most appreciative mention is made in the section on recruiting of medical service of the organization of American base hospital units and their arrival in Britain, where they were placed under the control of British authorities.

Special sections are devoted to medical and surgical equipment, sanitary organization, demobilization and voluntary aid. The latter part of the book is devoted to the campaigns in China and in South Africa. There is an extensive appendix to this volume, listing the units organized, hospital ships and transports, tables of equipment for various organizations, and summaries of admissions to hospitals for various diseases.

DISEASES OF THE WAR

The two volumes on the diseases of the war follow a definite plan. After a discussion of the general aspects of war diseases, the conditions are taken up one by one, beginning with the intestinal diseases and following with throat and lung disturbances, malaria, etc. In the case of each disease there is a classification, statistics are given, special symptoms are described, and etiology is discussed. The diagnoses are considered, and there is a statement of the treatment definitely established. Finally, a bibliography of the articles consulted gives the authority for the discussion. To every physician these two books should be of great value as outlining proved methods for the care of the conditions discussed.

The second volume is devoted more particularly to conditions peculiar to war. It begins with neurasthenia and the war neuroses, follows with skin and venereal diseases, and concludes with disturbances due to aviation and gases. It is interesting to learn that in February, 1921, approximately 65,000 men were drawing pensions in Great Britain for disabilities due to neurasthenia and allied conditions, and in February, 1922, the number had decreased to 50,000. It is clear that the effects of the war may be felt for a long time after actual fighting has ceased, and there seems to be evidence that nervous disturbances may be expected to develop long after a soldier may have returned to civilian life.

The matter of prophylaxis against war neuroses in future wars received the attention of a special commission, and it is suggested that such preparation take two forms: training of man to insure proper morale, and close observation to permit withdrawal of officers and men from service before complete breakdown.

The section on skin diseases lists all of the complaints recorded and the method of prevention and treatment. As usual, venereal diseases were a prominent military problem, and the story presents little hope for the discovery of any panacea that will largely diminish exposure to venereal disease or control beyond a limited extent in future wars. Various officers established various methods, and the results were in general the same. The best results seemed to have been secured by the provision of adequate personal disinfection apparatus and the active urging of the use of such methods. In addition, special disinfecting stations under the control of skilled attendants were established, and experience seems to have shown that such control has real value as a protection against venereal disease. The value of lectures was not demonstrable, but they seem to have been useful. The value of self disinfection does not seem to have been absolutely determined by any proved figures, and there does not appear to have been any way of determining definitely exactly how much value could be applied to any one procedure.

One portion of this section of the book, dealing with use by the British army of other remedies than the routine arsphenamin and mercury for syphilis, tells of many unusual compounds that were tested under military conditions. Apparently there was no marked success over the usual routine.

The sections on medical aviation and on gas warfare, while of great war interest, have no immediate application to civilian life.

SURGERY OF THE WAR

The two volumes on surgery of the war follow much the same plan as those devoted to diseases of the war. Two chapters are devoted to the various projectiles used and the results of projectile action. In some sixty pages there is here given a concentrated discussion of the mechanics and pathology of projectile wounds. Two chapters then follow on wound shock, recapitulating the various theories brought out during the war, and concluding with a statement of seven preventive measures based on the theoretical considerations. Blood transfusion receives a chapter, without, however, any reference to the extensive American experience in this subject, which is, no doubt, greater than that in other countries. There follow chapters on gas gangrene, tetanus, trench foot and anesthesia, and then a series of discussions on surgical work as carried out in field ambulances, casualty clearing stations and similar war organizations. The remaining chapters are concerned with wounds of various divisions of the body, the largest section concerning wounds of the abdominal organs.

In the second volume this type of discussion is continued, several chapters being devoted to fractures, orthopedic treatment and amputation. In their discussions, the authors have drawn on the complete experiences of all armies in an endeavor to make the account a summary of the knowledge derived from the great holocaust.

HYGIENE OF THE WAR

The lessons in preventive medicine were, no doubt, most important of all. Among the British troops during the South African war, with an average strength of 208,000 and an aggregate strength of 530,000, there were 58,000 cases of typhoid fever and 8,000 deaths from this disease, whereas in the World War, with an average strength of one and a quarter millions and an aggregate of three or four times that number, there were only 7,500 cases of typhoid and paratyphoid fever and only 266 deaths. The two main directions in which sanitation helped in achieving these results were the purification of water supplies and the sanitary disposal of waste products. These two subjects are more fully discussed in the volumes on hygiene of the war than any others. The discussions are beautifully illustrated and carefully detailed, representing, so far as we know, the best considerations of these two problems thus far in print. However, many other fields of sanitary action are likewise considered. The disinfestation of persons and clothing is covered in several chapters. The feeding of soldiers receives extended discussion, and special chapters are devoted to housing, clothing and general hygiene. One section deals with the special problems associated with campaigns in Russia, and another with prisoners of war and the conduct of a base hygiene laboratory. Final chapters take up the prevention of various war diseases, such as malaria, trench foot and the control of flies, lice and scabies.

The various appendixes give the exact text of special and general orders issued covering the subjects concerned.

Herz- und Gefässmittel, Diuretica und Specifica. Ihre Anwendung bei Kreislaufssörungen nach klinischen und pharmakologischen Gesichtspunkten. Von Dr. Rudolf Fleckseder, Privatdozent an der Universität Wien. Paper. Pp. 111. Vienna: Rikola Verlag, 1923.

The remedies used by the cardiologist are discussed under such headings as "heart remedies," "vasoconstrictors," "vasodilators," "diuretics," and "specific remedies," including "internal antiseptics," "antirheumatics" and "antisyphilitics." The little book is so replete with practical points on the use of remedies affecting the circulatory system that it may be recommended, most especially, to the practicing physician who desires to place himself in line with the modern views on cardiovascular therapy.

The Chemistry of Tuberculosis. A Compilation and Critical Review of Existing Knowledge of the Chemistry of the Tubercle Bacillus and Its Products; The Chemical Changes and Processes in the Host; The Chemical Aspects of the Treatment of Tuberculosis. By H. Gideon Wells, M.D., Ph.D., Professor of Pathology in the University of Chicago, Lydia M. DeWitt, M.D., A.M., Associate Professor of Pathology in the University of Chicago, and Esmond R. Long, Ph.D., Assistant Professor of Pathology in the University of Chicago. Cloth. Price, $5. Pp. 447. Baltimore: Williams & Wilkins Company, 1923.

Since the organization of the O. S. A. Sprague Memorial Institute in 1911, a special group has been devoting itself to the study of the chemical aspects of tuberculosis and related problems. As pointed out by the authors, the last complete review of the literature appears to be that published by Ott, in 1903; but by far the most extensive studies of the chemical factors in this disease have been made since that period. In these original researches, all of the authors of the present volume have had a prominent part. Section I, by Esmond R. Long, is devoted to the chemistry of acid-fast bacteria. The presentation is brief but adequate, and each of the sections is summarized in a well written recapitulation. The second part of the book, by Prof. H. G. Wells, concerns the chemical changes in the tuberculous host. The author's well known book, "Chemical Pathology," is evidence of the character of material in this section. The final section, the chemotherapy of tuberculosis, by Lydia M. DeWitt, is an excellent summary and theoretical consideration of the various substances that have been particularly urged in the treatment of tuberculosis. As is well known, this includes virtually the entire pharmacopeia. The multiplicity of drugs tried in tuberculosis signifies their lack of success. Dr. DeWitt comes to this logical conclusion:

> The general and symptomatic treatment of tuberculosis, therefore, are the same as the treatment of similar conditions which are not related to a specific disease. Until a specific chemical or immunological therapy has been found for the disease, the fresh air, the hygienic and dietetic measures which have been so long and favorably known must still be relied on as the main hope in the treatment of tuberculosis.

In this volume the reader will find a well written summary of our actual knowledge of the natural history of tuberculosis.

Compendio de Química Fisiológica. Por Mauricio Arthus, Profesor de Fisiología de la Universidad de Lausana. Traducido de la Novena edición Francesa. Paper. Pp. 464, with illustrations. Barcelona: P. Salvat, 1922.

Since Arthus' book was first published, its popularity has been proved by nine French and three German editions. In addition, it has been translated into Russian and now into Spanish. Arthus intended his work as a bridge between chemistry and physiology. Being written for medical students, it inclues only the necessary chemical knowledge for the study of physiology. The chief feature of the book is the clearness of its discussions and explanations.

Diagnostic Methods, Chemical, Bacteriological and Microscopical. A Text-Book for Students and Practitioners. By Ralph W. Webster, M.D., Ph.D., Assistant Professor of Medical Jurisprudence in Rush Medical College, University of Chicago. Price, $8. Pp. 909, with 209 illustrations. Philadelphia: P. Blakiston's Son & Co., 1923.

In the two years that have elapsed since the appearance of the last edition of this book, research in biochemistry and the laboratory methods of diagnosis has been extensive. In his preface, the author calls special attention to the new methods that have been added as the result of such work. The position of this book in the field that it covers is secure, and the rapid appearance of new editions, keeping pace with progress in science, is evidence of the effort and care taken to keep it in that position.

Dreads and Besetting Fears, Including States of Anxiety, Their Causes and Cure. By Tom A. Williams, M.B., C.M., Neurologist to Freedman's Hospital. Cloth. Price, $1.75 net. Pp. 217. Boston: Little, Brown and Company, 1923.

This is a simply written book based on the author's experience in the care of patients subject to various forms of dread and fear. It is written for the lay rather than for the medical reader, and follows rather closely the common sense point of view, although at the same time giving support to the Freudian view of the importance of infantile and hereditary impressions. Sections on bashfulness, college breakdowns and all the management and dispelling of fear seem especially worth while.

Practical Dietetics with Reference to Diet in Health and Disease. By Alida Frances Pattee. Fourteenth edition. Cloth. Price, $2.60. Pp. 646. Mount Vernon, N. Y.: A. F. Pattee, 1923.

Teacher's Dietetic Guide: Containing State Board Requirements in Dietetics and State Board Examination Questions. Paper. Given gratis with each copy of Pattee's Practical Dietetics. Not sold separately. Pp. 142. Mount Vernon, N. Y.: A. F. Pattee, 1923.

This well known work is now in its fourteenth edition. It has become a standard work, as evidenced by the fact that editions appear annually and that four reprintings were necessary during 1922. It represents a carefully worked out compilation in which the editor has had the assistance of well known authorities throughout the country. For the physician who wishes to be abreast of the times in the dietetic control of disease, it is a reasonably priced, invaluable reference work.

Einführung in die Klinik der inneren Sekretion. Von Prof. Dr. G. Peritz, Nervenarzt in Berlin. Paper. Price, 27 marks. Pp. 257. Berlin: S. Karger, 1923.

In this handbook, the glands presumed to have an internal secretion are described anatomically, and the results of extirpation and extract administration are given in detail. Concluding chapters deal with the diseases associated with the glands, their chemistry, and the influence of the internal secretions on the nervous system. The work is not wholly up to date and, as in other recent books on the glands, its author seems inclined to accept much that is opinion for proved fact.

Medicolegal

Wrongful Discontinuance of Operation and Neglect of Patient—Liability of Insurer

(Morrell v. Lalonde et al. (R. I.), 120 Atl. R. 435)

The Supreme Court of Rhode Island says that for a number of years the defendant had been the plaintiff's family physician and had at various times treated her for different ailments. For more than three years she suffered from a rupture which finally resulted in strangulated hernia. The defendant had advised that an operation was necessary and any delay dangerous, but she took no action in the matter until her condition became so critical that she was convinced that an operation offered the only chance of saving her life. In response to her call, the defendant visited her at her home and advised her that an operation was necessary at once. She said that he agreed to perform the operation and to call for her that night to take her to his hospital; that he did not call for her; but that the next day she went unattended to his hospital, where later in the day he performed an operation on her.

The defendant knew the facts of the case: that the necessary operation was one which required skill, judgment and some courage. He was under no compulsion to act because of an emergency not anticipated by him. In view of his subsequent conduct, it is not easy to understand why he undertook to perform the operation. He made an unskilful opening into the abdomen, and, without attempting to do anything to relieve the obstructed bowel, after removing an accumulation of pus, sewed up the wound, told his patient she was going to die, and that he could do nothing more to help her.

The plaintiff's husband went to the hospital that evening, and later in the evening the plaintiff was sent to her home, as she said, by advice of the defendant. The defendant denied that, and stated that the plaintiff insisted on being carried to her home despite his advice to the contrary. Much stress was laid on the means of transportation secured by the defendant, which was an undertaker's automobile used generally for the transportation of coffins and the removal of bodies of persons deceased. The vehicle was inclosed and contained a removable stretcher. There was some evidence that this vehicle had before this time occasionally been used as an ambulance. The plaintiff knew the owner of the vehicle, and the defendant said that she and her husband were willing to use it in order to save expense.

In any view of the facts, it was the duty of the surgeon to assert his influence and authority to induce and to require his patient to remain in the hospital and thereby avoid the risk to her life incident to any removal. He failed to discharge this duty to his patient in this respect. He also neglected to call on his patient after the operation, his excuse being that he was too busy in his hospital. However, he did telephone to a district nursing association, and as a result a visiting nurse for a short time for several days went to the plaintiff's home and attended to the dressing of the wound. But, under the circumstances, this did not relieve the defendant of his duty to look out personally for his patient after the operation.

On the third day after the operation, she was taken to another hospital, where a second operation was successfully performed, and after six weeks' stay in the hospital, she returned to her home.

The evidence was ample to sustain a finding of liability. The defendant deliberately, with full knowledge of the seriousness and delicacy of the necessary operation, undertook to perform the operation. For some reason, either from lack of judgment or perhaps from a realization of his lack of the necessary skill or from a lack of courage, he failed properly to perform his duty as a surgeon. In this case it is clear that, having begun the operation, the surgeon should have finished it. Although the patient had only a small chance of escaping death, the defendant, by failing to relieve the acute condition of strangulation, and by making a useless and unnecessary incision into the abdomen, thereby diminished the chance of his patient's surviving. For his failure and his subsequent neglect he was responsible to the plaintiff for such damages as she proved she had suffered as a consequence.

The jury returned a verdict in her favor for $13,416, which the court thinks should be reduced to $8,500. Her husband was given a verdict for $2,333 in a case tried at the same time, but the court thinks the allowance to him should be reduced to $1,500. An insurance company, which had agreed to indemnify the defendant surgeon against loss, and which was joined as a defendant with him, by Mrs. Morrell, was liable—to the amount insured—to pay any lawful damages, including punitive as well as compensatory damages.

Right to Examine Injured Employee Important

(Frank Martin-Laskin Co. et al. v. Industrial Commission et al. (Wis.), 193 N. W. R. 70)

The Supreme Court of Wisconsin, in reversing a judgment that affirmed an award of the industrial commission in favor of an employee who had received a blow on his head that had resulted in a venous hemorrhage of the brain, says that no written notice of the injury was served on the employer. On a former appeal, this court held that actual knowledge of the injury by a foreman of the employer, but not communicated to the employer, was not equivalent to the statutory notice, and yet thereafter the commission reached the conclusion that the employer had not been misled, by the application of two erroneous views of law, or on the ground that the employer was estopped to claim that it was misled because its foreman had notice, and because the violated right to examine and offer medical services could not constitute a defense. It seems rather strange to the court that the commission should have reached the conclusion that an employer could not be misled by a lack of opportunity to examine and observe the employee, when the Wisconsin statute provides that a refusal by the employee to submit to examination or in any way obstruct it shall suspend his right to begin or maintain any proceedings for the collection of compensation. Here, by the plainest inference, is a direct legislative declaration that the right to examine is of such value that a refusal shall suspend the right to compensation. It is also obvious that the right to examine has a direct bearing on the nature, extent and curability of the injury—matters usually in dispute in such cases. But it is enough for the court to say that the legislature has considered such right of examination of value, and it does not come within the power of the commission to declare otherwise. It was inferentially held, in *Vasey* v. *Industrial Comm.*, 167 Wis. 479, 167 N. W. 823, that a failure to give notice might mislead the employer because of lack of opportunity to offer medical aid.

Hospital Not Liable for Surgeon's Want of Skill

(Black v. Fischer et al. (Ga.), 117 S. E. R. 103)

The Court of Appeals of Georgia, Division No. 1, says that the defendants were a surgeon and a sanatorium company. The plaintiff alleged that this surgeon and another physician and surgeon had had themselves incorporated to form the company to maintain a sanatorium or hospital; that the plaintiff having sustained injuries in an automobile accident, had been taken to the sanatorium, where the defendant surgeon rendered him unskilful, improper and negligent services whereby he was permanently injured. The sanatorium company demurred to the petition on the ground that it set forth no cause of action, or that, if it did show any liability, it was on the surgeon, and not on the company; that the alleged negligence and injuries complained of, being within the duties of a physician, could not, under the law of Georgia, be the basis of a claim against a sanatorium; that the petition showed that the acts were beyond the duties or obligations of the sanatorium company.

In affirming a judgment for the sanatorium company, sustaining the demurrer, it is held that the petition did not set forth a cause of action against the company. The fact that the surgeon was one of the principal stockholders in the defendant corporation would not render the corporation liable for the unskilful and improper treatment of his patient. Nor did the fact that the defendant company was largely under the control and management of the surgeon render the corporation liable for unskilful treatment rendered by the surgeon to one of his patients. In the petition in this case, no act of the corporation was alleged to be the cause of the injuries detailed. There was no allegation that the corporation undertook to direct the surgeon in the method of treatment and services that he rendered to the plaintiff. The allegation that the surgeon was the agent and surgeon of the sanatorium company did not render the company liable, without the further and necessary allegation and the facts to sustain it, showing that the act of the agent was by the command or direction of or within the scope of the agent's employment.

Furthermore, even if the surgeon was in the employ of the sanatorium company, there was no allegation that he was not a skilled surgeon. The precedents of the several courts of the United States seem to be harmonious in their rulings that, when a hospital contracts to furnish medical or surgical attention to a person, and acts in good faith and with reasonable care in the selection of a physician or surgeon, and selects an authorized physician in good standing in his profession, it has fulfilled its obligation, and cannot be held liable for any want of skill on the part of the surgeon employed. The master is held liable for the tortious acts of the agent on the theory that the agent is controlled and acts under direction of the master and within the scope of his duties. There was no allegation here that the sanatorium company directed the surgeon how or in what way to treat the patient.

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, Washington, D. C., Oct. 15-20. Dr. Luther C. Peter, 1529 Spruce St., Philadelphia, Secretary.

American Association of Obstetricians, Gynecologists, and Abdominal Surgeons, Philadelphia, Sept. 19-21. Dr. James E. Davis, 111 Josephine Avenue, Detroit, Secretary.

American Association of Railway Surgeons, Chicago, Oct. 18-20. Dr. L. J. Mitchell, 29 E. Madison St., Chicago, Secretary.

American Child Hygiene Association, Detroit, Oct. 15-17. Dr. Philip Van Ingen, 125 East 71st St., New York, Secretary.

American Electrotherapeutic Association, Atlantic City, Sept. 18-21. Dr. Richard Kovacs, 223 E. 68th Street, New York, Secretary.

American Public Health Association, Boston, Oct. 8-11. Mr. A. W. Hedrich, 370 Seventh Avenue, New York, Secretary.

American Roentgen Ray Society, Chicago, Sept. 18-23. Dr. W. W. Watkins, Goodrich Building, Phoenix, Ariz., Secretary.

Association of Military Surgeons of the United States, Carlisle Barracks, Pa., Oct. 4-6. Col. James Robb Church, Army Medical Museum, Washington, D. C., Secretary.

Central States Pediatric Society, Detroit, Oct. 18-19. Dr. H. T. Price, Westinghouse Building, Pittsburgh, Pa., Secretary.

Delaware State Medical Society, Middletown, Oct. 8-9. Dr. W. O. La Motte, Industrial Trust Building, Wilmington, Secretary.

Indiana State Medical Association, Terre Haute, Sept. 26-28. Dr. Charles N. Combs, Terre Haute, Secretary.

Interstate Society of Radiology and Physiotherapy, Omaha, Sept. 18-19. Dr. Roland G. Breuer, Security Mutual Life Building, Lincoln, Neb., Secretary.

Kentucky State Medical Association, Crab Orchard, Sept. 17-20. Dr. A. T. McCormack, 532 West Main Street, Louisville, Secretary.

Medical Association of the Southwest, Kansas City, Mo., Oct. 4-8. Dr. E. H. Skinner, Rialto Building, Kansas City, Mo., Secretary.

Michigan State Medical Society, Grand Rapids, Sept. 11-13. Dr. F. C. Warnshuis, 410 Powers Building, Grand Rapids, Secretary.

Minnesota State Medical Association, St. Paul, Oct. 10-12. Dr. Carl B. Drake, Guardian Life Building, St. Paul, Secretary.

Mississippi Valley Medical Association, Hot Springs, Ark., Oct. 9-11. Dr. John L. Tierney, University Club Bldg., St. Louis, Secretary.

Missouri Valley, Medical Society of the, Omaha, Sept. 20-21. Dr. Charles W. Fassett, 115 East 31st Street, Kansas City, Secretary.

Nevada State Medical Association, Reno, Sept. 28-30. Dr. Horace J. Brown, Thoma-Bigelow Building, Reno, Secretary.

New England Surgical Society, Boston, Oct. 18-19. Dr. P. E. Truesdale, 151 Rock Street, Fall River, Mass., Secretary.

Pennsylvania, Medical Society of the State of, Pittsburgh, Oct. 1-4. Dr. W. F. Donaldson, Jenkins Arcade, Pittsburgh, Secretary.

Tri-State District Medical Society, Des Moines, Iowa, Oct. 29-Nov. 1. Dr. William B. Peck, 82 Stephenson Street, Freeport, Ill., Managing Director.

Vermont State Medical Society, Bennington, Oct. 11-12. Dr. W. G. Ricker, St. Johnsbury, Secretary.

Virginia, Medical Society of, Roanoke, Oct. 16-19. Mr. G. H. Winfrey, 104½ W. Grace St., Richmond, Secretary.

Wisconsin, State Medical Society of, Milwaukee, Oct. 3-5. Mr. J. G. Crownhart, 558 Jefferson St., Milwaukee, Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Annals of Otology, Rhinology and Laryngology, St. Louis

32: 321-640 (June) 1923

Depressed Nasal Deformities. Comparison of Prosthetic Values of Paraffin, Bone, Cartilage and Celluloid. Report of Cases Corrected with Celluloid Implants by Author's Method. J. D. Lewis, Minneapolis.—p. 321.

*Relation Between Thyrotoxicosis and Tonsillar Infection. L. E. Brown, Akron, Ohio.—p. 367.

Submucous Resection Complications and After Results. N. S. Weinberger, Sayre, Pa.—p. 387.

Treatment of Acute Sinus Infections. L. M. Hurd, New York.—p. 394.

Etiology and Treatment of Maxillary Sinusitis. H. V. Dutrow, Dayton, Ohio.—p. 398.

*Upper Respiratory Tract in Granite Dust Inhalation. D. C. Jarvis, Barre, Vt.—p. 405.

Pulmonary Abscess Following Nose and Throat Surgery. J. Prenn, Boston.—p. 413.

*Infection of Accessory Sinuses in Children: Report of Cases. E. A. Looper, Baltimore.—p. 417.

Nystagmus. G. W. Mackenzie, Philadelphia.—p. 427.

Diagnosis and Treatment of Pulmonary Conditions Through Bronchoscope. B. M. Kully, Omaha.—p. 437.

Structure and Function of Crista Ampularis. G. E. Shambaugh, Chicago.—p. 442.

New Magnifying Glass for Otoscopy. A. Zebrowski, New York.—p. 453.

Otitis Media Complicating Operations on Gasserian Ganglion. H. R. Lyons, Rochester, Minn.—p. 457.

Nasal Reflex. R. F. Ridpath, Philadelphia.—p. 464.

Tumors of Jaw from Standpoint of Rhinologist. J. D. Whitham, New York.—p. 474.

Phlebothrombosis of Intracranial Sinuses. C. C. Charlton, Atlantic City, N. J.—p. 485.

Dental Relations of Eye, Ear, Nose and Throat. W. H. Haskin, New York.—p. 497.

Correction of External Deformities of Nose. S. Israel, Houston, Texas.—p. 504.

Case of Congenital Hemimacroglossia with Disturbance of Locomotor Apparatus of Side Opposite Lingual Lesion. J. N. Roy, Montreal.—p. 519.

Sinusitis from Swimming. R. A. Fenton, Portland, Ore.—p. 526.

Effect of Pressure Changes in External Auditory Canal on Acuity of Hearing. A. G. Pohlman, St. Louis, and F. W. Kranz, Geneva, Ill.—p. 545.

Idiopathic Perforation of Nasal Septum. Autoplasty with Pedunculated Flap of Mucous Membrane. Cure. J. N. Roy, Montreal.—p. 554.

Otitis Media, Mastoiditis and Disease of Nasal Accessory Sinuses as Causative Factor in Malnutrition in Children. T. H. Odeneal, Beverly, Mass.—p. 561.

Relations Between Eye and Ear (Including Vestibular Organ). J. V. D. Hoeve, Leiden, Holland.—p. 571.

*Metastatic Laryngeal Arthritis. S. O. Fields, Norfolk, Va.—p. 588.

Relation Between Thyrotoxicosis and Infected Tonsils.—The possibility of a relation between goiter and tonsil infection is emphasized by Brown who inclines to the belief that the tonsil is no more likely to be the focus of infection than any other nidus, e. g., sinuses, teeth or gallbladder. It is urged that the throat specialist pay particular attention to the state of the thyroid in all cases of infected tonsils, and that all who are called on to treat disordered thyroids bear in mind the possibility of an exciting factor in the presence of diseased tonsils.

Effect of Granite Dust Inhalation on Lungs.—The effects of granite dust inhalation on the respiratory tract were made the subject of study by Jarvis. A study of the industry revealed men who had inhaled granite dust with impunity over periods ranging from thirty to fifty-nine years, and other men who suffered severely even when exposed for less than fifteen years. It was found after twelve years of observation that the upper respiratory tract held the key to the situation, and that an individual was a good risk in proportion to the absence of lymphoid tissue in this region. As a result of granite dust inhalation there occurs an adaptation to occupation of the upper respiratory tract. Absence from occupation causes a loss of this adaptation and a reentry into the industry produces irritation of the respiratory tract while the man is endeavoring to regain his lost adaptation. This last effort brings about a suitable preparation of the soil. Mouth breathing is not as injurious as nasal respiration in granite dust inhalation. Jarvis suggests that an inquiry as to the occupational history may assist in deciding the method of anesthesia when contemplating work on the respiratory tract.

Infection of Accessory Sinuses in Children.—Looper insists that all children who have chronic colds with predominant nasal symptoms, such as profuse nasal discharge, stuffiness of the head, mouth breathing and asthmatic attacks, should have a careful investigation of the sinuses. In cases in which tonsils and adenoids have been removed as focal areas of infection, and the symptoms have not cleared up after operation, infection of the accessory sinuses should be suspected. Nasal colds in children should be treated as an important disease.

Metastatic Laryngeal Arthritis.—Fields reports four cases which he asserts support his contention that there exists a laryngeal joint affection due to metastatic infection.

Annals of Surgery, Philadelphia

78: 1-128 (July) 1923

*Fatal Anaphylaxis Following Blood Transfusion. G. L. Carrington and W. E. Lee, Philadelphia.—p. 1.

*Pleural Epilepsy. H. R. Owen and A. Gonzalez, Philadelphia.—p. 6.

*Case of Multiple Myeloma of Plasma Cell Type. A. C. Wood and B. Lucke, Philadelphia.—p. 14.

Traumatic Lesions of Head. T. A. Shallow, Philadelphia.—p. 26.

Combined Abdominothoracic Approach in Operations for Diaphragmatic Hernia. H. B. Stone, Baltimore, Md.—p. 32.

*Perforation in Utero of Gastric Ulcer. W. E. Lee and J. R. Wells, Philadelphia.—p. 36.

Hemangioma of Intestine (Jejunum). Report of Case. F. Helvestine, Jr.—p. 42.

*Modified Inguinal Hernioplasty Technic, with Complete Utilization of Aponeurosis of External Oblique. DeW. Stetten, New York.—p. 48.

*Intravervical Enucleation. F. H. Larey, Boston.—p. 61.

Surgery of Ectopic Kidney: Report of Six Cases. J. R. Caulk, St. Louis.—p. 65.

Advantages and Disadvantage of Metal Plates in Treatment of Fractures and Long Bones. A. Stillman, New York.—p. 75.

*Wound of Femoral Artery and Vein. C. P. Grover and D. Fisher, Dayton, Ohio.—p. 84.

Fatal Anaphylaxis Following Blood Transfusion.—In the case reported by Carrington and Lee a man with a primary aplastic anemia developed symptoms of acute anaphylactic shock following a first transfusion of 500 c.c. of blood in 55 c.c. of a 2 per cent. sodium citrate solution. The onset was with spasm of the smooth muscle in bronchioles, bladder and intestines, evidenced by respiratory difficulty, typical asthmatic râles, urinary and fecal incontinence. The spasm of smooth muscle was followed by a relaxation with which was associated pulmonary edema. The temperature rose to 102 F. and then returned to normal. Pulse and respirations rose and remained elevated, being around 130 and 36, respectively. The blood of the donor was carefully typed and cross-agglutinated with that of the recipient. After the reaction has progressed for several hours, the venous blood showed hemolysis. There was nothing to indicate an infarction in any locality. There was no history of asthma, hay-fever or other type of protein sensitization in either the donor or the recipient.

Pleural Epilepsy.—Owen and Gonzalez observed a case of pleural epilepsy during the injection of 30 per cent. of bismuth subnitrate in petrolatum into a chronic empyema cavity. While the bismuth paste was being injected the patient suddenly collapsed. The extremities became rigid and were held semiflexed. The pupils were greatly dilated, but reactive. The head and eyes were drawn to the right side; the mouth was foamy. There was no loss of sphincter control. The temperature was normal. The respirations were rapid and labored. The pulse was rapid. The reflexes were increased, but no Babinski sign could be demonstrated. The patient was semistuporous. He could not answer questions well. Occasionally he said a few meaningless words. In about one hour the patient had a generalized epileptiform seizure, lasting about two minutes. Morphin and atropin were given without noticeable effect. This convulsion was followed by another period of stupor of about nine hours duration when a second convulsion occurred. In the following two hours the patient had four more convulsions. Three doses of morphin and atropin controlled these convulsions. The patient recovered.

Multiple Myeloma of Plasma Cell Type.—Wood and Lucke relate the case of a man, aged 51, in apparent good health, who fell suddenly to the floor while lifting a heavy weight. Since that time he suffered from pain in the back exaggerated by the slightest motion and exertion. A few months later similar pains occurred in the chest. After a long railroad journey his condition became much worse and he finally was unable to sit or walk because of extreme pain in the back or chest. A roentgen-ray examination showed a widespread rarefaction of the lumbar vertebrae, the ribs, the pelvic girdle and both femurs. Tender lumps could be felt over several of the ribs. The urine contained traces of albumin but no Bence-Jones protein. There was a profound anemia but no definite change in the white cells. The patient died of pneumonia. The postmortem examination disclosed numerous soft, gray-red tumors in the ribs, the vertebral column and other portions of the skeleton, which had partly eroded the bones and rendered them very fragile. The vertebral column in particular was much involved, the bodies of the vertebrae being almost completely replaced by tumor masses. Histologically, the neoplasms were richly cellular, contained very little supporting tissue and were composed chiefly of elements that somewhat resembled plasma cells; these did not give an oxydase reaction. Similar cells were found in the blood spaces of the spleen and the capillaries of the liver.

Perforation in Utero of Gastric Ulcer.—Lee and Wells report the case of an infant, aged 10 days, that was admitted to the hospital with symptoms of pyloric obstruction dating from birth. This diagnosis was confirmed by roentgen-ray examination. The abdomen was opened through a right upper rectus incision 6 cm. long. The pylorus was found lying deep in the hepatic fossa and was exposed with difficulty. Adherent to the pylorus and to the greater curvature of the stomach was a section of small intestine, which on separation of the adhesions, was found to be the distal portion of a very long duodenum. When these two long limbs of the U-shaped duodenum were finally separated, the flexure or knee, corresponding to the second portion of the duodenum, was found to be adherent to the under surface of the liver and gallbladder. These adhesions were strong, well organized and separated with difficulty owing to their density. They were practically avascular. Following the release of this duodenal obstruction, the distal portion was seen to fill and distend with contents expressed from the stomach. The stomach was then more carefully examined and a circular constriction was found about 2 cm. from the pylorus which presented the appearance of an hour-glass contracture. The child died twelve hours later. At the necropsy a small, perfectly round hole in the posterior stomach wall, near the greater curvature, was revealed.

Herniotomy Technic.—This operation was described in The Journal, July 31, 1920, p. 344. Stetten now gives a brief summary of some of his observations and experiences since the publication of his former paper, and considers and answers some of the objections that have been raised against the suggested technic.

Intracervical Enucleation.—The operation devised by Lahey for benign lesions of the cervix consists in the routine supracervical hysterectomy as done, for example, for fibroid uterus up to the point of section of the cervix. At this point, the cervix is not cut across or even removed by wedge-shaped excision, but is cored out by vertical circular incisions placed just within the outermost boundary of the cervix. The cervix is pulled up with each circular incision, until as the last incision reaches the vagina, the thin remaining shell of cervical tissue is inverted from below upward, to drop back as the last circular incision separates the cervical plug from its shell of remaining cervical tissue. This leaves an opening through which a small strip may be tucked into the vagina to prevent the possible return of infected vaginal contents. The stumps of the round ligaments, and, if need be, the broad ligaments, fit easily into the large aperture and may be sutured securely there. A large mattress stitch through the entire cervical shell controls the oozing that occurs from the walls of the remaining cervical shell. Lahey has made use of this method of getting rid of the cervix in hysterectomy for benign lesions to overcome the postoperative leukorrhea and endocervicitis without producing in patients within the active sex age the vaginal shortening which results from the employment of complete hysterectomy for these lesions.

Wound of Femoral Artery and Vein.—A bullet severed the femoral artery and vein in this case ten weeks before Grover and Fisher saw the patient. The blood "came out in gushes." A doctor probed the wound, treated it with phenol, and bandaged it, which measure stopped the blood flow. One week later the patient felt a dull continuous pain at the site of injury and noticed a slight swelling of the affected thigh. The pain and swelling gradually increased, the pain becoming so intense as to render locomotion impossible. On entering the affected area, a large irregular reddish-black mass presented, resembling an old blood clot. As soon as this thrombus was out of place, a large stream of blood gushed forth. The blood was checked and seen to have come from the femoral artery. The femoral artery showed a longitudinal jagged rent, 3 cm. in length, and was open across its entire diameter; the accompanying vein was likewise torn open, but at a slightly lower level. The artery and vein were both ligated doubly, proximally and distally, and the injured portions removed. Three weeks after the operation, the patient walked freely, easily, without pain or limp; the popliteal and dorsalis pedis arteries were not palpable; the left leg felt warm, easily bled on pin prick and in every way seemed as normal as the right. Five months after operation he carried on his daily routine and had forgotten all about his wounded leg.

Archives of Dermatology and Syphilology, Chicago

8: 1-164 (July) 1923

*Biologic Reactions of Arsphenamin. VI. Reduction of Its Toxicity by Combination with Hydrophil Colloids. J. Oliver, S. S. Yamada and F. Kolos, San Francisco.—p. 1.
*Xanthoma and Hypercholesterinemia. W. H. Mook and R. S. Weiss, St. Louis.—p. 19.
*Multiple Onychia as Manifestation of Focal Infection: Experimental Production of Onychia in Rabbits. R. L. Haden and W. H. Jordan, Kansas City, Mo.—p. 31.
Elastic Tissue Simulating Mycelial Filaments in Skin Scrapings. I. R. Pels, and S. Bayne-Jones, Baltimore.—p. 37.
Tuberculous Paronychia: Report of Case with Unusual Features. J. H. Stokes, Rochester, Minn.—p. 44.
Rare Case of Recurrent Herpes. H. G. Rowell, New Bedford, Mass.—p. 48.
Study of Serum Flocculation Reactions in Syphilis with Special Reference to Meinicke, Sachs-Georgi, Kahn and Vernes Reactions. M. M. Strumia, Philadelphia.—p. 50.
*Wassermann Reaction in Leprosy: With Special Reference to New Complement-Fixation Technic. J. A. Kolmer and O. E. Denncy, Philadelphia.—p. 63.
Lichen Planus of Glans Penis. D. W. Montgomery and G. D. Culver, San Francisco.—p. 73.
Lacquer Dermatitis or Dermatosis Industrialis (Papulovesicular Lacquer). J. T. Wayson, Honolulu, H. I.—p. 77.
*Heliotherapy in Psoriasis. H. E. Alderson, San Francisco.—p. 79.
Report of Cultures of Parasitic Fungi. A. M. Greenwood, Boston.—p. 81.

Reduction of Toxicity of Arsphenamin by Combining Gelatin.—Oliver and his associates assert that the combination of arsphenamin with hydrophil colloids reduces the toxicity of the drug. Gelatin, of the colloids examined, is the most effective in this regard. The decrease in toxicity is general as shown by the facts that: (*a*) the physical toxicity of arsphenamin is removed; (*b*) the chemical toxicity is reduced to three fifths; (*c*) the circulatory disturbances following its administration are markedly lessened.

Xanthoma and Hypercholesterinemia.—Three cases of xanthoma diabeticorum and three cases of xanthoma tuberosum are reported by Mook and Weiss. The cholesterin content of the blood was markedly increased in a case of xanthoma diabeticorm and in two cases of xanthoma tuberosum. The cholesterin was slightly increased in a case of xanthoma tuberosum associated with general arteriosclerosis, hypertension and myxedema. These results confirm the work of Burns. Excluding the palpebral type the authors believe that the xanthomas belong to the class of foreign body tumors. They are a cellular (connective tissue) reaction to the deposition of cholesterin bodies from the blood in cases in which a hypocholesterinemia is present. They are localized by motion and trauma.

Multiple Onychia a Focal Infection.—Two cases of multiple onychia are reported by Haden and Jordan. Onychia was produced in rabbits by the intravenous injection of streptococci isolated from the infected teeth of the patients.

Wassermann Reaction in Leprosy.—In a series of 159 cases of leprosy, clinical or serologic evidence of syphilis was found by Kolmer and Denney in twenty-seven, or 17 per cent. In nonsyphilitic lepers, the Wassermann reactions by a new technic were uniformly negative. With an old technic similar to the original Wassermann method, apparently falsely positive reactions occurred with 7.2 per cent. of serums. Since the new complement fixation reaction does not yield falsely positive reactions in leprosy, it is of value in differential diagnosis between cases simulating both leprosy and syphilis. A positive reaction in leprosy with the new method justifies the clinician in proceeding with antisyphilitic treatment without the mental reservation that he may be uselessly subjecting a leper to unnecessary or even harmful measures.

Heliotherapy in Psoriasis.—Experience in treating a large number of cases of psoriasis locally with the mercury quartz lamp during the last few years has convinced Alderson that this therapy constitutes a relatively satisfactory and cleanly method. While it is not invariably successful, psoriasis lesions clear up more effectively than under any other form of treatment, except roentgenotherapy. For various reasons Alderson prefers the former. Recurrences are delayed longer after successful ultraviolet light treatment. It is safer and more desirable when the scalp is involved. Compared with chrysarobin ointments, Alderson has found ultraviolet therapy preferable from every standpoint.

Archives of Ophthalmology, New York

52: 313-415 (July) 1923

Neurotic Disturbances of Eye Function. L. K. Lunt and A. F. Riggs, Stockbridge, Mass.—p. 313.
Embryology of Tenon's Capsule. I. Goldstein, New York.—p. 327.
Disease of Optic Nerve and Its Relations to Posterior Nasal Sinuses. Report of Four Cases Showing Uncertainty of Diagnosis. C. W. Cutler, New York.—p. 331.
Surgical Treatment of Glaucoma, with Special Reference to Modified Elliot-Lagrange Technic. D. T. Vail, Cincinnati.—p. 346.
Serous Tenonitis Complicated by Bilateral Papilledema. G. N. Brazeau, Milwaukee.—p. 355.
New Technic for Application of Reduced Silver Nitrate Method of Cajal to Section of Retina. F. F. Balbuena, Gijon, Spain.—p. 358.
Blepharochalasis. J. S. Friedenwald, Baltimore.—p. 367.

Atlantic Medical Journal, Harrisburg, Pa.

26: 649-722 (July) 1923

Renaissance of General Practitioner. S. R. Miller, Baltimore.—p. 649.
*Clinical Manifestations of Primary Cancer of Lung. W. W. G. MacLachlan, Pittsburgh.—p. 655.
Importance of Physical Factors in Prognosis of Renal Infections. L. Herman, Philadelphia.—p. 659.
Complete Tonsillectomy. R. Nebinger, Danville.—p. 672.
Roentgen-Ray Diagnosis of Gas Gangrene. A. Z. Ritzman, Harrisburg.—p. 676.
Prospects of Medical Career. B. M. Anspach, Philadelphia.—p. 679.
Schick Test. E. R. Wiese, Ingomar.—p. 684.
Hereditary Cataract as Mendelian Dominant: Report of Family. W. E. Carson.—p. 686.
Internal Derangement of Knee Joint. J. O. Wallace.—p. 689.
Herpes Zoster: Acute Posterior Ganglionitis. N. H. Clark.—p. 690.
Primary Carcinoma of Appendix. C. O. Anderson.—p. 691.
Heredity and Intelligence. E. E. Mayer.—p. 692.

Symptomatology of Primary Cancer of Lung.—Four cases form the bases of MacLachlan's paper. Pain was present in all the cases. The type of pain varied from a dull aching to an acute, agonizing, stabbing sensation, causing the patient to cry out. When the pain was dull, it was more or less constant; in two patients with the acute type of pain the attack assumed a periodic character. The seat of the pain in all cases seemed to lie deep in the chest, but in the acute types it was also referred at times to the epigastrium and to the left arm. These attacks became more frequent as the disease progressed, and appeared to be more intense; the narcotic used had to be given in much larger doses to allay the suffering. The pain occurred more often at night than during the day. Dyspnea was evident in all four cases on very slight exertion. This symptom progressed as the illness advanced. In one patient coughing was practically absent; but in the others it was evident, although somewhat variable in nature. Blood was present in the sputum in all the cases at some time during their course. In one case, "currant jelly" sputum was frequently seen, but in the other cases it was usually the bright red tinged sputum, often obtained after a paroxysm of coughing. The physical signs are not in themselves distinctive of neoplasm in the majority of cases. Dulness on percussion, usually unilateral over the lower lobe, diminished vesicular breathing and voice sounds, and a moderate number of râles appear to be most constant. It is MacLachlan's belief that the earliest recognition of a tumor having its origin in the lining of the accessible bronchi could be made by bronchoscopic examination. The roentgen-ray findings have been a disappointment.

Canadian Medical Association Journal, Montreal

13: 469-546 (July) 1923

*Living Sutures in Treatment of Hernia. W. E. Gallie and A. B. Le Mesurier.—p. 469.
Insulin: Its Action: Its Therapeutic Value in Diabetes, and Its Manufacture. Insulin Committee of University of Toronto.—p. 480.
*Dietetic Treatment in Diabetes Mellitus. W. R. Campbell.—p. 487.
Diagnostic Notes in Obstetrics and Gynecology. W. W. Chipman.—p. 493.
Some Aspects of Psychoneuroses. F. H. Mackay.—p. 495.
Use of Wassermann Reaction in Diagnosis of Syphilis. G. O. Scott and G. H. J. Pearson.—p. 501.
*Pellagra in Ontario: Report of Two Cases. G. H. Stevenson.—p. 504.
Some of Factors on Which Successful Use of Local Anesthesia Depends. R. E. Farr.—p. 507.
Diverticula of Alimentary Canal as Demonstrated by Roentgen-Ray Examination. A. E. Walkey.—p. 511.
Synchronous Rupture of Bilaterial Ectopics. L. H. Appleby.—p. 514.
*Unusual Arrangement of External Genitalia. L. H. Appleby.—p. 515.
Goiter with Hyperthyroidism. E. M. Eberts.—p. 516.

Living Sutures for Herniotomy.—By means of experimental research extending over several years Gallie and LeMesurier have demonstrated that strips of fascia constitute a suture material which is ideal for use in operations in which it is desired to hold together structures, such as the edges of hernial rings, which naturally tend to separate. It remains only for the surgeon to employ a technic which ensures that the suture is solidly anchored into unyielding tissue, such as healthy muscles and aponeurosis, and to make sure that a sufficient quantity of the suture is employed to withstand the anticipated strain and to completely fill the gap where the edges cannot actually be drawn together. The advantages of the living sutures are: Over catgut and similar sutures they have the great advantage that they are not absorbed and that they continue for all time to perform the function for which they were originally intended. Over silk and other nonabsorbable materials they have the advantage that they are composed of living tissue which is perfectly nonirritant, and that they heal solidly into the structures through which they pass without showing any tendency to cut out when subjected to ordinary physiologic strain. In operations designed to close gaps in which the edges cannot be drawn together the living sutures have the advantage over patch transplants in that they do not depend for their success on the process of healing by scar tissue, but solely on the mechanical grip which they obtain on the edges of the ring. By weaving the sutures across the gap, as in the darning of a sock, a wall of great strength can be constructed which can be depended on to resist successfully any ordinary degree of intra-abdominal pressure and any ordinary muscular strain.

Value of Diet in Treatment of Diabetes.—The principles underlying the dietetic treatment of diabetes mellitus are discussed by Campbell. These are equally applicable to the treatment of diabetics with insulin, and it is emphasized that without attention to proper dietetic regimens, insulin is capable of much harm. For the patient who can live on a properly balanced, adequate diet, insulin is available to protect him from emergencies arising in his disease. Types of diets are discussed and a simple method of calculating a standard diet for diabetics is suggested, together with its application in treatment.

Pellagra in Natives of Ontario, Canada.—One of Stevenson's patients had been psychotic for sixteen years. She had always been finicky about her food and at times refrained from eating for fear of being poisoned. She was ill about nine months, presenting symptoms that were thought to be due to autointoxication from being habitually constipated. Then diarrhea and weakness appeared, for which no cause was found and she was given a tonic and special diet and showed some improvement, but diarrhea continued intermittently until an acute attack set in. The patient developed a pronounced asthenia and her mental state became one of confusion, disorientation and mild delirium. The diarrhea did not respond to treatment. The patient died. A necropsy was not obtained. In the second case a psychosis developed as one of the symptoms of pellagra. There was no known dietetic insufficiency although the woman had always lived in rather meager circumstances.

Malposition of Scrotum and Penis.—In Appleby's case the penis arose in the perineum posterior to the scrotum, which was attached unusually far forward on the pubes. The penis was very short, measuring one and one-half inches, and was normal in every respect, except that it was webbed, the web extending between the median perineal raphé and the under surface of the penis, and was attached as far back as the anal margin; it was quite lax, sufficiently so to permit erection. The position of the meatus was normal in relation to the penis. The scrotum was large and well formed and when the patient stood erect it completely concealed the penis. It was to all intents and purposes a normal scrotum, except that it was placed unusually far forward and anterior to the penis. The scrotum was not bifid; it was rugose, and the usual median raphé and septum were present. The penile web was also rugose, and the probability is suggested by Appleby that developmentally it is the true scrotum, the functioning scrotum having been developed from the pubic mons veneris.

Colorado Medicine, Denver

20: 171-202 (July) 1923

Importance in General Medicine of Headaches Originating from Eye, Nose and Throat Diseases. F. R. Spencer.—p. 175.
Complete Immobilization Treatment in Pulmonary Tuberculosis. Report of Cases. S. Swezey, Denver.—p. 186.
Faulty Posture Causing Abdominal Pain Simulating Symptoms Associated with Visceral Pathology. C. E. Tennant, Denver.—p. 191.

Iowa State Medical Society Journal, Des Moines

13: 261-324 (July 15) 1923

Some Variations in Thoracic Content as Observed in Anatomic Laboratory. H. J. Prentiss, Iowa City.—p. 261.
Diagnosis in Right Upper Quadrant. J. C. Shellito, Independence.—p. 267.
Obstruction of Nasal Passages, Especially the Upper Regions. H. W. Ivains, Cedar Rapids.—p. 272.
*Anomalies of Esophagus: Report of Case. T. D. Kas, Sutherland, and H. L. Avery, Pringhar.—p. 275.
Surgical Reconstruction of Paralytic Upper Extremity. A. Steindler, Iowa City.—p. 277.
Physicians Who Located in Iowa in Period Between 1860 and 1870. D. S. Fairchild. W. F. Peck and W. D. Middletown.—p. 279.
Communicable Diseases Among Students of University of Iowa. C. R. Thomas, Iowa City.—p. 282.
Iodin in Treatment of Syphilis. R. E. Jameron, Davenport.—p. 284.

Anomaly of Esophagus.—In the case recorded by Kas and Avery the upper end of the esophagus, about 1 inch long, and in a normal position, terminated in a blind pouch resembling a test tube. The lower end inclined forward, and formed a perfect anastomosis at the bifurcation of the trachea, the lower margin of the anastomosis being on a level with the apex of the bifurcation triangle. The lumina of the two segments of the esophagus were of equal size. The lungs showed the conditions found in early hypostatic pneumonia. All other findings were negative.

Journal of Biological Chemistry, Baltimore

56: 1-296 (May) 1923

*Preparation and Comparison of Standards for Estimation of Creatin and Creatinin. G. Edgar, University, Va.—p. 1.
Lipase Studies. II. Comparison of Hydrolysis of Esters of Dicarboxylic Acids by Lipase of Liver. E. C. Hyde and H. B. Lewis, Urbana, Ill.—p. 7.
*Variations in Distribution of Nonprotein Nitrogenous Constituents of Whole Blood and Plasma During Acute Retention and Elimination. E. D. Plass, Baltimore.—p. 17.
*Chemical Constituents of Saliva as Indices of Glandular Activity. J. L. Morris and V. Jersey, Cleveland.—p. 31.
Experiments on Catabolism of Caproic Acid and Its Derivatives. H. D. Dakin, Scarborough-on-Hudson, N. Y.—p. 43.
*Endothermic Reaction Which Accompanies Appearance of Visible Curd in Milks Coagulated by Heat. A. Leighton and C. S. Mudge, Washington, D. C.—p. 53.
Preparation of Tryptophane from Products of Hydrolysis of Lactalbumin with Baryta. H. C. Waterman, Washington, D. C.—p. 75.
Proteins of Cantaloup Seed, Cucumis Melo: Isolation of Crystalline Globulin and Comparative Study of This Globulin with Crystalline Globulin of Squash Seed, Cucurbita Maxima. D. B. Jones and C. E. F. Gersdorff, Washington, D. C.—p. 79.
*Phosphorus Compounds in Normal Blood. M. V. Buell, Baltimore.—p. 97.
*Quantitative Method for Determination of Phenols in Blood. N. W. Rakestraw, Stanford University, Calif.—p. 109.
Chemical Factors in Fatigue. II. Further Changes in Some of Blood Constituents Following Strenuous Muscular Exercise. N. W. Rakestraw, Stanford Univ., Calif.—p. 121.
Trap for Van Slyke Gas Analysis Apparatus. A. T. Shohl, New Haven, Conn.—p. 125.
Studies in Narcosis. I. Ether Analysis. T. K. Kruse, Pittsburgh.—p. 127.
*Id. II. Method for Determination of Respiratory Exchange During Ether Narcosis. T. K. Kruse, Pittsburgh.—p. 139.
New Sulphur Containing Amino-Acid Isolated from Hydrolytic Products of Protein. J. H. Mueller, New York.—p. 157.
Physiology of Muscular Exercise. IV. Blood Reaction and Breathing. D. P. Barr, New York.—p. 171.
Determination of Amino Nitrogen in Compounds Reacting Slowly with Nitrous Acid. D. W. Wilson, Baltimore.—p. 183.
Determination of Free Amino Nitrogen in Proteins. D. W. Wilson, Baltimore.—p. 191.
*Spontaneous Crystalization of Bence-Jones Protein. D. W. Wilson, Baltimore.—p. 203.
Studies in Pyrimidine Metabolism. D. W. Wilson, Baltimore.—p. 215.
Studies in Creatin and Creatinin Metabolism. V. Metabolism of Creatin. S. R. Benedict and E. Osterberg, New York.—p. 229.
Aqueous Extracts of Pancreas. I. Influence on Carbohydrate Metabolism of Depancreatized Animals. J. R. Murlin, H. D. Clough, C. B. F. Gibbs and A. M. Stokes, Rochester, N. Y.—p. 253.

Method for Making Creatinin Zinc Chlorid.—A new and simple method has been devised by Edgar for the preparation of creatinin zinc chlorid. The advantages of creatinin zinc chlorid and creatinin picrate as standards are emphasized.

Nonprotein Nitrogenous Constituents of Blood in Toxemia of Pregnancy.—The extremely rapid changes in concentration of the nonprotein nitrogenous constituents of the blood during recovery from the so-called "late toxemias of pregnancy," have been studied by Plass by simultaneous analyses of whole blood and plasma, and it has been demonstrated that these substances pass from cells to plasma, and in the reverse direction, so slowly, that at times the usual relationships are disturbed. It is particularly emphasized that the blood corpuscles are storehouses into which material accumulated in the plasma may be deposited temporarily, and from which the excess may later be removed rapidly. Under such conditions it is obviously important to attack the study of certain metabolic problems from the standpoint of the blood cells as well as of the plasma.

Uric Acid Is Index of Gland Metabolism.—The data presented by Morris and Jersey seem to justify the working hypothesis that uric acid, more than any other constituent, represents the actual cellular activity and might well serve as an index of gland metabolism.

Salts of Milk Determine Its Stability to Heat.—Leighton and Mudge feel justified in hazarding the opinion that the controlling factor which determines the stability of milks toward the action of heat is the equilibrium of the salts of the milk, and that the effects of forewarming on the stability of milk samples under further heating are the effects produced by altering this equilibrium. Since sucrose solutions dissolve calcium phosphate and citrate, and since sucrose can also form compounds with both calcium and phosphorus, it seems probable that the effect of cane sugar in condensed milk samples, as regards the stability of the samples, will also be explained by the action of the sugar on that equilibrium. The authors believe that any denaturation or dehydration of the protein before precipitation by heat is a secondary reaction.

Phosphorus Compounds in Normal Blood.—Evidence has been obtained by Buell which supports the conclusion that in the corpuscles of normal dog's blood there is no inorganic phosphate and in the plasma there is no organic phosphate. Although solutions of human corpuscles were not obtained which were entirely free from inorganic phosphate (as was the case with dog's corpuscles), the small amounts found, taken together with the established ease of decomposition of the organic phosphate of the corpuscles, suggest that in the living organism there is no inorganic phosphate in human corpuscles, and that the small amounts found represent postmortem changes. This point of view is not in keeping with the statement that the concentration of inorganic phosphate of serum and of whole blood in fresh specimens is identical.

Determination of Phenols in Blood.—Determinations were made by Rakestraw of the following constituents in the blood of nine men before and after a short period of strenuous muscular exercise; uric acid, sugar, amino-acids, chlorids and free and conjugated phenols. Samples were taken at intervals up to one and one-half hours following the exercise. Uric acid was found to increase continuously over the period of observation; sugar increased immediately following the exercise, but fell below normal at the end of one and one-half hours. None of the other constituents altered significantly with the possible exception of a slight increase in chlorids immediately following the exercise.

Respiratory Exchange Under Ether Narcosis.—A method is described by Kruse which is suitable for the study of the respiratory exchange in etherized animals with a preliminary report of results obtained on animals in various stages of reduction.

Spontaneous Crystallization of Bence-Jones Protein.—A Bence-Jones protein was found by Wilson which crystallized spontaneously from the urine in which it was excreted. Dried preparations were made which could be recrystallized. Attempts were made to crystallize other Bence-Jones proteins, but without success. The crystalline Bence-Jones protein contained a ratio of amino-nitrogen to total nitrogen of 4.86 per cent. This, in Wilson's opinion, is added evidence that the compound should be classed as protein and not as an albumose.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

21: 263-376 (June) 1923

Entrance of Convulsant Dyes into Substance of Brain and Spinal Cord After an Injury to These Structures. H. C. Syz, Baltimore.—p. 263.
*Effect of Quinin Intoxication on Respiratory Center of Rabbit. H. Sugata and A. L. Tatum, Chicago.—p. 293.
*Experimental Research on Distribution and Elimination of Organic Arsenic Compounds After Intravenous Administration. F. M. Bulmer, Toronto.—p. 301.
*Histologic Changes Produced Experimentally in Rabbits by Bismuth. B. Lucke and J. V. Klauder, Philadelphia.—p. 313.
Barbital Narcosis and Hypothermia in Pigeons. M. M. Ellis, Columbia, Mo.—p. 323.
*Respiratory Exchange and Blood Sugar Curves of Normal and Diabetic Subjects After Epinephrin and Insulin. R. S. Lyman, E. Nicholls and Wm. S. McCann, Baltimore.—p. 343.
*Rôle of Liver in Removal of Hemoglobin from Blood Stream. S. M. Rosenthal, Baltimore.—p. 367.

Effect of Quinin on Respiratory Center.—Quinin appears to increase the irritability of the respiratory center: (*a*) reflex response to afferent vagus impulses—increasing rate at the expense of depth and leading to underventilation, (*b*) in absence of vagal influences the increased irritability of the respiratory center to "hormone" action causes excessive or overventilation.

Distribution of Arsenic After Intravenous Administration.—The salient features in the distribution of arsenic, Bulmer says, are its high concentration in the liver very shortly after injection; the rapid lowering of this concentration presumably by the elimination of the arsenic by the bile; the relatively large amount in the lungs, especially after large doses, and the maintenance of a high arsenic content here, over a period of at least several days; and its retention by the long bones over a longer period than shown by any other tissue analyses. The migration of arsenic to the lungs might suggest an expiratory channel of excretion. The retention of arsenic in the long bones is, perhaps, significant in view of the therapeutic use of arsenic in anemias. The well known fact that liver tissue is impaired by arsenic might, in itself, suggest that the liver function in arsenic elimination is of some importance.

Changes in Tissues Produced by Bismuth.—The histologic changes produced in rabbits by several compounds of bismuth employed in the treatment of human syphilis are reported by Lucke and Klauder. Lethal doses of the drug, in aqueous solution or oil suspension, were administered. Injections were made intramuscularly as well as intravenously. All animals died within sixteen days after poisoning. Lesions of similar character were constantly found in the kidneys and in the liver, while in the other organs examined the tissue changes were inconstant and inconspicuous. There was considerable variation in the degree of severity, depending mainly on the length of survival of the animals. In general, the tissue changes were most pronounced in animals surviving the injection four or more days. The difference in route of administration or in the compound of bismuth injected did not produce essential differences in the character of the histologic lesions, so that the injuries found may be ascribed to the toxic action of bismuth rather than to any one compound or method of administration. It is concluded that caution should be used in the administration of bismuth compounds to patients suffering from renal disease.

Effect of Insulin on Respiratory Exchange.—Injection of both insulin and epinephrin showed an antagonistic effect in their action on respiratory exchange, level of blood sugar and circulatory changes. The total result was the summation of the two factors. In the case of two diabetic patients, epinephrin failed to terminate a condition of hypoglycemia which was brought on by insulin, the blood sugar percentage continuing to decrease after epinephrin was administered.

Rôle of Liver in Removal of Hemoglobin.—The disappearance of hemoglobin from the blood serum following its injection intravenously has been studied in twelve normal rabbits. In a dosage of from 22 to 60 mg. per kilogram of body weight there was practically complete removal in four hours. Ligation of the main liver, comprising 78.8 per cent. of the total liver substance, caused a marked delay in this rate of departure of hemoglobin from the blood. In five rabbits with the main liver ligated, an average of 43 per cent. of the amount injected was present in the serum four hours after injection.

Journal of Radiology, Omaha

4: 183-220 (June) 1923

Study of Lung Abscess by Serial Radiographic Examination. L. R. Sante, St. Louis.—p. 183.
Studies of Effect of Roentgen Rays on Glandular Activity. A. C. Ivy, B. H. Orndoff, A. Jacoby and J. E. Whitlow, Chicago.—p 189.
Diaphragmatic Nontraumatic Hernia. Report of Four Cases. E. H. Kessler, St. Louis.—p. 199.
Comparative Measurements of Intensity and Hardness of Roentgen Rays Produced by Different Types of American Transformers. A. Bachem, Chicago.—p. 202.

Kansas Medical Society Journal, Topeka

23: 173-200 (July) 1923

Postoperative Pulmonary Embolism. J. L. Caline, Wellington.—p. 173.
Ureteral Stricture. E. A. Pickens, Wichita.—p. 175.
Legislative Lobbying. J. C. Moorhead, Neodesha.—p. 179.
Focal Infection of Dental Origin and Principles Governing Its Removal. W. L. Shearer, Omaha.—p. 182.
Laboratory Examination of the Blood, and Interpretation of Laboratory Findings. T. R. Conklin, Abilene.—p. 185.

Missouri State Medical Association Journal, St. Louis

20: 215-262 (July) 1923

Iletin Treatment of Diabetes. D. R. Black, Kansas City.—p. 218.
New Methods of Diagnosing Early Pregnancy. W. C. Gayler, St. Louis.—p. 223.
Pregnancy and Tuberculosis. O. H. Schwarz, St. Louis.—p. 227.
Skin Diseases and Their Importance to General Practitioner: Considered from Viewpoint of Dermatologist. R. C. Lounsberry, Springfield.—p. 233.

New Orleans Medical and Surgical Journal

76: 1-55 (July) 1923

Health Relations of Louisiana with South American Countries. O. Dowling, New Orleans.—p. 1.
Venereal Disease Control. A. T. McCormack, Louisville, Ky.—p. 2.
Malaria Control Work in Alabama. S. W. Welch, Birmingham.—p. 6.
Conservation of Child Health. W. S. Leathers, Jackson, Miss.—p. 9.
Health Education. R. T. Lucas, Shreveport, La.—p. 16.
Swimming Pools and Infection. W. H. Seemann, New Orleans.—p. 18.
Headache: Study. G. H. Upton, New Orleans.—p. 21.
Charity Hospital of Louisiana. A. E. Fossier, New Orleans.—p. 24.
Treatment of Diabetes Mellitus with Insulin (Iletin). I. I. Lemann, New Orleans.—p. 31.
Dosage and Methods of Administration of Insulin. A. Eustis, New Orleans.—p. 35.
Treatment of Diabetes Mellitus with Insulin (Iletin). U. W. Giles, New Orleans.—p. 39.

New York State Journal of Medicine, New York

23: 286-324 (July) 1923

Recent Progress in Communicable Diseases of Childhood. C. Herrman, New York.—p. 285.
*Leukocytosis of Internal Hemorrhage. A. M. Wright and E. M. Livingston, New York.—p. 286.

Physiologic Effects of Radiant Energy, Especially on Human Eye. C. Sheard, Southbridge, Mass.—p. 292.
*Incidence of Cancer of Cervix in Pregnancy. B. C. Hirst, Philadelphia.—p. 300.
Chemical Surgery in Chronic Cervical Endometritis, with Rationale, Technic and Case Reports. C. W. Strobell, New York.—p. 303.
Certain Criteria of Management in Prostatic Carcinoma. E. M. Watson and C. C. Herger, Buffalo.—p. 309.
Treatment of Syphilis in Dannemora State Hospital. T. R. Reed, Dannemora.—p. 312.

Leukocytosis of Internal Hemorrhage.—The problem concerning the exciting factor or factors in the nonseptic type of leukocytosis was studied by Wright and Livingston through clinical observations checked by operation or necropsy, and by means of experiments. The clinical charts covered fracture of the base of the skull, pachymeningitis interna hemorrhagica and ruptured ectopic gestation. The experimental data represent a study of leukocytosis due to hemorrhages within serous cavities—the dura mater, peritoneum, pleural and joint cavities. The general conclusions reached from this study are: (1) A hemorrhage within a serous cavity always results in a high leukocytosis. (2) This leukocytic reaction presents a characteristic curve reaching a height of from 150 to 300 per cent. increase within the first ten hours and returning to normal by the fourth day. (3) In any disease with a recent intraserous blood clot an early leukocytosis, from 150 to 300 per cent. increase, is present and constitutes an important diagnostic sign. In the interpretation of this sign the leukocytic curve must be constantly in mind—two counts being made during the first six hours, if possible, and subsequent counts daily during the next three days. Following a cranial injury, such an immediate high leukocytosis constitutes presumptive evidence of intradural bleeding and of fracture of the base of the skull; the absence of such an immediate high count excludes fracture of the base of the skull.

Cancer of Cervix in Pregnancy.—Among about 40,000 cases of pregnancy Hirst has seen only three cases of carcinoma of the cervix late in pregnancy. Among 134,000 cases in the Lying-In Hospital of New York there were only four cases of cancer of the cervix.

Ohio State Medical Journal, Columbus

19: 481-552 (July 1) 1923

Acute Abdomen and Its Pitfalls. M. E. Blahd, Cleveland.—p. 485.
Diagnostic and Prognostic Value of Breath Holding Test. F. H. McMechan, Avon Lake.—p. 489.
Charcot Joint Following Trauma. C. H. Heyman, Cleveland.—p. 496.
Uses of Radium in Malignant and Nonmalignant Conditions: With Particular Reference to Gynecology. F. I. Shroyer, Dayton.—p. 498.
Headaches of Sinus Origin. E. D. Allgaier, Cincinnati.—p. 503.
Physiologic Effects of Massage. T. Burstein, Cleveland.—p. 505.
Alopecia and Its Treatment. L. K. McCafferty, New York.—p. 508.
Public Health Purchasable—Is It Salable? B. Marquette, Cincinnati.—p. 512.
Public Health Nurse. O. M. Craven, Springfield.—p. 515.

Tennessee State Medical Association Journal, Nashville

16: 81-121 (July) 1923

*Gangrene of Extremities Complicating Pneumonia. Sam P. Bailey, Nashville.—p. 89.
Hypophysis; Some of Its Disorders. M. L. Graves, Galveston, Texas.—p. 93.
Routine Gynecologic Patient. C. N. Cowden, Nashville.—p. 99.
*Splenectomy: Report of Case. J. B. Haskins, Chattanooga.—p. 107.
Intrahepatic Cholelithiasis. Fred C. Watson, Memphis.—p. 109.
Hemorrhage In and Around Nerve Tissue. Hazle Padgett, Nashville.—p. 112.

Gangrene of Toes Complicating Pneumonia.—Bailey reports a case of lobar pneumonia involving the upper lobe of the right lung, complicated by superficial gangrene of the first three toes on the right foot and the first two toes on the left foot and by bilateral, acute, purulent, otitis media. The patient recovered without loss of any of his toes.

Splenectomy for Movable Spleen.—In Haskins' case the spleen was removed because of its great mobility. It had a pedicle fully 4 inches long. The symptoms which led to the operation were those usually manifested in cases of twisted pedicle.

Virginia Medical Monthly, Richmond

50: 221-280 (July) 1923

Allergy in Asthma and Hay-Fever. R. A. Kern, Philadelphia.—p. 221.
Leprosy. Report of Case. D. C. Smith, Charlottesville.—p. 228.
*New Therapeutic Agent; Therapeutic Swing. P. B. Barringer, Charlottesville.—p. 232.
Case of Division of Posterior Sensory Root of Gasserian Ganglion for Trificial Neuralgia. M. D.'A. Magee, Washington, D. C.—p. 236.
*Activities of the Tuberculosis Division of the Health Bureau, Department of Public Welfare, Richmond, Va. W. N. Mercer, Richmond.—p. 243.
Roentgen Ray in Treatment of Certain Types of Metrorrhagia. F. M. Hodges, Richmond.—p. 247.
Identification of Clostridium Tetani (Bacillus Tetani). G. F. Reddish, Richmond.—p. 250.
Case of Rupture of Uterus. R. H. Dunn, South Charleston, W. Va.—p. 253.
Importance of Early Recognition, Diagnosis and Treatment of Mental Disorders. W. C. Ashworth, Greensboro, N. C.—p. 255.
Ministers to Sick. W. J. Mallory, Washington, D. C.—p. 257.
Conservation of Life. R. H. Garthright, Vinton.—p. 262.
Etiology of Benign Stricture of Esophagus. P. P. Vinson, Rochester, Minn.—p. 265.

Therapeutic Swing.—Barringer discusses the benefits that may be derived from sleeping on the abdomen, both in health and ill health. He has devised a so-called "therapeutic swing" on which patients are placed for varying periods of time as part of the plan of treatment of constipation and vascular hypertension.

Activities of Tuberculosis Division of Health Bureau.—Mercer emphasizes the advantages to be gained not only by the private practitioner and the community in general, but also by the tuberculous patients themselves, when the full cooperation of physicians is given with various activities of the city health bureau. The Tuberculosis Division of the Health Bureau, Department of Public Welfare, Richmond, Va., has a well organized and efficient free tuberculosis clinic; it has two full-time tuberculosis nurses and eight nurses who devote part of their time to this work; a specific appropriation for tuberculosis work; a full-time director of a separate division of tuberculosis; and a municipal sanatorium for white, and one for colored tuberculous patients. Instruction in the prevention of tuberculosis is given by the clinic staff to all who attend the clinic. During the past winter a course of instruction in the diagnosis, prevention and treatment of tuberculosis was given to a class of physicians, weekly, at the clinic, and practical demonstrations of selected cases served to make the course of more practical benefit. Physicians may accompany or refer their patients for a thorough examination of the chest and throat. Private consultation with private physicians throughout the city is available in cases of suspected or complicated tuberculosis when patients are confined to their homes, or unable to go to the clinic. Patients who are unable to pay, and patients presenting surgical or other complications needing correction, are admitted to the city hospital, if necessary, when this action is sanctioned by the attending physician.

West Virginia Medical Journal, Huntington

18: 1-56 (July) 1923

Variation of Conception of Medical Education. J. N. Simpson, Morgantown.—p. 1.
End Results of Labor with Respect to Soft Parts of Passage. W. N. Rowley, Huntington.—p. 8.
Athrepsia. O. B. Lynch, Beckley.—p. 12.
Surgical Gallbladder. R. J. Wilkinson, Huntington.—p. 16.
Removal of Tonsils. N. R. Price, Marlinton.—p. 25.
Gastric and Duodenal Ulcer. W. R. Goff, Parkersburg.—p. 26.

Wisconsin Medical Journal, Milwaukee

22: 59-104 (July) 1923

Relationship of Women's Diseases to Chronic Patient. C. Culbertson, Chicago.—p. 59.
Benign Hypertrophy of Prostate Gland; Preoperative Care. I. R. Sisk, Madison.—p. 62.
Treatment and Results in Fractures. J. M. Dodd, Ashland.—p. 65.
Rôle of Unsuspected Syphilis in Otolaryngology. J. E. Mulsow, Milwaukee.—p. 68.
Fundamentals in Cardiac Diagnosis. E. F. Mielke, Appleton.—p. 72.
Case of Ventral Hernia of Large Size with Operative Cure. H. E. Burger, Beloit.—p. 85.
Unusual Solitary Subjective Manifestation of Thyrotoxicosis. H. M. Coon, Madison.—p. 85.
Health Education. W. D. Stovall, Madison.—p. 87.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Tropical Medicine and Parasitology, Liverpool

17: 113-301 (July 12) 1923

Revision of Amphistomata of Mammals. P. A. Maplestone.—p. 113.
*Malaria in Australia. P. A. Maplestone.—p. 213.
Coccidiosis of Cats and Dogs and Status of Isospora of Man. C. M. Wenyon.—p. 231.
Further Note on Occurrence of Ancylostomes Resembling Necator Americanus Amongst Domestic Pigs in Amazonas. R. M. Gordon.—p. 289.
Case of Acute Ascending Paralysis in Chimpanzee. S. Adler and E. J. Clark.—p. 299.

Malaria Infrequent in Australia.—As far as can be gathered from the incomplete and unreliable records available, Maplestone says, malaria is only mildly endemic in Australia north of 19 degrees south latitude. *Anopheles annulipes* and *A. bancrofti*, the only two possible malaria carriers in Australia under present conditions, are much more widely distributed than is malaria. In various localities north of 19 degrees south latitude small epidemics of malaria occur from time to time; these outbreaks are of short duration; their origin is generally traceable to the introduction of malaria carriers from abroad; the disease does not spread to adjoining camps and towns, and soon dies out, without the institution of active antimalarial measures.

Archives of Radiology and Electrotherapy, London

27: 1-32 (June) 1923

Histologic Pictures Representing Cure of Uterine Basocellular Epithelioma. F. Daels.—p. 1.
Case of Osteitis Deformans. H. W. Jones.—p. 17.
Artificial Pneumopericardium. R.W. A. Salmond.—p. 20.
Pulmonary Tuberculosis as Shown by Roentgen Rays, but Without Physical Signs. S. Melville.—p. 23.
Some Effects of Exposure to Radium on Alimentary Canal. J. C. Mottram.—p. 28.

British Journal of Surgery, Bristol

11: 1-196 (July) 1923

Eponyms. IX. Pott's Disease of Spine. D'A. Power.—p. 1.
*Flow of Lymph from Ileocecal Angle, and Its Possible Bearing on Cause of Duodenal and Gastric Ulcer. L. R. Braithwaite.—p. 7.
*Unilateral Fused Kidney and Allied Renal Malformations. M. J. Stewart and S. D. Lodge.—p. 27.
*Metastatic Tumors of Bone. C. A. Joll.—p. 38.
Depressed Fracture Over Angular Gyrus; Clinical and Radiological Localization. A. P. Bertwistle.—p. 73.
*Operation for Hemorrhoids. K. W. Monsarrat.—p. 77.
*Retrograde Intussusception of Small Intestine After Gastro-Enterostomy. H. Drummond.—p. 79.
*Chronic Mastitis. G. Keynes.—p. 89.
Congenital Ileocecal Cysts. H. F. MacAuley.—p. 122.
Sarcoma of Long Bones. S. G. Shattock.—p. 127.
*Nomenclature of Diseased States Caused by Certain Vestigial Structures in Neck. J. E. Frazer.—p. 131.
Femoral Hernia and Saccular Theory. R. H. Russell.—p. 148.
Malignant Disease of Upper Jaw: Operative Technic. E. M. Woodman.—p. 153.
Closure of Suprapubic Urinary Fistula Following Suprapubic Prostatectomy: Observations on Six-Eight Cases. H. P. W. White.—p. 173.
Acute Hemorrhagic Pancreatitis. A. G. T. Fisher.—p. 179.
Case of Jejunal Diverticula. L. R. Braithwaite.—p. 184.
Unusual Cause of Death (Septic Thrombosis of Iliac Vein) in Acute Appendicitis. C. H. Whitcford.—p. 189.
Perforation of Meckel's Diverticulum: Recovery. D. Drew—p. 190.

Flow of Lymph from Ileocecal Angle and Bearing on Cause of Gastric and Duodenal Ulcer.—In a case presenting the usual signs and symptoms of acute appendicitis, immediate operation was performed by Braithwaite. The appendix was slightly congested but otherwise apparently normal. The ileocecal glands were jet black, and a chain of jet black glands could be traced up to the duodenum and the superior mesenteric vessels where they cross it. In addition, two of the glands on the greater curvature of the stomach, two inches from the pylorus, were black. This case certainly suggested that there must be some lymphatic path whereby the pigment could travel to the stomach. It also suggested that if pigment could reach this area from the appendix, infection could do the same thing. This belief led Braithwaite to study the normal flow of lymph from the ileocecal angle in a perfectly healthy subject, as gleaned from postmortem injections—largely in the fetus—and by experiments in both living and dead subjects, to find out (1) whether aberrant paths existed; and (2) what effect disease of lymph vessels or glands would have on the lymph flow. The result has been a new anatomic picture, and the suggestion that duodenal and gastric ulcer, and other forms of dyspepsia, may be caused by toxin forming conditions in the ileocecal region.

Congenital Abnormalities of Kidney.—The congenital renal abnormalities found in a consecutive series of 6,500 postmortem examinations are described by Stewart and Lodge. The list includes fourteen cases of horse-shoe kidney, one case of unilateral fused kidney, sixteen cases of congenital abscence of one kidney, and three cases of "pelvic" kidney. The cases in which a horse-shoe kidney was found are compared with those in which one organ was congenitally absent with respect to (*a*) the incidence of renal disease, and (*b*) the age at death. The case of unilateral fused kidney is described in detail, and the published cases of this condition are collected and reviewed.

Metastatic Tumors of Bone.—Joll shows that a knowledge of bone metastases, their mode of production, the types of neoplasms which give rise to them, and their special clinical manifestations, is essential not only in the study of pathology, but also in the practice of surgery. Of 1,144 cases of malignant disease, fifty-three presented bone metastases. In thirty-four of these cases the primary tumor was situated in the breast. The vertebrae were involved most often—21.6 per cent. of the cases. Next in order were: ribs, 20.4 per cent.; sternum, 14.7 per cent.; femur, 14.7 per cent.; skull, 10.2 per cent.; humerus, 7.9 per cent.; pelvis, 4.5 per cent.; tibia, 2.2 per cent.; mandible, 1.1 per cent.; scapula, 1.1 per cent.; clavicle, 1.1 per cent.

Operation for Hemorrhoids.—Monsarret excises the varices and sutures the raw edge of mucous membrane to the skin edge. The external sphincter is brought fully into view by this method and cannot be injured.

Retrograde Intussusception of Small Intestine Following Gastro-Enterostomy.—The history of a previously performed gastro-enterostomy, often of many years standing, followed by sudden griping epigastric colic, vomiting of blood, often a palpable tumor in the left hypochondriac region with absence of rigidity, distention, and acute tenderness, Drummond says, suggest the diagnosis of retrograde intussusception of the small intestine. Fourteen cases have been recorded. To these Drummond adds one case. The type of gastro-enterostomy performed has nothing to do with the occurrence of the ascending intussusception. In all probability the ascending intussusception is produced by too rapid emptying of the stomach, causing irritation of the jejunum, and setting up forcible antiperistalsis. Diagnosis is straightforward, and should, now that the condition has been recognized, be made easily. The treatment is immediate operation.

Cause of Chronic Mastitis.—The theory advanced by Keynes as a possible cause of this condition is the anatomic construction of the breast, which reacts, in its turn, on the normal physiologic mechanisms. The normal, nonlactating breast has no outlet through the nipple for the discharge of its secretions. Secretion must, therefore, be balanced normally by reabsorption. Chronic mastitis is manifested by dilatation of ducts and acini, accumulation in them of the products of epithelial activity, infiltration with lymphocytes, fibrosis and epithelial changes. Distribution of all these is very erratic. The cause of chronic mastitis is probably to be found in chemical irritation due to stagnating secretions and epithelial debris. This cannot be proved until the chemical changes have been investigated. Chronic mastitis is the underlying cause of many lesions usually described as clinical entities, such as simple cyst, papilliferous cyst, or galactocele. Chronic mastitis, though very often associated with carcinoma, has not been proved to be "precancerous." Both may be due to the same cause.

Vestigial Cyst Not "Branchial" Cyst.—Frazer objects to the use of the terms "branchial cyst," "branchogenetic," etc. He prefers more accurately descriptive terms. Thus, a persistent and open canal of His would be described properly as a median or paramedian vestigial entodermal sinus. The common "branchial cyst" in the neck would become a lateral vestigial cyst, ectodermal or entodermal, as the case might be. A cystic distention of a persistent remnant of the first groove would be a right or left subtubal vestigial (entodermal) cyst. The same idea in terminology would come in, with descriptive accuracy, in fistula or carcinoma or in any other condition associated with vestigial structures.

China Medical Journal, Shanghai

37: 453-540 (June) 1923

Life Cycle of Fasciolopsis Buski (Human) in China. C. H. Barlow.—p. 453.
Indications for Tonsillectomy. H. R. Slack.—p. 473.
Indications for Tonsillectomy. K. H. Digby.—p. 475.
Artificial Limbs Made by Chinese Brass Smiths. H. Neuffer.—p. 480.
Toxicology in China. B. E. Read.—p. 481.

Edinburgh Medical Journal

30: 265-312 (July) 1923.

*New Gastroduodenal Technic. R. K. S. Lim, A. R. Matheson and W. Schlapp.—p. 265.
Some Ancient Mineral Wells in Scotland. W. G. A. Robertson.—p. 276.
Case of Bilateral Iliac Abscess Treated by Oxygen Inflation. W. R. Stewart.—p. 281.
Radiotherapy in Gynecology. W. F. T. Haultain.—p. 289.

New Gastroduodenal Technic.—Lim and his associates employ two tubes, one in the stomach and the other in the duodenum, and apply continuous suction simultaneously to both. The continuous removal of the gastric contents almost entirely obviates loss of juice through the pylorus, while the continuous withdrawal of duodenal contents prevents the accumulation of secretion, which might in the ordinary course of events be regurgitated. Since the whole of the juice secreted by the stomach is obtainable in a pure state by this method, it becomes possible to supplement percentage or relative figures for hydrochloric acid, pepsin, etc., with a statement of the total output. Histamin solution is injected subcutaneously. Before giving the test, at least four ten minutes' observations should be carried out on the unstimulated stomach. It is then necessary to continue for about one and a half hours, by which time the effect of the drug on the stomach has subsided. The juices collected may be analyzed in any desired manner and the curves of the secretory response plotted.

Glasgow Medical Journal

18: 1-63 (July) 1923

Case of Diverticulum of Bladder. J. M. Renton.—p. 1.
Hitherto Unpublished Letter by Dr. Robert Knox, the Anatomist, 1791. 1862. A. M. Adams.—p. 5.
Trauma as Factor in Etiology of Sarcoma. Report of Cases. J. Patrick and J. A. G. Burton.—p. 8.
Health Visitors in Scotland. D. McKail.—p. 19.

Journal of Laryngology and Otology, Edinburgh

38: 341-404 (July) 1923

Radical Frontal Sinus Operation. W. G. Howarth.—p. 341.
Osteitis Deformans and Otosclerosis. G. J. Jenkins.—p. 344.
Foundations of Otology: Work of Flourens. W. J. C. Nourse.—p. 354.
Mucocele of Frontal Sinus. C. Thomson and C. H. M'Ilraith.—p. 365.

Journal of State Medicine, London

31: 251-300 (June) 1923

Treatment of Syphilis. D. Lees.—p. 251.
Problem of Syphilitic Child. G. D. Kettlewell.—p. 260.
Disposal of Waste Water with Especial Reference to Ablution Places, Laundries and Cookhouses. T. S. Dudding.—p. 265.
Diphtheria in Bristol. D. S. Davies.—p. 276.
Destruction of Animal Carriers of Disease. F. W. W. Dawson.—p. 282.

31: 301-350 (July) 1923

Organization of Industry. Riddell.—p. 301.
Naval, Military, Air and Tropical Diseases. A. T. Sloggett.—p. 334.
Women and Public Health. D. Wood.—p. 337.

Journal of Tropical Medicine and Hygiene, London

26: 227-232 (July 2) 1923

*Discovery of New Type of Germ Isolated from Cases of Measles and Scarlet Fever (Minute Gram-Negative Anaerobic Diplococcus). D. Thomson.—p. 227.
Possible Hosts for the Bilharzias in Portuguese East Africa. F. G. Gawston.—p. 228.
Rectal Injections of Quinine. W. Fletcher.—p. 229.

New Micro-Organism Found in Measles and Scarlet Fever.—In inoculated tubes containing testicular mince, among a variety of organisms usually found by Thomson in catarrhal affections of the nasopharynx, there were also present minute gram-negative diplococci which tended to be grouped in masses. This organism resembled *Micrococcus catarrhalis,* except that it is much smaller in size. This germ was only isolated in pure culture with great difficulty after many attempts. The germ was isolated pure, first from a measles culture, and later from a scarlet fever culture. It is a strict anaerobe. It requires for its growth a medium containing plasma, whole blood, hydrocele fluid, or testicular extract. The germ is a remarkable gas producer. It is a true diplococcus, growing in pairs like the gonococcus, but it is extraordinarily minute, measuring only about one third of the diameter of the gonococcus, or about 0.3 micron. In liquid mediums it tends to grow in masses and never in chains. It is markedly gram-negative. This minute diplococcus is usually seen in fair abundance in gram-stained smears of the mucopus from the throats of measles and scarlet fever patients, whereas it is not at all evident in similar preparations from the throats of normal adults.

Medical Journal of Australia, Sydney

1: 687-714 (June 23) 1923

Progress Report on Health Program of Halifax and Dartmouth. B. F. Royer.—p. 687.
"Pink Disease" Erythredema. E. S. Littlejohn.—p. 689.
Injections of Saline Solution in Gastro-Enteritis. M. Harper.—p. 693.
Hay-Fever and Asthma. L. A. I. Maxwell.—p. 693.
Tuberculosis of Suprarenals in Tuberculous Peritonitis. W. Ray.—p. 698.
Typhoid Fever with Supposed Perforation. W. Ray.—p. 699.
Case of Familial Hemolytic Splenomegaly Treated by Roentgen Rays. E. S. Littlejohn.—p. 699.
Intussusception with Meckel's Diverticulum. W. Vickers.—p. 699.

Public Health Journal, Toronto

14: 291-338 (July) 1923

Child Hygiene, Department of Public Health, Toronto. A. G. Fleming.—p. 291.
Some Recent Aspects of Public Health Administration. H. F. Vaughan.—p. 302.
Smallpox. W. L. Hutton.—p. 308.
Recreation for Women and Girls. A. F. Hodgkins.—p. 314.

South African Medical Record, Cape Town

21: 265-292 (June 23) 1923

Sunlight and Disease. P. M. Daneel.—p. 265.
Evolution of Dentistry. S. H. Coplans.—p. 272.
Treatment of Fractures of Lower Extremity. I. W. Brebner.—p. 278.
Treatment of Fractures of Upper Extremity. R. Daly.—p. 281.

Tubercle, London

4: 433-480 (July) 1923

*Occurrence of Tubercle Bacilli in Blood Stream in Tuberculous Children. C. D. S. Agassiz and S. R. Gloyne.—p. 433.
Diagnosis and Treatment of Tuberculosis of Kidneys and Urinary Tract. III. Treatment of Renal Tuberculosis. G. Ekehorn.—p. 444.
Disappearance of Tuberculous Peritonitis Eight Days After Use of 11 Cgm. of Radium. P. Bull.—p. 450.

Tubercle Bacilli in Blood of Tuberculous Children.—Forty-three cases of tuberculosis in children under 15 years of age have been examined by Agassiz and Gloyne. The cases varied from those with slight involvement of the glands to those in which the infection was widespread in the lungs, and in which the tubercle bacilli were present in the sputum. In no case were tubercle bacilli shown to be present in quantities of blood varying from 1.5 to 10 c.c. Blood was taken both during apyrexial and pyrexial periods. The presence, therefore, of slight or extreme toxemia would not appear to show that the blood stream was necessarily infected. The evidence collected would suggest the following possibilities: (*a*) the number of bacilli circulating in the blood is too small to be detected by the withdrawal of amounts of blood up to 10 c.c.; (*b*) that the bacilli are only discharged into the blood stream at intervals (i. e., it is an embolic rather than an elimination process, as in renal infection); (*c*) that extension of disease takes place by means of some other route, such as the lymphatic system.

Bulletin de l'Académie de Médecine, Paris

89: 571-591 (May 29) 1923

*Mortality from Infectious Diseases in France. A. Calmette.—p. 572.
*Recruiting for the Antituberculosis Dispensaries. Bernard and de Retz. —p. 578.
*Sugar Diet in Uricemia. Rémond and Rouzaud.—p. 585.
*Changes Due to Artificial Pneumothorax. Parisot and Hermann.—p. 586.

Mortality from Infectious Diseases in France Before and After Pasteur.—Calmette demonstrates that France, in spite of the low natality, would have a yearly increase of 179,400 souls, if the mortality were as low as it is in Norway (132 per 10,000 instead of 178 in France in 1910).

Recruiting for Antituberculosis Dispensaries.—Bernard and Retz found that visiting nurses are the most important factor in recruiting patients for dispensaries.

Sugar and Uric Acid in Blood Plasm: Sugar Diet in Uricemia.—Rémond and Rouzaud observed a certain antagonism between the sugar and uric acid concentration of the blood. The elimination of uric acid was greater when the blood sugar was high. Ingestion of sugar was followed by a decrease of uric acid in the blood.

Clinical and Therapeutic Consequences of Changes in Pulmonary Function and General Nutrition Due to Artificial Pneumothorax.—Parisot and Hermann found very slight increase in frequency of respiration and a marked increase in oxygen intake in patients with artificial pneumothorax. Slow institution of the pneumothorax is less disturbing than a rapid one. Experiments on animals confirmed these observations. They found that adult animals lose weight and young animals are retarded in their growth in spite of an increased appetite. The carbohydrate tolerance is increased.

Bulletins de la Société Médicale des Hôpitaux, Paris

47: 937-1008 (June 22) 1923

*Evening Antisyphilis Dispensaries. M. Pinard and Rabut.—p. 939.
*Child Welfare Work in Morocco. J. Comby.—p. 941.
*Filling Pleura with Oil. A. Bernou.—p. 944.
*Tests for Gastric Cancer. F. Ramond, Ravina and Zizine.—p. 947.
*Insulin in Treatment of Diabetes. Chabanier et al.—p. 949 and p. 977.
*Anuria from Abortifacient. F. Rathery and R. Michel.—p. 962.
*Osteomalacia in Man. E. Chabrol and Haguenau.—p. 973.
Fatal Septicemia from Friedländer Bacillus. Brouardel et al.—p. 990.
*Arsphenamin Sensitization. Raynaud, Montpellier and Lacroix.—p. 992.
*Multiple Sclerosis and Syphilis. H. Dufour and Duchon.—p. 999.
Associated Leprosy and Acquired Syphilis. L. Babonneix and E. Rivalier.—p. 1004.

Venereal Disease Dispensaries.—Pinard and Rabut urge the value of comparing the work of these dispensaries from year to year. At the Boucicaut, in their charge, they found forty-eight new cases of syphilis in 1922 but only nine in 1923 to date.

Heliotherapy in Morocco.—Comby describes the "sun garden" which supplements other welfare measures for children which the French have organized in Morocco. "Many a European town might well envy the provisions at Rabat."

Blocking the Pleura with Oil.—Bernou states that a tuberculous young woman was materially improved by artificial pneumothorax until a perforation into the pleura and suppuration threatened to annul the effects. He then injected into the pleura a medicated oil, which prevented adhesion of the layers, and has repeated this at intervals during the fourteen months since. Resorption of the oil might be prevented by using liquid petrolatum instead of the olive oil he used, sometimes with 4 per cent. camphor. It took 225 c.c. of oil to replace the pneumothorax, but the result realized his hopes.

Cytolytic Test for Cancer.—Ramond, Ravina and Zizine found that a suspension of human or dog gastric mucosa is rapidly destroyed by the blood serum of patients with gastric cancer, and, to a lesser extent, with cancer lower in the alimentary tract. If the suspension is centrifugated, the tubes to which the cancer serum is added clear up completely on twenty-four hours' incubation, while the controls grow more turbid. These two tests not only aid in the early diagnosis but also in the prognosis, as a strong cytolytic reaction indicates that the organism is defending itself well. The course was more torpid in such cases.

Insulin in Treatment of Diabetes. — Several members described their experiences with insulin. Lereboullet mentioned that in one girl, aged 13, the benefit from the insulin seemed to be durable. On three occasions there was too long an interval before the intake of food after the insulin, and the child developed vertigo or convulsions.

Total Anuria from Abortifacient.—The woman took daily for two weeks small doses of subacetate of lead—a total of 5 or 6 c.c.—to bring on the menses. Subacute nephritis developed, with fatal anuria. Comparison with similar cases on record suggests an extra liability to injury from repeated small doses.

Osteomalacia in Man.—The necropsy findings are discussed in a case of osteomalacia of twenty-five years' standing, after death from intercurrent pneumonia.

Anaphylaxis After Arsphenamin Treatment.—An eruption resembling that of scarlet fever developed in the young man after the thirtieth daily injection of arsphenamin. Then, even 1 mg. induced intense anaphylactic shock and eruption. Sodium bicarbonate retarded and attenuated the shock somewhat, but never prevented it.

Multiple Sclerosis and Syphilis.—The Wassermann reaction was positive in the cerebrospinal fluid in the case described, and improvement followed bismuth treatment, but there was neither a history nor signs of syphilis.

Médecine, Paris

4: 565-648 (May) 1923

*The Present Conception of Pulmonary Tuberculosis. Bezançon.—p. 565.
Present Status of Tuberculosis Question in Germany. S. I. de Jong. —p. 586.
Idem in the United States. M. Chevalley.—p. 594.
*Tubercle Bacilli in the Stools. E. Sergent and H. Durand.—p. 603.
*Tubercle Bacilli in Self-Digested Sputum. A. Philibert.—p. 610.
*Hepatic Anergy in Tuberculosis. N. Fiessinger.—p. 615.
Hilus Roentgen Findings in Incipient Tuberculosis. P. Duhem and R. Chaperon.—p. 617.
Radiography of Tuberculous Lung Postmortem. P. Braun and C. Verin.—p. 622.
*Skin Tuberculin Reaction in Women. E. Coulaud.—p. 627.
*Conjugal Tuberculosis. P. Roussel.—p. 630.
Treatment of Hemoptysis in Tuberculosis. M. P. Weil.—p. 636.
*Treatment of Vomiting in the Tuberculous. P. Lassablière.—p. 641.
Treatment of Diarrhea in the Tuberculous. A. Jacquelin.—p. 645.

The Present Conception of Pulmonary Tuberculosis.—Bezançon's long study emphasizes the importance of the genital sphere in the progress of tuberculosis. Not only puberty and pregnancy, but the recurring menstrual waves influence tuberculosis injuriously. The exaggeration of thyroid function and of the basal metabolism usual at these times may be responsible; even a mild intercurrent infection is another potent factor. He says that radiography often reveals more than really exists, and that it is too early yet to rely on the complement fixation test.

Tubercle Bacilli in the Stools.—Sergent and Durand urge the importance of examining the stools in cases of pulmonary tuberculosis when sputum is not available. Children swallow their sputum, and many adults do so likewise. In the stools of thirteen nontuberculous patients, they found no acid-fast bacilli, while they were constantly present in 8 sputum-swallowing tuberculous patients. They make an emulsion of 50 c.c. of feces in 0.07 per cent. sodium chlorid solution, filter through gauze, and pour to the two-thirds mark in two centrifuge tubes. To each tube is then added 2 c.c. of a mixture of equal parts of ether and ligroin, and after thorough agitating, the tubes are centrifuged for ten minutes. The experiences related show that the dejecta of the tuberculous are as virulent as the sputum.

Incubation of Sputum.—Philibert announces that sputum in a centrifuge tube placed in the autoclave for four days at 37 C (or at room temperature for ten days) undergoes self-digestion, and the tubercle bacilli settle to the bottom. In 227 cases in which ordinary homogenization measures failed to reveal bacilli, this incubation method showed them in 8.8 per cent. In nine cases, guinea-pigs had been inoculated with the sputum at the same time, and the six with negative autolysis were negative in the animals, while the three positive were positive also in the animals.

The Liver in Tuberculosis.—Fiessinger's title is "The Hepatic Anergy," and he pleads the necessity for sparing the liver in the tuberculous in every way.

Skin Tuberculin Reaction in Women.—Coulaud noted that the negative responses in undoubtedly tuberculous women coincided with the menses in fully 90 per cent. The slightest delay in the menstrual period seems to determine a conditional anergy to tuberculin.

Conjugal Tuberculosis.—Roussel found the husband alone tuberculous in 423 families; the wife alone in 163, and both husband and wife in forty-nine, but the infection had preceded marriage in twenty-seven in this last group. Consequently, conjugal contagion could be incriminated in only 5.2 per cent. of the total 423 families, and the infection was mild.

Vomiting in Tuberculosis.—Lassablière has found restriction to sweetened condensed milk useful in controlling vomiting in the tuberculous. Sodium citrate with codein has also aided. He has often found this sweetened condensed milk effective in treatment for diarrhea in children.

Paris Médical

13: 509-524 (June 9) 1923

*Blood Pressure as Factor in Diuresis. L. A. Amblard.—p. 509.
Technic for Blood Transfusion. G. Rosenthal.—p. 513.
*Febrile Syphilis. A. Lanzenberg.—p. 518.
Strontium in Treatment of Retention of Sodium Chlorid. Dong-Ngoc-Dieu and P. L. E. Millous.—p. 522.
Jaundice from Congenital Atresia of Bile Duct. G. L. Hallez.—p. 523.

Blood Pressure as Factor in Water Diuresis.—Amblard here reviews his special studies of the action of courses of mineral waters (Vittel) in chronic heart and kidney disease. There seems to be no evidence to date which suggests that the key to the secretion of water lies either in the renal circulation or in the hydremia.

Febrile Syphilis.—In one of Lanzenberg's two cases, the continuous fever and pains in the joints were ascribed to typhoid for over two months, when a suspicious lesion in the pharynx cleared up the diagnosis. Recovery was prompt under arsenical treatment; the local symptoms had been aggravated by the mercurial treatment tried at first. In the second case, the diagnosis had long been occult tuberculosis, but the recurring evening fever subsided at once under specific treatment. Before cases of a chronic subfebrile state with slight anemia and slight stationary signs of a mild lesion in the lung, the whole persisting unmodified for years, are labeled tuberculosis, a tentative course of specific treatment should be given.

Presse Médicale, Paris

31: 241-252 (March 14) 1923

*Specific Treatment of Tuberculosis. A. Jousset.—p. 241.
*Pathogenesis of Hemogenia. P. Emile-Weil and Isch-Wall.—p. 243.
Tubercle Bacilli in Blood of Young Children. H. Lemaire and R. Turquety.—p. 245.

Vaccine Therapy and Serotherapy of Tuberculosis.—Jousset explains that vaccine therapy is indicated in cases of local affections, while serotherapy is indicated with general infection and with regular fever. When the fever is of the toxic type, with a wide range, vaccine therapy is preferable to serotherapy. When the morning minimum is above 37 C. and the fluctuations do not exceed 2.5 degrees C., then serotherapy, and only serotherapy, should be tried. When the morning minimum is below 37 C. and the range not over 2.5 degrees, vaccine therapy is preferable. Either treatment can be used when the temperature keeps close to normal, but with hectic fever, with a wide range, both vaccine and serum are futile. Alternation of the vaccine and antiserum may render valuable service—a kind of Scottish douche specific treatment, stimulating and soothing in turn.

Pseudohemophilia: Hemogenia.—Weil and Isch-Wall explain hemogenia as an acquired or inherited hemorrhagic blood and vessel diathesis, caused by functional disturbances in the whole blood-producing apparatus, but most pronounced in the liver. Contrary to hemophilia, it affects women almost exclusively, and the hemorrhagic tendency may be restricted to the genital apparatus. A previous study of hemogenia by these authors was reviewed in these columns May 26, 1923, p. 1546.

31: 593-604 (July 7) 1923

Indications and Technic for Tonsillectomy. A. Moulonguet.—p. 593.
*Recurring Parotitis. G. Leclerc.—p. 595.
The New Anesthetics, Acetylene and Ethylene. L. Cheinisse.—p. 596.

Recurring Parotitis.—Leclerc relates that a man, now 40, had had since childhood recurring retention of saliva in one parotid gland. The gland enlarged, but voided its contents on pressure. This recurred ten or twenty times an hour, and the sialorrhea was extreme. Finally the gland suppurated. Nothing could be found to explain the recurring retention, and Leclerc applied Leriche's exeresis method in treatment, tearing out the auriculotemporal nerve. The ptyalism was arrested at once and permanently. In Leriche's similar case the affection was bilateral, and required the operation on each side. He has thus treated fistulas of the parotid, and the sialorrhea in aerophagy and with cancer of the esophagus, and always found it successful.

Revue de Chirurgie, Paris

61: 249-328, 1923

Cancer in Submaxillary Gland. E. Delannoy.—p. 249.
Contusions of the Pancreas and False Traumatic Cysts. P. Mocquot and H. Costantin.—p. 279. Cont'n.
Unilateral Intrathoracic Surgery in Open Pleura. Immediate Results. J. Leveuf.—p. 319.

Schweizerische medizinische Wochenschrift, Basel

53: 593-612 (June 21) 1923

*Premature Separation of Normally Located Placenta. E. Frey and A. Armbruster.—p. 593.
The General Anesthesia Question. E. Baumann.—p. 600.
*Operative Treatment of Adhesive Pericarditis. R. Dunant and G. Turrettini.—p. 606.
Air Pump in Otology. E. Lüscher.—p. 607.

Premature Separation of Normally Attached Placenta.—Frey and Armbruster remark that this mishap seems to be occurring with unusual frequency of late in their experience, a total of 0.85 per cent. of the 3,523 deliveries at the Zurich maternity in the last two years. In contrast to this total of thirty-two cases they encountered only eleven of placenta praevia. When the hemorrhage is predominantly internal, the uterus grows larger, round, hard, and tender, while the collapse is extreme. They had two cases of this type; in one, the blood poured into the peritoneum through the tubes. The separation occurred in the midst of a severe pregnancy toxicosis, the thirty-second week. The woman recovered after cesarean section. In fourteen cases, the soft parts not dilated, the fetus was extracted through an incision in the cervix, under local anesthesia, with excellent results. There is no need to remove the uterus, as a rule.

Operative Treatment of Adhesive Pericarditis.—Dunant and Turrettini resected the third, fourth and fifth ribs over an expanse of 10 cm., to relieve the heart, in a rebellious case of adhesive pericarditis of several years' standing. The patient was a woman, aged 24, and there was no appreciable valvular defect. The cardiolysis relieved the dyspnea at once, but the liver was still somewhat enlarged a year later. There has been no return of the dyspnea or edema, and menstruation is now regular. Insidiously progressive asystoly of the right heart, the anchored apex, and the systolic retraction of the interspaces were all unmistakable in this case, and the cardiolysis restored the circulation to an excellent functional condition.

Pediatria, Naples

31: 745-800 (July 15) 1923

*Etiology of Scarlet Fever. G. Caronia and M. B. Sindoni.—p. 745.
*Camphor in Treatment of Enuresis. F. de Angelis.—p. 761.
*Treatment of Sarcoma of Kidney. S. Grisanti.—p. 766.
Infant Mortality in Farming District. H. Alessio.—p. 772.
Present Status of Immunization Against Measles. S. de Stefano.—p. 781.

The Causative Agent of Scarlet Fever.—Caronia and Sindoni's communication was reviewed editorially, August 18, p. 584. They give five colored plates showing Di Cristina's anaerobic diplococcus as it appears on the Tarozzi-Noguchi or Di Cristina culture mediums. The latter is a broth-ascites and human red corpuscles medium. They say that they were encouraged to inoculate healthy children with their cultures by their recent research on experimental varicella. They found that an attenuated form of varicella resulted, conditions similar to those of cowpox in relation to smallpox. They consequently inoculated four healthy children and five convalescing from measles with the cultures obtained from scarlet fever patients. These children have been kept long in contact with scarlet fever cases, or sprayed with the throat secretions, without contracting the disease. These experiences justify their methods, they think, and establish the identity of the small diplococcus isolated by Di Cristina in 1921.

Camphor in Treatment of Enuresis.—De Angelis reports improvement or cure in six of eleven children given injections of 0.2 gm. of camphor for from one to six evenings.

Sarcoma in Child Kidney.—Grisanti found adhesions too dense to allow removal of the kidney of the girl, aged 11. The organ was brought to the surface and given thorough roentgen treatment at two sittings, through the laparotomy incision, and a third sitting after it had healed. By the end of the second month no trace of the tumor could be palpated.

Policlinico, Rome

30: 681-718 (May 28) 1923

*Test for Bile Pigments in Urine. G. Sabatini.—p. 681.
*Epilepsy with Myoclonus. P. Magaudda.—p. 686.
*Edema After Arsphenamin Treatment. G. Bertaccini.—p. 690.
Present Status of Cancer. G. Romano.—p. 692.
The Jenner Centennial. A. Filippini.—p. 696.

Test for Bile Pigments in Urine.—Sabatini asserts that the test he describes for urine and blood proved absolutely reliable in his extensive research with normal urine, urine in jaundice, and with solutions of bile pigments. The bilirubin is transformed into biliverdin, the depth of the green tint proportional to the quantity present. The reagent is made by mixing well at the moment of use 30 c.c. of a solution of 12 c.c. of hydrochloric acid in distilled water enough to make 100 c.c., and 1 c.c. of a 1 per cent. solution of sodium nitrite. He describes how to prepare a durable standard solution for comparison by extracting the biliverdin with amyl alcohol.

Epilepsy with Paramyoclonus Multiplex.—Magaudda reports that two brothers, aged 15 and 17, witnessed an attack by armed bandits, and after this fright both gradually developed a tendency to epileptic seizures, followed a year or two later by clonic paroxysmal contractions of the muscles. The myoclonus was of the Unverricht type, and the same muscles were involved each time. An endocrine factor is suggested by a tendency to goiter in one of the young men, now 19, and the scanty development of the sexual characters in the other.

Edema After Injection of Arsphenamin. — Bertaccini describes a series of five cases in one month in which edema of legs and arms, with some cyanosis, developed in less than an hour after the fifth or seventh injection of an Italian arsphenamin, all of the same series. He interprets the symptoms as a kind of localized nitritoid crises. No by-effects had been noted in seventeen other patients treated from the same series.

30: 721-758 (June 4) 1923

The Arneth Grouping with Suppuration. E. Periti.—p. 721.
Antiserums and Vaccines in Gonococcus Conjunctivitis. A. Rosica.—p. 723.
Serous Meningitis in Man of 37. L. Tiberio.—p. 727.
Improved Apparatus for Proctoclysis. G. Bottaro.—p. 728.
Technic for Artificial Pneumothorax. Corinaldesi.—p. 729. Idem. Curti.—p. 730.

30: 761-791 (June 11) 1923

*Auricular Flutter. A. Sebastiani.—p. 761.
Stovain Intraspinal Anesthesia. C. Licini.—p. 767.
Necessity for Concerted Action Against Tuberculosis. D. Pollara.—p. 770.
*History of Syphilis. D. Barduzzi.—p. 771.

Auricular Flutter.—Sebastiani describes the clinical picture of auricular flutter as observed in a typical case. Under digitalis, the flutter was transformed into fibrillation, and this subsided under quinidin. Clinically normal conditions were thus restored in the man, aged 43.

History of Syphilis.—Barduzzi urges research to settle the question of the historical origin of syphilis. The statements in the textbooks are conflicting.

Rivista Critica di Clinica Medica, Florence

24: 65-80 (Feb. 15) 1923

Changes in Leukocyte Count After Pasteur Treatment. G. Ciuti.—p. 65.
*Silver Nitrate Test in Urine. V. M. Buscaino.—p. 71.

24: 81-96 (Feb. 25) 1923

Systolic Blood Pressure in the Leg. B. Chimenti.—p. 81.
Silver Nitrate Test in Urine. F. D'Arbela.—p. 87.

The Silver Nitrate Urine Test in Psychoses. — Buscaino states that the black precipitate obtained with hot silver nitrate in the urine from persons with general paralysis or other psychoses, is soluble in the cold in sulphuric and nitric acids, but not in ammonia. With normal urine, the precipitate is extremely soluble in the cold.

Revista de la Asoc. Médica Argentina, Buenos Aires

36: 7-68 (Jan.-April) 1923

Vaccine Treatment of Diphtheria. A. Bachmann and J. M. de la Barrera.—p. 7.
Influence on Growth of Lesions in Infundibulum-Subthalamus Region. B. A. Houssay and E. Hug.—p. 11.
Anaerobic Flora in Gangrene at Buenos Aires. A. Sordelli.—p. 24.
Local Action of Snake Venom. B. A. Houssay.—p. 29.
Sacralization of Fifth Lumbar Vertebra. A. Buzzi.—p. 42.
Hydatid Cyst in Liver Opening into Gallbladder. C. I. Allende.—p. 53.
*Multiple Aneurysms in Superficial Veins. P. Jauregui.—p. 64.

Multiple Aneurysms. — The numerous small tumors on hands, arms and chest are circumscribed fusiform aneurysms in the superficial veins, evidently congenital. They contain organized thrombi and cause no disturbance.

Semana Médica, Buenos Aires

1: 937-988 (May 17) 1923

*Valve Tracheotomy. G. Zorraquín.—p. 937.
*Strongyloides Stercoralis in Argentina. Parodi and Tobias.—p. 942.
Arsenicals and the Liver Balance in the Pregnant. M. L. Pérez.—p. 946.
Torsion of the Omentum. J. M. Mesa.—p. 949.
*Fatty Degeneration of the Kidney. M. E. Varela.—p. 951.
Pharmacodynamic Action of Certain Opium Alkaloids. M. Soto.—p. 956.
Biochemical Action of Diseases on the Will Power. D. Zanalda.—p. 964.
Morphin as Reagent for Nitrites. L. Rossi.—p. 967.
Behavior of Nitrites in Presence of Nitrates. L. Rossi.—p. 967.
Constitutional Debility and Normal Standards. I. P. Costa.—p. 969.

30: 1069-1108 (June 7) 1923

Symphysiotomy in General Practice. J. B. González.—p. 1069.
Arsenical Treatment of Children. J. C. Navarro and E. A. Beretervide.—p. 1078.
Diagnostic Test for Hydatid Cyst. J. Bacigalupo.—p. 1083.
Calculus in Right Tonsil. R. Becco.—p. 1084.
The Diet for Schoolchildren. T. A. Tonina.—p. 1085.
"Gland Fever": Infectious Mononucleosis. O. P. Curti.—p. 1095.
Arsenicals in Treatment of Leprosy. O. Calcagno.—p. 1096.
Choleperitoneum: Accumulation of Bile in Peritoneum from Rupture of Hydatid Cyst in Liver. M. Rosso.—p. 1098.

Treatment of Acute Laryngeal Suffocation. — Zorraquín pleads for the necessity of maintaining expiration by the natural route during intubation. His valve tracheal cannula insures this as he explains with three illustrations. It was mentioned in these columns, June 9, 1923, p. 1738, when published elsewhere.

Strongyloides Stercoralis in Argentina.—Parodi and Tobias report the first case of anguilluliasis known in Buenos Aires. The man, aged 33, had always lived there. The cases of hookworm in Buenos Aires are always imported from the subtropical zone of the country.

Fatty Degeneration of the Kidney.—Varela's patient, aged 17, developed edema and albuminuria during arsenical treatment under which rebellious leg ulcers had healed, although there was nothing otherwise to suggest syphilis. The kidney symptoms increased under rest, restriction to milk, heart tonics and diuretics, and the polarizing microscope confirmed the suspicion of lipoidic nephrosis. Treatment was changed to diuretics of extrarenal action, a predominantly protein diet, reducing the intake of fluids rather than of salt, and heart tonics, and in twenty-three days conditions had returned nearly to normal, 11 kg. of weight having been lost. Complete clinical recovery soon followed. The edema in such cases is due to increased absorbability of tissues rather than to retention of chlorids, and treatment should attack this exaggerated absorptiveness. For this Varela used potassium acetate, and obtained unquestionable benefit from it as favoring colloidal syneresis (contraction of the gel). It may be necessary to try sulphates, citrates, bicarbonates, acetates, or other salt until one is found with effectual action. The blood pressure is low in these cases as the heart is not hypertrophied, but the blood serum is opalescent. The blood showed both hydremia and high viscosity, but the Ambard constant was normal, in the case reported, and the output of urine after drinking 1,500 c.c. of water, proceeded almost normally.

Archiv für Kinderheilkunde, Stuttgart

73: 1-80 (June 12) 1923

*Influence of Light on Growth. A. Eckstein.—p. 1.
*Import of Striae Vasculares. F. Schleissner.—p. 29.
*Erysipelas in Infants. A. Schliepe.—p. 32.
*Enuresis in Relation to Sleep. W. Courtin.—p. 40.
*Physical Status of Children in Large Families. E. Schlesinger.—p. 50.

Influence of Light on Growth of Rats.—Eckstein experimented with both sunlight and artificial light on litters of white rats, passing the daylight through red, blue and grey gelatin filters, such as are used for color photography. Similar experiments with the animals living in the light from a mercury vapor lamp gave negative results likewise, as also a series of litters kept in the dark and brought out only for the irradiations. Nothing suggesting rachitis was noted, and it seemed evident that daylight or the absence of daylight had no influence on the growth of the animals. The mercury vapor lamp, on the other hand, promoted or checked the growth according to the experimental conditions and animals on a deficiency diet died sooner than the controls, after exposure to the mercury vapor lamp.

Enlarged Capillaries as Early Sign of Pulmonary Tuberculosis.—Schleissner refers to the striae vasculares in the skin over the apex, to which Francke ascribes diagnostic importance. These striae are common both in children and in the elderly. He thinks they are probably of mechanical origin, possibly from coughing. They are merely a sign that there has been a severe cough.

Erysipelas in Infants.—Schliepe reports that 70.6 per cent. died of the seventeen infants less than a year old with erysipelas at Greifswald in ten years. These cases formed 0.34 per cent. of the total 5,000 children treated at the clinic. There were severe complications in all but six cases. The manifestations of the disease did not differ materially from those in adults.

Relations Between Enuresis and Sleep.—Courtin's tests on fifty-six children, including thirteen boys and two girls with enuresis nocturna, failed to show any connection between especially deep slumber and the incontinence of urine. In treatment, the aim should be to strengthen the child's will to overcome the tendency to enuresis. As an aid to suggestion, a sham operation (no hypnosis) has often proved successful for months or cured the child permanently in the experience of the Freiburg children's clinic.

The Children in Large Families.—Schlesinger relates that the families in Germany with four or more children have organized to protect their interests. There are now 300 local organizations of the kind, with central headquarters at Frankfurt, and an organ, *Der Kinderreiche*. The child mortality in these large families increases from 15 per cent. with four children to 32 per cent. with seven, and over 50 per cent. with ten or more. The physical development is substandard, especially from the third to the sixth year, and in the later children. After leaving school, 18 per cent. were incapable of self support, but this generally righted itself later. The overcrowding in the home is most injurious to the younger children.

Deutsche Zeitschrift für Chirurgie, Leipzig

179: 145-287 (May) 1923

*The "Long Curve Flap." A. Kreiker and J. Orsós.—p. 145.
Experimental Ligation of Bronchus. R. Nissen.—p. 160.
Stereoscopy of Urinary Calculi and Foreign Bodies in Kidney Pelvis, Ureter and Vicinity. L. Drüner.—p. 177.
*Esophageal Spasm. W. F. Suermondt.—p. 183.
*Operations for Gastric and Duodenal Ulcer. M. Friedemann.—p. 190.
Spastic Ileus with Bilateral Incarcerated Femoral Hernia. A. Kessler.—p. 207.
*Serodiagnosis of Cancer. V. E. Mertens.—p. 216.
The Late Rickets Question. H. Maass.—p. 226.
Primary Sarcoma in Both Kidneys. P. Seulberger.—p. 249.
Diaphragmatic Hernia as Consequence of Malformation of the Esophagus. W. Tonndorf.—p. 259.
Isolated Fracture of the Lesser Trochanter. Carl.—p. 266.
*Transplantation of Vessels. E. Birt.—p. 269.
Procain in Treatment of Cephalic Tetanus. F. Mandl.—p. 274.
Rupture of Tendon in Syringomyelia. O. Thomann.—p. 281.
Operations for War Wounds of Peripheral Nerves. Schaper.—p. 284.

The "Long Curve and Small Triangle Flap."—Kreiper and Orsós call attention to the many advantages of the ophthalmologists' Imre-Blaskovics method of cutting and shifting a flap to cover a defect. No other technic gives such a broad base to the pedicle. The longer the curved incision, C D E, the less the strain when the flap is drawn up to cover the defect A B C. The curved incision should be at least four or five times as long as the width of the defect A C. The triangle D E F, cut out at the end of the curved incision, must be beyond a perpendicular line from the farthest edge of the defect. The size of the triangle is one half or one third of the width of the defect A C, depending on the elasticity of the skin. The same principle can be applied from each side of the defect, each flap covering only half.

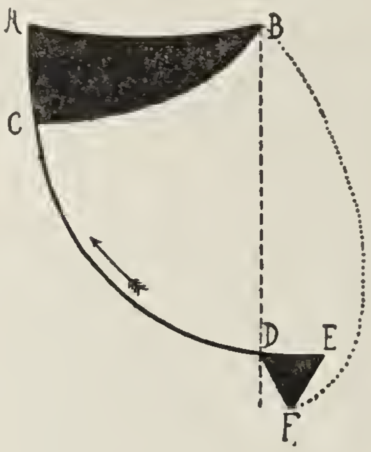


Fig. 1.—The small triangle.

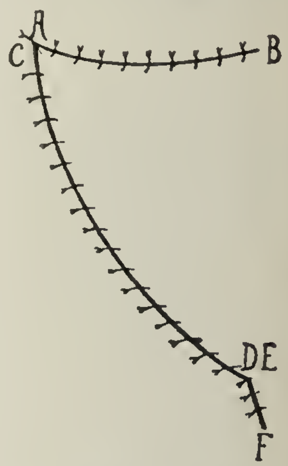


Fig. 2.—After suturing.

Esophageal Spasm.—The stenosis from spasm, 18 cm. from the teeth, had long masked a cancer 24 cm. below.

Mishaps After Operations for Gastric and Duodenal Ulcer.—Friedemann reports fifteen cases in which a second operation showed that peptic ulcers, recurring ulcers, and unhealing ulcers are comparatively frequent after gastro-enterostomy and transverse resection, as also obstruction of the passage from adhesions. Extensive resection of the antrum, removing the pylorus, seems to guarantee best against such mishaps. The first Billroth method is less liable to be followed by kinking.

Serodiagnosis of Cancer.—Intracutaneous injection of serum from two cancer patients that had been taking roentgen treatment induced a characteristic local reaction in nine other cancer patients, but not in the controls.

Transplantation of Vessels.—Birt states that as syphilis is so enormously prevalent in all classes in middle China, aneurysms are frequently encountered in his service in the Shanghai Hospital. He describes his success in resecting a large aneurysm in the popliteal artery and bridging the gap with a 20 cm. segment of the femoral vein from the other leg.

Klinische Wochenschrift, Berlin

2: 861-908 (May 7) 1923

*Artificial Feeding of Infants. G. Bessau.—p. 861.
Etiology of Respiratory Tetany. Behrendt and Freudenberg.—p. 866. Cont'd.
Psychic Derangement with Transcortical Aphasia. S. Fischer.—p. 870.
Unusual Forms of Degeneration of the Gonococcus. A. Cohn.—p. 873.
*Headache After Intraspinal Anesthesia. Lundwall and Mahnert.—p. 874.
*Early Muscle Symptom in Lead Poisoning. L. Telcky.—p. 876.
*Herpes Zoster and Varicella. C. de Lange.—p. 879.
Renal Glycosuria in Early Pregnancy Diagnosis. M. Nothmann.—p. 880.
"Etiology of Epidemic Encephalitis." Luger and Lauda.—p. 880.
*Serodiagnosis of Syphilis in Rabbits. Sachs and Georgi.—p. 880.
*Physiology of the Action of Light. S. Rothman.—p. 881.
Research on Vaccine Immunity of Rabbit Cornea. Winkler —p. 832.
Ovarian Pregnancy. J. Sfakianakis.—p. 882.
*Methods of Treating Lupus. Jesionek and Rothman.—p. 883.
Importance of Physical Chemistry in Bacteriology. E. Putter.—p. 888.

2: 1005-1052 (May 28) 1923

Metabolism in Fever. E. Grafe.—p. 1005.
Nervous Diseases from Removal of Endocrine Glands. A. Westphal.—p. 1009.
Pneumonia in Neuropathic Children. Bergmann and Kochmann.—p. 1011.

Serum Reactions in Bismuth Treatment of Syphilis. E. Nathan and H. Martin.—p. 1016.
Age of Gonococcus Vaccines. C. Bruck.—p. 1020.
Erysipeloid and Swine-Erysipelas. T. Diemer.—p. 1022.
Remote Effects of Local Reactions. R. Stahl.—p. 1024.
Pathogenesis of Pernicious Anemia. Seyderhelm.—p. 1027. Reply. Moses and Warschauer.—p. 1028.
Capillary Reaction to Lowered Oxygen Pressure. David and Gabriel. —p. 1028.
Uranium Salt Diuresis. R. Heilig.—p. 1029.
Differential Diagnosis Between Aneurysm, Tuberculosis and Tumor of the Lungs. K. Lydtin.—p. 1029.
Treatment of Arteriosclerotic Kidney Disease. Guggenheimer.—p. 1030. Conc'n.
Importance of Calcium in the Blood. E. Billigheimer.—p. 1033. Cont'd.

Artificial Food for the Regular Feeding of Infants.—Bessau remarks that we have excellent formulas for feeding sick infants, to tide them past some acute crisis, but the question of a food for regular use is still unsettled. He says that alimentary diarrhea is due to fermentation in the stomach and small intestine, the latter reacting to fatty acids with pathologic peristalsis, while fermentation in the large intestine—which is common in breast-fed infants—causes no such motor disturbance. This motor disturbance invites invasion of the small intestine by bacteria from below. His bacteriologic examination of stomach and duodenal contents in healthy children on sterilized foods always showed extremely few bacteria, but infants with diarrhea always showed an abundant flora, especially of colon bacilli. The difference in time required for digestion of human and cow's milk is due to the difference in albumin content, and this, he says, he has overcome by peptic predigestion of the cow's milk. He gives no details of his formula, but declares that trypsin is absolutely ineffectual for this predigestion. He has found diarrhea rare in infants fed on predigested milk of a chemical composition similar to human milk. In conclusion he adds that active fermentation in the large intestine is antagonistic to bacterial processes in the small intestine. This fermentation—which also prevents chronic constipation and malnutrition from fats—is obtainable by reducing the albumin content of cow's milk and increasing the content of slowly absorbed carbohydrate, the most suitable of which is milk sugar.

Treatment of Headache After Lumbar Anesthesia.—Lundwall and Mahnert injected 40 c.c. of a 40 per cent. solution of hexamethylenamin into the ulnar vein in twelve patients with severe headache after intraspinal anesthesia, with promptly beneficial results. The hypertonic solution seemed to answer the desired purpose of regulating the intracranial circulation. In one case the severe headache had persisted for eight days after a diagnostic lumbar puncture, rebellious to all internal measures, but it promptly subsided after the injection of the hypertonic solution. Addition of 0.1 c.c. of calcium lactate in two other cases annulled the effect of the hexamethylenamin, but injection of the latter alone, the next day, had the desired effect.

Extensor Weakness as Early Sign of Lead Poisoning.—Teleky tests the strength of the extensor muscles in the wrist and hand by the extent of hyperextension possible, the arm flexed at the elbow, the palm down. When hyperextension of more than 45 degrees above the horizontal is impossible, this is presumptive evidence of injury from absorption of lead, other obvious causes excluded. In a group of 711 unselected workers in trades using lead, this weakness of the extensor muscles was manifest in 17.4 per cent. of the total, and in 41 per cent. of the 139 who showed signs of injury from lead, and in 52 per cent. of the men presenting actual lead poisoning. It could be found only in 1.85 per cent. of 271 men engaged in other trades not requiring contact with lead. The right hand is affected first and most. Teleky regards this extensor weakness as a valuable sign warning of impending danger. If the hand cannot be extended more than 20 degrees above the horizontal wrist, a young person should give up working with lead, at least temporarily. This extensor weakness seems to occur earlier and persists longer than any other sign of lead poisoning.

Biologic Tests Show Identity of Herpes Zoster and Varicella.—De Lange removed the crusts from varicella in three children, macerated the crusts in physiologic salt solution, and ground them in a mortar. With this antigen, and blood from three children with varicella, two with herpes zoster, and two controls, specific complement fixation reactions were obtained. This indicates, she asserts, the identity of certain cases of herpes zoster, at least, with varicella infection.

Serodiagnosis of Syphilis in Rabbits.—Sachs and Georgi precipitated the globulin of rabbit serum with hydrochloric acid, and found that this annulled the reaction in serologic tests for syphilis in serum from normal rabbits. The reaction was always positive, though weak, in the serum from syphilitic rabbits.

Physiology of the Action of Light.—Rothman does not consider that the lower blood pressure after exposure to light is due to dilation of the peripheral vessels, as it may be present without hyperemia, and absent in active hyperemia. On continued exposure, the blood pressure rises, the rise commencing with the appearance of the first tint of brown on the skin. The sugar content of the blood undergoes a corresponding change, decreasing 15, 30 or even 50 per cent. In his fifty cases, the changes in the pressure and sugar content of the blood were parallel, indicating a connection between lowered tonus of the sympathetic system and loss of the precursors of epinephrin from the circulation. Pigmentation is connected with decrease of tyrosin in the serum. In hypotonia of the sympathetic, the tyrosin content is increased, especially when the action of the light is followed by active dermatitis, indicating a proteolysis of the tissues charged with the tyrosin and its passage into the circulation. Dermatitis caused by the action of strong light is analogous to suprarenal insufficiency.

Physical Methods of Treating Lupus.—Jesionek and Rothman, from observation of 200 patients, say it is impossible to destroy the diseased tissues by roentgenotherapy without seriously injuring surrounding healthy tissues, and they call attention to the frequency of carcinoma sequelae. For lupus, general light treatment, with proper diet and hygiene, is preferable to roentgenotherapy, but they have obtained the best results from sun-baths, which at the same time are air-baths, and affect the peripheral blood vessels. They avoid inducing dermatitis. During sun-baths of several hours' duration, the patients are repeatedly sprayed with water. On sunless days, ultraviolet light baths are substituted. Light intensity, individual tolerance and local sensitivity of parts of the body should be taken into consideration in dosage. In local treatment, they use doses sufficiently strong to cause inflammatory hyperemia and swelling of the diseased part, and cause a certain degree of exudation without blistering, counting on the reactive hyperemia and reactive serous exudation to effect resorption of the tuberculous granulations. They always include in the exposure a border of 0.5 to 1 cm. of healthy tissue around the focus being treated.

Monatsschrift für Geb. und Gynäkologie, Berlin

62: 241-358 (April) 1923

The Campaign Against Cancer. A. Martin.—p. 241.
"Birth Mechanism." H. Sellheim.—p. 247.
Reply. K. Warnekros.—p. 268.
*Mercury Lamp in Prophylaxis of Eclampsia. Hochenbichler.—p. 269.
Pregnancy Prophylaxis of Puerperal Mastitis. W. Offermann.—p. 281.
Intra-Uterine Separation of the Bones. H. Naujoks.—p. 285.
Influence of Forceps on Mortality of Infants. A. Santner.—p. 289.
Injection of Fluid into Placenta: Turgidization. H. Borell.—p. 295.
Teratoma on the Buttocks. K. Fink.—p. 307.
*Facts and Theories on Sperm Immunity. E. Vogt.—p. 317.
Obstetrics and Gynecology in Finnish Literature. E. Björkenheim. —p. 321.

Prophylaxis of Eclampsia.—Hochenbichler exposed the entire body to artificial heliotherapy, the lamp half a meter from the skin. The sittings were only five minutes for each region at first. The blood pressure and capillary circulation always showed the favorable influence of the quartz lamp rays in the 50 cases of "eclampsism," in 10 of eclampsia during labor, and in 2 after delivery. The higher the blood pressure to start with, the greater the effect on it, but well established eclampsia showed very little influence. The rapid drop in the blood pressure seems to indicate that the action is on the nervous system. He has noticed that brunettes are less susceptible to eclampsia, and it is less severe in them than in blonde types. Possibly the pigmentation in the pregnant is significant from this standpoint. His experience, he says, justifies prophylactic quartz lamp treatment to reduce the blood pressure as term approaches. Even during the eclamptic convulsion, he has seen it bring the blood pressure down by an average of 30 mm. and the effect lasted for five hours. He regards a blood pressure of 125 mm. Riva-Rocci as the extreme physiologic limit.

Sperm Immunity.—Vogt applies this term to designate the sterility which follows in animals extragenital, parenteral inoculation with sperm. This suggests that sterility in women might sometimes be due to a similar immunizing process. The decline in the cases of eclampsia during the war suggested the possibility that eclampsia may be traceable to excessive amounts of sperm introduced into the body. The absorption of sperm may have a sensitizing or activating influence. Van der Dyck found that the blood serum of sterile women, in whom no cause for the sterility could be discovered, always belonged to the agglutinating group. Spermatozoa, according to Dittler's experimental research, behave in the same way; he ascribes it to "humoral sterilization." Steinach's operations testify in the same direction. The assumption of sperm immunity is only a hypothesis, but an influence from resorption of sperm has been established beyond question.

Münchener medizinische Wochenschrift, Munich

70: 693-724 (June 1) 1923

*Phrenicotomy in Treatment of Lung Disease. F. Sauerbruch.—p. 693.
Avidity Tests of Antiscorpion Serum. Kraus and Rocha Botelho.—p. 695.
Value of the Hemoclasis in Testing Liver Function. Framm.—p. 697.
*Leukopenia in Test Hemoclasis. Hoff and Waller.—p. 698.
*Properitoneal Infusion. F. J. Kaiser.—p. 701.
Effects on Diabetes of Sodium Sulphate. Arnoldi and Roubitschek.—p. 702.
*The Weichbrodt Serologic Test. E. Sahlgren.—p. 703.
*Spatz' Method for Diagnosing Progressive Paralysis. G. Stiefler.—p. 704.
*Nature of the Vibration Sense. D. Katz.—p. 706.
Tumors, Trauma and Inflammation of Spinal Cord. H. Curschmann.—p. 709.
Public Health Organization in Bavaria. G. Seiffert.—p. 711.

Treatment of Lung Disease by Artificially Paralyzing the Diaphragm.—Sauerbruch has severed or severed and torn out part of the phrenic nerve in sixty patients to block completely the innervation of the diaphragm. All were tuberculous, and seventeen were more or less improved but none was cured. While phrenicotomy alone will not cure advanced tuberculosis of the lungs, great improvements for one or two years have resulted. He recommends a combination of phrenicotomy and artificial pneumothorax because resorption and exudation power is lowered after the former, and the latter thus may escape the effusion complication. Exeresis of the phrenic nerve was applied in 145 cases without accident.

Study of the Leukocyte Blood Picture with Intracutaneous Injections and in Widal's Hemoclastic Crisis.—Hoff and Waller made 121 experiments on adults, children and infants, healthy and diseased, to test the relation between the hemoclastic crisis and the decrease of leukocytes, using casein and patient's own blood, for intracutaneous injections, according to Müller's technic. They did not find vagotonia necessary for the hemoclastic crisis, and consider the question of the leukopenia after intracutaneous injections and in Widal's hemoclastic crisis still unsettled.

Properitoneal Infusion.—Kaiser says that intraperitoneal infusion in treatment of the dehydration in severe nutrition disturbance in infants and cholera infantum has not reduced the death rate from these diseases, and it frequently causes severe shock, collapse and peritonitis. He has, with better results, introduced the liquids into the properitoneal space, using normal saline with epinephrin, or other isotonic fluid.

Weichbrodt's Mercuric Chlorid Reaction.—Sahlgren says the positive Weichbrodt reaction in the cerebrospinal fluid is not restricted to the pathologic albumin but is conditioned by the quantity and proportional mixture of euglobulin, pseudoglobulin and albumin. Mastic and mercuric chlorid solution behave alike to these proteins, although the first is a colloidal solution and the other is not. The Weichbrodt reaction is not specific for syphilis, as he has obtained a strong positive reaction in the incipient stage of tuberculous meningitis.

Spatz' Method of Rapid Diagnosis of General Paralysis.—Linz used Spatz' method in eight cases of general paralysis and obtained the characteristic results in all instances, among them a case of stationary paralysis with death from pneumonia. The black spots and stripes were macroscopically perceptible. He supports the hematogenous theory of the hemosiderin pigmentation of the cells of the adventitia, which Spatz says is found only in general paralysis and trypanosomiasis, due to a particular type of injury of the blood vessels.

The Nature of the Vibration Sense.—Katz refers to the fact that a deaf-mute can palpate the vibrations of the vocal cords of the speaking or singing voice, and secure an image of sound making. He says this is not due to coupling of auditory and tactile elements, but to the deep phenomenologic and structural relationship of the sense of hearing and of touch. He considers the sense of vibration is a special sense perception, and not a modification of pressure or touch perception; like the sense of hearing, it gives information on the vibratory state of bodies.

Wiener klinische Wochenschrift, Vienna

36: 339-354 (May 10) 1923

*Etiology of Tuberculosis in Old Persons. H. Schlesinger.—p. 339.
*Irritation of Labyrinth and Ataxia. Gatscher.—p. 340.
Obstetrical Experiences with Sachs-Georgi Reaction in Diagnosis of Latent Syphilis. B. v. Váró.—p. 342.
Roentgen Sensitiveness of Different Sorts of One Species of Plants. E. Petry.—p. 345.
Cerebral Paresis After Partial Self-Strangulation. K. Grosz.—p. 345.

Etiology of Tuberculosis in Old People.—Schlesinger emphasizes the fact that tuberculosis is rather more frequent in old persons, than in middle age. It is usually chronic. It is very doubtful whether this is due to a lowered virulence of the microbes. He discusses the different determining factors in the etiology of pulmonary tuberculosis in the elderly.

Influence of Irritation of Labyrinth on Cerebellar Dynamic Ataxia.—Gatscher stimulated the vestibular nerve by injecting cold water into the auditory canal. He found a distinct influence on the ataxia in multiple sclerosis and tabes.

Zentralblatt für Chirurgie, Leipzig

50: 857-888 (June 2) 1923

*Local Effect of Hypertonic Salt Solutions. W. von Gaza.—p. 858.
*Technic of Wide Gastro-Enterostomy. J. Philipowicz.—p. 861.
Wire Extension with Nonrust Steel Wire. F. Bange.—p. 863.
A Case of Pelvic Aneurysm. E. Neuber.—p. 865.
Gastro-Jejuno-Colon Fistula Due to a Silk Thread. J. Philipowicz—p. 869.
Semmelweis and Lister. H. Weckerling.—p. 870.
*Appendicitis in the Chinese. P. Weischer.—p. 872.

Effect of Hypertonic Salt Solutions on Granulation Tissue.—Gaza recalls that hitherto it has been assumed that the effect of concentrated salt solutions on wound tissues was due to the hypertonia of the solution, and an exosmotic effect, or a lymph lavage, was spoken of. Gaza's researches on the subject, however, lead him to believe that the effect of highly concentrated solutions on wound tissues is not based solely or even principally on hypertonia or the osmotic action. Equally concentrated solutions of various salts are, in part, markedly antagonistic, the manifestations being just what one would expect judging from the biologic action of the salt series. The action of the salt is to be conceived, in the main, as the effect of the ions, or, more particularly, the cations. The sodium ion causes swelling and loosening of the granulation tissue; the calcium ion has the opposite effect. Of the various salt solutions tried, the most useful for wound tissues were potassium chlorid, sodium chlorid and especially calcium chlorid in 10 per cent. solution. Whereas the first two salts do not directly accelerate epithelial growth, such growth is very favorable influenced by calcium chlorid (the practical conclusions refer, with respect to calcium, to large wounds of long standing, especially wounds with hypertrophic granulations).

Technic for Wide Gastro-Enterostomy.—Philipowicz emphasizes that the success of gastro-enterostomy for gastric or duodenal ulcer depends exclusively on the width and hence the functioning of the anastomosis, assuming that a thorough internal dietetic after-treatment to combat the acid condition follows. His conclusions are based on the observation of 150 active ulcers. The average anastomosis has a width of from 4 to 6 cm., whereas Philipowicz recommends 10 cm., whereby many complications are avoided. The postoperative course with his method is excellent. Vomiting and heartburn do not occur. Sufficient bile enters the stomach to neutralize the acid. In every case the pains disappeared, no matter how intense they may have been or how long they may have lasted. Roentgenograms show that the chyme is being promptly passed through the anastomosis without the portion of the stomach near the pylorus becoming filled. This method is equal to a complete resection of an ulcer without the disadvantages. If the opening is made large, later contraction is not serious, as complete closure does not occur. Peptic ulcer is also found less frequently, owing to the adequate alkalization of the stomach contents.

Appendicitis in the Chinese.—Weischer refers to Perthes' statement that "the fact that in China the appendicitis problem is lacking awakens the suspicion that the nature of the diet plays a part in its causation." Weischer adds that, during his sojourn in China, from 1915 to 1923, they had more than 86,000 applicants at the policlinic. The patients were, for the most part, of the poorest classes. During this period Weischer observed only two cases of chronic appendicitis, and one of these occurred in a sister of an order in which the food served was exclusively European.

50: 953-984 (June 16) 1923

Superiority of Ether to Ethyl Chlorid for Short Anesthesia. A. Kronacher.—p. 954.
Improved Mask for Use in General Anesthesia. J. Clemens.—p. 958.
Case of Paralysis of Heart and Respiratory Organs in High Spinal Anesthesia; Patient Saved by Heart Massage. Philipowicz.—p. 961.
*Local Anesthesia for Operation on Anus. Philipowicz.—p. 962.
Hermaphroditism, with Clinical Picture of Disturbances from One Retained Testis. P. Schneider.—p. 963.
*Eczema Around Artificial Anus. Grueter.—p. 968.
A Closed Method of Ignipuncture in the Treatment of Tuberculous Joints. A. Abrashanow.—p. 969.
"Action Current of Granulating Wounds." O. Beck.—p. 970.

Simplified Local Anesthesia for Operation in Anal Fissure and Hemorrhoids.—Philipowicz recommends a method which he has used with perfect satisfaction for twenty years in more than 100 cases. As anesthetic he employs the Schleich cocain mixture. For stretching the sphincter, only 5 c.c. is required. The single puncture lies exactly in the posterior midline, two fingerbreadths from the anal margin. At this point, with a thin needle 6 cm. long, at first one drop is injected intradermally and then the balance is injected in part tangentially toward the sphincter and in it, and in part intracutaneously and subcutaneously toward the anal margin. Anesthesia is accomplished at once and is complete. For the cauterization of hemorrhoids, if the nodules are external or can be pressed out, he injects from 3 to 5 c.c. of the solution into each nodule in succession. Each nodule must be injected and cauterized before proceeding with the next. If the hemorrhoids are internal, the sphincter must be dilated, and the nodules are then injected and cauterized one by one as in the case of the external hemorrhoids.

Animal Charcoal in Treatment of Eczema of Abdominal Wall.—Grueter has found animal charcoal efficacious, when ointments had failed, in the treatment of eczema of the abdominal wall resulting from a fistula of the small intestine.

Zentralblatt für Gynäkologie, Leipzig

47: 817-864 (May 26) 1923

*Pregnancy in Relation to Pernicious Anemia. K. Heim.—p. 818.
*Remote Results of Resection of the Promontory. H. H. Schmid.—p. 824.
Neurofibroma as an Impediment to Birth Process. P. Sippel.—p. 840.
*Formation of Vagina by Schubert Method with Fatal Result. E. Schroeder.—p. 842.
*Sedimentation of Erythrocytes in Gynecology. S. v. Molnár.—p. 845.
Instrument for Application of Dry Powder to Vagina. A. Stern—p. 849.

Pregnancy in Relation to Pernicious Anemia.—Heim points out that pernicious anemia is rarely associated with pregnancy. He reports the case of a young woman in the seventh month of pregnancy. There was no history of blood disease in the family. Menstruation began at 17; lasted only one day, was accompanied by pain, and was often suppressed for months at a time. Arsenical treatment had often been employed for anemia. Conception, in all probability, occurred during a remission, so that the pregnancy was the sole precipitating factor in the lethal attack. A spontaneous premature birth occurred at the beginning of the seventh month. The living child showed no signs of the mother's affection. Blood transfusion at the onset of labor came too late. The good effect was transient. Although the difficulties of an early diagnosis of pregnancy associated with pernicious anemia are great, an attempt to bring about a remission of the affection by means of blood transfusion and induced abortion is to be recommended.

Remote Results of Resection of the Promontory.—Schmid admits that, all in all, the exalted expectations awakened by resection of the promontory, as treatment for a narrow pelvis, have not been realized. However, the procedure is not so worthless as one might suppose from recent articles. If hemorrhage is prevented and the operator is careful to avoid callus formation by removing more periosteum than bone, resection of the promontory will continue to be valuable in the future in selected cases to make possible a spontaneous birth later.

Formation of Vagina by the Schubert Method, with Fatal Result.—Schroeder reports one of the first fatal results from the formation of an artificial vagina by the Schubert method. On account of the difficult separation of the rectum and the suture of a laceration in the bladder, the operation lasted three hours, and the patient, aged 26, though strongly built, became exhausted. She died the fifth day. In spite of this fatality, Schroeder's general impression of the Schubert procedure is favorable. He thinks the operation can usually be performed in one and one-half hours. The construction of a vagina from the rectum, he holds, is preferable to the small intestine procedure. His patient succumbed to the injuries to the bladder and ureters. The only dangerous feature of the Schubert operation, aside from the danger from infection, which exists in every operation, is the mobilization of the rectum. According to Schubert, fifty-three vaginas have been constructed from the rectum with no fatalities, and fifty-three from the small intestine, with a mortality of 20.75 per cent.

Diagnostic Value in Gynecology of Speed of Sedimentation of Erythrocytes.—Molnár has found the sedimentation of the red corpuscles a very valuable diagnostic aid: (1) for the differential diagnosis between inflammatory and noninflammatory tumors of the adnexa; (2) to determine the time for operation in inflammatory affections and complicated changes of position of the uterus; (3) before curetting, if the adnexa findings are suspicious, and there are no other sources of evidence; (4) to aid in the differential diagnosis between extra-uterine pregnancy and tumor of the adnexa, along with other clinical symptoms, and (5) as a guide in the treatment of inflammatory gynecologic infections.

Casopis lekaruv ceskych, Prague

62: 277-304 (March 17) 1923

*Perimyelography. A. Jirasek.—p. 277.
Disturbances of Development of Epiphyses. F. Sladky.—p. 280.
Primary and Secondary Zonular Keratitis in Seeing Eyes. J. Janku.—p. 283. Conc'n p. 314.
Determination of Blood Sugar with H. C. Hagedorn's Method. V. Ulrich.—p. 291.

Perimyelography—Jirasek tested different contrast fluids on cadavers. A 25 per cent. solution of sodium bromid injected into the spinal canal gave promising results. He is not in favor of pneumomyelography. The method used for years at the clinic in cases of spinal tumors outside of the spinal cord is hemilaminectomy.

62: 305-332 (March 24) 1923

Malformations of Nose and Their Correction. A. Precechtel.—p. 305.
*Action of Heart Extracts on Isolated Frog Heart. J. Sumbal.—p. 308.
Fight Against Carcinoma. J. Markl.—p. 319.

Action on Isolated Frog Heart of Extracts from the Region of the Sino-Auricular Node and from the Muscle of the Left Ventricle.—Sumbal extracted the heart muscle of the left ventricle and the region of the sino-auricular node, and studied their action on animals and especially on the isolated frog heart. He found that though both fluids acted positively inotrope, the action of the sino-auricular node extract was much stronger. It may cause slowing of the action, and even stop the heart in diastole. Tachycardia, bigeminal pulse and other disturbances were also observed. The action resembles the action of histamin.

62: 473-500 (May 5) 1923

Radicpuncture of Tumors. J. Markl.—p. 473.
Ascaris in a Roentgenogram. A. Sigmund.—p. 477.
Multiple Cylindromas of Scalp. B. Rejsek.—p. 478.
Phlorizin in Early Diagnosis of Pregnancy. M. Premrou.—p. 480.
*Treatment of Epilepsy with Injections of Milk. O. Janota.—p. 483.
Survey on Insulin. Kimla.—p. 485.

Treatment of Epilepsy with Injections of Milk.—Janota is skeptical in regard to the alleged favorable results of treatment of epilepsy with parenteral injections of milk.

Acta Medica Scandinavica, Stockholm

58: 1-240 (May) 1923. Fifth Supplement

*Arsenic in Blood and Cerebrospinal Fluid. Leonard Brahme.—p. 1.

Arsenic in Blood and Cerebrospinal Fluid.—Brahme gives fifteen pages of bibliography and a historical review of the physiologic presence of arsenic from the food in the blood and tissues. The details and findings in seventy-eight cases after administration of arsenic in some form are also given. After neo-arsphenamin treatment, no arsenic could be discovered in the cerebrospinal fluid in cases in which there was nothing to indicate an irritated condition of the meninges, but always when there was irritation. The amount never totaled more than a few thousandths of a milligram per 10 c.c. of the fluid. The arsenic appeared in the fluid, however, in five or ten minutes after the injection. The technic for the tests is described in full with illustrations.

Hospitalstidende, Copenhagen

66: 393-408 (May 30) 1923

Micromethod for Blood Plate Count. O. Thomsen.—p. 406.

66: 409-424 (June 6) 1923

Tuberculous Rheumatism of Joints. S. Magnusson.—p. 409.
*Filter for Concentration of Chemical Rays. Haxthausen.—p. 416.

Cobalt Filter for Increased Concentration of Chemical Rays in Finsen Treatment.—Haxthausen has discovered that cobalt chlorid, dissolved in absolute alcohol, absorbs the red and yellow rays, weakens the ultraviolet slightly, and allows the free passage of the green, blue and violet. In photographing the spectrum of a mercury vapor lamp through a 2 per cent. solution, in a 1 cm. wide quartz receptacle, all the spectrum lines obtainable through the empty receptacle were obtained. The cobalt filter, by weakening the heat rays without materially affecting the chemical rays, may enable quicker and deeper therapeutic effects.

66: 427-440 (June 13) 1923

*Thomsen's Micromethod of Blood Platelet Count. E. Als.—p. 425.

Thomsen's Micromethod of Counting Blood Platelets.—Als says, though new, the Thomsen method for counting platelets in the venous blood is practically the only method used in Denmark. By the recent modification so that blood from the capillaries can be used, venous puncture is avoided. The count of platelets, in experienced hands, gives an average error of from 8 to 10 per cent. which is sufficiently close for clinical use. The values obtained by the micromethod are comparable with those found by the Thomsen venous blood method.

Norsk Magazin for Lægevidenskaben, Christiania

84: 449-520 (May) 1923

*Reexamination of Sanatorium Patients with Renal Tuberculosis. C. R. Bull.—p. 449.
*Surgical Treatment of Hydrocephalus. S. Widerøe.—p. 466.
Sømme's System of Graphic Records. C. Hambro.—p. 471.
*Medicolegal Application of Blood Grouping. F. Jervell.—p. 478.
*Differentiation of Human and Animal Blood. Idem.—p. 488.
Recent Literature on Insulin Treatment of Diabetes. Geelmuyden.—p. 493.
Provision of Insulin for Scandinavian Countries. A. Krogh.—p. 498.

After-Examination of Patients with Tuberculosis of the Kidneys.—Bull describes in detail twenty-four cases of tuberculosis of kidneys and bladder, under observation for many years, among them two patients who became permanently free from subjective, one also from clinical, symptoms without treatment of any kind. The bladder tuberculosis was clinically unchanged in one, during the time she felt herself free from symptoms, which he attributes to decreased infection in the kidneys. He shows by collected statistics of 594 nephrectomies since 1907 that the mortality of this operation averages only 4.3 per cent. and that 60 per cent. of the survivors were in good health five years later; 25.5 per cent. showed bladder symptoms, while 14.5 per cent. had died from intercurrent diseases or tuberculosis of other organs, including the other kidney.

Anton-Schmieden Suboccipital Puncture.—Widerøe performed this operation, consisting of excision of a small circular piece of the atlanto-occipital membrane, which permits drainage into the tissues around, on two patients with hydrocephalus and two with meningitis. The two with meningitis died the eighth and twenty-first days.

Medicolegal Application of Human Blood Grouping.—Jervell tabulates the findings in blood grouping tests in 32 Norwegian families. They confirm in every respect the work of others in this line, justifying the conclusion that if a child belongs to group II, III or IV, and the mother is not in these groups, the father must be, or his paternity is questionable. If both father and child belong to one of the less common groups and the mother does not, paternity is probable, but not certain. In 5 of the families, the parents were in group I or III, and the children were in the same groups or group II (three generations in one family). In 3 families the father was in group I and the mother in group IV, the children all in group III. In 3 families the father was in group II and the mother in group III, the children all in group IV. New-born children were examined in 8 of the families. He reviews the literature on the subject.

Differentiation of Human and Animal Blood by Grouping Tests.—Jervell remarks that although the red corpuscles of one species are not agglutinated by the serum from other members of the species, as a rule, yet this test may give conflicting findings on account of the iso-agglutination in human blood. This is especially liable to occur if the spot of blood being examined is comparatively fresh; with age, the iso-agglutinins lose their agglutinating power. In attempts to differentiate between human and animal blood, he says that error from this source might be avoided by using only human blood belonging to group I. He reviews the findings in tests with human blood and spots of blood from rabbits, guinea-pigs, mice, cats, dogs, horses, oxen, swine and sheep, dried on filter paper and kept from one to several weeks at room temperature. Human blood of groups II and III was sometimes agglutinated by guinea-pig and rabbit serum, but this never occurred with group I. Even at the best, this method cannot compare for accuracy with Uhlenhuth's precipitin reaction, but it may be useful occasionally as a control.

Ugeskrift for Læger, Copenhagen

85: 453-466 (June 28) 1923

*Blood Transfusion in Acute Purpura. E. Meulengracht.—p. 453.
Research on Sugar Content in the Blood. K. M. Hansen.—p. 455.
Technic of Intravenous Injection. O. Haslund.—p. 458.
Arsphenamin Injection Technic. E. Jarløv.—p. 459.
Justice and the Insane. H. Helweg.—p. 461.

Acute Thrombopenic Purpura Treated by Blood Transfusion.—Meulengracht's male patient, aged 18, had acute thrombopenic purpura with absence of blood platelets and of coagulation, and lowered capillary resistance, indicating capillary changes and lack of some component of the normal plasma. The febrile condition of the patient excluded blood plate regeneration through protein shock. Transfusion of blood from the father proved so successful that he recommends it early in severe cases of purpura as a routine procedure.

85: 483-500 (July 12) 1923

*Production of Sterile Material for Injection. Walbum.—p. 483.
Factory Tablets and Pills Often Slow to Disintegrate. Winsløw.—p. 485.
Treatment of Leg Ulcer by Massage and Mobilization. H. Bisgaard.—p. 487.

Production of Sterile Materials for Injection.—Walbum says that the injection fluids prepared by individual pharmacists, lacking knowledge of bacteriology and theoretic physics, are not properly sterilized, and serious consequences have been reported. He intends to experiment with preparation of reliable injection fluids and will announce the results later.

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RELATION OF LABORATORY AIDS TO THE PRACTICE OF MEDICINE AND SURGERY *

LEWIS A. CONNER, M.D.
NEW YORK

To one, like myself, whose clinical life has stretched over a period well beyond thirty years, there is the constant inclination to compare the practice of medicine as it exists today with that as it existed when he began his work. One of the infallible signs of advancing years is the tendency to meditate on the changes that have taken place within one's personal experience. And to the physician who now has reached that meditative period, surely one of the most impressive facts in the evolution of the practice of medicine, as he has seen it, must be the tremendous growth of the laboratory side of medicine and the vast importance which these laboratory and instrumental aids have come to play in diagnosis and treatment.

When, in the summer of 1890, I entered the New York Hospital as an intern, the routine analysis of the urine and an occasional hemoglobin test constituted almost the only laboratory work entrusted to the house staff. Clinical bacteriology was still in its infancy, and even the staining and search of the sputum for tubercle bacilli was looked on as a procedure so complicated and technical as to require the services of the hospital pathologist. The first clumsy and halting efforts at counting blood cells were made during my period of internship. Except for those few simple tests and the occasional use of the stomach tube and the Dudgeon sphygmograph, the recognition of disease rested entirely on a study of the patient's history, the symptoms and the physical signs.

DEVELOPMENT OF LABORATORY AIDS TO DIAGNOSIS

One has only to contrast the present situation with the one just described to realize how complete has been the transformation in our methods of studying clinical cases. The development of clinical bacteriology as applied to the study of the blood, the sputum, the urine, the feces, the secretions from the throat, ear and eye and the various body fluids; the elaborate staining methods for the study of blood morphology; the Widal and similar agglutination tests; the detailed study of the stomach contents; the elaborate chemical examinations of the urine, and more recently of the blood constituents; the use of the roentgen rays, the sphygmomanometer, the polygraph, the electrocardiograph; the renal function tests; the Wassermann and other complement fixation tests; the dark field examination for spirochetes, and, more recently, the methods of gas analysis; the basal metabolism rate test; the Meltzer-Lyon test, and the skin tests for hypersensitiveness—all these and many others have come to aid us and, at times, to plague us by their conflicting evidence.

No one, of course, would venture to deny that this development of the laboratory side of medicine has contributed immeasurably to the enrichment of our knowledge of disease, and to our ability to recognize its less obvious forms; but the very wealth of such aids and their increasing complexity and elaborateness have brought in their train new complications and new difficulties.

This rapid increase in the number and in the complexity of the laboratory aids has been associated with a profound change in the character of the instruction given to our medical students. The work required in physiology, in biologic chemistry, in bacteriology and in immunology has increased by leaps and bounds because of the ever-growing application of these sciences to the clinical branches; and the additional time needed for these basic sciences has, to some extent at least, been taken from that formerly allotted to the more strictly clinical study of patients.

It was not to be expected that the increasing emphasis laid on these rapidly developing laboratory methods could fail to change in some degree the attitude of the student toward clinical medicine. The so-called "exact" methods of investigation seem much more important and much more satisfactory than the less tangible and less "exact" study of the patient himself and of the history of his illness. The making of a Widal test appears so much simpler and more convincing a method of establishing the diagnosis of typhoid than a painstaking analysis of the patient's history and a thorough physical exploration; the reading of a roentgenogram of the chest seems such a refreshingly short cut to the diagnosis of pulmonary tuberculosis; the electrocardiogram demonstrates so readily, and with such a saving of intellectual effort, the existence of, let us say, a two to one heart block, that it is not to be wondered at that most of our medical students and interns should now leave the hospital wards and go out as practitioners imbued with the feeling that all these laboratory and instrumental aids are a necessary and indispensable part of their professional equipment. They have come to lean on these more heavily than on the more strictly clinical methods of examination. This attitude on the part of the well trained young practitioner has been perhaps the most important single factor in deciding him to shun the rural districts and smaller towns in choosing the location for his practice. I have

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no desire to criticize him for this attitude; it is commendable rather than otherwise, but it constitutes a serious problem and deserves some consideration.

In the case of the older physician, who has never had the opportunity to work familiarly with all these laboratory methods, the situation is different but is no less embarrassing. By the fear lest he be looked on as not keeping abreast of medical progress, as well as by the inherent difficulties of diagnosis, he is faced with the necessity of employing tests of which he knows, only in a general way, the significance. Such knowledge as he has has been gained only in some indirect way. The long continued personal experience in performing the tests is lacking, and with it is lacking also an appreciation of the many possibilities for error both in the tests themselves and in their interpretation at the bedside. For all such knowledge he is forced to depend wholly on the competence and judgment of the laboratory man.

The widespread and insistent demand, even from the smaller places, for such laboratory aids, and the increasing tendency among practitioners to refer even the simplest examinations to the professional clinical pathologist, have called into being an immense number of commercial laboratories of varying degrees of competence and trustworthiness. It is rare indeed that such a laboratory is qualified to perform *all* the various procedures that are demanded of it. Modern bacteriology, chemistry, immunology and morphologic microscopy each requires highly specialized and thoroughly trained workers for the proper performance of its tests, and few such laboratories are so equipped in personnel. The result, not infrequently, is that the information furnished the physician is inaccurate and misleading.

Not long ago I was called out of town to consult with two local physicians over a middle aged woman whose case seemed to them puzzling because the clinical facts and the laboratory facts did not agree. The patient had the appearance of advanced pernicious anemia, but that diagnosis had not been made because the laboratory report had shown the blood to be only slightly below the normal figures. The clinical evidence of pernicious anemia was overwhelming, and it was quite obvious that that diagnosis must be made in spite of the blood report. Later a reexamination of the blood by a different man gave results that corresponded perfectly with that diagnosis. Similar instances of the embarrassment caused by inaccurate laboratory data could readily be cited in connection with almost every sort of laboratory or instrumental test. It is in hospitals of the highest class, in which the laboratory work is done under the most favorable conditions possible, that the fallibility of many of these more complicated tests is most keenly appreciated and most seriously taken into account.

The problem is no less pressing and difficult from the standpoint of the patient. Many, indeed most, of the newer tests are complicated and time consuming and require expensive apparatus and highly trained technicians. They are therefore necessarily expensive; and, when many of these tests are required, the matter of expense becomes a serious one to patients in moderate circumstances.

I have said that the rapid increase in the number of laboratory aids and the growing reliance on these in diagnosis have tended to divert the attention of the practitioner from the older and more arduous methods of clinical diagnosis, and, as a natural result, less importance has come to be placed on accurate clinical observation and sound deductive reasoning. It may be stated as a general rule which has few exceptions that the less thoroughly a case is studied by ordinary clinical methods the greater will appear the need for laboratory tests of the more elaborate sort. Such tests, however, can never take the place of clinical study and clinical judgment. At best they can only furnish some additional evidence which must be weighed and considered in connection with all the other facts obtainable; and when, as sometimes happens, this evidence runs counter to the clinical facts, the difficulties of diagnosis may be increased rather than lessened by it.

Enough has been said, I think, to show that this question of the relation of laboratory aids to the practice of medicine and surgery presents a problem of many aspects and one beset with many difficulties. Can we hope to find a solution for all or any of its difficulties?

IMPORTANCE OF RESULTS, RATHER THAN METHODS

I should regret very much to give the impression that I look on these laboratory aids as undesirable or unnecessary. On the contrary, it must be clear to every one that it is only by their help that modern clinical medicine and surgery have made, and will continue to make, their chief advances. But I am convinced that the indiscriminate application of many of the more complicated and delicate of these procedures to the individual problems of the practitioner is not necessary and will often serve to confuse rather than to clarify the issue.

The special field for such tests lies in their application to the problems of clinical research, as these are carried on in thoroughly equipped hospitals, manned by highly trained and carefully chosen workers. Under such circumstances these tests are invaluable in bringing to light new clinical features or in making more understandable those already known.

It is the results of such research, in terms of new or better understood clinical facts, rather than the methods themselves, that should be passed on to the general practitioner. The study of the various disorders of the heart beat by means of the polygraph and the electrocardiograph, for example, has added enormously to our understanding of these conditions, and by use of these instruments the clinical features and the significance of these disturbances have become thoroughly understood; so that now for the properly trained physician, their recognition by their clinical features alone usually presents no difficulties. For the every-day practitioner, the time spent in a careful study of Sir Thomas Lewis' little book, "The Clinical Disorders of the Heart Beat," will be much more usefully employed than in any attempt to master the technical and interpretative intricacies of either of these instruments, and will make such instrumental examination quite unnecessary except in very occasional instances. Again, the use of the various renal function tests and the quantitative study of the nitrogen constituents of the blood have served to confirm and harden our slowly developing clinical consciousness that there are fundamental differences between chronic interstitial nephritis and the condition commonly known as essential arterial hypertension. But the physician of today does not need the aid of these complicated tests in order to make the differential diagnosis; the distinguishing clinical features have become so well known, the lineaments of each have grown so clear-cut and sharp, that the distinction by clinical means alone is now rarely difficult.

It is easier to point out the difficulties and defects of the situation as it exists at present than to offer definite suggestions for overcoming these. The chief fault, however, lies, I think, with the medical schools and teaching hospitals in failing to appreciate the need of training those students who expect to go out as general practitioners to place their chief reliance on the clinical facts and to use discrimination and economy in the employment of laboratory tests. Such students should, for example, be made to realize that in the diagnosis of late syphilis the meticulous search of the body for the well-known stigmas of tertiary syphilis may yield information much more trustworthy and decisive than that obtained from a Wassermann test. They should be instructed in the limitations, the varying significance and the sources of error of many of these tests and in the need of sufficient moral courage to reject such data when they are in conflict with obvious clinical facts. They should be taught that the mere careful inspection of a specimen of urine, sputum or feces may at times give one more useful information than an elaborate chemical or bacteriologic examination. They should be made to understand that many of the newer and more complicated tests have not yet proved their permanent value as diagnostic aids.

When one compares the methods in use at present with those in vogue ten or fifteen years ago, one realizes how ephemeral has been the life of some of them. Such procedures as the opsonic index, the Abderhalden test, the Cammidge reaction, Ambard's coefficient and the McLean index, the nitrogen partition of the urine are now rarely mentioned. Some of these have failed to prove their value; others have been replaced by simpler and better methods.

It is perhaps too much to hope that the average practitioner will himself perform all the simpler, routine laboratory tests that he requires, although there is much to be said in favor of that plan; but when thoroughly trustworthy clinical laboratories are not available, these essential tests should at least be made under his personal supervision.

The dependence of such a large part of the profession on commercial clinical laboratories brings up the question as to whether these should not, in some way, be required to conform to certain minimum standards of accuracy. Already in some states, as in New York, the state department of health requires that certain tests having important relations to the public health, such as throat cultures for diphtheria and the Wassermann test, shall be made only in such laboratories as have demonstrated their fitness for such work and have been approved.

It may be that the problem of adequate and reliable diagnostic laboratory service for the smaller communities will be solved by the extension of the health department laboratory service into such communities in cooperation with local hospitals or community health centers.

My plea then is:

For greater attention on the part of teachers to the need of establishing in the minds of students a truer perspective of the proper relationship between laboratory aids and the older bedside methods of clinical study, and an appreciation of the importance of acquiring skill in the latter methods.

For a sense of greater responsibility on the part of the general practitioner for the trustworthiness and accuracy of the tests employed by him and for a proper understanding of the principles, the significance and the limitations of application of such tests.

For an effort on the part of all of us to resist and counteract the growing inclination to regard the use of laboratory and instrumental aids as the chief means of diagnosis and to give too little weight to the more laborious but more important measures of painstaking clinical observation and careful deductive reasoning.

121 East Sixty-Second Street.

RECURRENCES IN CANCERS OF THE BREAST *

JOHN E. SUMMERS, M.D.
OMAHA

In the light of today it would be supererogation on my part to recapitulate the end-results of the operative treatment of cancer of the breast as reported by many clinics and individual operators throughout the world. The results in the main are about the same, and the technic employed in general varies so little that claims of superiority in end-results on that score are hardly worthy of serious consideration.

A clearly operable cancer of the breast which recurs locally indicates that either the technic was incomplete or else that its lymphatic extension had passed beyond the limits of the field of operation, however well the operation was performed. Again, in an instance of metastatic recurrence, if a pathologic study of the specimen removed fails to detect cancer elements beyond the border of the parts removed, then metastasis had already taken place before the operation was performed.

The most important thing we know in the treatment of cancer of the breast is its early removal (probably Handley's technic is preferable), before lymphatic involvement can be detected; this gives the largest percentage of cures—about 70. When the axillary glands are only slightly involved, the supraclavicular glands not involved, and no metastases discernible clinically or by means of roentgenograms, about 33 per cent. of cures can be expected. The average case with axillary glandular involvement, none other being discernible, gives about 10 per cent. of cures. In advanced cases in which radical palliative operation is done there is an occasional cure—about 5 per cent. These percentages are those of Greenough and Simmons, and are in agreement with my experiences and those of my colleagues in our locality of the Central West. The roentgen rays, properly applied to a foul-smelling cancerous mass, will destroy the disagreeable, frequently very offensive odor in from twenty-four to forty-eight hours.

Very late metastasis or what may be termed secondary cancer occurs. I have had one case of this kind, in the liver, twenty years after the removal of a cancerous breast.

Those of us who accept Handley's permeation theory of the routes of lymphatic dissemination believe that we see for the future a lowered local recurrence in can-

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cer of the breast, and a necessarily lowered invasion of the cavities of the body. We also see how we may best employ irradiation to delay or prevent recurrences: briefly, a wider fascial removal, and a more systematic employment of irradiation in a circumferential manner, in a wide extension along the route of the lymphatics draining the area of the breast in which the tumor was located. An important study of factors which influence longevity in cancer was made by McCarthy,[1] basing his study on the fact that, following operations in very extensive cases of cancer, these patients sometimes live much longer than others with easily removable small growths. Among the 293 cases studied, there were ninety-two of cancer of the breast, all of which patients had died either of recurrence or metastasis following radical operation. The findings of the study showed that when "fibrosis is present in association with cancer of the breast, the postoperative life is increased 34 per cent. When hyalinization is present in association with cancer of the breast, the postoperative life is increased 40 per cent. When the two factors—fibrosis and hyalinization—are present in combination or association with cancer of the breast, the postoperative length of life is increased over 56 per cent."

Irradiation of cancer in accessible locations, if a sufficient dose is given, results in a destruction of the pathologic cells and their replacement by fibrosis; it also results in hyalinization, both conditions inhibitive of the extension of cancer: hence the employment of irradiation before operation and as a postoperative measure is rational.

Before modern pathology and bacteriology became the dominating influences in the study of disease, it was a generally accepted theory from time immemorial that there was a predisposition to cancer in certain families. So great has become this influence, and so authoritative has become the effect, that practically all of our textbooks on pathology deny the inheritability of cancer. It has been allowed to go out in the propaganda literature of our great, praiseworthy Society for the Control of Cancer, that "cancer is not hereditary."

Students of biology are teaching us in a way that does not admit of contradiction, that we inherit from our forebears all of their physical and mental make-up, each in such concentrated or diluted form as may be best explained to date by a law of heredity—the mendelian—applicable to all vertebrates, in truth, to every living thing, animal or vegetable.

About fourteen years ago I read a paper before the Medical Society of the Missouri Valley in which I tried to maintain the position that cancer was a constitutional disease, i. e., that there was an inheritable predisposition. The same arguments that were presented then hold good today, only more so, because the teachings of biology strongly maintain it. The biometricians, or school of the ancestrians, most ably represented by Professor Pearson, do not accept the mendelian explanations of heredity, but it appears to me that the latter's most ardent advocates, Professor Bateson,[2] Mr. Mudge and others, have the better of the argument in that the mendelian school explains the occurrence of mutations as in line with recessions; whereas, the biometric theory of continued variations is blocked by these occurrences. As Mr. Mudge says, the mendelian school has been in existence only a comparatively few years yet in following its teachings practical results have developed. He mentions wheat, saying that the agriculturist sought in one plant the characters of resistance to rust, large ears, strength of quality, and capacity to ripen early. It is now possible by appropriate crossing, to obtain a stable race. The same principles are of practical application in the breeding of animals, and in the growing of new varieties of fruits and flowers, as Burbank has demonstrated in California.

If this is all true, and it is, why, in man, may we not explain certain changes in congenital rests? The formation of congenital cells favorable to undergo malignant degeneration is irregular, and can follow no direct law because of the entire absence of system in crossing human beings. We know that these congenital formations frequently are the starting points of malignancy. How may we explain favorite sites of malignancy when only chronic irritation is at work—the lip, the tongue, the pylorus, the cecum, the sigmoid and the rectum? There is no difference in the occurrence of cancer in men and women except as explained by the organs of sex and their chronic irritations and exposures to trauma. The other apparent differences in each sex are the result of habits and customs of nationalities.

A vital change in the biologic properties of cells giving origin to tumors must take place to inaugurate their growth. What the nature of this change is we do not know with certainty.

This is not the place to attempt to discuss the cancer problem except in a way in which I think its biologic study may point toward a better knowledge of the study of the prognosis of cancer, and more particularly of cancer of the breast, which can be felt and too often seen.

Too few pathologists, and especially too few surgeons and anatomists, give sufficient heed to the fact that men's viscera and other organs differ from one another in size, position and relation, in a degree as do their faces, no two being exactly alike; this is less true in twins and in those of strong familial likeness in face and form. As each one's cells differ from another's proportionately as do their grosser tissues, this may explain many of the hardly explicable numerous classifications of tumors which tend to confuse rather than elucidate.

My belief in the inheritability of cancer and its applicability to the study of its pathology has been intensified of late years by the work of the biologists, particularly the work of Maude Slye. This work has brought about the belief that its results may be applied in eugenics so as, in the future, to lessen the death rate from cancer. Miss Slye, in experimenting with mice, developed in her laboratory two strains; one cancer-free, i. e., one in which no case of cancer had developed in twelve years among many thousands of mice, in generations in number which would correspond to about 2,000 years of human life as measured by generations. There can be no Methuselah pathologists who might study the biologic problems of heredity in man; hence we must employ in this study short-lived mammals with organs like our own, presenting similar pathologic changes. Miss Slye, during the same time, developed also a strain of cancer mice in which, either by inbreeding or crossing, she was able not only to breed cancer at will, but also in such organs as desired, viz., the breast, lungs or liver; to breed sarcoma or carcinoma-sarcoma. She could, by crossing the cancer strain with the noncancer strain, develop cancer in certain proportions, dominant or recessive, and by crossing these again and again with the noncancer strain, breed out, so to speak, the cancer element. All of this work was done in direct accordance with the laws of heredity as expressed in the mendelian theory. In the cancer strain, cancer is dominant; in the mixed strain, it is recessive, the attenuation of the recession being in a proportion relatively attenuated as the breeding-out process is carried on in conformity with the mendelian law. So in man cancer is recessive, and the hereditary tendency is as true in certain families. In the human race in general, the noncancer tendency is dominant, and the disease appears only when recessive elements blend in matings. Therefore in families in which cancer has been known to have occurred several times, particularly if in its occurrence it has most often had an especial affinity for any particular organ, say the breast, it should be traditional, more particularly if in matings cancer is recessive on both sides, that the teachings of the Society for the Control of Cancer should be kept in mind, not in any sense to cause unhappiness, but to give a feeling of safety.

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[1] McCarthy: Collected Papers of the Mayor Clinic 8: 1921.

[2] Bateson: Heredity and Disease, New York, Longmans, Green & Co.

In the paper referred to, published fourteen years ago, I illustrated what may be understood by recession by giving the history of a family of eleven children—six albinos and five ordinary relatively dark persons—in which the parents had no knowledge of albinism in their ancestry. Both the parents had dark hair and blue eyes. The father had two sisters that were albinos, each of whom had children with dark hair and blue eyes. I followed the history of this family for thirty years; there are now many grandchildren, some married, and as yet no albino has been born. Here albinism is recessive, nonalbinism is dominant. Should members of this family intermarry, or marry into a family in which albinism is recessive, an albino progeny may be expected. Such is my conception of heredity in cancer. It is intensified by the experimental work of Miss Slye.

Recurrence of cancer after a radical, thorough operation depends on whether it is dominant or recessive; that is, the degree; and hence the expectation of late or early recurrence. Cancer, as before stated, in the human race is recessive; the noncancerous tendency is dominant. Fibrosis and hyalinization of the tissues of a recurrent cancerous breast tumor indicate that in that particular individual the noncancerous tendency is relatively dominant: hence a favorable prognosis. Both are indexes of the necessities, extent and numbers of irradiations as aids to nonrecurrence.

Cancer can unquestionably be induced in animals by continued local irritation; this occurs only in an unknown percentage of animals experimented on, as in man the same exciting irritation causes cancer in only a few in number of those subjected to the same irritation.

Whatever the cancer element or infective germ may be, there must be an inheritable predisposition, a fertile soil for the determination of the process, whether the local irritant is activated on the lower animal or on man. The propaganda of the Society for the Control of Cancer is bringing many cases of tumor earlier to the attention of the surgeon, particularly tumors of the breast. As a result there is surely a more hopeful outlook as to the cure of a greater number of cases of cancer of the breast.

I cannot agree with Miss Slye that, cancer in mice having been proved hereditary—and by analogy inheritable in man—it follows that cancer cannot be a germ disease. From my point of view as a clinician, I do not see her logic. The often great difficulty of differentiation between cancer and syphilis, cancer and tuberculosis, say of the tongue, tonsil or larynx, is such as to call for the keenest of talent. That cancer growth and metastasis do not follow the laws of bacteriologic infections is no reason that it may not have its own law, as have others which we acknowledge but as yet cannot identify.

The day is coming when a cure for cancer will be discovered. It seems that this will happen only when we give up our present theories of its pathology, absolutely hopeless to date, become better students of biology and chemistry, and further seek the problem in a more rational analysis of its relation to the germ theory of disease.

THE DIAGNOSIS OF EARLY BREAST TUMORS

BASED ON THE CLINICAL HISTORY AND PATHOLOGY AT THE EXPLORATORY INCISION *

JOSEPH COLT BLOODGOOD, M.D.
BALTIMORE

There are two types of research: One seeks for the unknown irrespective of the needs of the people. The other is a research for the practical and pressing needs of the people today.

When we study our 33,000 histories of patients recorded in the Surgical Pathological Laboratory of the Johns Hopkins Hospital since 1890 and search for the chief controllable factor in our failure to cure, it is the duration of the disease known to the patient and recorded by the answers to the questions: How long have you been ill? How long have you felt the lump?

Today, therefore, the chief hope of increasing the number of cures of cancer is the shortening of the duration of the disease. Apparently this can be accomplished only by the education of the public—giving them correct information.

If the lump felt by the patient proves to be cancer, its duration is the only controllable factor in the ultimate cure. If the lump felt by the patient is not cancer, it remains curable no matter how long its duration, and becomes dangerous only when it changes into cancer. Its removal, therefore, is protection from cancer.

When we select among our breast tumors only those which, on restudy of the tissue or section, are without doubt carcinoma, and place them into groups according to the duration of the lump as recorded in the original history by the answer to the question, How long have you felt this lump? we find that the largest percentage of five-year cures and the smallest percentage of recurrences after five years are in the group in which the known duration of the lump was one month or less. The percentage of five-year cures gradually falls, and the percentage of recurrences after five years gradually rises with each additional two-month period of time, up to three years. This statistical study has been repeated again and again for confirmation, with the conclusion that at present the only controllable factor for the cure of cancer of the breast is the duration of the lump.

BENIGN LUMPS DIAGNOSED CANCER OR SUSPICIOUS OF CANCER

During these thirty-three years, and especially during the last ten years, this group has been observed and

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recorded in the laboratory with increasing frequency. Many of these cases have been referred to the laboratory by surgeons and pathologists from all parts of the country, chiefly because their malignancy has been questioned.

In this group are found breasts the seat of chronic cystic mastitis with or without a blue-domed cyst in which one or more areas have been looked on as carcinoma or suspicious of carcinoma; chronic mastitis in the lactating breast without abscess formation which have been diagnosed adenocarcinoma or suspicious of carcinoma; and nonencapsulated areas in the breast without abscess formation or caseation which, microscopically, show undoubtedly tuberculosis, but in which parenchymatous changes and distortions have been interpreted as malignant. Then, there are numerous examples of distinctly encapsulated adenomas with a microscopic appearance suggestive of cancer. In more than 50 per cent. of the single or multiple cysts with an intracystic papilloma, the first recorded microscopic diagnosis has been adenocarcinoma.

This group has become relatively large, and when classed with undoubted carcinoma produces a large element of error, increasing the percentage of five-year cures and making it impossible to estimate correctly the controllable factor in the cure of cancer.

This group of benign lumps in the breast diagnosed cancer or suspicious of cancer when gathered together shows two remarkable facts: First, in none do the glands of the axilla, when removed, show metastasis, and, second, when we record the ultimate results, in none has there been observed local recurrence irrespective of whether the operation has been the removal of the tumor, or of the breast, or the complete operation for cancer. Therefore they are grouped by themselves. All these patients remain well irrespective of the known duration of the lump. When this group is placed with undoubted cancer, it increases the percentage of five-year cures, decreases the percentage of local recurrence and late recurrences after five years, and makes for confusion in all statistical studies, so that the most important controllable factor for the cure of cancer—the known duration of the lump—is not evident.

As this element of error has been present in my own investigations for years, I feel justified in the conclusion that it is present in all other statistical studies throughout the world.

EFFECT OF EDUCATION ON THE CHARACTER OF BREAST LESION IN LARGE SURGICAL CLINICS

It is to be remembered that in the Johns Hopkins Hospital Surgical Clinic the duration of the lump in cancer of the breast has always been considered the most important factor in its cure. Dr. Halsted frequently spoke of this to his associates and to his patients and their physicians. Our first early cases of cancer of the breast came from those getting this correct information. At the American Medical Association session in 1910 in St. Louis I [1] emphasized that the most important factor in the cure of cancer, no matter what its locality, was the known duration of the symptoms or the lump, and to reduce this duration of the disease the profession and the public needed correct information. In 1913 there appeared articles in magazines by Samuel Hopkins Adams, the direct work of my associate Cullen of Baltimore and of his committee. Then followed the organization and educational efforts of the American Society for the Control of Cancer.

The effect of these educational efforts in regard to the character of lesions of the breast as observed in the records of the Surgical Pathological Laboratory of the Johns Hopkins Hospital seemed almost incredible. I published [2] them briefly in March, 1922.

At that time, since 1920, in about 50 per cent. of the women who were referred to the clinic because of some breast complaint, nothing serious was found on examination and no operation was performed. Of the remaining 50 per cent. in whom there was a definite lump, the lump proved to be cancer at operation in about one half. Therefore, of 100 women examined in the clinic for breast lesions, in only about 25 per cent. did the lump prove to be malignant.

Let us compare these figures with those of the first ten years—up to 1900—observed in the same clinic. Less than 1 per cent. were not subjected to operation; the remainder had definite lumps of a long duration known to the patient and, when subjected to operation, almost 85 per cent. were cancer.

I have also observed the good effects of this educational effort when I have given clinics throughout the country. In the majority of the cities, among the women with breast troubles brought in for diagnosis the lesion was benign.

NEW DIAGNOSTIC DIFFICULTIES

In my own experience there is no question as to these new difficulties, and if I may judge from the breast tissue sent to the laboratory for diagnosis and from correspondence and conversations with surgeons and pathologists throughout the country, all are experiencing the same difficulty, with increasing frequency. These diagnostic dilemmas are three:

1. The first difficulty is encountered in the examination of the breast: Has the patient a definite lump, or is it only part of a lumpy or shotty breast, or a benign, wormlike tumor beneath the nipple? What is the significance of pain in the breast, or a discharge from the nipple, when the examination of the breast reveals no definite lump. What shall we do for a slight wart or minute ulcer on the nipple, or for a recent red, granular, weeping nipple? What should be one's attitude for a visible and palpable mass in the axilla? How should we interpret definite multiple lumps in one or both breasts? What is the significance of intermittent retraction of the nipple and permanent retraction of the nipple? What does a unilateral enlargement of the breast mean?

The first decision, therefore, after the first examination and history is: Has the patient a definite lump, has anything been found which would indicate an exploratory operation?

Second, having found a definite lump in a woman over 20, should the complete operation for cancer be performed without an exploratory incision, or should the lump first be explored, and, if so, how?

2. The second difficulty is at the exploratory incision: Is the palpable lump that one now sees and feels benign or malignant? If one decides that it is benign, shall one be influenced in the extent of the operation by the appearances of the breast tissue cut through in exploring or removing this lump?

3. The third difficulty is the interpretation of the immediate frozen section. In spite of the best technic

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[1] Bloodgood, J. C.: Recent Progress in Surgical Treatment of Malignant Growths, J. A. M. A. **55**: 1537 (Oct. 29) 1910; The Surgical Treatment of Cutaneous Malignant Growths, ibid. **55**: 1615 (Nov. 5) 1910.

[2] Bloodgood, J. C.: Benign Lesions of Female Breast for Which Operation Is Not Indicated, J. A. M. A. **78**: 859 (March 25) 1922.

in making these sections, and in spite of the fact that they are first examined by the most experienced in pathologic conditions of the breast, I have found that if these sections, or other permanent sections, are submitted to a number of men equally experienced in the microscopic diagnosis of breast lesions, there is an increasing number of cases in the group which I have just discussed under the heading of benign lumps, diagnosed cancer or suspicious of cancer.

When one submits sections of undoubted cancer of the breast to the same pathologists, there is never any difference of opinion as to the malignancy. When one submits distinctly benign encapsulated adenoma and distinctly benign chronic cystic mastitis and the other types of benign lesions of the breast to the same group of pathologists, there is rarely any difference of opinion as to the benignancy.

This borderline group, at least at the present time and as far as my personal observations go, is increasing.

When any one feels certain of his diagnosis in this borderline group, that certainty should disappear when he submits the sections to his colleagues and finds disagreement.

Therefore, we must face the facts that there will be increasing difficulties in the diagnosis of breast lesions, both at the examination and at the exploratory incision, and for this reason for the benefit of our patients, there must be a working rule.

WHAT TO DO IN CASE OF DOUBT

No one disagrees as to the necessity of the immediate complete operation for cancer, if the clinical, gross or frozen-section diagnosis is undoubtedly cancer, and I have taken the position that when the surgeon, with or without the aid of the pathologist, has any doubt as to the nature of the breast lesion, he should immediately perform the complete operation for cancer. The element of error will be relatively small, and it is far better to sacrifice the breast in a case of doubt than run the increasing risk of death by the incomplete operation for cancer (which is certain death), or an operation in stages (which greatly decreases the chances of a permanent cure). I[3] have discussed this position in detail in an article on chronic cystic mastitis.

WHAT TO DO FOR A DISTINCTLY BENIGN LESION

My experience teaches me that if the lump is distinctly benign, its removal is sufficient. The patient then runs no more risk of cancer than any other woman at the same age who has no evident trouble in the breast. There is evidence to suggest that the removal of a distinctly encapsulated adenoma is some protection against cancer, but the majority of cases of cancer do not give a history of a lump of sufficiently long duration to conclude that cancer frequently begins in preexisting adenoma.

There is not sufficient evidence that the breast the seat of chronic cystic mastitis is any more likely later to become the seat of carcinoma than any other breast. Therefore, when one explores and finds a distinctly benign lump, and the surrounding breast shows chronic cystic mastitis, there is no reason to remove the entire breast. This woman runs no more risk of cancer than one of the same age whose breast shows no evidence of chronic cystic mastitis.

REMOVAL OF BREAST

My evidence accumulated during these thirty years seems to show that removal of the breast is illogical—it is too much for a distinctly benign lesion, and not sufficient for carcinoma, or anything suspicious or doubtful of malignancy. There may be a few exceptions, but then the breast is not removed because of any question as to malignancy, but because the breast has practically been destroyed or made useless, uncomfortable or dangerous by the disease. This is true in diffuse mastitis with multiple abscesses and sinuses. The breast is removed because the infection threatens the patient's life or because the abscess formation has entirely destroyed it. Huge unilateral or bilateral hypertrophy may demand amputation of the breast. Cysts and encapsulated adenomas may reach such a size in ignorant women that there is no breast left to save. Tuberculosis of the breast with single or multiple abscesses and sinuses is no longer a lesion to be subjected to the complete excision of the breast. Patients with this form of tuberculosis usually recover, as do those with other forms, under rest treatment.

REMOVAL OF REMAINING BREAST WHEN PATIENT HAS HAD COMPLETE OPERATION FOR CANCER OF OTHER BREAST

Kilgore, who discussed this paper, has shown that a woman who has been operated on for an undoubted carcinoma of one breast runs at least 10 per cent. chances of developing later cancer of the remaining breast, while the ordinary woman of the same age runs from 1 to 2 per cent. chances. Therefore, it seems wise that this breast should immediately be removed if, at any future examination, even an indefinite lump is found. It is quite possible that, in the future, removal of the remaining breast may become a routine procedure a few weeks or a few months after the complete operation for a definite carcinoma has been performed on one breast and the pathologic diagnosis has been confirmed by restudy.

The necessity for the removal of the remaining breast if the patient becomes pregnant is far more urgent, as brought out by Trout of Roanoke in his paper before the Southern Surgical Association, and as confirmed by Kilgore in his study of the material in the laboratory of the Johns Hopkins Hospital and in the Surgical Clinic of the University of California.

NEW METHOD OF EXAMINATION

With the increasing difficulties of diagnosis that have been mentioned, a better method of examination of the breasts becomes necessary. I have already discussed this.[4] In the first place, it seems essential that the one who is to examine the patient's breast should have no hint as to the patient's complaint or which breast is involved. This is due to the frequency of the lumpy breast, only one of which lumps the patient has felt. If the examiner is told just where this lump is, suggestion may influence him to feel this lump more definitely and overlook the other lumps in both breasts. Repeatedly I have emphasized this to myself. Both breasts have been carefully palpated; both contained many indefinite lumps; finally one is picked out as the most definite, and then the patient is asked to place her finger on the lump she has felt. The examiner is surprised that the lump he feels is not the lump the patient indicates.

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[3] Bloodgood, J. C.: Pathology of Chronic Cystic Mastitis of Female Breast, with Special Consideration of Blue-Domed Cyst, Arch. Surg. 3:445 (Nov.) 1921.

[4] Bloodgood, J. C.: Boston M. & S. J. **187**: 243 (Aug. 17) 1922.

Position of Patient.—The patient should be stripped to the waist with the clothes about the abdomen loose to allow palpation of the liver and spleen; she should recline on the back on a couch or examining table, the chest and head slightly elevated on pillows, the arms above the head, the fingers clasped. The patient has been warned not to tell the examiner anything, or to move the hands in any way to indicate which breast is the seat of trouble.

Inspection.—The table or couch should be so situated that the examiner can inspect the breast from all directions and move from side to side around the head of the table. He should look at the nipples for minute warts, red granular areas, signs of dry discharge, and retraction of the nipple. One should remember that one nipple may appear pulled in and the other be prominent; suddenly the pulled in nipple becomes prominent. Touching it will make it prominent if it is not an acquired or congenitally retracted nipple. The inexperienced, and even the experienced, may overlook definite conditions of the nipple. In one instance, after a most thorough investigation, I said to the young patient: "I can see or feel nothing wrong in your breast." She answered: "There is a small wart on my right nipple." I had overlooked it. A recent study of Paget's disease has shown that a wart or keratosis of the nipple may be the beginning of a later Paget cancer. Soap, water and petrolatum will usually remove such a wart.

The varying appearances of the areola, except the visible lump or dimpled area, have apparently no diagnostic importance. The inspection reveals the symmetry and size of the breast. Symmetrical unilateral hypertrophy is, of itself, not a sign of any disease of the breast, except when due to a large tumor, and this is immediately recognized on palpation. Asymmetry suggests some definite trouble. A visible small tumor is usually malignant. The most important things that are revealed by inspection are retraction of the nipple, which must be confirmed by palpation and properly interpreted by the history; warts; red, granular areas; signs of nipple discharge which must be confirmed by history and palpation; definite dimpling of the skin which must be confirmed by palpation; the visible small tumor, which is very suggestive of malignancy, as mentioned before; changes in the color of the skin, which, when over the palpable mass, are late signs of cancer; early signs of a skin infection, and later signs of a mastitis. Then there is the visible mass in the axilla, in one or both, which in recent years I have seen frequently; this may feel like a normal breast without the nipple, and was formerly supposed to be a lipoma. We now know that it is usually aberrant breast tissue, and one should examine it and treat it as if it were a breast. If it contains a palpable tumor with every evidence of benignity, one should explore the tumor; if the tumor feels hard like cancer or has dimpling of the skin over it, one should perform the complete operation for cancer. Carcinoma may begin in this aberrant axillary breast tissue.

When this axillary mass feels like a normal breast or lipoma, it should be left alone.

Infection of the hair follicles or sweat glands in the axilla may give rise to single or multiple skin nodules, generally with redness of the skin. On palpation they are doughy. Nothing in the examination suggests malignancy, even if the glands in the axilla are enlarged. The best treatment is cleanliness, with incision of the abscess when it forms. However, when these take place in the axillary skin after the complete operation for cancer, they may suggest skin recurrences and lead to an unnecessary deforming wide excision of this skin area or to roentgen-ray and radium treatment. The visible and palpable area is entirely different from metastatic skin carcinoma, and then again, from the standpoint of treatment, one can be quite certain that if these nodules were metastatic carcinoma, the condition would be hopeless.

The retraction of one breast against the chest wall is a very late sign of cancer. It also may be present in mastitis with abscess. A pendulous breast with unilateral hypertrophy, and a normal breast which is not pendulous, may give rise to the false impression that the smaller breast is retracted against the chest wall. One may see on the skin of the breast the scar of a previous operation or one due to the healing of a skin infection or mastitis abscess. One must learn to distinguish between the rare fibroma of the skin and the skin metastasis. The benign and malignant tumors of the skin common elsewhere are very infrequent in the skin area over the breast.

Palpation.—Except for lesions of the nipple and skin, this is the most important procedure in the examination. The palpation must be gentle. The greater the force, the less the perception of what the finger touches. First, one should feel both breasts, one with each hand, placing the fingers of each hand on corresponding areas of the two breasts. One should begin with the upper and outer quadrants, avoiding the nipple until last, because it is likely to produce congestion of the breast. In palpating, one should move the fingers up and down as if playing the piano. One is now searching for the multiple indefinite lumps and for the single definite lump. The palpation should be repeated. Then one breast should be felt with both hands, the examiner trying to pick up the breast along its outer hemisphere and feeling for an edge. As a rule, the breast periphery has no distinct margin. If one feels a distinct edge or margin, as in the liver or the spleen, it does not necessarily indicate disease, but a type of breast which I have described as a shotty breast. When one lifts up the edge of the breast, it may assume the shape of a saucer with the concavity toward the chest wall, and when one grasps this breast tissue between the fingers, one may feel many multiple, minute, shotlike masses. As a rule, this shotty breast is bilateral. The upper and outer quadrants are most frequently involved. However, the entirety of both breasts may feel alike. The greater the number of women who seek the advice of the clinic immediately after they experience any trouble with the breast, the more frequently will the lumpy or shotty breast be found on palpation.

Now the nipple area should be palpated. If one or both nipples have been retracted, this palpation may cause erection and exclude retraction of the nipple. One should feel especially beneath the nipple and areola for wormlike masses, usually bilateral, and quite distinct if present. During the palpation of these wormlike masses a secretion, usually brown and thick, may be expressed from the nipple.

The lumpy breast, the shotty breast, and the wormlike tumors beneath the nipple, I am confident, were frequently overlooked, when the patients came under our observation with a definite lump of long duration, usually with definite clinical signs of cancer, and they will be overlooked today unless the palpation of the breast is repeatedly and carefully made. If one over-looks them, no harm follows to the patient; but if one feels them and does not know their benign significance, one may subject the patient to the unnecessary removal of one or both breasts or the complete operation for cancer.

When, on inspection, a unilateral retraction of the nipple is observed, and on palpation it remains retracted, and one can feel nothing else in the breast, only the history will allow one to interpret what this retraction means. If it is congenital, or has been present years since lactation or mastitis, it is not a sign of malignancy, nor does it furnish an indication for operative treatment. If it is distinctly of recent origin without a history of recent injury, lactation or mastitis, it should be looked on as a sign of malignancy, and the complete operation for cancer performed. The number of such cases under my observation is relatively small—less than fifteen. In about two thirds, a minute cancer nodule could be demonstrated in the breast; in the remaining cases, no cancer, but benign chronic cystic mastitis or a minute papillomatous cyst. To explore such a breast in which there is retraction of the nipple only might fail to reveal the lesion. From my experience the complete operation is the safer procedure.

Palpation of a Definite Single Lump.—As I read over my records again and again, the remarkable fact stands out that we have rarely palpated a distinct lump which the patient had not felt.

This evidence is most encouraging. We do not need to educate women how to feel a definite lump, but to influence them to come for an examination the moment they feel a lump. As a corollary, rarely does the careful palpation fail to find a definite lump the patient herself has located. In the few instances in which I have overlooked the lump which I could feel after the patient had located it for me, this lump has always been small and, when explored, either a benign cyst or an encapsulated adenoma.

Having found a definite single lump, one must repeatedly and gently, on more than one occasion, try to get its exact outlines and density. Not always, but frequently, a cancer can be recognized on palpation alone. The difficulties of interpretation are increased when the malignant tumor is buried in breast tissue, or when the breast itself is unusually large and fatty.

Having finished palpation for the lump, one should feel for atrophy of the skin over the lump, or slight fixation of the skin. When this is present, especially with small tumors, malignancy should be suspected. The breast containing a lump should be pushed forward to bring out dimpling—this is an almost certain sign of cancer. If the nipple is not definitely retracted, one may bring out slight fixation of the nipple by placing the fingers of one hand on the lump and pulling the nipple. If the nipple is fixed, and especially if the lump moves a bit, this is almost a positive sign of cancer. The slightest evidence of edema about a palpable lump is very suspicious of malignancy, except about areas of definite inflammation. When the lump seems fixed in the breast, or the breast about it is slightly infiltrated, cancer may be expected. On the other hand, when the lump is freely movable, especially when it feels spherical and tense like a marble, this is very suggestive that it is benign.

It is a very good plan to repeat palpation on the operating table before the area is cleaned, and then again with the gloved hand after the area is prepared for the incision. This is essential when one's first conclusions are that the lump is benign. The greater one's experience, the better one's memory of the lumps one has explored; and the more certain the pathologic findings and records of these lumps are, the less frequently will a cancer lump be explored.

Palpation of Multiple Definite Lumps.—I have gone over our records again and again, and so far find no exception to this fact: When one palpates more than one lump in one breast, or lumps in two breasts, or multiple lumps in both breasts, these tumors are either benign, or, if cancer, the condition is hopeless from an operative standpoint.

Clinical History.—Having finished inspection and palpation, one then takes the history and records it in a thorough and systematic manner. Unfortunately, except for a few features, the historical data are not particularly helpful in the differential diagnosis of what has been found by inspection and palpation. I have hopes, however, that a greater number of complete and correct histories, checked by accurate pathologic examinations in the operative cases and followed for years as to the result, may bring out more facts from the history which will be valuable in diagnosis.

OBSERVATIONS

Age.—My records fail to reveal a single example of cancer in a woman aged under 20, and only one in which the recorded age is under 25. This patient was a colored woman who looked older. The number of cases of cancer of the breast between 25 and 30 is relatively small. Therefore I believe it safe to conclude that when the patient is 20 or under, cancer can be excluded. The relative frequency of benign and malignant lesions from the age of 25 upward varies. But the variation is insufficient to justify definite conclusions.

Pain.—Painful breasts are sufficiently common in women without cancer or any other lesion to exclude pain as an aid in diagnosis. This point has been repeatedly confirmed by the study of our records.

Duration of the Palpable Lump.—A known duration of three years or more with the tumor still definitely benign on palpation almost excludes cancer, but at any moment this lump may develop into a cancer. As women now come usually within one year after first feeling a lump, its duration will not be helpful in the diagnosis. It is important to remember that in some women the cancerous area in the breast is of very slow growth, and in many instances metastasis to the glands and internal metastasis may take place without any marked change in the known lump.

Discharge from the Nipple.—The interpretation of this clinical fact in the history varies. For years I have placed myself on record that it is no more helpful in the differential diagnosis when it is present without a palpable lump, than pain. As a matter of fact, if those authorities who believe that discharge from the nipple is a sign of cancer or of a precancerous lesion use the same arguments and conclusions for a similar study of pain in the breast, the evidence that pain in the breast is a sign of cancer or a precancerous lesion will be found to be greater than discharge from the nipple. From my records, the history of discharge, or the expression of something, from the nipple at the examination, present alone, is not an indication for operation, and such a patient runs no more risk of cancer than any other woman of the same age without such a history or finding.

Pregnancy.—Single palpable lumps in the breast during pregnancy in a woman over 20 years of age should be subjected to the same examination and treatment as if pregnancy did not exist.

Lactation.—When a lump is felt in the breast at any time during lactation, and is a distinct single lump, the patient should be given the benefit for at least ten days to two weeks that the lump is a galactocele or an area of mastitis. If one or the other, it should disappear or form a definite abscess. If not, it should be explored. Cancer is not infrequent in the breast of the pregnant woman or during lactation. Dr. Kilgore of San Francisco will soon bring this out as based on his careful studies of a very large material of two clinics.

Trauma.—If there is a single definite lump which does not disappear within two or three weeks after a trauma, it should be explored. However, in all the cases that I have been able to observe, from the moment of the trauma there has first been a bruised area pictured by the discoloration of the skin, then an indefinite mass, and, as absorption goes on, multiple indefinite nodules which gradually disappear.

History of Mastitis With or Without Abscess.—When the area of mastitis entirely disappears and then, months or years later, a lump develops, this history is not helpful in the differentiation of malignancy from benignancy. But when the mastitis area leaves a lump known to the patient, cancer is very likely to develop, especially after years.

INTERPRETATION OF FINDINGS AT EXAMINATION AND FROM THE HISTORY

In the first place, we must remember that when a cancerous lump in the breast is subjected to the complete operation and the glands in the axilla are not involved, the chances of a five-year cure are at least 70 per cent. What the probabilities of a cure would be if all such lumps were of but one month's duration or less before operation I do not know, except that I believe that the chances of a cure would be better than 70 per cent. Therefore, we must have a working rule.

If one is in doubt whether the patient has a definite lump or not, it is best to explore and find out what the lump is; and if one is still in doubt, do the complete operation for cancer.

When the patient has a definite lump and one concludes, from the palpation of the lump, or because one has elicited atrophy of the fat, fixation of the skin, dimpling of the skin, or retraction or fixation of the nipple, that it is probably malignant, one should perform the complete operation for cancer without an exploratory incision, because the chances are very small that the lesion will prove to be benign. As one's experience grows, one may explore some of these lumps which have the early signs of cancer, but no surgeon should be criticized by the patient or profession for immediately performing, without exploration, the complete operation, when his careful clinical examination has revealed these early local signs of malignancy. Our records show that the most experienced surgeons have done this and yet, in a small percentage of cases, the pathologic examination has revealed a benign lesion. This is a mistake for the benefit of the patient which must still be made.

What influence will the palpation of a definite lump in a shotty breast, or a lumpy breast, or one containing the wormlike tumors beneath the nipple have on one's diagnosis? To one with less experience, no influence. Conclusions as to operation with or without exploration should be based on palpation of the lump and the presence or absence of the other early signs of cancer. To one of larger experience, exploration is justifiable if the signs of cancer are not very distinct, because my evidence, at least, indicates that cancer is less frequent in these types of breast.

The Early Signs of Cancer.—The most difficult to interpret is the palpation of the lump only. The next is that of the lump plus one other of the earlier signs—atrophy of the subcutaneous fat, slight fixation or dimpling of the skin, and definite retraction or fixation of the nipple. It is important to remember that the benign lesion is rarely associated with more than one of these definite signs. The more of the earlier signs of cancer that can be determined, the greater the chance of malignancy and the greater the justification of a complete operation without exploratory incision.

Exploratory Incision.—Having felt a definite lump, or being uncertain as to an indefinite lump, and having been unable to find any of the early signs of cancer, or being a little suspicious of the one early sign of cancer, one should explore the palpable area. It goes without question that this operation should be done in a hospital with the usual preparations for anesthesia, whether local or general, and with the patient prepared for the complete operation.

HOW SHALL WE EXPLORE?

There are two methods. If the lump is as large as, or larger than, a twenty-five cent piece, not deeply situated and not in a huge, fatty breast, one should cut slowly down on it, clamping all bleeding points. The tumor may be exposed directly beneath the subcutaneous fat, or one may have to cut through breast tissue to reveal the palpable area. When it is a small lump, deeply situated, or in a very large, fatty breast, the palpable area should be excised with a good margin of subcutaneous fat and breast tissue, and one should place in the wound an alcohol sponge, take the mass in the left hand and bisect it with the knife, study its gross pathology, and cut out a piece for frozen section.

When one explores the tumor by the first method and the exposed tissue suggests malignancy, one should examine it carefully, palpate it, cut out a small piece, swab the wound with pure phenol (carbolic acid) followed by alcohol, and then place in the wound a bit of gauze wet with a 50 per cent. solution of zinc chlorid. Then one should study the little piece cut out and have a frozen section made.

If one's conclusions are that it is a definite cancer, or suspicious of cancer, one should close the skin over the zinc chlorid gauze in the first method, and over the alcohol gauze in the second method, and proceed with the complete operation for cancer. If one's conclusions are that it is benign, one should remove the zinc chlorid gauze, excise the benign tumor with a margin of breast tissue, and close the wound; or, in the second method, remove the alcohol gauze and close the wound.

I have used the cautery for exploratory incision sufficiently to demonstrate that apparently it has no advantages over the methods described. It interferes with the rapid decision as to the nature of the tumor.

DIAGNOSIS AT THE EXPLORATORY INCISION

This article is a discussion of principles and fundamental facts based on continuous study of a large material over many years. There is not space in this report for details or illustrations. I must refer to my previous communications and others which are to appear in the *Archives of Surgery.*

The important points which I wish to emphasize are, that at the exploratory incision the tumors which are revealed can quickly be divided into three groups:

1. The distinctly benign—the blue-domed cyst and the encapsulated adenoma, the rare lipoma and the dermoid cyst.

2. The distinctly malignant—the common scirrhus and the less frequent medullary carcinoma, the less frequent colloid cancer, the very infrequent cancer cyst. These two groups of distinctly benign and distinctly malignant tumors have such characteristic gross appearances that the majority of surgeons and pathologists will recognize them. The frozen section will simply confirm the gross diagnosis.

3. The borderline tumor. These are solid, not encapsulated areas, with or without cysts and dilated ducts; some resemble the adenoma without its capsule; some are firm and gritty, not unlike cancer. One of the most difficult to differentiate is the cyst with a papilloma, especially when the papilloma completely fills the cyst. Depending on one's experience in interpreting microscopic sections, the number that one will recognize as benign or malignant from the frozen section will vary. In any event, there is a working rule—when in doubt, perform the complete operation for cancer.

I feel confident that, if these rules are followed, an incomplete operation for a malignant tumor of the breast will rarely, if ever, be performed. As one's experience with these borderline or early cases increases and as the surgeon and his pathologist become more and more familiar with the varying histologic changes, one will find that the number of complete operations for lesions not malignant will grow less.

It is important for all surgeons to remember and for the public to know that in the large clinics of this country and in many of the smaller where both the surgeon and the pathologist are experienced, this mistake of performing the complete operation for lesions that are not malignant takes place in a varying percentage of cases. Some of these clinics may be unaware of this. If so, their percentage of cures of cancer will be greater. But should they submit sections of this borderline group of tumors to their colleagues, they will find, as I and others have found, that the diagnosis of malignancy will not be subscribed to by a varying percentage of consultants.

WHAT THE PUBLIC SHOULD KNOW

In view of this evidence, it is my rule, and has been for some time, to inform the patient and the family that if at the exploratory operation there is any doubt as to malignancy, the safest procedure for the patient is to perform the complete operation for cancer.

PAGET'S DISEASE OF THE NIPPLE

In a recent study of thirty cases,[5] the following conclusions can be made: Paget's disease of the nipple in its early stages is preventable, and in the early stage of cancer largely curable if the complete operation for cancer is performed. There are several examples in the preventable stage, two of the red, finely granular nipple, and five of the type of small warts or keratosis of the nipple. In none of these seven cases was there ulceration, and the lesion disappeared after the daily use of hot soap and water, followed by protection with silver foil or petrolatum.

Then, there are seven cases microscopically benign which were subjected to operation. Three of these were distinct warts with minute ulcerations, two were red, finely granular nipples, and two presented the typical picture of Paget's disease with superficial ulceration and scab formation.

There were ten cases in which the ulcer of the nipple had not yet destroyed the nipple, but was microscopically cancer. In two cases the axillary glands showed metastases. This finding shows the importance of subjecting all cases of Paget's disease to the complete operation for cancer.

Then there were three cases in which the ulceration had destroyed the nipple, but there was no palpable mass in the breast. In one of these (33 per cent.) the axillary glands showed metastasis.

Finally, there are three examples of the late stage of Paget's disease. In all, the nipple was destroyed and replaced by an ulcer, and the breast contained a typical cancerous mass. None were cured by the complete operation.

In these thirty cases, the duration of the known disease is longest in the last group, in which there are no examples of a cure, and earliest in the first group, in which the lesion disappeared under simple treatment. All the earlier cases were in women who had been influenced to come under observation because of the educational campaign.[6]

904 North Charles Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. SUMMERS AND BLOODGOOD

Dr. Alson R. Kilgore, San Francisco: There is no location in the body in which cancer is more common and in which the prevention of cancer is more difficult than in the breast. Most breast cancers arise with no precancerous condition, but there are a few perfectly distinct precancerous conditions which we must train ourselves to recognize and to handle. One of these, the papillomatous cyst, with bloody discharge from the nipple, has been called to our attention today. Another is the residual scar from a lactation mastitis abscess. I am sure that we shall come shortly to recognize definitely certain other conditions in the breast which definitely tend to become cancer. If we can prevent patients who have had cancer either from having their cancers recur or from having new cancers form, we are just as surely practicing preventive medicine as we would be if we could prevent them from having cancer in the first place. Two years ago, at the meeting of this section in Boston, I reported a study of the cases in Dr. Bloodgood's laboratory which showed that patients who have had one breast removed for cancer and live five years or more are four times as likely to develop cancer in the second breast as are normal women of the same ages in either of their two normal breasts. Of all normal women in the community, 2 per cent. eventually die of breast cancer, whereas from 8 to 9.5 per cent. of women operated on for cancer in one breast develop cancer in the second breast if they live five or more years after the first operation. Perhaps we do not feel radical enough to remove the second breast in every case, but we can, at least, warn these patients of the danger they run and urge them to return for observation of the second breast. Since my report, Trout of Virginia compiled a large number of cases of women still in the child-bearing period who had had breasts removed for cancer. Of these, 90 per cent. who subsequently became pregnant developed cancer in the second breast.

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[5] Soon to be published in the Archives of Surgery.

[6] These references are given because they contain illustrations, and give the evidence in greater detail on which the conclusions in this paper were based.

The Pathology of Chronic Cystic Mastitis, Arch. Surg. **3:** 445 (Nov.) 1921. In this paper, many of the borderline lesions are described in detail, with illustrations.

Diagnosis of Early Breast Tumors Based on Their Clinical Picture or Their Gross and Microscopic Picture at the Exploratory Incision, Boston M. & S. J. **187:** 243 (Aug. 17) 1922. In this paper are given the illustrations of the distinctly benign and malignant lesions of the breast.

The Clinical Picture of the Diffuse Type of Chronic Cystic Mastitis (the Shotty Breast), South. M. J. **15:** 907 (Nov.) 1922.

The Clinical Picture of Dilated Ducts Beneath the Nipple Frequently to be Palpated as a Doughy, Wormlike Mass—The Varicocele Tumor of the Breast, Surg., Gynec. & Obst. **36:** 486 (April) 1923.

Dr. L. P. McCalla, Boise, Idaho: Three points make for better conditions and lower mortality of cancer: (1) to see the patients early; (2) to make a correct diagnosis, and (3) to administer the right treatment. The problem is, How are we going to see these patients early? I am convinced that the best methods that have yet been brought out are along the line of those advocated by the American Society for the Control of Cancer. Its educational work has done a great deal of good throughout the United States. For instance, the local chairmen reported to me, as chairman for Idaho, that in seven small communities during National Cancer Week in 1922 they had seen 108 cases of early cancer. The total population of these seven districts would not exceed 30,000 people. If 108 cases came to these seven men, think of how many there should be throughout the whole United States with the efforts that are now being made to carry on this work in every community in the United States. The average surgeon is pretty well equipped to recognize the symptoms of early cancer, but the great majority of patients do not go to the surgeons first. Therefore, this education must also be carried to the physicians of the country, that they may be better prepared to recognize the early symptoms of cancer, that they may be able to suggest the right treatment. Of 114 patients who positively had cancer of the breast, 80 per cent. are living after seven years. I made a thorough operation in each case, and the results satisfy me that this is the right thing to do even in cases which, as Dr. Bloodgood says, there may be a reasonable doubt that it may be cancer.

Dr. William C. MacCarty, Rochester, Minn.: I want to add my approval to what Dr. Summers said about the factor of heredity in cancer. I have studied from the standpoint of diagnostic efficiency 2,100 of 5,000 mammary pathologic conditions. Of this series, 78.5 per cent. came to operation with a positive clinical diagnosis. If in doubt as to the diagnosis, should we remove that many breasts in the hope that we will cure cancer? When a clinician suspects cancer of the breast, he puts his diagnosis down as malignancy with a question mark. How often is that condition cancer? In this series of 2,100 cases, 62.8 per cent. turned out to be cancer. Should we, when in doubt, do a radical operation? In benign conditions of the breast, when the clinician says it is benign, with a question mark, how many are benign? Eighty-eight and eight-tenths per cent. How many breast conditions can the surgeon or the expert gross pathologist diagnose grossly? In this series of 2,100 breasts, from 6 to 10 per cent. of necessity had to be diagnosed with the microscope and could not be diagnosed grossly by persons who are experts and experienced in gross and microscopic pathology. He who operates for a malignant diagnosis in the breast removes one breast out of every twenty unnecessarily. He who operates on a benign diagnosis in the breast fails to remove one out of ten when they should have been removed, and he who depends on his gross diagnosis at operation guesses in one out of every ten cases. These are the facts from a critical study of clinical and gross pathologic diagnosis. As to the woman under 20 being safe, not one is safe with a nodule in the breast. It makes no difference whether she is 1 year old. She should be treated just as though she were 75. Cancer of the breast occurs in young women sometimes. As to the blue dome cyst, I should like to have an opportunity to examine the specimen which Dr. Bloodgood showed as a blue dome cyst. All have seen specimens characterized as blue dome cysts, usually nothing but a large cyst frequently associated with small cysts if we study the rest of the breast. Three times I have seen a so-called blue dome cyst near which were small carcinomas. Whenever we see such a cyst, we advise removal of the rest of the gland-bearing portion of the breast because we have frequently found cancer in the rest of the breast.

Dr. J. S. Rodman, Philadelphia: Dr. MacCarty gives me courage to sound a reactionary note in regard to this subject. I firmly believe that we should always keep in mind that any lump in the breast at any age does not belong there and is potentially a trouble maker. Of the cases that came to my father and myself, 40 per cent. have been carcinoma, 33 per cent. chronic cyst mastitis, 15 per cent. benign tumors and the rest scattered. Therefore, while I agree with Dr. Bloodgood that the benign lesions are becoming more frequently seen by the average surgeon than heretofore, as a result of the publicity that has been given to this matter in recent years, I still believe, so far as our experience goes at least, that carcinoma is the most common single lesion of the mammary gland. Further than that, in our experience 20 per cent. of the chronic cystic mastitis cases will unquestionably become cancer. One other fact has greatly impressed itself on my mind. Only 30 per cent., and that is an outside estimate, of carcinomas of the breast when they can be diagnosed with certainty clinically, can be saved. We can show in a very much smaller series of private cases than Dr. Bloodgood has compiled, 72 per cent. of three year cures and 50 per cent. of five year cures, but these include many cases of microscopic cancer. I cannot help, therefore, but feel that today the chief problem in the practice of mammary surgery is, as it has always been, the cure of cancer or, better still, the prevention of cancer. Unquestionably if we are always conscious of this thought, we shall occasionally remove a breast that should be left. This we should be careful of doing in women under 35; but if we must make a mistake and, being human, we will make them, I prefer doing a radical operation and leaving only a scar, thus doing too much rather than too little and have the patient die a hopeless cancer death.

Dr. J. F. Percy, Los Angeles: The diagnosis of a malignant growth in the breast, as has been emphasized, is exceedingly important, and I wish to urge as an additional measure of accuracy and safety the removal of the tissue, for a preliminary frozen section, with the cautery knife. In following this method we need have no fear of either stimulating or spreading cancer cells into new areas. The hot knife builds up a wall against any type of infection, certainly that of cancer; we do not have to limit ourselves to a small piece of tissue, and the wound will heal more perfectly than one made with the cold knife. To cut out a section of suspected malignant tissue by the usual technic and send it to the laboratory and leave the vessels and lymphatics open to take in the loosened and broken down cancer cell is an ill fated and dangerous thing for the patient. The advice is usually given to proceed with the operation as soon as the report of malignancy comes from the pathologist. The advice would be amusing if probable consequences to the victim were not likely to be so calamitous. To use the word "immediate" to describe an act that requires on an average fifteen minutes of time for its completion is, to say the least, a misnomer. The mischief is done immediately, but not the operation. Another interesting fact that I have learned in obtaining the histories of patients suffering from malignant growths is that they rarely have had an elevation of temperature exceeding 39 C. (102.2 F.) which persisted for more than ninety-six hours. This may prove to be an exceedingly important observation in its final relationship to the unraveling of the etiology of malignant growths.

Effect of Baths in Treatment of Shell Shock.—It is common knowledge that many of the internal organs have an automatic activity which can be altered in many ways by extrinsic stimuli acting through the vagus and sympathetic nerves; and the effects of climate and baths are partly or entirely due to such impressions. If an organ is deranged, these impressions will keep up the disordered action, and they are ably assisted in this harmful work by stimuli from other organs. During the war we treated cases of nervous and cardiac irritability resulting from shell shock and other causes by immersing the patient in a sedative pool bath, the temperature of which was that of the nerve endings in the skin. Sooner or later the symptoms disappeared, and it seemed as if vagus action were favored. Of course, other conditions assisted in promoting recovery, but I believe that the water cut off the varying impressions which play continuously on the cutaneous nerve endings.—C. F. Sonntag: *Proc. Roy. Soc. Med.* **16**:8 (Aug.) 1923.

THE USE OF BASIC DIETS IN THE TREATMENT OF NEPHRITIS *

W. D. SANSUM, MD.
N. R. BLATHERWICK, Ph.D.
AND
FLORENCE H. SMITH, B.S.
SANTA BARBARA, CALIF.

The choice of a proper diet to use in the treatment of the various forms of nephritis, with and without arterial hypertension, is a debatable subject, and will continue to be one until the true etiologic factors, in all forms of these diseases, have been thoroughly established. Many and varied are the diet limitations that have been suggested, and, because of the ill effects of some of these restrictions, certain authors go so far as to maintain that the majority of patients would fare better if no diet instructions were given.

In the study of the types of food on which many of the arterial hypertension-nephritic group of patients have lived for long periods of time, we have been impressed with the observation that the acid-producing foods often predominate to a marked degree over the base-producing foods. Such observations, when carried further, lead us to believe that many other supposedly normal diets contain far too large a proportion of the acid foods.

Acidity in the body to the faintest degree is incompatible with life. We consume what foods we please, and the body preserves its slightly alkaline balance by secreting the excess of the acid ash by means of the kidneys. Urine acidities as great as 100 times that of the body are very common, and, occasionally, a urine is found which is 1,000 or more times as acid as the body. With our knowledge of the destructive action of very slight traces of acid on living tissue, we might be justified in assuming, theoretically, that abnormally acid dietaries may be a factor in the production of blood vessel and kidney diseases.

It seemed logical, therefore, in selecting an optimal, arterial hypertension-nephritic diet, to pay especial attention to the acid-base balance of the food selected. At the same time, other fundamental dietary principles were not neglected. The diets contained ample calories; adequate protein; sufficient bulk to insure daily, natural movements of the bowels; adequate mineral foods and an abundant supply of vitamins. The same types of diet are used by us in the treatment of all forms of nephritis, but our experience with their use only in the arterial hypertension group of cases is recorded in this paper.

Our first problem was to prove that by diet alone the urinary acidity could be reduced to any desired degree. Success marked these efforts, in every instance. We were then agreeably surprised to find that there was an appreciable improvement in the arterial-hypertension-nephritic symptoms, as evidenced by a fall in blood pressure, less shortness of breath on exertion, less dizziness, fewer headaches, and a decrease in the urine of both casts and albumin.

We then decided to use experimentally well balanced, basic diets and no other form of treatment in a series of the arterial-hypertension-nephritic group. Such patients were not kept in bed, but were permitted their usual activities. They were not starved. An attempt was made to maintain them at as close to their normal weight as possible. They were given no exhaustive hydrotherapy. They were given no vasodilator drugs. Cathartics were not used, since the bulk insured from one to three natural stools a day. Fluids were not limited. Sodium chlorid was restricted in a few terminal cases when the kidney function was very low. Patients were kept in the hospital from one to two weeks, where a series of palatable, sample meals were served and where they were given careful diet instructions. This hospitalization provided an opportunity for the study of continuous twenty-four-hour specimens of urine to ascertain whether the diets were sufficiently basic. The patients were given the outlines mentioned here.

THE CHEMICAL REACTION IN THE BODY OF SOME OF THE MORE COMMON FOODS

In the selection of a normal diet, more attention should be paid to the balancing of the acid foods by the alkaline foods. All foods may be classified, with respect to their final effect on the body, as neutral, acid or alkaline. Such lists of foods have been prepared by Sherman and Gettler [1] from ash analyses and tested in man by Blatherwick.[2] The accompanying tables have been prepared from their work.

Table 1.—*Acidity of Certain Foods*

	Per Hundred Grams
Bread, white	2.7
Bread, whole wheat	3.0
Corn, sweet, dried	5.95
Crackers	7.81
Cranberries	*
Eggs	11.10
Egg white	5.24
Egg yolk	26.69
Fish, haddock	16.07
Fish, pike	11.81
Meat, beef, lean	13.91
Meat, chicken	17.01
Meat, frog	10.36
Meat, pork, lean	11.87
Meat, rabbit	14.80
Meat, veal	13.52
Oysters	30.00
Oat, meal	12.93
Peanuts	3.9
Prunes, plums	*
Rice	8.1

* The ash of these foods is alkaline, but because of contained substances which form hippuric acid in the body, they increase the acidity of the urine.

Many diets contain far too large a proportion of the acid foods. This excess of acid is secreted by the kidneys in the form of abnormally acid urine. Such abnormally acid diets may be a factor in the production of kidney and blood vessel diseases.

The Neutral Foods.—These may be used in the amounts desired by the patient, unless otherwise stated. They are: butter, cornstarch, cream, lard, sugar and tapioca.

The Acid-Producing Foods.—Many of these foods should not be used. A few of the less acid ones may be used in the amounts specified for each case.

The total excess of acidity over base is expressed in terms of cubic centimeters of a normal solution.

The Base or Alkali-Producing Foods.—In general, all vegetables, nuts, fruits and sweet milk, with the exception of prunes, plums and cranberries, are basic in their final reaction. These may be used in the amounts desired by the patient. The total excess of base over acid is expressed in terms of cubic centimeters of a normal solution.

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* From the Potter Metabolic Clinic of the Santa Barbara Cottage Hospital.

* Read before the joint meeting of the Section on Practice of Medicine, the Section on Pharmacology and Therapeutics and the Section on Pathology and Physiology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

[1] Sherman, H. C., and Gettler, A. O.: J. Biol. Chem. **11**: 325, 1912.

[2] Blatherwick, N. R.: The Specific Rôle of Foods in Relation to the Composition of the Urine, Arch. Int. Med. **14**: 409 (Sept.) 1914.

Teaching Notes.—1. A fruit served with cream is used as a substitute for a breakfast cereal.

2. Three half slices of toast may be served at breakfast, and bread omitted for dinner and supper.

3. Cornstrach is used as a thickener for cream sauce, soups, etc.

Table 2.—*Alkali-Producing Foods*

	Per Hundred Grams
Almonds	12.38
Apples	3.76*
Asparagus	81
Bananas	5.56*
Beans, dried	23.87
Beans, lima, dried	41.65
Beets	10.86
Cabbage	4.34
Carrots	10.82
Cauliflower	5.33
Celery	7.78
Chestnuts	7.42
Currants, dried	5.97
Lemons	5.45
Lettuce	7.37
Milk, cow's	2.37
Muskmelon	7.47*
Oranges	5.61*
Peaches	5.04
Peas, dried	7.07
Potatoes	7.19*
Radishes	2.87
Raisins	23.68
Turnips	2.68

* These foods have been found experimentally to be very efficient in reducing the acidity of the body.

4. Lemon juice is substituted for vinegar in salad dressings.

5. Fat in the form of butter, cream, olive oil, etc., is used in sufficient quantities to regulate body weight.

6. The bulk of the diet is regulated to produce a normal bowel movement each day.

The routine hydrogen-ion concentrations were made on the twenty-four-hour specimens of urine by the simple colorimetric method described by Clark.[3] Hydrogen-ion concentrations of the blood were not made. They are too difficult for the average man to use, and we believe that the urine expresses the net result of the diet in a perfectly reliable manner.

A simple teaching interpretation of the logarithmic method of expressing the hydrogen-ion concentration (H) follows: The hydrogen-ion concentration of the normal blood is equal to the decimal fraction 0.00000004467. This is less than the hydrogen-ion concentration of distilled water, which is equal to the decimal fraction 0.0000001. Distilled water is neutral in its reaction. The blood, having a lower hydrogen-ion concentration than distilled water, is therefore slightly alkaline. The writing of such decimal fractions consumes both time and space; hence the logarithms representing such fractions are used instead. The logarithm of the decimal fraction 0.0000001 is — 7.0000. These logarithms are always minus; hence the minus sign is dropped. The normal hydrogen-ion concentration of the blood is written p_H 7.35, which, interpreted, means that the potential of the hydrogen-ion concentration of the blood is equivalent to a decimal fraction corresponding to the logarithm — 7.3500.

A still simpler method of making the hydrogen-ion concentration expressions of urine acidity understandable to patients is to express such acidities not in logarithms but in the number of times that the urine is more acid than the blood, as in Table 4.

The patient readily understands when he is told that the urine acidity should not be greater than two times that of the body. If the urine is as much as 100 times as acid as the body, he easily understands the need for more basic food. A hydrogen-ion concentration determination can be made in one minute, if the proper tubes of buffer mixtures are set up. These analyses also afford excellent means of knowing whether the patient is following the diet closely.

The following brief case reports, selected from a series of fifty cases treated as above, illustrate the results obtained in this series. In this series of ten, there are nine successes and one failure. This represents the proportion of failures to successes in the entire series.

REPORT OF CASES

Case 1.—Mrs. J. S., aged 65, seen, Dec. 14, 1920, had arterial hypertension and chronic interstitial nephritis, which had been present for a number of years, but an increased blood pressure of 165, systolic, was first observed eight months previously. The condition had been under treatment by elimination through the bowels with daily doses of salts, although the patient had not previously suffered from constipation. The blood pressure on admission was 210 systolic, and 110 diastolic. The patient complained of shortness of breath on slight exertion, vertigo, sour stomach and considerable abdominal distress. The urine contained hyaline casts and traces of albumin. Chemical examination revealed that the blood was essentially normal.

Results.—In the course of five months, the blood pressure fell to 170 systolic, and 110 diastolic. The dizziness and shortness of breath disappeared, as did also the sour stomach and the abdominal distress. The bowels were moving normally. Many of the specimens of urine examined contained no casts, and in some of these no albumin was found. During the two subsequent years, the patient has lived an active life, during the major portion of each year voluntarily assuming the full charge of two active grandsons. With one exception, the blood pressure has remained persistently low, the lowest being 165 systolic and 110 diastolic, June 15, 1922. The exception, a blood pressure of 220 systolic and 130 diastolic, was recorded, May 8, 1923, following an exceptionally strenuous week of long automobile rides, and the packing incident to returning to her summer home in the East. The blood pressure, June 1, was 180 systolic and 110 diastolic.

Table 3.—*A Basic* (*Alkaline*) *Diet* (*as served*)

BREAKFAST
Baked Apple with Cream
Bacon
½ Slice Toast Butter
Jelly
1 Glass Orange Juice 1 Glass Milk

LUNCH
Baked Stuffed Potato Beets in Cream
Combination Vegetable Salad
½ Slice Bread Butter Olives
Iced Cantaloupe
1 Glass Orange Juice 1 Glass Milk

DINNER
Cream of Spinach Soup
Escalloped Potatoes Buttered Peas and Carrots
California Fruit Salad
½ Slice Bread Butter
Apricot Ice Cream
1 Glass Orange Juice Raisins
Nuts

Case 2.—Mrs. L. M. B., aged 58, seen, April 20, 1922, had arterial hypertension, chronic interstitial nephritis, chronic myocarditis, and chronic arthritis. The elevated blood pressure was discovered at this examination. She sought medical aid because of shortness of breath and dizzy spells. She attributed these to her rheumatism, which had been present for twelve years, and which was made temporarily worse by the removal of some badly infected teeth. The blood pressure on admission was 212 systolic and 100 diastolic. The urine contained many hyaline casts and more than a trace of albumin. The phenolsulphonephthalein excretion was 40 per cent. in two hours. Chemical examination revealed that the blood was essentially normal.

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[3] Clark, W. H.: The Determination of Hydrogen Ions, Williams and Wilkins Company, 1920, p. 38.

Results.—During the course of ten weeks, the blood pressure fell to 140 systolic and 80 diastolic. The shortness of breath disappeared, the urine was free from casts, and many specimens contained no albumin. The basic diet also appeared to have a beneficial effect on the rheumatism.

Case 3.—Mrs. N. H., aged 70, seen, May 1, 1922, had arterial hypertension, chronic interstitial nephritis, myocarditis, and cathartic colitis of many years' duration. The blood pressure was 175 systolic and 90 diastolic. There was shortness of breath on slight exertion, and swelling of the ankles. The urine contained a few casts and more than a trace of albumin. The two hours' phenolsulphonephthalein excretion was 55 per cent.

Results.—In the course of six weeks, the blood pressure fell to 148 systolic and 70 diastolic. The shortness of breath disappeared. The casts disappeared from the urine, and the albumin was reduced to a faint trace. The bowels moved normally. The patient was able to take any kind of food without abdominal distress.

Case 4.—Mrs. M. W. S., aged 43, seen, May 3, 1922, had arterial hypertension, and chronic interstitial nephritis, which was found eight years previously during an abnormal pregnancy with preeclamptic symptoms. Four years before a blood pressure of 220 was recorded at the Mayo Clinic. The kidney function test was then good. The blood pressure on admission was 210 systolic and 120 diastolic. The urine contained hyaline casts and traces of albumin.

Results.—During the next four months, the blood presure fell to 165 systolic and 90 diastolic, and during the next seven months, the highest blood pressure recorded was 190 systolic and 110 diastolic, during a period when the patient had become careless with the diet. She was able to care for her household duties with very much less fatigue. Many of the specimens of urine examined contained no casts and no albumin.

Case 5.—Miss M. M., aged 29, seen, May 4, 1922, had arterial hypertension and chronic interstitial nephritis. This condition was discovered four months previously on a routine examination which was made because of headaches and nausea. The blood pressure was then 220. The blood pressure on admission was 195 systolic and 90 diastolic. The urine contained a few hyaline casts and traces of albumin.

Results.—In the course of three months, the blood pressure fell to 165 systolic and 115 diastolic. The nausea disappeared, and the headaches were both less frequent and less severe. Many of the specimens of urine obtained at the office and examined while still warm contained no albumin or casts. Twenty months later, the blood pressure was 150 systolic and 90 diastolic, and no casts or albumin were found in the urine.

Case 6.—G. H., a man, aged 53, seen, June 6, 1922, had arterial hypertension, chronic interstitial nephritis, and spastic colitis. The duration of the blood vessel disease was unknown. The blood pressure on admission was 190 systolic and 130 diastolic. His endurance was poor. The urine contained both hyaline and granular casts and albumin. The phenolsulphonephthalein excretion was 55 per cent. in two hours.

Results.—During the course of four weeks, the blood pressure fell to 168 systolic and 120 diastolic. The casts disappeared from the urine, but a trace of albumin persisted. The spastic colitis responded promptly to the fruit and vegetable diet. His endurance increased rapidly. Ten months later, he spent two weeks at the hospital to have his condition checked as a matter of routine. He had been leading an active business life. The blood pressure was 172 systolic and 114 diastolic. The urine contained an occasional hyaline cast and traces of albumin. The phenolsulphonephthalein excretion was 65 per cent. in two hours.

Case 7.—E. K., a man, aged 50, seen, July 12, 1922, had arterial hypertension, chronic interstitial nephritis (extremely severe), chronic myocarditis, and constipation. The patient had had nephritis for twelve years. He had been seen previously by a number of careful observers. March 19, 1922, he was seen by Dr. C. S. Stevens of Santa Barbara. The blood pressure was then 237 systolic and 124 diastolic. He had a general edema, dimness of vision, and many hyaline and granular casts in the urine, with 3 per cent. albumin. On a basic salt free diet and absolute rest in bed, the blood pressure fell to 170 systolic and 118 diastolic. The edema disappeared. The vision improved. The albumin in the urine was reduced to 0.5 per cent. He was seen, June 13, 1922, by Dr. J. D. Frick of Los Angeles. The blood pressure was 180 systolic and 124 diastolic. An orthodiagrammatic study of the heart gave a heart area of 166 per cent. The urine contained casts and a large amount of albumin. The phenolsulphonephthalein excretion was less than 10 per cent. in two hours. The blood urea nitrogen was 59 mg. per hundred cubic centimeters, and the creatinin was 5.4 mg. per hundred cubic centimeters. Two weeks later, the creatinin was 8.2 mg. per hundred cubic centimeters. The blood pressure on the present examination here was 183 systolic and 95 diastolic.

Results.—It required three weeks on a basic diet to reduce the urinary p_H from 5.5 to 7. There were fewer casts and less albumin in the urine, but no improvement in the phenolsulphonephthalein excretion, which was still less than 10 per cent. in two hours. The bowels were moving normally; clinically, the patient appeared to be better. Because of the heart condition, it was necessary for him to retire from the active life of managing a large ranch. Nov. 18, 1922, following a forbidden automobile trip of 60 miles to his ranch and considerable administrative work on the ranch, he had a uremic convulsion followed by many others, and died in uremic coma, Nov. 30, 1922. The blood pressure taken during the first uremic convulsion period was 170 systolic and 130 diastolic.

Table 4.—*Acidity of Urine*

Urine p_H	Acidity Times That of Normal Blood	Urine p_H	Acidity Times That of Normal Blood
7.35	1	5.80	35.4
7.30	1.1	5.70	44.6
7.20	1.4	5.60	56.2
7.10	1.7	5.50	70.8
7.00	2.2	5.40	89.1
6.90	2.8	5.30	112.2
6.80	3.5	5.20	141.3
6.70	4.4	5.10	177.8
6.60	5.6	4.00	223.8
6.50	7.0	4.90	281.8
6.40	8.9	4.80	354.8
6.30	11.2	4.70	446.7
6.20	14.1	4.60	562.3
6.10	17.7	4.50	708.0
6.00	22.3	4.40	891.2
5.90	28.1	4.35	1,000.0

Case 8.—Mrs. L. C. R., aged 59, seen, Aug. 16, 1923, had had a recent cerebral hemorrhage, arterial hypertension, chronic interstitial nephritis, and life-long chronic constipation. Aug. 9, 1922, the patient had an attack of unconsciousness while en route to Santa Barbara, associated with and followed by loss of distinct articulation and muscular weakness of the left arm and leg. The patient had felt so well that no physician had seen her since her only child was born thirty years previously. The blood pressure on admission was 200 systolic and 100 diastolic. The urine contained hyaline casts and albumin. In this instance, 5 grains each of potassium iodid and sodium bromid were given three times daily, after meals, to assist in the absorption of the blood clot.

Results.—During the next five months the blood pressure fell to 160 systolic and 90 diastolic. There was a marked improvement in the symptoms due to the cerebral hemorrhage. Many of the subsequent specimens of urine contained no casts, and in some no albumin was found. For the first time, in the patient's life, the bowels moved without the use of cathartics.

Case 9.—J. H. B., a man, aged 80, seen, Feb. 24, 1923, had arterial hypertension and chronic interstitial nephritis of many years' duration. The blood pressure on admission was 276 systolic and 100 diastolic. Cardiac distress was present on very moderate exertion. The urine contained a few hyaline casts and traces of albumin. The bowels were constipated.

Results.—In the course of four weeks, the blood pressure fell to 236 systolic and 118 diastolic, and the patient was able to walk 4 miles a day without cardiac distress. The urinary findings remained unchanged. The constipation was cured.

Case 10.—Mrs. M. F., aged 60, first seen, April 19, 1923, had arterial hypertension, chronic interstitial nephritis and diabetes mellitus. A blood pressure of 180 had been recorded four years previously, and she had a blood pressure on admission of 200 systolic and 120 diastolic. She complained of fatigue on slight exertion. The urine contained an occasional hyaline cast and traces of albumin. It also contained sugar.

Results.—During the course of a three weeks' stay in the hospital, the blood pressure fell to 142 systolic and 92 diastolic. The patient was able to take walks of 3 and 4 miles each day. The diabetes proved to be mild.

Animal experiments are now under way, designed to ascertain whether such blood vessel disease may be produced by abnormally acid diets. This work was temporarily interrupted by our laboratory work following the discovery of insulin by Banting.[4]

CONCLUSIONS

1. By means of what we are pleased to call basic diets, the acidity of the urine may be easily reduced to a p_H of 7 or more.

2. Under such conditions, patients afflicted with arterial hypertension and chronic interstitial nephritis appear to improve, as evidenced by a fall in blood pressure, a reduction in urinary casts and albumin, and other symptoms referable to this combination of diseases, in 90 per cent. of the cases.

3. This study has demonstrated to us that many of the so-called normal diets contain far too large a proportion of the acid-forming foods, and we might theorize that such acid dietaries may be a factor in the etiology of blood vessel damage.

FOOD ALLERGY AS A CAUSE OF ILLNESS *

W. W. DUKE, M.D.
KANSAS CITY, MO.

Our knowledge of dietetics has increased rapidly during the last twenty years, chiefly, however, in relation to the essential elements of diet needed by every one. The phase of the subject with which I wish to deal—namely, food allergy—has to do with the ordinary articles of diet which are usually wholesome and harmless but which, under certain circumstances, cause illness.

GENERAL CONSIDERATIONS

A rather large proportion of persons are born with a constitution which makes it possible for them to become hypersensitive to foreign substances. This constitution is hereditary—in fact, a positive history can be obtained in one or both parents in about 50 per cent. of cases. Once sensitive, a person is likely to react in characteristic ways whenever he comes in intimate contact with the substances to which he is sensitive. The condition is common, and afflicts, according to Cook's estimates, about 10 per cent. of all persons. Taken in its broader sense, it afflicts, I believe, an even greater proportion than this, possibly between 12 and 15 per cent.

Since this paper relates to diet, it is proper that the discussion be confined to diet and that illness occurring as a result of hypersensitiveness to substances other than foods be excluded.

Nature of Food Allergens.—Foods which sensitize human beings may be either protein or nonprotein, organic or inorganic. Some foods, such as sea foods, have a greater faculty for sensitizing than others, such as commonly eaten meats, fruits or vegetables. Patients are frequently sensitive to the smaller constituents of a food. For example, as shown by O'Keefe, Shannon and others, infants are frequently sensitive to and made ill by foods they have never eaten, but which constitute part of the mother's diet. Dr. G. B. Webb related to me the case of a patient sensitive to egg who could eat the meat of a rooster but who could not eat the meat of a hen unless the viscera were carefully removed immediately after it was killed. Patients are frequently sensitive to lactalbumin and ovomucoid (the smaller constituents of milk and egg) and frequently to substances in the peeling of fruit or in the husk of grain. It is important to consider this when making extracts for skin testing; for, unless the whole article is used, the very substance responsible for the illness may be lost.

Specificity.—Sensitiveness to foreign matter is often very specific; or, better expressed, a person sensitive to a substance is often sensitive to that one specific substance only. Persons frequently are sensitive to a protein common to several foods which are related biologically. Specificity is more striking in the case of sensitiveness to air-carried allergens than it is in the case of sensitiveness to foods. This may be accounted for by the fact that in sensitiveness to foods the patient may be sensitive to a digestive product common to a number of foods.

Multiple Sensitization.—Persons are occasionally sensitive to only one food. As a rule, however, they are sensitive to more than one. They may be sensitive to a group of somewhat similar foods, such as sea foods, or to several groups of foods, such as fruits and grains, and often apparently to digestive or putrefactive products common to several foods. Persons sensitive to food may also be sensitive to air-carried allergens, such as dander or pollen. For this reason, in testing patients either clinically or by skin tests, it is important to test with a variety of substances.

Sensitiveness and Tolerance.—A patient is not made ill by all the foods to which he is actually sensitive and to which he gives positive skin tests—in fact, as a rule he is actually made ill by relatively few of them. A typical illustration is that of a patient who was sensitive to a great number of foods, to practically every pollen to which he was tested (weeds, grasses and trees), to many varieties of dander, and to other substances. In spite of marked skin sensitiveness, however, he was made ill only by fall pollen of a limited geographic district. This fact is difficult to explain. We may speak of it in a noncommittal way by saying that a patient's tolerance for a great majority of the substances to which he gives positive skin tests is usually such that he does not react to them in the amounts which he encounters naturally or in the ways in which he encounters them naturally.

Time of Reaction.—The time at which reactions occur varies in different patients, although it may be remarkably constant in a given case.

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[4] Banting, F. G., and Best, C. H.: J. Lab. & Clin. Med. **7**: 251 (Feb.) 1922.

* Read before the joint meeting of the Section on Practice of Medicine, the Section on Pharmacology and Therapeutics and the Section on Pathology and Physiology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

Severity of Reaction.—The degree to which patients react to a food is remarkably constant in some persons and varies greatly from time to time in others.

CONTRIBUTORY CAUSES OF SYMPTOMS

While hypersensitiveness to alien matter is primarily responsible for the symptoms of food allergy, other factors often play contributory rôles and determine their location and severity. These factors are mechanical, chemical or thermic, reflex or related to odors or functional activities; in fact, any normal or abnormal condition that tends to disturb the normal function of an organ may play a contributing rôle. The influence of these factors is noticed by the majority of sensitive patients, and often deceives both patient and physician. For example, patients who have dyspepsia and abdominal pain as a result of chronic alimentary allergy are almost invariably made worse by the eating of rough foods, such as nuts or lettuce (mechancial irritants), by the ingestion of irritating foods, such as pepper or mustard (chemical irritants), and by the ingestion of foods which stimulate functional activity in the alimentary tract, such as alcohol, coffee or salt. For this reason, gastric symptoms are often attributed primarily to these contributory causes rather than to the primary cause, allergy. Patients with egg asthma will almost invariably blame wind, dust, smoke, vapors, physical exertion, exposure to cold or change in barometric pressure for their discomfort rather than the primary cause, sensitiveness to egg.

Illnesses that augment symptoms due primarily to allergy are also misleading. For example, patients with egg asthma are invariably made worse by ordinary colds and bronchitis, and invariably blame this for their trouble. The fact is, however, that a person with egg asthma who invariably has long illnesses with cough and shortness of breath following colds will usually recover if egg is removed from the diet; and, when he is on an egg-free diet, ordinary colds rarely last more than a few days. In my patients with alimentary allergy, a definite abdominal lesion was found in nearly 50 per cent., and it is believed that these lesions played a part in the location and severity of the symptoms due primarily to reaction against foods.

TYPES OF REACTION

When a person is sensitive to food, illness may be caused in five important ways: 1. A reaction, confined to the gastro-intestinal tract, may occur as a result of direct contact between the gastro-intestinal mucous membrane and the product to which it is sensitive. 2. Disorder in the gastro-intestinal tract or in distant organs occurs as part of a general reaction to a food after it has been absorbed and distributed by the blood. 3. When an organ is in an irritable state as a result of reaction, it is unduly disturbed by mechanical, chemical or thermic irritants, by functional activity, by abnormal reflexes, and by other disease that may coexist. This condition frequently misleads both patient and physician, so that a symptom due fundamentally to reaction is often laid at the door of a contributory cause. 4. Illness in no wise related to allergy is occasionally made worse by reaction to foods. For example, in a patient with tabes dorsalis who was sensitive to apple and peach skin, severe lightning pains invariably followed the eating of apples or peaches. 5. Definite organic disease may occur as a result of an acute or chronic state of reaction.

SYMPTOMS

Symptoms referable to reaction to foods are numerous. They may be divided into two classes, namely, those due to direct contact between a food and the gastro-intestinal mucous membrane, and those which occur as part of a general reaction. This distinction is important, for in the former class the patient is usually sensitive to the food as it exists naturally, and usually gives positive skin reactions, and, as a rule, the symptoms appear soon after the ingestion of food. In the latter case, the patient is frequently not sensitive to the food as it exists naturally, and frequently gives negative skin tests. Furthermore, he often reacts clinically to groups of somewhat similar foods, and frequently gives delayed reactions. The diagnosis in cases of this type is often very difficult.

The symptoms should be classified, further, as those caused by reaction to common articles of diet and those caused by reaction to uncommon articles of diet. In the former case, the illness is usually a chronic one, may easily be mistaken for some other chronic disease, and is often difficult to diagnose. In the latter case, the illness is usually acute, of short duration and recurrent, and can often be diagnosed by the history alone.

Contact Symptoms and General Symptoms.—The gastro-intestinal, ocular, nasal, pharyngeal, bronchial and cutaneous symptoms (dermatitis) can occur either as a result of direct contact with an offending substance or as part of a general reaction. The neurologic symptoms, joint symptoms, bladder symptoms, hypotension, eosinophilia, hives and angioneurotic edema, on the other hand, can occur under ordinary conditions only as part of a general reaction caused by an allergen which has been distributed by the blood. The presence of one or more of the latter group of symptoms can therefore almost always be looked on as evidence of general reaction. This distinction is important in differential diagnosis. For example, if a patient has nasal and bronchial allergy alone, he is usually sensitive to an air-carried allergen. If, however, he has in addition hives, angioneurotic edema, bladder disturbance or other symptoms of general reaction, the trouble can be traced almost always to a food or to some product which has reached the circulation without causing marked local disturbance. It so happens that air-carried allergens are not often absorbed in sufficient quantity to give rise to a general reaction.

The more interesting of the abdominal symptoms are abdominal pain, which may be either steady or griping, local or general, mild or severe, acute or chronic. It is often related to the eating of food, and frequently appears a few minutes after the ingestion of some particular food. Other alimentary symptoms of interest are dyspepsia, nausea, vomiting, bloating, diarrhea and mucous colitis, which may be either acute or chronic. The foregoing symptoms may simulate those caused by other illnesses, but rarely simulate them perfectly, so that they are rarely mistaken for organic diseases by careful physicians.

Other general symptoms are the ocular, nasal, pharyngeal, bronchial and cutaneous, with which all are familiar.

The neurologic symptoms are possibly worthy of especial mention. Weakness and nervousness are common.

I have under observation a patient who for one year had convulsions with involuntary discharge of urine and feces, followed by coma, occurring once or twice daily, and followed by transitory migratory paralysis or anesthesia of one of the extremities or of an entire side. I saw her during an attack, and observed that she was definitely asthmatic. On administration of epinephrin, she promptly recovered from her coma, which usually lasted from four to six hours. She has been free from cerebral symptoms now for one month since she has been treated as an allergy case. Transitory migratory paralysis of this sort is not unknown in medical literature, and could easily be the result, I should think, of an allergic reaction involving some of the cerebral tissues.

Other symptoms of interest, with which all are familiar, are headache, arthritis, hypotension and bladder disorder.

Arthritis is possibly worthy of especial mention. Joint pain and swelling is a very definite and interesting manifestation of allergy. Dr. R. C. Lowdermilk, in 1912, related to me the case of a patient who, following a therapeutic injection of pollen, developed a typical rheumatic joint, for the first time in her life; it lasted several hours during her reaction, and then disappeared completely. The development of joint pain and swelling, as part of a general reaction to therapeutic serums, is not uncommon. There is some similarity between the joint symptoms of acute articular rheumatism and that of a reaction of allergy. For example, the pain and swelling may migrate from joint to joint within a period of a few hours, or, in fact, at times, almost within a period of minutes. It is impossible that symptoms due directly and entirely to local infection could appear or disappear at such a rate. Migration and rapid change, on the other hand, are striking characteristics of the symptoms due to allergy. While there is no doubt that acute articular rheumatism (i. e., acute migratory polyarthritis) is an acute infectious disease, it is not impossible that some of the local symptoms, such as pain and swelling, are in part the result of an allergic reaction about the infected joints. In fact, I have used epinephrin in the treatment of acute articular rheumatism in several cases, to be reported later, with brilliant temporary result, and believe that it is useful in the therapy of this disease. Epinephrin in hypertrophic, atrophic and chronic infectious arthritis yields less, but often noticeable, temporary benefit.

DIAGNOSIS

It hardly comes within the scope of this paper to discuss in detail the diagnosis of allergy. Suffice it to say that it should be suspected in any patient suffering from one or more of the symptoms just mentioned, especially if there is past or family history of hay-fever, asthma, chronic urticaria, eczema or other symptoms characteristic of the condition. It should also be suspected in any patient displaying symptoms that cannot be accounted for by other clinical findings. The history is especially important if symptoms bear a relationship to the ingestion of certain foods.

Dermal and intradermal tests are very useful aids in diagnosis. In food cases, however, skin tests, especially cutaneous tests, often fail completely. This is probably due to the circumstance that patients are not always sensitive to the food as used in the test solutions, but are sensitive to the food after it has been acted on by digestive juices and bacteria.

Positive tests indicate that a person is sensitive to a given food. It does not indicate that he is made ill by the food as encountered naturally, so that results obtained by skin reactions cannot be taken as positive evidence, and are almost worthless unless used in conjunction with the history, clinical findings, and clinical tests. A diagnosis should not be considered proved unless symptoms can be relieved by withdrawal of the suspected food from the diet and reproduced again during a well period by the eating of the suspected food.

The technic for skin testing can be shortened and simplified through the use of preliminary group tests —that is, through the use of mixtures of from five to ten substances which are related either biologically or chemically. Testing with single extracts is time consuming and disagreeable to the patient. Its use on a broad scale is difficult.

Group tests frequently enable one to suspect a certain mixture. Further tests can then be made with each constituent of the mixture, and in this way a great deal of time and trouble can be saved for both patient and physician. Final conclusions should not be drawn from preliminary group tests. This statement, however, applies equally to positive tests obtained by the use of individual substances.

Group reactions frequently come out more strongly positive than tests with single extracts, and vice versa. The former is often true even when the solution of the individual extract is stronger than the mixed preparation. A clue gained from group testing is often more useful than that gained from subsequent individual tests.

TREATMENT

It is hardly possible in a paper of this scope to discuss in detail the treatment of allergy. The problem can be approached from four different angles: by (1) avoidance of the offending food; (2) specific protein treatment; (3) nonspecific protein treatment, and (4) symptomatic treatment.

Avoidance is the method of choice when a patient is sensitive to a relatively uncommon article of diet.

Specific protein treatment is justified only in the case of sensitiveness to foods used so commonly in cooking as eggs, milk or wheat. Specific protein treatment by mouth is a more logical method of increasing tolerance in the case of food allergy than is treatment by injection, because in the latter case one cannot be sure he is using the actual substance to which the patient is sensitive. It is more difficult to increase tolerance in the case of food allergy than it is in the case of pollen allergy. In one case of egg asthma, for example, I increased tolerance for egg subcutaneously in marked degree. I was not able, however, after a three months' trial, to increase the tolerance for egg by mouth to the point at which the patient could take by mouth more than 8 drops of a solution made by mixing 1 drop of egg with 250 c.c. of salt solution.

Nonspecific protein treatment is justified in case one is unable to find and remove the substance causing the reaction.

Symptomatic treatment with epinephrin and atropin is very useful in emergencies and for temporary relief. One cannot estimate without trial the dose of epinephrin required for relief. It varies ordinarily from 0.2 c.c. to 1.5 c.c. of a 1:1,000 solution given subcutaneously. For this reason, it is advisable to give 0.5 c.c. or less subcutaneously every ten minutes until relief is obtained or until the patient shows marked evidence of reaction to epinephrin (tremor, pallor, nervousness, palpitation, etc.). The dose that gives relief can be repeated when symptoms begin to return, and can be kept up indefinitely. As a rule, the dose can be gradually reduced.

SUMMARY AND CONCLUSIONS

A certain rather large proportion of persons inherit a constitution which makes it possible for them to become hypersensitive to foreign substances. Once sensitive, they are likely to react in characteristic ways whenever they come in intimate contact with the substances to which they are sensitive. Hypersensitiveness to food is relatively common, and is frequently responsible for disorder in the gastro-intestinal tract and in distant organs.

Foods that sensitize may be either protein or nonprotein, organic or inorganic. Sensitiveness is occasionally confined to one food. Multiple sensitization is more common, however. Patients are often sensitive to products common to several foods, and often apparently to digestive or putrefactive products common to several foods.

A patient is not made ill by all the foods to which he is actually sensitive and to which he gives positive skin tests. This may be accounted for in a noncommittal way by saying that a patient's tolerance for the majority of substances to which he is actually sensitive is usually such that he does not react to them in the amount which he encounters naturally, or in the ways in which he encounters them naturally.

The time at which reaction occurs varies in different patients, although it may be remarkably constant in a given patient.

The degree to which a patient reacts to foods is remarkably constant in some individuals, and varies greatly from time to time in others.

Illness in a hypersensitive person may be caused in five important ways: 1. There is a reaction of contact between the gastro-intestinal mucous membrane and the product to which it is sensitive. 2. A disorder in the gastro-intestinal tract or in distant organs occurs as part of a general reaction to a food after it has been absorbed and distributed by the blood. 3. When an organ is in an irritable state as the result of reaction, it is often unduly disturbed by mechanical, chemical or thermic irritants, by functional activity, by abnormal reflexes and by other diseases which may coexist. This third condition frequently misleads both patient and physician, so that a symptom due fundamentally to reaction is often attributed to a contributory cause. 4. Illness in no wise related to allergy is occasionally made worse by reaction to foods. 5. Definite organic disease may occur as a result of an acute or chronic state of reaction.

Symptoms referable to allergy should be carefully divided into two classes, namely, contact reactions and those referable to general reaction. This distinction is fundamental, for patients sensitive to air-carried allergens rarely absorb a quantity sufficient to give rise to general symptoms, whereas, in allergy due to foods, symptoms of general reaction are common.

The symptoms should be classified further as those due to unusual articles of diet and those due to common articles of diet. In the former case the illness is acute, of short duration, and recurrent. In the latter case, it is usually chronic but often subject to remission.

The more interesting of the symptoms may be classified as the gastro-intestinal, ocular, nasal, pharyngeal, bronchial and cutaneous (dermatitis), which may occur either as a result of contact or as part of a general reaction, and the neurologic and bladder symptoms, hives, angioneurotic edema, headache, arthritis, hypotension, and eosinophilia, which, under ordinary conditions, occur only as part of a general reaction.

The diagnosis of the condition should be based on all the information that can be gained from the family and personal history, physical examination, special examinations, and cutaneous, intracutaneous, nasal, conjunctival and clinical tests. A diagnosis should not be considered proved unless the illness can be relieved by withdrawal of the food to which the patient is sensitive and reproduced during a well period by the eating of the suspected food.

The technic for skin tests can be shortened and simplified through the use of preliminary group tests; and, for a broad routine use of intradermal tests, this is almost essential.

A note of warning should always be given in a discussion of cutaneous or intracutaneous tests, since some patients react violently. Accidents can practically always be avoided, however, if a history is carefully taken and testing is done with extreme care in the highly sensitive patients. Epinephrin and atropin should always be kept on hand, ready for quick use.

Treatment of the condition can be approached from four angles: (1) the method of choice, i. e., avoidance of the offending food; (2) specific protein treatment—justified only in the case of sensitiveness to an article of diet used so commonly in cooking, such as milk, eggs or wheat; (3) nonspecific protein therapy—justified only in case the substance responsible for illness cannot be found or removed, and (4) symptomatic treatment with epinephrin and atropin—useful in emergencies and for temporary relief.

Waldheim Building.

EXISTENCE OF A HITHERTO UNKNOWN DIETARY FACTOR ESSENTIAL FOR REPRODUCTION [*]

HERBERT M. EVANS, M.D.
AND
KATHARINE S. BISHOP, M.D.
BERKELEY, CALIF.

If female rats are reared on the now well known "synthetic" nutritive regimen consisting of fat, carbohydrate and protein in relatively pure, separate form, to which are added an appropriate salt mixture and daily doses of the vitamins A and B, normal growth and every appearance of health results. The animals are of splendid size, sleek coated and active. Depending somewhat on the season of the year, either a large proportion or, indeed, practically all of such animals are sterile. We have employed a basic ration of casein (18), cornstarch (54) and lard (15), following Osborne and Mendel, to which milk fat (9) and salts [1] (4) are added, the animals receiving separately and daily from 0.4 to 0.6 gm. of dried whole yeast (Harris). The sterility produced is a dietary deficiency disease, and can be quickly cured by a change of dietary regimen. It yields a highly characteristic picture, the chief features of which are the occurrence of apparently normal estrus and ovulation and the fertilization and implantation of the developing ova, but invariably disease and resorption of the products of conception.

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[1] The salt mixture adopted was that which has been frequently employed by E. V. McCollum, and which consists of: sodium chlorid, 0.173; anhydrous magnesium sulphate, 0.266; crystallized sodium acid phosphate, 0.347; Dipotassium hydrogen phosphate, 0.954; hydrated calcium acid phosphate, 0.540; ferric citrate, 0.118; calcium lactate, 1.300.

It at first occurred to us as possible that we had discovered in the rat a need for the antiscorbutic vitamin C which was not evidenced in any other way in this animal. In order to test the point, the basic dietary regimen was supported by the daily administration of orange juice in one series of experiments and by lettuce leaves in another series. Only one gestation out of five or six was successful with the orange juice regimen, but every individual tested produced litters of healthy young when fresh green lettuce leaves had been added to the dietary. It thus seemed apparent that we were in the presence of a new member of the "vitamin" substances, or specific dietary needs, which we have provisionally designated by the letter X or as the antisterility factor, and we have attempted to chart its occurrence in natural foodstuffs by the simple test of whether or not they would alleviate or fail to alleviate the dietary sterility disease. Several hundred gestations have been conducted in the following manner:

Littermate sisters have been reared on the foregoing so-called "synthetic" or pure dietary regimen, and every individual permitted to have a first, or trial, gestation. In this manner it was possible to use animals in which, in the case of every individual, the occurrence of sterility had been proved. At this juncture, and only at this juncture, in some of the cases a single natural foodstuff was added to the diet and the fate of further trial gestations now ascertained. The remaining animals were retained as controls, maintained merely on the original ration. Their sterility has continued unabated.

When animals of the opposite sex are paired and some weeks allowed to elapse without offspring being produced, while sterility is highly probable, it is nevertheless proper to regard it as only presumptive. It appears possible, however, to establish it beyond peradventure by proper attention to the various steps in the physiology of reproduction. We have taken the precaution to mate females whose fertility it was sought to investigate only with males of known fertility and at the incidence of the appropriate time in the estrual cycle, as determined by daily examinations of the vaginal smear. Control experiments with normal females have taught us that somewhat more than 80 per cent. of animals handled in this way will accept coition and will deliver litters of healthy young at the conclusion of twenty-two days of gestation. Furthermore, in all cases we have known the complete sexual history of our animals, i. e., the time of occurrence of the first and of all subsequent ovulations; inseminations were carried out at the first estrus beyond the sixtieth day of age.

In all instances the occurrence of sexual congress has been confirmed by the detection of the plug (bouchon vaginale) and by the microscopic detection of residual sperm in the vaginal canal. A further check on the fate of an insemination is afforded by our use of the "placental sign," i. e., the appearance of erythrocytes in the vaginal smear from the fourteenth to the seventeenth day of gestation. This phenomenon occurs in all normal gestations and is probably indicative of placental leak; at any rate, it heralds the existence of placentation (Long and Evans). We never miss it in cases in which implantation has occurred, nor is it found when the ova (whether fertilized or not) fail of implantation. By its detection one may satisfy oneself that all of the early steps in the trial gestation have been accomplished (insemination, ovulation, fertilization, migration and implantation of the ova).

It is remarkable that all these events take place in females with the specific dietary sterility disease, but that the expected young are never born. Necropsies performed late in gestation show various stages in the resorption of the young. A normal proportion of eggs have been fertilized and implanted (at least two thirds of those liberated per ovulation), as determined by comparing the number of corpora lutea of gestation in each ovary with the corresponding number of implantation sites in each uterine horn. Some of the implantations have apparently begun to resorb shortly after their establishment. In them no trace of the embryo persists; whereas in other cases macerated embryos or, indeed, large fetuses may be found; rarely, a single fetùs is found still living. Studies of the uterine mucosa just before implantation (i. e., late in the fifth day after coition or early in the sixth day) show that the "implantation bed" is abnormal, for a quite massive extravasation of erythrocytes has occurred, presumably by diapedesis, infiltrating the connective tissue meshes of the endometrium. When placentas are established, these exhibit a similar type of abnormality, for there are hemorrhages in them and other circulatory faults, chief of which is the occurrence of characteristic greatly distended maternal venous sinusoids.

It might thus appear that the dietary sterility disease is occasioned solely by faulty implantation and specifically by the placenta's need of some dietary constituent for endothelial strength. It is not so clear, however, that the deficiency disease attains its effects solely by impairment of placental structure and function. The conception was, indeed, somewhat strengthened by our accidental finding that in some cases foods that cured the disorder were administered after ovulation had taken place, and had therefore affected the developing young, chiefly if not entirely after the uterine attachment had been made. Yet the unequal progress of the disease in two neighboring blastoderms adfixed in the uterine wall only a few millimeters apart is hard to explain except on the basis of unequal resistance to destruction on the part of the embryonic tissue masses. Something must be said for the hypothesis of primary disease in the ova themselves. Our recent discovery that the spermatozoa are injured and, in fact, eventually destroyed by the basic dietary regimen lends support to the theory that the germ cells themselves possess a fundamental need for the new dietary constituent.

In attempting to discover the cause of inadequacy in our "pure" or basic ration, we have given some attention to the protein moiety. A higher protein content in the form of more casein does not relieve the situation, nor have any changes that we have made in the quality of the protein resulted in cures. Thus, yeast protein has been added to the casein, and lactalbumin has been substituted for casein, without avail. Furthermore, belief that the limiting factor in casein inadequacy would lie in its low cystin content led us to add this amino-acid to the casein, without avail.

Since it seems hardly likely that the chief caloric constituents of the diet (lard and cornstarch) could be at fault, we next investigated the possibility of inadequacy in the vitamins A and B, an inadequacy conceivably shown up only by the unusual demands of reproduction.

The statement has already been made that when yeast was added in such quantity as to yield additional support to the protein, cures of the sterility did not result. Thus, a fourth by weight of the entire ration has been constituted by whole dried yeast, with consequent enormous excess of the vitamin B.

When the butter quota was greatly increased (i. e., so as to constitute 25 per cent. by weight of the diet), it is true that some cures of the sterility resulted; and when animals are reared in this way, they may be normally fertile. We believe that this is due to the possession by milk fat of a definite, though low, quota of the new dietary substance. Our reasoning here is as follows: Crude Norwegian cod liver oil was obtained by us and compared with our own milk fat for its content of the vitamin A. Our tests showed it to contain at least eleven times as much of the vitamin A as did the butter. When the milk fat quota of our diet was replaced by this cod liver oil, the animals (which not only showed no signs of deficiency in vitamin A but which we must furthermore assume to have possessed a great excess of this factor) were nevertheless sterile. And the sterility disease has continued unabated when in some cases we happened to employ for a limited time 25 per cent. by weight of the cod liver oil. The experiments with this substance would also appear to enable us to segregate the new factor from the vitamin present in cod liver oil which is responsible for the cure or prevention of rickets and has been designated tentatively by McCollum as vitamin D.

The efficacy of fresh green lettuce leaves in curing the dietary sterility is always very striking. To the animals it perhaps constitutes an especially attractive relief from the basic diet, for one has no difficulty in getting them to consume large quantities of it. The curative dose most frequently employed by us has been 40 gm. of the fresh substance, an amount corresponding to somewhat less than 1.5 gm. of dry weight. In the colony, it has become a routine way of restoring fertility and of thus furnishing what we have always regarded as the necessary proof of the normality of an animal, when various other attempted dietary cures have failed. To date, forty-five trial gestations have been studied with this as a curative substance, and all but one of them has resulted in the birth of normal litters of young. Two tests have indicated that as little as 10 gm. of the fresh leaf substance may result in the birth of healthy young. We have further ascertained that the seedlings of the Canadian field pea similarly restore fertility. It is too early to report on quantitative tests which will determine whether or not any loss occurs in the content of the new vitamin when leaves are dried. Fertility has usually resulted when we administered 1.5 gm. of the powder made from lettuce leaves dried in an oven with fair air exchange and at a temperature of 100 C. The powder that is obtained from milling dried alfalfa leaves is similarly effective.

While the experiments that have been reported above would seem sufficient to separate the new dietary factor from the water soluble vitamin C, or antiscorbutic substance, this separation is effected in a much more conclusive way by the fact that the whole cereals protect against sterility, or cure it when it is once established. Thus, whole wheat and oats are effective. From negative tests we are certain that white patent flour is ineffective, even when constituting one third by weight of the total ration, whereas careful work with wheat embryo has shown a remarkable potency of this substance. It is now possible to state that 0.25 gm. daily (250 mg.) of wheat embryo restores to normal fertility animals in each of which, as is usual in our routine, the sterility disease had been proved to exist.

One of the surprising results has been the demonstration of an almost total absence of the new vitamin from milk. Fresh milk has been faithfully administered with a pipet in 5 and 10 c.c. doses without effect, and we next sought to recover some of the possible content of milk in the new factor by employing the total milk solids. When these were used, either as skim milk powder or as whole milk powder so as to constitute as much as one fourth or one third by weight of the total ration, the sterility disease continued unabated in most cases.

The factor essential for normal reproduction may occur in a wide variety of foods. We have found it present in egg yolk by administering daily one third of the fresh total yolk substance, and to our surprise it has been possible to demonstrate it in meat. The jaw and cheek musculature of the cow contains enough of it for daily doses of 1 gm. of the cooked meat to be adequate.

We have also conducted several hundred experiments in which small amounts of single natural foodstuffs have been used as prophylactic rather than curative substances. The trial foodstuff was administered during the early lifetime of the animal, and as a rule a minimal period of forty days has intervened between weaning, when the animal was put on the prophylactic diet, and the inauguration of the first trial gestation. These experiments were conducted not merely to demonstrate the prophylactic or protective action of certain foods, but also in the hope that we might be able to show that the new food essential is stored by the body. It is conceivable, for instance, that foodstuffs which fail to contain enough of the substance X to invoke fertility immediately, when fed during the twenty-one days of an actual gestation could nevertheless contain appreciable amounts of the new substance and, if the phenomenon of storage occurs, amounts large enough enable reproduction ultimately to take place. We have shown that lettuce leaves, either fresh or dried, cheek muscle, the cereals, egg yolk, and beef liver all bestow a complete prophylaxis or protection. At the same time, some of the substances that are not completely satisfactory when administered during the short time involved in the curative experiments are entirely so when used for a longer period for prophylaxis. This was the case, for instance, with 25 per cent. milk fat, and in a few cases even with one third by weight of milk powder. The phenomenon of storage is, however, best shown by the survival of fertility when animals have been transferred from a satisfactory ration to the basic, or "pure" diet. In these instances, depending on the abundance of the factor X in the previous satisfactory diet, animals maintain their fertility for a greater or lesser time.

Finally, it has been possible to extract the curative principle from curative foodstuffs with 80 or 95 per cent. ethyl alcohol and with ether. This is singularly concentrated in the deep brown oil thus obtained by ether from wheat embryo after preliminary treatment with hot 80 per cent. alcohol. A daily dose of slightly more than 100 mg. of this oil confers cures of the dietary sterility. In most instances, water extracts have been ineffective.

Although many experiments are in progress, we are as yet not ready to report fully on the production and cure of dietary sterility in the male; but it is of interest to note that the disease occurs there, and that in the case of the male we must look on germ cell injury as the undoubted effect of lack of the new dietary substance.

FOOD SELECTION VERSUS FOOD COMPOUNDING *

ALONZO ENGLEBERT TAYLOR
STANFORD UNIVERSITY, CALIF.

The diet consists of two parts: maintenance ration and work ration. The maintenance ration (which does not need to contain more than 2,000 calories) must contain the salts, balanced protein and the vitamins essential to growth and health. The work ration consists of starch, fat and protein in proportions agreeable to the individual, partly determined by price considerations.

We are not in a position to give quantitative formulas for the maintenance requirements. It is commonly agreed that 1 gm. of protein per kilogram of body weight is sufficient to cover the tissue requirements. How much of this protein must be balanced is not known. From the researches of the literature one cannot construct a formula for the requirements of the essential amino-acids. Certainly the proportion of balanced protein must be higher during youth than in adult life. Obviously, it is wise to lean to the safe side. In an ordinary mixed diet, probably half of the proteins naturally would be balanced. The more restricted the protein intake, the larger must be the proportion of balanced proteins.

The mineral salts are definite enough substances, and yet we are not informed as to the exact requirements. In part, the utilization of salts depends on other components of the diet. For example, the mineral metabolism of the milch cow, and, indeed, the actual utilization of minerals in the diet, depend in part on the content of green leaves in the diet. We draw our salts principally from milk, meat, fruits and vegetables. It was long taken for granted that mineral deficiency in the diet was rare. Of late, however, it has become clear that this is not true. A supervision of the diet must include a scrutiny of the mineral intake.

The intake of vitamins required to support growth and sustain health is fairly well established for animals in terms of the different nutrients in which they are contained. Until it is possible to determine the vitamin content of foodstuffs in some other manner than by the use of the feeding experiment, we cannot hope that exact knowledge for human beings will be easily attained. We obtain the fat-soluble vitamin largely in milk, eggs, the viscera of animals, leaf vegetables and a few fruits. The antineuritic vitamin is secured from the coverings of grains, meat, eggs, milk, and a variety of fruits and vegetables. The antiscorbutic vitamin is contained in practically all foods in the raw state, and the intake of this factor is largely related to the consumption of raw foods.

A survey of foodstuffs and of the experimental literature on the subject of nutrition indicates that it is possible within a wide range to combine different foodstuffs with the retention of adequate competence in every direction. Round a quart of milk as the nucleus, one may group almost any conceivable, reasonable combination of foodstuffs to complete the diet. Our diets have been developed on our soil by custom and taste, on the basis of instinct. The farther the population lives from the land, the more is the diet exposed to changes. With diversification of the conditions of living, the probability of error becomes increased. So long as the agriculture of an area is diversified, the diet is likely to be diversified and competent. If agriculture is one-sided, the diet tends to be unbalanced. It happens, therefore, that diets in some country districts are more one-sided and less competent than in cities. For example, the diet of the poorer classes in the cotton belt is less balanced and competent than the diet of the urban textile cotton operatives in New England. Perfection of transportation and development of storage and marketing operate in the direction of diversification of the diet, and represent an insurance against the occurrence of deficiency diseases. Diversified agriculture, efficient transportation and effective marketing protect the urban population against shortage of food supplies.

NECESSITY OF EDUCATION

It has become clear that, under modern circumstances of economic pressure, large classes cannot safely be permitted to have their diets determined by chance, superstition, taste or price. Education becomes imperatively necessary. In a large country, including both the temperate and the semitropical zones, with areas of low and high rainfall, extending from sea level to the altitudes of our mountainous states, with ample avenues for transportation that include facilities for refrigerated shipment of perishable foodstuffs, and with elaborate governmental regulations for control and inspection of produce, it would seem that every family should be in position to select foods over a wide range of choice, within the confines of the family income vouchsafed by our high standard of living. Nevertheless, there is clear evidence that this is not the case. This is, in part, the result of ignorance, and this may be as pronounced in the insular native population as in the unassimilated immigrant population. The wastefulness and inefficiency of our distributive system deprive classes with small incomes of opportunity to include in the diet articles freely produced within the country. Whether the cause of a one-sided selection of the diet is ignorance or poverty, the function of education is equally important.

The campaign of education, particularly necessary in relation to children, represents insistence on the indispensability of milk, leaf vegetables and raw fruits in the diet, irrespective of ordinary price considerations. Without going into the question of vegetarianism, I feel also that it includes insistence on a certain proportion of animal protein in the diet. The correct way of combating the high price of milk, leaf vegetables and

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* From the Food Research Institute, Stanford University.
* Read before the joint meeting of the Section on Practice of Medicine, the Section on Pharmacology and Therapeutics and the Section on Pathology and Physiology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

raw fruits (and these must remain relatively costly because they are perishable) consists, in part at least, in reducing the cost of the work ration. With improved methods of production, costs of these foods should fall. But higher standards of sanitation operate in the opposite direction. If flour, sugar, lard, vegetable oil and potatoes are cheap, even the small family income can meet the requirements in the direction of the indispensable foodstuffs. Probably, in the long run, more can be accomplished by cheapening the work ration than by cheapening the maintenance ration. In any event, the public must be brought to the understanding that the maintenance ration must be held inviolable. The diet cannot be selected on considerations of price per pound or per calory. Naturally, as between alternatives in the maintenance ration, price considerations may be permitted to operate. But too much is not to be expected in this direction, because the season of plentiful milk and eggs is also the season of leaf vegetables and fresh fruit. A glaring illustration of neglect of a cheap, competent foodstuff is observed in the current aversion to viscera of beeves, calves, sheep, lambs and swine. This aversion to viscera is an American characteristic. These organs contain more balanced protein and are richer in fat-soluble vitamin and salts than the muscular tissues of the same animals. Yet, to a large extent, these viscera are employed as fertilizers and animal feed instead of food in the United States.

A SINGLE COMPETENT FOOD

With advancing knowledge, the thought arose to attempt the compounding of a single competent food. This is being undertaken praticularly in the direction of bread, of which certain vitamin breads are well known illustrations. If full milk is used instead of water in the making of bread dough, this alone makes the bread a relatively complete foodstuff. If, in addition, salts and water-soluble vitamins are added, the competence becomes complete. One can build up a bread by the addition of balanced protein and vitamin-containing substances so that it covers the maximum requirements. Just as the standard, balanced growth ration of the white rat laboratory includes everything required for these animals, so it seems possible to incorporate into a bread everything required by the child. If such a bread were to become the standard bread of the family, obviously the maintenance diet would be made competent at one stroke, and danger of deficiency diseases eliminated. To such a bread one would merely add roughage and fuel foods to meet the caloric needs of physical work.

Whether such a simple solution can be made effective is, however, a different question. If a family had the dietetic vision to select such a bread irrespective of price, it might also be expected to have the dietetic vision to select the essential components in a mixed diet. The housewife who understood the function of these proteins and vitamins in such a bread would also understand them in milk, fruits and vegetables. There is a price difference. Such a bread is necessarily more expensive than ordinary bread. This, however, is illusory. Milk can be sold in bread at a cheaper price than as fluid milk, probably for half the price. A compound milk-bread, therefore, may represent not merely a competent physiologic ration, but a direct saving to the family. Milk-bread is cheaper than bread and milk. To what extent this works out in actual practice on a large scale must be left to the future.

Certainly, for certain sections of the population of the United States, such a complete bread would represent a positive gain in the diet. Consider the average diet of the poorer white people in the cotton belt. The agriculture is not diversified. There is scarcity of milk, eggs, meat and green vegetables. Replacement of quick rising biscuits by a full-ration bread would represent an important improvement in a diet that consists otherwise largely of lard, beans and sweet potatoes. Such a bread would find also a well-deserved place in the school lunchroom. It would piece out the various inadequacies of the diet of uneducated classes. The lunch of the shopper, clerk and shop girl, now largely sweet stuffs, would be improved if the bread were milk-bread. In practical terms, such a bread amounts to a bowl of bread and milk. The technical achievement consists in the incorporation of milk in the diet in a practically nonperishable form. Milk-bread has a large meaning for agriculture in that it saves casein and enlarges the radius of marketing of the dairy, making it possible for distant producers to send milk to the city market, delivered in bread.

On the other hand, the attempt to administer a large proportion of the diet in the form of a single food runs counter to natural tastes. In the long run, a bowl of bread and milk may prove more satisfactory than a slice of milk-bread. The impulse for variety in the diet is insistent and has good physiologic and psychologic grounds. The attempt has frequently been made to incorporate all the components of the diet into a single foodstuff. This has been done for use in travels, explorations, camps, mines and experiments. The result has been monotony and lack of satisfaction, eventuating in revulsion. The cuisine of a people is built around two factors: The seasonal supply of different foodstuffs and the demand for diversity in the diet. It is possible to increase the competence of the diet and at the same time reduce the number of articles; but the movement runs counter to natural tastes. The all-food bread and the milk-bread will find their levels in popular esteem and use. Popular education will aid their use somewhat, but price and taste are sure to be of influence also.

THE PRESSURE OF PRICE

Modern improvements in technology suggest that it may soon be possible to improve the competence of the diet and at the same time meet price considerations by supplying essential components in concentrated form. The fats of the viscera are rich in fat-soluble vitamin. These fats are scarcely employed in the diet today, except in the medicinal use of cod liver oil. They go largely into soaps. The great value of the viscera of fish has been demonstrated in eastern Europe, where the health of many children has been preserved by the eating of whole smoked herring. Visceral fats of animals are similar to cod liver oil and may be used to supplement milk and butter. It will, however, first be necessary for odors and tastes to be removed. There is no technical reason why this cannot be accomplished. I have seen herring oil practically devoid of fishy taste and odor. There seems no reason why the fats of viscera, rich in fat-soluble vitamin, should not be collected, purified, concentrated and employed in the kitchen and on the table. In the same manner, there is no technical reason why concentrated solutions of extracts of the water-soluble vitamin, especially the antineuritic vitamin, should not be prepared. It is, indeed, not out of the range of imagination to look forward to the day when mixtures of salt and solutions of vitamins may be employed on the table after the fashion of condiments. This is merely carrying one step further the technology that has resulted in the production of the competent diet for the white rat colony. This forecast has meaning for the physician as well as for the housewife. At the same time, we recognize that such use of salts and vitamins would run counter to the natural concept of the cuisine and might fail for that reason.

In the final analysis, we look forward to the development of devices to meet the demands for the competent diet against the pressure of price, and these may be expected to proceed *pari passu* with the intelligence of the public in matters of physiology. In matters of animal husbandry, little resistance is encountered. The governmental departments, the schools of agriculture and the experiment stations find agricultural classes willing and ready to accept and put into operation scientific instruction in the diet of domesticated animals. With each year, the ratio of productive output to maintenance is increased; the milch cow yields more milk for the annual unit of food, the meat animal more flesh, hens more eggs. The campaign of education in agriculture succeeds because it pays. When education in matters of the diet is founded on economics as well as on physiology, similar progress may be expected also in this direction.

PATHOLOGIC EFFECTS OF LACK OF VITAMIN A AND OF ANTIRACHITIC VITAMIN *

E. V. McCOLLUM, Ph.D.

BALTIMORE

One of the surprises that have come from nutrition investigations during the last fifteen years is the discovery that certain fats or more complex lipin extracts exert remarkable effects on the nutritive well-being of human beings and animals. Previous to that time, it was believed that fats were of value essentially only as a source of energy. The investigations in this field support the belief that the special rôle which certain classes of fats derived from various sources exert on metabolism is not due to any component either of the fat molecule as fatty acid or glycerin, or of the molecules of the complex lipin, such as lecithin and kephalin. It seems clear that whatever effects on nutrition are produced by fats are to be attributed to the presence of some substance or substances which are dissolved in the fats and accompany them when extracted from natural foods because of their solubility in lipins.

The first investigator in this field was Stepp, who clearly demonstrated in maintenance experiments on grown mice the necessity of certain lipins in the diet. Stepp did not interpret his results as indicating the existence of some substance not of a lipin nature in his preparations which was indispensable in normal metabolism, but believed that certain complex lipins must actually be supplied in the diet, just as certain derivatives of proteins cannot be synthesized in the animal body but must be provided among the sources of nutrient principles.

EYE DISEASE FROM LACK OF VITAMIN A

In 1913, Osborne and Mendel, and Miss Davis and I almost simultaneously demonstrated a remarkable effect on the stimulation of growth when certain fats were added to certain experimental diets. Certain other fats did not produce this effect. Fats of animal origin have in general proved to possess dietary qualities not possessed by plant fats in general, and such conditions as exist are due, not to the nature of the fats themselves, but to some principle associated with them. The earliest experiments demonstrating the unique value of certain fats of animal origin, such as butter fat, cod liver oil, egg yolk fat, and fats of glandular organs of mammals, were based on experiments in which diets were used which were so constituted as not to produce growth when vegetable fats were added, but a decided growth and marked improvement in well-being when animal fats such as those mentioned were incorporated in the diet. Earlier investigators had several times called attention to a peculiar eye condition characterized by edema of the eye lids and xerosis of the conjunctiva, which was believed to be of an infectious nature and to result from low resistance of experimental animals because of a poor state of nutrition. Osborne and Mendel pointed out that some of their animals in this condition showed prompt recovery from the eye disease when butter fat, cod liver oil and other fats which exert a favorable influence on growth was restored to experimental diets on which the animals had suffered malnutrition. During a period of some years, Miss Simmonds and I kept careful records of all the cages in our rat colony where the eye disease appeared, and were finally led to the conclusion that it appeared only where it could be accounted for on a basis of the lack of the principle which was supplied by certain fats. We hazarded the assertion in 1917 that the eye disease in question was a symptom of a deficiency disease in a sense analogous to beriberi, which Funk and others had previously ascribed to a lack of the special nutrient principle to which he gave the name vitamin.

The nutrient principle referred to as associated with certain fats is now regarded as one of the class of vitamins, and most investigators refer to the vitamins as vitamin A, vitamin B, vitamin C, vitamin D, etc. The vitamin which was found necessary for growth and the maintenance of health, and which was found to prevent or cure the ophthalmia of the type just mentioned, is known as vitamin A. Up to 1921, no careful study had been made of the anatomic changes which develop in the eye structures and neighboring tissues as a result of a lack of the vitamin A. At that time, Dr. S. Mori, chief ophthalmologist of the South Manchuria Railway, came to my laboratory in Baltimore and spent a year in the study of this disease. We prepared for him a long series of rats on diets which were well constituted for the promotion of growth and the preservation of health, except that they lacked the vitamin A.

Dr. Mori studied the eyes of these rats in various stages of specific starvation for this principle. His method involved the removal of the entire content of the bony orbit, its fixation, staining and study of the serial sections. Dr. Mori's results threw new light on what occurs in the development of the ophthalmia of dietary origin. His sections showed clearly that the first change observable is a tendency for the lacrimal gland to go into a resting stage, and to cease to produce tears. The glands look like resting glands, and not like secreting glands. When the supply of tears fails, the conjunctival sac is no longer washed continuously as under normal conditions, and the result is that bacteria quickly begin to grow in great numbers in the conjunctival sac. This growth stimulates a migration of leukocytes, which accumulate in the eye chambers so that when one looks into the pupil, a yellow spot is often seen. Some of the leukocytes migrate through the outer coating of the eyeball, and thus find their way into the conjunctival sac. Through their dissolution, albuminous material accumulates, which forms a sticky exudate that tends to paste the eyeballs together when the eyelids are closed. The drying of this sticky solution makes it difficult for the animals to get their eyelids separated when the condition is advanced. It was found possible to cultivate ever increasing numbers of bacteria from swabs taken from the surface of the eyeball day by day during the progressive fasting from the vitamin A.

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Owing to the dryness of the eye, there is a cornification of the external coating of the eye. The cells become flattened and pile up in stratified form, resembling horny layers of skin. Ulcers regularly form on the cornea during the later stages of the disease, owing to the death of the tissue. These ulcers finally perforate, and the lens pops out.

It is possible to induce spectacular recovery in animals whose eyes are in a very damaged condition by administering fats containing an abundance of the vitamin A. Dr. Mori regards the ophthalmia of dietary origin as the analogue in certain respects at least of a human disease common in many parts of the Orient, and known as hikan. An ophthalmia of dietary origin in which a lack of the vitamin A is certainly the principal etiologic factor occurs frequently in Newfoundland, Laborador and, occasionally, in the United States. I have seen several children who appeared to have undoubted cases of this disease. Dr. Mori called our attention to the fact that many children in the Orient who suffer from an eye condition which is presumably brought on in great measure by a lack of vitamin A suffer from dryness of the mouth sufficiently severe to deprive them of the use of their vocal cords, so that they may go through the facial contortions of weeping, but make either no sound or only feeble squeaks. This suggested a study of the histology of the salivary glands in animals suffering from a lack of the vitamin A. Dr. Mori's sections showed changes in the salivary glands which indicate a cessation of secretory activity. The dryness of the mouth is due, therefore, to a total or partial failure of the function of the salivary glands.

Such histologic studies as have been made on the structures of the alimentary tract other than the salivary glands have not brought to light any pathologic changes either in the stomach, intestines or pancreas.

There is no reason to believe that the pathologic effects of a lack of vitamin A are limited to damage to the lacrimal and salivary glands. Sometime before there is evidence of functional damage to these glands, the animals are evidently affected adversely in general nutrition. They cease to grow, and rapidly develop general signs of malnutrition.

OTHER CHANGES

Evans and Bishop have recently described another pathologic change which seems to be specific for a lack of vitamin A. This pathologic state appears in sexually mature animals, and constitutes a peculiar type of reproductive upset. It seems to involve an impairment of germ cell vigor by a selective ovarian disorder, and is characterized by the continuous production and desquamation of cornified cells by the vaginal mucosa. Fertilization may occur and the placenta may become established, and in some cases the fetus may develop to term. The young are normal, but fewer are born because only a small number of eggs are delivered in one ovulation. The difficulty seems to reside in an ovarian dysfunction, and is distinct, these authors believe, from another type of reproductive disorder, which they attribute to a deficiency in the diet of another principle, and which they have designated by the letter X.

These observations are apparently the only ones that throw light on the specific nature of the pathologic states that may result from a lack of vitamin A. It is not to be inferred from this statement, however, that our knowledge of the rôle which this interesting nutrient principle plays in metabolism is complete. It is significant that the effects observed by Evans and Bishop cannot be detected during the life of the animal previous to sexual maturity.

Some years ago, Mellanby in England conducted a long series of experiments with pups, which he fed numerous diets faulty in different ways. The exact natures of the deficiencies partly or absolute in his experimental diets were never accurately evaluated. Mellanby observed rickets of varying degrees of severity in certain of his experimental animals. A certain number of diets which Mellanby found to induce faulty bone development which he diagnosed as rickets were improved by the addition either of butter fat or of cod liver oil, the two fats rich in vitamin A, so as to prevent the development of rickets in the pups. Since the only special value which had up to that time been attributed to either of these two fats was supposed to result from their content of vitamin A, Mellanby interpreted his experimental data to show that vitamin A exerts a protective influence on bone growth, and acts as an antirachitic substance. Experience has shown that cod liver oil is richer in vitamin A, and serves in smaller doses to prevent or cure the ophthalmia of dietary origin, than does butter fat. Mellanby also observed cod liver oil to be correspondingly more effective in the prevention of rickets than was butter fat.

INFLUENCE OF CALCIUM AND PHOSPHORUS IN THE DIET

During the last few years, Dr. Shipley, Dr. Park, Miss Simmonds and I have carried out a very elaborate study of the relation of the composition of the diet to bone development. In this series, which has involved the feeding of more than 850 different modifications of diet, we have seen striking illustrations of how certain types of faults in the diet may disturb bone development and produce pathologic changes identical with those seen in the bones of human infants suffering from rickets, as well as many variations of this disease from the typical picture.

We are convinced that the absolute amounts of calcium and phosphorus in the diet, and also the proportions between these two elements, exert a profound influence on bone growth. Any diet that is markedly deficient in calcium and contains a disproportionately high content of phosphorus, or a diet that is deficient in phosphorus and contains a disproportionately high content of calcium, will tend to disturb markedly the developmental process in the bones and shift them away from normal.

This deviation from the normal course manifests itself in a number of ways. The excess of calcium in proportion to phosphorus when the latter is present in the diet in suboptimal amounts greatly stimulates the production of osteoid tissue, and may prevent absolutely the deposition of calcium phosphate in the matrix between the vesicular cartilage cells. In a similar manner, a diet very deficient in calcium but very rich in phosphorus leads to the formation of bone in which much tissue resembling osteoid is formed, and under these conditions, again, calcification of the bone cannot take place, or in certain cases only very irregularly and to a slight extent.

For the development of a histologic picture in bones which is suggestive of rickets, a certain amount of growth is necessary, and the more rapidly growth takes place, the more favorable are the conditions for the development of the rachitic and related pathologic pictures.

I have spoken of diets very low in calcium and rich in phosphorus, or very low in phosphorus and rich in calcium. These represent the extremes in a long series of experiments. Since when either the calcium or phosphorus is deficient beyond certain limits, or when the animal is subjected to gross overfeeding with either of these elements, growth is interfered with, so there are limits to experimental inquiry in both extremes.

We have not yet accumulated histologic sections covering the entire field in which sufficient growth can be induced to produce characteristic bone changes; but with certain contents and proportions of calcium and phosphorus, we have become quite familiar. We are convinced that it is possible to produce two kinds of rickets; one we have designated as a low phosphorus, the other as a low calcium, rickets. It is understood in each case that there is relatively an excessive amount of the element which is not deficient.

EFFECTS OF FATS ON BONE DEVELOPMENT

Our studies have included an inquiry into the effects of several fats on bone development. One of the most striking features of our experience has been the observation that when the diet is so constituted as to furnish approximately the optimal amounts of calcium and phosphorus, the latter in the form of phosphate, it is not possible to demonstrate any beneficial effect of cod liver oil, butter fat or other fats which cannot be attributed to their content of vitamin A. In other words, with a diet appropriately constituted and containing, say, from 0.3 to 0.4 per cent. of phosphorus in the form of phosphate, and approximately 0.6 per cent. of the element calcium, the rat can grow well when he derives his fat-soluble vitamin solely from moderate additions of butter fat, 4 or 5 per cent. With our Diet 3143, which we have described elsewhere, and which contains 1.236 gm. of calcium and 0.291 gm. of phosphorus, a typical picture of rickets develops. This diet contains an excessive amount of calcium. If the calcium content of the diet is reduced to 0.6 or 0.8 gm., calcification begins to be possible, and one sees irregular areas in which calcium phosphate is deposited in the growing region. In other words, Diet 3143 modified so as to contain 0.8 or 0.6 per cent. of calcium, the phosphorus remaining constant, produces some calcification. Therefore, we could not use diets containing these amounts of calcium and phosphorus to test out the antirachitic properties of a selected list of foods. With the higher amount of calcium (1.236 gm.), no calcification takes place in the absence of certain fats, and, accordingly, this diet may be used to demonstrate the antirachitic effect of any list of fats which it is desired to study.

Using our Diet 3143, containing 1.236 gm. of calcium and 0.291 gm. of phosphorus, we find that in from thirty to forty days typical changes characteristic of rickets are seen in the bones. When the animals are in this condition, which we can judge accurately by the peculiar manner in which they use their hind legs, they can be quickly made to initiate the healing process by the administration of certain fats. For example, 2 per cent. of cod liver oil, administered to such rats for a period of six or eight days, leads to the formation of what is known as provisional calcification, in which calcium phosphate is deposited in the matrix surrounding the vesicular cells of the growing cartilage band. This calcium phosphate can readily be made visible by a certain technic in which it is stained with silver. If the same test is made, employing butter fat in place of cod liver oil, it is easily apparent that this fat is not so effective as cod liver oil for causing the healing of rickets. Larger amounts of butter fat and a longer period of time are required before the line of calcium phosphate can be demonstrated along the margin of the vesicular cartilage disk.

Among the various vegetable fats which we have tested, we have found but one which, when fed even in very liberal amounts, and when the time allowed for the initiation of the healing process is greatly prolonged, exerts any beneficial effect on this disease. This fat is coconut oil. Even 20 per cent. of coconut oil produces a much lighter calcification in the bone in fifteen days than is obtained by 2 per cent. of cod liver oil in from six to eight days. Butter fat stands intermediate between these, but is far superior to coconut oil.

Coconut oil we have found to be without value in the prevention or cure of the ophthalmia of dietary origin which we attribute to a lack of the vitamin A. That fat, therefore, is judged to be essentially deficient in this vitamin. It is noteworthy that it exerts quite easily demonstrable beneficial effects in the healing of rickets, and forms one thread of evidence which we have used to weave a three stranded cord of experimental proof that the beneficial effect of any fat on the healing of the rachitic lesion is due to some substance other than vitamin A.

In another type of experiment in which we have fed diets containing suboptimal amounts of calcium, indeed, amounts so small that but little growth is possible, the animals can be made to grow much better by the administration of cod liver oil or butter fat in appropriate amounts. This is a protection to the animals against a deficiency of calcium, and can be explained apparently only on the assumption that these fats provide something which enables the tissues to function more efficiently in the utilization of an adequate amount of calcium than is possible in its absence. We find that butter fat must be fed in much greater quantities than cod liver oil to afford this protective influence in comparable degree.

When coconut oil is tested in this way, we find an increase in the efficiency with which the animals utilize calcium, but it is vastly inferior to butter fat, which in turn is much less effective than cod liver oil.

Further studies have shown that cod liver oil that has been oxidized for twelve or more hours at the temperature of boiling water by a stream of air bubbles no longer proves effective in the cure of ophthalmia of dietary origin. This we interpret to mean that the vitamin A has been destroyed. Such oxidized fats still prove to be remarkably effective in causing the healing of the rachitic lesion. It appears, therefore, that the substance to which cod liver oil owes its peculiar efficacy in the prevention or cure of rickets is one distinct from vitamin A.

We believe that many, if not all, of the results of Mellanby can be satisfactorily interpreted in the light of this hypothesis. Sherman and Pappenheimer found that a certain diet very deficient in calcium did not produce rickets, but did produce it when a calcium salt was added in certain concentration. They, as well as we, found that rickets could be prevented or caused to heal by the administration of potassium phosphate. We believe that these experimental results can be satisfactorily interpreted in terms of the working hypothesis we have adopted, which postulates the supreme importance of the amounts and ratios between the elements calcium and phosphorus in the diet. In our experiments, we have never seen the rachitic lesion develop when the diet contained what we regard as appropriate amounts of calcium and phosphorus. The bones so produced are not normal in the absence of the organic factor which we regard as this specific antirachitic substance.

Zucker has recently questioned our interpretation, basing his objection on the theory that the beneficial effect of coconut oil in causing the healing of rickets on our Diet 3143 was due to the insolubility of the calcium soaps which might be formed from the high molecular weight of fatty acids of the coconut oil. This he assumes would establish a condition comparable to the feeding of a diet actually lower in its content of calcium since, as he argues, a part of the calcium is thus rendered insusceptible of absorption.

Zucker's comments on our data do not include an explanation of the fact, which is very clearly evident from our experimental data, that coconut oil likewise exerts an easily demonstrable beneficial effect in protecting animals against a deficiency of calcium.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. SANSUM, BLATHERWICK AND SMITH; DUKE; EVANS AND BISHOP; TAYLOR, AND MCCOLLUM

Dr. George Dock, Pasadena, Calif.: The important question for us is, What are we going to do with all we heard this morning? Are we to look on this as pleasing entertainment, or are we going to look on it as educational? If we do not do that, we shall make a most serious mistake. We must remember that we have reached the quantitative period in diet and feeding. Through books, lectures and periodicals, and the extensive work that was carried on during the war, there has been a notable increase of knowledge of what we mean by feeding and dietetics. Calories are pretty thoroughly understood. Balance is not so well understood. In some of the leading restaurants the calories are presented daily on the menu, and it is interesting to see, in talking with strangers in those restaurants, how informed many of them are in these details, which do not detract at all from the pleasure of eating, but rather make it more entertaining than otherwise. It is not difficult to carry the practical knowledge of exact dietetics to patients and relatives, if the physician understands the practice himself. As I have worked for several years in a diet kitchen, it has been most instructive to see wives and mothers from all classes of the population, who work there a week or two, carry out, in the most exact way, the measurement and preparation of foods for diabetic and nephritic patients, and then go home and apply that knowledge, with no loss to the esthetic features of their tables, but with gain to the condition of their patients. Dietetics has long since passed the point at which we can tell patients to eat anything that does not disagree with them, or when we can even give them lists. We have to give them cubic centimeters and grams, and if we know this subject we can have it carried out. If we do not, people will get it somewhere else. A few of them will get it in hospitals where they specialize on those matters. A few of them will get it in dietary clinics. But a great many more will fall into the hands of what might be called "outsiders," very often pseudodietitians, and if that happens, we shall find another large section of the practice of medicine getting out of the hands of physicians and into the hands of other people, and then we shall hear still more talk about the passing of the general practitioner than we do at present.

Dr. George Piness, Los Angeles: It has been my experience, in the study of many cases, that in about 60 per cent. there is a history of allergy, either on one or both sides of the family, and in several instances we have been able to trace the allergy back several generations in the same side of the family. The question of contact and general sensitive types is of particular importance in diagnosis and should be studied very carefully, particularly in cases with a history of a chronic allergic condition, such as angioneurotic edema or urticaria, and various abdominal manifestations. This type, as a rule, does not give reactions to the cutaneous tests, and many times reactions may be elicited by the intracutaneous tests. These cases differ from the chronic and acute type, such as hay-fever and asthma, and other abdominal conditions, such as simulated appendicitis. This type, usually, gives the cutaneous or skin reactions. The work of Dr. Duke has brought out the fact that the field of allergy is much larger, and, therefore, it becomes imperative for a man not to limit his work to one particular type of testing. So, in cases in which one knows that there is an allergy, and is unable to obtain reactions with the cutaneous tests, I would advise that the intracutaneous tests be performed as well. Dr. Duke mentioned appendicitis. I have had two cases of that particular type, and in studying the appendix after its removal there was no definite acute inflammatory condition, except that there was an edema, which I believe is nothing but a cellular edema, which is characteristic of angioneurotic edema, and the edema in hay-fever. The common articles of food are the things that are found in the chronic conditions and rarely in the acute. The irregular attacks of asthma and eczema and edemas and other allergic conditions are, usually, due to the uncommon foods, and with that type of history, a great many times it is a waste of time to test with all the common foods, and the uncommon foods should be tested for, particularly with histories of seasonal attacks. Arthritis, as mentioned by Dr. Duke, I have seen only as a reaction to antigen administered during the course of treatment. Desensitization to food allergy is not practical, because it takes too long to desensitize, and the results are not worth while, although Talbot and others have reported brilliant results along these lines. My experience has been the opposite, and I would suggest that, in an attempt to treat these cases, abstinence from the foods in question will bring far more brilliant results than those in which desensitization is attempted, with one exception, and that is the occupational type, such as bakers and handlers of food. Nonspecific protein therapy, as suggested by various commercial chemical firms, is of no value whatsoever.

Dr. E. S. O'Keefe, Boston: I was particularly interested in Dr. Duke's paper on food idiosyncrasies. In working with infants it has been interesting to note the great relative frequency of the occurrence of sensitiveness to the egg and milk proteins, as compared to the other food proteins. In the breast-fed infants with eczema, 60 per cent. show a positive skin reaction to one or the other of these two proteins. These proteins have one feature in common, and that is, it is the food for the young of the species. They seem also to have particularly the qualities required for an allergen. I do not feel that this frequent occurrence of allergy in early infancy, as found in the eczemas, is evidence of a congenital allergy, but rather evidence of an allergy which has occurred in the early weeks of life, in which, as Schloss has pointed out, the mucous membranes of the gastro-intestinal tract are especially permeable. Another feature of interest to me is what determines the site of the allergic manifestation. Ingestion of egg may result in eczema in one case; in another, asthma will follow. In infancy, eczema is by far the commonest condition. Later, urticaria or asthma or hay-fever becomes more common. As has been pointed out, local irritation is a factor producing allergic manifestations. In infancy, the commonest site of local irritation is the skin; hence the greater frequency of eczema in the early months, and in the second year, when respiratory affections begin to occur. As the child's life becomes more complicated, asthma becomes more common among the allergic tendencies, and then, as the child goes around playing in the fields and the woods, and is exposed to the pollens, hay-fever becomes more frequent. Dr. Duke spoke of the violent reactions that sometimes occur in testing persons, either by the cutaneous or the intracutaneous tests. I have used the cutaneous method entirely. My work has been mostly among infants under 2 years of age. I have seen no reaction at all violent in its nature.

Dr. M. A. Ramirez, New York: Dr. Duke's division of allergic cases into general and contact cases is a very good one, particularly as it emphasizes the fact that the general cases do not give postive skin reactions in many instances. The contact cases, that is, the cases due to pollens and inhalations of animal dust, usually give a positive skin test. This, as Dr. Duke brought out, is due to the fact that these patients are sensitive, not to the protein molecule itself, as it is ingested, but to the product of protein digestion; and I believe that the product which most usually causes symptoms is histamin. Skin tests with histamin solutions are of doubtful value, because virtually everybody tested will give a positive reaction to histamin. It is somewhat unfortunate that so many men doubt the frequent occurrence of these general allergic reactions. I myself have not seen many bladder cases, but I have seen a great many cases of gastro-intestinal disturbances. Several patients complained of severe abdominal pains, coming on after eating, simulating, in their history, gastric ulcers. On roentgen-ray examination they show a definite pylorospasm, and on skin testing they give positive reactions to one or more proteins. Elimination of these foods from the diet has relieved the symptoms, and follow-up roentgen-ray examinations show a disappearance of the pylorospasm. I do not think that many cases of urticaria are due to specific proteins. As a rule, urticaria cases will react with general symptoms one day to one type of food and the next day to another type. I think that these cases are due to a reaction to a nonspecific protein molecule. They do not, as a rule, give positive skin tests, and while they are not sensitive to the products of protein digestion, they are sensitive in a nonspecific way, and these cases are relieved only by nonspecific desensitization by injection of peptone solutions, or by treatment of the intestinal tract. I think it is an important thing to remember, in the treatment of protein cases, that it is necessary to eliminate the food entirely. If a patient is sensitive to wheat or to egg, he must eliminate not only the egg or the wheat, but everything containing these proteins.

Dr. Seale Harris, Birmingham, Ala.: Dr. Duke says that many food idiosyncrasies are often overlooked. I want to disagree with him, however, on the frequency of idiosyncrasies against milk. I have observed few people who could not take milk. I have seen many who said they could not take milk, and I think it is because they have had some digestive upset in the past, and they lay the blame to milk. Much of it is psychic in character. I have told many patients who said that they could not take milk that we would modify it and suggested that they could digest a little milk, and I find that they do. Then I increase the amount, because those patients are frequently undernourished. Milk is such an important article of diet that we should be absolutely certain of the idiosyncrasy before advising a patient not to use it. The work of Dr. McCollum and many other investigators shows that one of the most important articles of food is milk. Nutrition is the biggest public health problem of this time, because it is back of a great many infections. I have never seen a well-nourished person develop tuberculosis. I have seen very obese persons who had tuberculosis, but they were not well nourished. They were living on unbalanced diets. Clinical observations suggest that milk is the protective food against tuberculosis and many other conditions.

Dr. Myer Solis Cohen, Philadelphia: Will Dr. McCollum state the proportions of phosphorus and calcium that he finds optimum, as an antirachitic measure, or the proportions that he finds most favorable in regard to the production of rickets, and also how, in human feeding, the bad proportions are to be avoided and the good proportions maintained? Concerning food idiosyncrasies: "Idiosyncrasy" is one of those comforting words with which physicians are accustomed to translate their ignorance into Greek. Thirty years ago I read before the first Pan-American Medical Congress a paper entitled, "The Vasomotor Attacks," a contribution to the subject of idiosyncrasy. The paper encountered a great deal of skepticism, and, laterly a good deal of neglect, but I would ask you who are now studying the subject of idiosyncrasies to read it. In that, and subsequent communications, I think I have demonstrated that three factors enter into what we are pleased to term idiosyncrasies, hypersensitiveness, allergy and other seemingly meaningless terms. The three factors are, first, a fundamental liability with which the patient is born. It may be hereditary and usually is. It may only be congenital, and it is commonly exhibited in many members of the family, and in many of the families of the clan. In my paper, I traced a number of American families back for six generations. "Liability" is no more comforting than "idiosyncrasy," but let us try to find out in what that liability consists. A fundamental liability, first; an excited liability, second; and, third, a determined liability. All three of these are to be sought. We know the excitants better than we know any other factor. The excitant may be trauma, pulmonary, chemical agents, chemical agents introduced from without or chemical agents generated within the body through excess, deficiency, or perversion of the normal physiologic products. Emotion is a well recognized excitant. The determinants may consist in anatomic peculiarities, the shape of the nose, the curve of the arm, various factors of that kind. They are largely to be discovered, though some may be found. The fundamental liability, which is not only exhibited in hay-fever and asthma and certain forms of visceral angioneurosis, may simulate renal colic, or appendicular colic, and has been proved, again and again, to depend on an angioneurotic change in the appendix or in the bile ducts, or whatever other structure is affected. These idiosyncrasies are widespread and include many factors, and we must seek their explanation in a study of the autonomic endocrine subject, considered as a whole.

Dr. F. M. Pottenger, Monrovia, Calif.: Dr. Sansum's discussion of the acid-base equilibrium of the body is of great importance in understanding disease processes. When the acid-base equilibrium of the body shifts, the reactivity of the cells changes. The alkali balance of the body is of extreme importance in conditions of food sensitization. Dr. Duke stated that food idiosyncrasies appear in childhood. In my studies on visceral neurology I have learned that the action of the nerve is not fundamental. I have learned that there is something back of the secretion of an organ or the contraction of a muscle. This something seems to be the condition of the cell itself. The collodidal phases of the cell itself change under varying conditions, and so does its content in ions; and its reactivity varies with these changes. The foundation for this work was laid by Ringer in 1881, 1882 and 1883 by his work on the heart. He showed that calcium added to physiologic sodium chlorid solution caused much the same action on the heart as stimulation of the sympathetic nerve, and that potassium caused much the same action as stimulating the vagus nerve. Through work of many other physiologists we now know that calcium in the cell is an essential part of sympathetic action, and that potassium is an essential part of parasympathetic action. This holds not only in the heart but also in the gastro-intestinal tract, the respiratory tract, and many other systems of the body. Allergy in all visceral tissues seems to be accompanied by a preponderance of parasympathetic stimulation, and certain changed conditions in the content of the cell seem to be necessary to this parasympathetic action. This offers an explanation of the fact that one patient becomes sensitive to a food when others will not. One will have asthma and hay-fever when others will not. A most important piece of work for clinical medicine would be for biochemists and physiologists to connect up all the parts of the neurocellular mechanism; the cell, the factors that change it, and the nerves that act on it. Dr. McCollum's suggestion that reproduction depends on food substances is an important contribution to science. It would be a great thing if physicians could train themselves to think in terms of physiology and biochemistry instead of anatomy. A disturbed function should always be considered in the light of the entire mechanism that is responsible for that function.

Dr. Lulu Hunt Peters, New York: I am in a position to know that many general practitioners do not know about ordinary dietetics. We have known for years that rickets had something to do with dietetics, but we have not appreciated what normal dietetics meant for normal health. I am interested in the subject of weight reduction. I believe that if more of us would concentrate on the question of normal weight, we would do a great deal, in preventive medicine. This is a question, ofttimes, of sterility. I have found in my work that many of my overweight patients who reduce their weight have become pregnant afterward. Dr. McCollum and I have had a little set-to on the question of calories; but I think that we understand each other. He maintains that the average person does not need to have a knowledge of calories, but, of course, there are so few average persons. Three fourths of our adult population are overweight.

Dr. W. D. Sansum, Santa Barbara, Calif.: I wish especially to call attention to Dr. Taylor's group of essential foods, milk, vegetables and fruits. Milk has a high caloric value. Its protein is exceptionally efficient, and it is rich in vitamins. Fruits and vegetables contain the necessary bulk for the proper management of the bowels. Their basic properties, mineral food and vitamin content are high. We believe that the acid-base balance of food should command more attention in the future. Sherman and Gettler have done considerable work on this problem, and Dr. Blatherwick in his army experience appeared to obtain excellent results when sufficient basic food was added to the soldiers' diet. Fruits and vegetables are bulky and hence hard to transport, and it is frequently difficult to teach patients to eat them in sufficient quantities. We do not believe that nephritis per se is responsible for the abnormally acid urines frequently found. We have observed that a nephritic diet, although often meat-free, is high in cereals, and we believe that the cereals are more responsbile for the acid urine than is the nephritis itself.

Dr. W. W. Duke, Kansas City, Mo.: A decade ago, it would have seemed almost beyond the limit of our imagination to believe that, through the removal or addition of traces of common foodstuffs to diet, we could influence not only health but also growth and finally reproduction. I have been acquainted with Dr. McCollum's views for a number of years, and used them to great advantage in my work. I have had the opportunity recently of visiting Dr. Evans' laboratory; and, after seeing the care and thoroughness with which his work is carried out, I came away proud of the fact that I am one of his friends and classmates.

Dr. A. E. Taylor, Stanford University, Calif.: I wish to give one illustration confirming Dr. McCollum's position with respect to the particular activity of marine fats on bone lesions. In the work of the American Relief Administration in central Europe, a tremendous amount of bone affliction was encountered. When the Relief went first into Russia it encountered, in spite of severe famine, a surprisingly small amount of these bone lesions. The explanation was that the Russians had, as one of their few supplies, dried herring from the Caspian Sea. Two or three times a week these children were issued one dried herring. The children ate these dried herring—head, entrails, liver, tail and all. To this we ascribed, and I am sure correctly, the relative freedom they had from bone afflictions on a diet which was, otherwise, just as bad as, or worse than, the diet of their neighboring children to the west, who suffered severely from bone softening.

Dr. Herbert Evans, Berkeley, Calif.: The great field opened up by the labors of American biochemists, chief among whom must be numbered Dr. McCollum, and Drs. Osborne and Mendel, has, of course, made possible what we have been able to achieve. We have applied that knowledge and method of study to the function of a specific organ, perhaps using for the recognition of that function methods of greater precision than those hitherto available. I want to say one thing in regard to the synthesis of the so-called vitamins. It appears not to be realized that, within the last year or two, physiologic botanists have demonstrated that one can rear at least three generations of cereals in every respect normal in water cultures and with artificial light. We have now an unusual opportunity to test the effect of physical factors on the synthesis of vitamins. We have been able to confirm the English work in regard to the synthesis of vitamin A by plants in such water cultures and have likewise found there the new substance essential for reproduction.

Dr. E. V. McCollum, Baltimore: I have been asked to tell something that I am unable to; namely, just what dietary conditions are at fault in inducing rickets in children. I am not a clinician. However, I can answer definitely the question as to what constitutes the optimal amount of calcium and of phosphorus in the diet. The phosphorus content, to be optimal, should be somewhere around 0.35 or 0.4 per cent. of the food mixture. The calcium content to be optimal should be approximately 0.6 or 0.65 per cent. of the diet. In other words, we need a little more than half as much phosphorus, on a weight basis, as we need of calcium. Of course, when we observe carefully and histologically the bones of a large series of animals whose diets vary in these two elements, over a wide range, we find certain specific and distinct pictures. As we deviate from these experiments into the middle field, we find borderline conditions which are not so specific, and which one cannot count on observing with certainty in every animal in a series. I would emphasize, in connection with infant feeding, that disturbed assimilation may be the equivalent, in its effects, of a quality content of the diet in those respects which would disturb bone growth. There can be no question, I believe, that mothers have been discovered in Baltimore and in New Haven, who have nursed infants, nursed them exclusively so that the exclusive source of their food was the mother's breast; yet those children have developed rickets. I cannot go into that aspect of the subject, as to the kind of diets those mothers were on, because Dr. Power has done that work; but it is an interesting commentary which I believe I may make, that the nursed infant is not necessarily protected, unless the mother's diet is so constituted as to make a milk that is satisfactory. Dr. Harris asked for information concerning the effects of a lack of vitamin A on the liver, the pancreas and other structures. Investigations on this subject have been under way for more than two years, but the task is one of great magnitude, and we must have more time in order to gain all the information that we need. Before an animal exhibits the specific signs of malnutrition due to lack of vitamin A, it suffers more or less generally.

Rest in Tuberculosis.—Rest remains the sovereign remedy for tuberculosis. More direct and spectacular methods of treatment—inhalation, injections, drugs by mouth—come and go: the years since 1900 have spawned hundreds of them. Few have survived the momentary sensation of their announcement; none has earned even a vogue; all this despite the fact that none has been employed unless rest were also a part of the treatment. Rest alone has returned thousands of consumptives to productive life. Of those who, while living an active life, relied on drugs or vapors or "serums" or vaccines to fight their battle, few have made the journey back.—A. K. Krause: Rest and Other Things, p. 11.

THE RELATION OF RIGHT-SIDED ABDOMINAL PAIN TO RIGHT-SIDED DISEASE *

R. C. COFFEY, M.D.
PORTLAND, ORE.

Pain in the right side of the abdomen is one of the most frequent phenomena encountered by the clinician in the routine examination of patients. This is due in a large measure to the fact that there are several organs located in the right side of the abdomen which seem especially liable to disease. These are the gallbladder, head of the pancreas, right kidney, appendix and right ovary.

Much of the pain encountered in the right side of the abdomen is due to organic disease of one of these organs. As knowledge of these diseases has developed in the past, these organs alternately from time to time have been held responsible for most of the pain encountered in the right side of the abdomen. Two points of view have been held. One is that practically all the real pain in the right side of the abdomen has been due to organic disease, and some surgeons accordingly have removed organs located on the right side of the abdomen at the slightest provocation or excuse. Those holding this view have been sadly disappointed in the result, and this disappointment has led to another view, which holds that the real pain is due to organic disease but that there are many imaginary pains found usually in neurotic patients and located in the right side of the abdomen, and that such pains are not for the surgeon but for the neurologist to treat. Therefore, surgeons holding the latter view claim to be very conservative. They remove only those organs actually diseased and close the patient's abdomen without doing anything further. These patients are thereby consigned to a life of suffering which, in my opinion, is just as real and just as well founded as organic disease. These pains can usually be relieved just as certainly by physical and surgical measures as can the definite organic diseases.

It is right and proper, in my opinion, that a conservative surgeon should decline to remove a normal appendix, a normal gallbladder and normal ovaries in which pathologic changes cannot be demonstrated either macroscopically or microscopically. It is my opinion that in the not distant future a surgeon who opens an abdomen for right-sided pain and, on not finding an organic lesion sufficient to justify the removal of an organ, closes the abdomen without further investigation and in many cases further operation, will likewise be condemned.

Twenty-five years ago, the woman complaining of chronic right-sided abdominal pain had the right ovary or possibly both ovaries removed, with no relief. A few years later she had the appendix removed, and in most instances had no relief. She then had the right kidney fixed, with no relief. In certain instances she had a gastro-enterostomy performed, many times with disastrous results or with no relief. In more recent years she has had a perfectly good gallbladder drained or removed, with no relief.

In 1908, Wilms reported forty cases in which he had fixed a movable cecum for the relief of chronic appendicitis and expressed the belief that in many cases of supposed chronic appendicitis the symptoms were due in most cases to gynecologic or neuralgic conditions or to an abnormal mobility of the cecum.

Klose began to study these cases about the same time and went a step further by promulgating the view that the mobility of the cecum was an index of defective development, which might not cause any disturbance in some cases, but, on the other hand, might produce colics and inflammation which he said would be remedied by a simple intraperitoneal colopexy.

In the hospital reports of a few years ago, the tables showed from two to four operations for chronic appendicitis to one of acute appendicitis. This has been changed, until now a well-conducted surgical clinic operates in more acute than in chronic cases.

Gibson [1] reported that in the First Surgical Division of the New York Hospital, operation was performed in 555 cases of chronic appendicitis and 820 of acute appendicitis.

Lichty,[2] in discussing chronic appendicitis, called attention to the large percentage of patients with pain in the right side who were most frequently operated on for appendicitis but in whom the disease was not manifest at the time of operation. In 517 consecutive cases compiled from a general and consulting practice, in which the patients had already been operated on for various conditions and in whom the complaints "after the operation were the same as before the operation," 243 had been operated on for chronic appendicitis. Of the remainder, seventy-eight were operated on for appendicitis and pelvic disease; forty-four for appendicitis and gallbladder disease; forty-seven for gallbladder disease only; forty-one for pelvic disease only; sixteen for gastric ulcer only, and thirty-nine for promiscuous conditions, including all kinds of operations. He thinks it is probably safe to say that not more than 60 per cent. of the diagnoses for chronic appendicitis are justifiable clinically. Sixty per cent. of his series of 1,320 cases of chronic appendicitis showed fairly good results, but he makes the significant remark that even some of these patients were not cured but were better than before operation.

My associate, Dr. Sears, some time ago went over many of our records and found that, of the patients going through our clinic for routine examination who had had the appendix removed for chronic appendicitis elsewhere, 70 per cent. had not been benefited. In going over our statistics and many of our histories, I have been convinced that more than half of the patients coming with chronic right-sided abdominal pain have no definite organic disease. But let us suppose that 50 per cent. have definite organic disease. Those having organic disease we will leave out of this paper and assume that the modern clinics will detect them. Our discussion in this paper we will therefore limit to chronic right-sided abdominal pain not due to organic disease. Many of these cases are treated or maltreated under the name "neurasthenia."

Lichty very wisely says, "It is not unlikely that many of the patients that the late Dr. S. Weir Mitchell treated so successfully with his system of 'rest cure' were cases which we now are too prone to call chronic appendicitis and are attempting to cure by operation."

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

[1] Gibson, C. L.: Am. J. M. Sc. **159**: 654 (May) 1920.

[2] Lichty, J. A.: Chronic Appendicitis, J. A. M. A. **79**: 887 (Sept. 9) 1922.

A study of this class of cases for more than twenty years has left me with the firm conviction that a very large percentage of chronic right-sided abdominal pain is the result of defective fixation of the ascending colon.

DEFECTIVE PERITONEAL FUSION

Anatomists and embryologists inform us that from 20 to 40 per cent. of persons have defective peritoneal fusion. In such persons, the large intestine, particularly on the right side, has a mesentery more or less like the arrangement of the intestine in the quadruped. Waugh calls attention to an investigation made by an associate of his, Dr. Pirie, in a series of postmortem examinations made on children under 12 years of age at the Great Ormond Street Hospital for Sick Children in London. He found, just as other anatomists have found, that there was a primitive mesentery or a portion of it in 20 per cent. of all patients examined, irrespective of the diseases from which they died. Therefore, 80 per cent. started life with no remains of a primitive mesentery. In other words, 80 per cent. had normal fixation of the ascending colon.

Nonfusion on the left side has but little bearing on the subject under discussion; therefore I shall devote my attention to nonfusion on the right side.

There are, of course, a great many variations in the type and extent of nonfusion. I have divided right-sided nonfusion into four arbitrary types, all of which have been seen personally by me and pictured by Mr. Trahar.

1. First, I will mention the type nearest to normal; namely, a simple mobility of the cecum with normal fixation of the ascending colon. It is probable that this type of case in a patient with ordinary normal intra-abdominal pressure rarely gives trouble. However, it is occasionally found that in such a case the cecum becomes distended, probably by gas and habitual constipation, falls over into the pelvis, and develops pathologic conditions, including the formation of membranes.

2. The second degree of nonfusion is probably the one that creates most trouble. In this case, the colon has rotated over as far as and has become attached to the front surface of the kidney, the rest of the ascending colon and cecum remaining mobile.

3. The large intestine has apparently not rotated over farther than the front surface of the duodenum, to which it attaches and hangs as a dead weight, all of the ascending colon and cecum having a long mesentery. The kidney is exposed.

4. In the fourth type of nonfusion that I have described, the ascending colon has not fused to the parietal peritoneum, and the kidney and duodenum are entirely exposed, just as in the quadruped. Floating kidney is rarely seen in either Type 3 or Type 4, lending much evidence to Longyear's theory that the kidney is dragged out of its position by an attached colon.

From these four stages, or types, there are an infinite number of gradations, even to the extremes of nonmigration of the cecum from the left side, and in one personal case, there was extension of the duodenum down around the end of the cecum, just as it is found in the dog. It is unnecessary to relate all these variations in the development of the general conception.

Pain resulting from defective peritoneal fusion is directly produced in two ways: (1) by distention of a mobile prolapsed cecum, and (2) by traction on acquired membranes or bands which help to carry the weight of the organs below.

Acquired membranes and bands referred to by Lane constitute a very bewildering subject when one studies the literature in general. Certain observers, basing their conclusions on postmortem examinations held on the cadavers of new-born babes, have noted the frequent occurrence of membranes and peritoneal folds at the beginning and ending of the fused peritoneal areas, and believe that all noninflammatory membranes and bands found in the abdomen are congenital. Others are equally positive that they are all acquired. The every-day practical surgeon, seeing the results of acute inflammatory conditions, believes that they are all inflammatory.

There are certain unusual membranes occurring around and below the ileocecal junction, around the beginning of the jejunum and at the beginning of the second portion of the duodenum which are congenital and represent anomalous fetal developments. It is significant that these congenital membranes develop only at the beginning or ending of a fused area, which indicates that they are probably peritoneal remnants in the process of a normal or possibly excessive prenatal fixation. Such membranes, as a rule, perform no function, do no harm, and have no special significance in connection with this subject.

Then there are bands and membranes which have resulted from inflammatory processes particularly around the ileocecal and appendical region, the pelvic colon and generative organs and in the neighborhood of the gallbladder, which are produced in response to an infectious process having its origin in these organs. These bands and membranes are purely inflammatory in origin, and represent a residue of reparative or protective material. Such bands or membranes have no definite direction, have ceased to function, and have no bearing on this subject except so far as they produce mechanical obstruction or pain by incidental suspension of a prolapsing organ.

These two kinds of membranes must be sharply differentiated from those conservative membranes which have been referred to as acquired membranes. Such membranes were noted by J. W. Long, Lane and other authors many years ago, but it was left for Jabez N. Jackson of Kansas City to describe exactly the pathology of such a membrane. I was fortunate enough to be present when Jackson presented his original report, in 1908. This description of Dr. Jackson and Dr. Frank Hall will always remain as one of the classics of surgical literature. Dr. M. L. Harris has made a valuable contribution to the description of the process of the formation of these membranes.

I am very certain that these acquired membranes are rarely seen except when defective peritoneal fusion is congenitally present or when certain portions of the alimentary canal have a defective support. I believe, with Lane, that these membranes are crystallized lines of force laid down in response to a strain or a demand for help by the supporting tissue. Therefore, their purpose is conservative and beneficent. They are laid down for the purpose of remedying a defect in embryologic development in most instances. If the development of the membranes has been symmetrical, they often serve the purpose for which they were called out in a satisfactory manner, and produce no pain. Unfortunately, these membranes frequently develop unevenly, and their forces are concentrated in small, firm bands. In this instance their support is confined to narrow limitations in which the pull becomes definitely localized in one place, which in turn calls forth more material for crystallization and for strengthening this one place, and which in turn creates a stronger local pull and so a vicious circle is established and chronic pain is induced. Lane has given a most satisfactory description of the scientific principles underlying the development of these membranes. While holding the opinion that Lane is right, it was in the first place very hard to get the explanation.

About five years ago, a patient presented herself because of right-sided ptosis and asthenia. She had no pain; the cecum was low down in the pelvis. She was put to bed on forced feeding and rest in the recumbent posture. She gained about 30 pounds (13.6 kg.), and at the end of four weeks she began to take exercises consisting largely of walking. The weight kept on increasing. She left the hospital clinically well. Before she left town, a roentgenogram was made showing the cecum in its normal position above the psoas muscle. She was in good condition for several months. Finally, for some reason, after about two years she lost most of her flesh. Coincident with the loss of flesh, she began to develop pain in her right side. She returned for examination. The roentgen ray showed that the cecum was in the normal position, not movable. A diagnosis of appendicitis was made. The appendix proved to be healthy, but two or three strong bands, one of which was an inch wide, had developed between the parietal peritoneum and the ascending colon which effectually suspended the colon. The attachment of these bands corresponded exactly to the location of the pain. The appendix was removed. The bands were not cut, but were used as material in the process of shortening the mesentery in making an indirect colopexy. The patient was completely relieved of pain, and made a perfect recovery.

The only conclusion we could draw from this case was that during her recumbent posture, membranes developed, and the fat, encircling the abdomen and filling the mesenteries, continued to hold the intestine in place. During this period of recumbency, she apparently developed the membranes and bands. They gave no trouble until she began to lose flesh. The loss of flesh permitted the organs to sag and make traction on the acquired bands.

These cases have led me to suggest the following theory as to the formation of these acquired membranes: A prolapsing bowel strains its peritoneal supports during the hours of activity when the body is erect, and thereby causes the deposit of some substance which is capable of being organized into firmer tissues in the form of bands and membranes. During the hours of recumbency and rest, this substance is organized. It is quite probable that if the strain or traction existed all the time, the peritoneal supports would stretch and grow longer and no membranes could develop under such circumstances.

All students of this subject have observed that patients with defective peritoneal fusion usually begin to have distress between the ages of 15 and 25 years.

Walton,[3] in writing on visceroptosis, has divided the clinical cases as regards pain into four groups: (1) cases recsembling appendicitis; (2) cases resembling gastric ulcer; (3) cases resembling gallstones, and (4) cases resembling gastric carcinoma. He has reported many cases bearing directly on each phase mentioned which showed the great difficulty of differentiating between the pain of organic and that of inorganic causation. His method of treatment consisted in freeing the membranes and giving greater mobility to the colon. Pain in his cases was usually temporarily relieved by cutting the bands, but in most cases it returned after a few months.

Waugh,[4] in describing the consequences of a mobile ascending colon, divided his clinical cases into five groups according to the character and location of the pain: (1) gastric, (2) duodenal, (3) biliary, (4) renal and (5) right iliac fossa. Instead of cutting the membranes, Waugh slit the posterior parietal peritoneum and fastened the movable colon into the slit. Many times in addition to this, he supported the transverse colon by suturing the omentum to the abdominal wall. His report seems to be much more encouraging. In the majority of cases, cure resulted.

While the articles by Walton and by Waugh were about five years apart, and while the pathology was quite differently described in many respects, it is clear that the two authors were dealing with the same condition, except that one emphasized one point while the other emphasized another point. The symptomatology given by these two authors in relating a large number of cases was practically the same. There was very little organic disease in either group of cases.

Waugh has divided his clinical manifestations into five types, as stated above. He says:

> They manifest clinical signs and symptoms which are common to all of them at first, and subsequently become obscured by the appearance of the type pain which in the estimation of the patient relegates his other symptoms to the background. The onset is generally dated by the patients from the age of 20 years or thereabouts, and described by them as the appearance of "indigestion." This is no more than a feeling of fulness and discomfort after meals, flatulence, and some lethargy. This indigestion cannot be explained either by indiscretions of diet, bad habits of life, or unsuitable environment, and it is not amenable to any change from one of the supposed causes. The average duration of these symptoms is about six months, and then pain in one or the other region of the abdomen appears for the first time.
>
> During these six months, many remedies for "indigestion" have generally been tried without effect; and with the appearance of pain, the patient is no longer content to regard the trouble as being of a trivial nature. Particular emphasis must be laid upon one aspect of "pain" in these cases; although it is constant in type and constant in location for the individual case, it is characteristically erratic and irregular in its times of appearance, both with reference to the number of days on which it may be present, followed by lucid intervals of entirely irregular duration, and to its appearance, disappearance, and reappearance sometimes in the course of a single day. This erratic chronology of the pain is so essential a feature of these cases that it assumes the position of a sign of much diagnostic importance. Granted that the pain has an organic origin, then the factor that produces it must clearly be one that is erratic and variable in its action.
>
> Now the load of the mobile ascending colon, and consequently the strain that it exerts, are most certainly variable. Herein appears to lie the explanation of what is such a marked feature of these cases, namely, the constant inconstancy of the pain. Perhaps, too, this inconstancy affords an explana-

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[3] Walton: The Clinical Aspects of Visceroptosis, Brit. J. Surg. 2: 185.

[4] Waugh, G. E.: The Morbid Consequences of a Mobile Ascending Colon, with a Record of One Hundred and Eighty Operations, Brit. J. Surg. 7: 343 (Jan.) 1920.

tion of the diagnosis that had already been presented to so many of the patients that they were "neurotics" or "neurasthenics."

Added to the presence of pain, loss of weight has now become a noticeable feature, and profound lassitude has become a disquieting and daily experience. Many of the patients in this series record a loss of from 14 to 28 pounds during the first year of their illness. In the later stages general wasting and tissue degeneration all over the body is one of the greatest features of the condition.

A study of Walton's cases shows that his observations, if summarized in this way, would be practically the same. My own observations correspond exactly. Waugh believes that the time to reach these patients is before the age of 12, and he has operated on more than a hundred patients of this age with very gratifying results, and states that the condition is generally regarded in children as "chronic appendicitis" or merely as "dyspepsia." Pain, not very severe, often lasts for several days, and is complained of in the region of the right iliac fossa. Owing to the fact that the child is not very reliable as to description of pain and, in fact, possibly has subnormal sensation, these patients usually do not develop symptoms which attract our attention until early adult life.

REPORT OF CASE

I have recently had a typical case which, while extreme, presents all the classical symptoms of the development of these membranes and bands in cases of right-sided ptosis due to defective peritoneal fusion.

History.—A girl, just approaching 18 years of age, entered the hospital, Aug. 14, 1922, because of pain in the abdomen. Her paternal grandmother had suffered a great deal with abdominal pain and was always a semi-invalid. Her father, president of a large teachers' college, was of very thin ptotic build and had always had a good deal of distress in the abdomen, particularly on the right side. April 18, 1917, I operated on her sister, who was then 22 years of age, for right-sided ptosis with painful bands, with resultant cure. The patient had been very well as a child. In March, 1920, while going to school, she had a severe pain in her right side, lasting four days. It was located low down in the iliac region below McBurney's point. The pain was severe for four days, and the region was sore for two weeks. June 6, 1920, while on a trip to California, she was seized with another severe attack similar to the first. At this time the lower right abdomen was sore for three months, when she began to take on fat as a result of her prolonged rest. With the deposit of fat, the pain and soreness ceased, and she went back to school. She began to lose flesh again. In January, 1921, she had another attack, followed by soreness lasting several weeks. In July, she had another mild attack, soreness again lasting several weeks. On prolonged rest, the patient again gained her flesh. In December, 1921, she began to lose weight, and a constant pain and soreness developed which lasted all the time. During the winter of 1921-1922 she had pain in the abdomen. The pain was tearing in character. From that time on she had soreness all the time. She left school in April, 1922. All the time she had soreness and a sensation of fulness in her right side. Her physician at that time urged her to be operated on for appendicitis, but she declined. She never had fever, and was never constipated. In May, 1922, with prolonged rest, she put on a certain amount of weight, after which she gained in health; but the soreness in her right side did not disappear. Lifting or dancing produced pain with the sensation of tearing or pulling. During her more severe exacerbations, she had nausea and vomiting.

In the course of the history-taking, the patient volunteered the statement that the most striking thing in her case was that, when fat, she was much relieved. On loss of flesh she became much worse.

When she entered the hospital, Aug. 14, 1922, she had been practically a bed invalid for several weeks, and as she was constantly suffering, it was thought unnecessary to complete the usual preliminaries of a thorough roentgen-ray examination.

The preoperative diagnosis was so-called chronic appendicitis, but in reality probably right-sided ptosis with painful bands.

Operative Findings.—A long right rectus incision was made. The uterus was small; otherwise the pelvic organs were normal. All the lower portion of the ascending colon and cecum was completely mobile. A strong membrane, split in places into white fibrous bands but showing evidence of activity, extended diagonally downward from the parietal peritoneum to just below the middle of the ascending colon, where it attached itself and acted as a ligament. The appendix was more than eight inches long, and was attached by a firm adhesion about one inch from its tip to the posterior parietal peritoneum well up under the liver. From the point of its attachment to its tip, the appendix was dilated and showed some evidence of disease. (It will be noted that this distended portion of the appendix was eight inches away from the painful area.) From this attachment of the appendix to the posterior parietal peritoneum down to its origin, at the end of the cecum, the appendix was eight inches long, was strong and fibrous, and was acting as the chief ligament of the cecum but was not diseased. There was a marked midline gastroptosis with extra fixation of the duodenum by an acquired membrane. The hepatic flexure of the colon was very firmly fixed by extra acquired bands. A strong, white fibrous band attached the omentum near the colon to the tip and under surface of the gallbladder.

When the transverse colon and omentum were lifted, an acquired membrane was seen extending from the root of the transverse mesocolon to the under surface of the colon and omentum. When these membranes were cut, a marked dilatation of the duodenum was observed below the colon. A groove along the posterior abdominal wall marked the location of the superior mesenteric vessels crossing the last portion of the duodenum. Beyond this crossing, the jejunum was collapsed. Accompanying the vessels were definite white lines of secondary development which had apparently been laid down in accordance with Lane's law to help sustain the intestines below.

COMMENT

This is one of the most perfect and complete pictures of early ptosis due to mobile cecum that I have seen. The membranes were entirely independent of the appendix. The pain of which the patient complained for two and one-half years, located low down in the right side of the abdomen, had no connection with the only part of the appendix which showed the slightest disease. The attachment of the membranes to the ascending colon and the dilatation of the cecum corresponded accurately to the site of the pain. This development had taken place at a period beginning with the sixteenth year, and had reached this complete development by the end of the eighteenth year of age.

This case represents the chain of pathologic changes that can develop as a result of right-sided ptosis or nonfixation of the right colon, viz.:

1. Nonfixation of the cecum and ascending colon.
2. High fixation of the appendix and its mesentery well up under the liver.
3. Fixation of the hepatic flexure to the front surface of the kidney, with acquired membranous development to strengthen the supports.
4. Acquired membranes extending from the parietal peritoneum across to the mobile colon.
5. Acquired membranes along the under surface of the first part of the transverse mesocolon, for the extra support of this part of the colon.
6. One band extending along the omentum from the colon to the under surface of the gallbladder.

7. Another extending from the colon across the duodenum, making extra fixation.
8. A midline ptosis probably due to dilatation of the stomach, secondary to dilatation of the duodenum, which was produced by duodenal arteriomesenteric ileus.

All these, when taken with the history of the case, make a complete clinical and pathologic picture of right-sided ptosis.

This case represents the pathologic condition and symptoms that can occur in a given case of right-sided ptosis with painful bands, and represents an extreme type of right-sided pain due to inorganic disease. As a rule, however, only a part of this picture is shown in the same case. For instance, it is often true that a completely mobile colon with an unlocated hepatic flexure will have no membranes and no peritoneal fusions at all, and will probably have much less pain than will be found when partial fixation has taken place. Many of the patients have a fixed hepatic flexure with a pendulous cecum and ascending colon, which hang down in a baggy fashion and in which the pain is located apparently in the cecum itself. In other cases, the hepatic flexure is lost, and the tip of the appendix is attached up under the right lobe of the liver and is acting as a ligament. This is one of the frequent causes of a painful right side. In other instances, the cecum and ascending colon are entirely movable, and strong acquired bands pass upward on the surface and edge of the omentum and extend up along the under surface of the gallbladder and pull on its tip and under surface. At other times the supporting acquired band extends along the omentum over the first part of the transverse colon up across the duodenum, making a definite band across this point. This gives definite right-sided pain with gastric symptoms. Cases in which the band attaches to the gallbladder give chronic gallbladder symptoms. The cutting of these membranes gives temporary relief, but the pain usually returns with the reforming of bands. Supporting the colon by shortening the mesentery of the ascending colon, extending a line of sutures around the hepatic flexure and attaching the mesentery and omentum to the parietal peritoneum will relieve the patient permanently, as a rule.

The differential diagnosis between this pain and an organic lesion is that the pain is usually worse while the patient is up and about. At first it is quite inconstant and erratic, but in its later stages is constant, or at least comes on nearly every day, while in organic disease the pain usually comes on in definite attacks alternating with free intervals. In other instances there is a very firm fixation of the hepatic flexure, with a drag on the kidney which often produces a floating kidney. According to Longyear, the kidney has been pulled out of its bed by the weight of the loaded cecum. One of the most frequent bands along the cecum is one starting from the lateral parietal peritoneal wall at a point corresponding to the usual attachment of the hepatic flexure and extending diagonally forward and inward and attaching itself to the longitudinal muscular bands of the cecum. When the patient is standing, this attachment is usually located at the psoas outlet, which is the narrow space between the crossing of the psoas muscle and the anterior abdominal wall. It seems that the pressure on the intestine between the front abdominal wall and the psoas muscle may have something to do with the development of these membranes. In such cases as this the pain when first starting is intermittent, intermissions becoming less until finally the pain becomes constant when the patient is on the feet. Pain accompanying this condition usually extends from McBurney's point backward toward the kidney and corresponds to the attachment of the membranes after they have developed.

Forced feeding and fattening will relieve a certain number of these patients of their pain, but painful conditions of the right side of the abdomen are usually best treated by surgical measures, and surgical measures usually consist in shortening the mesentery of the cecum and ascending colon and fixing it to the posterior lateral parietal peritoneum by interrupted sutures without actually sewing the intestinal wall. At the hepatic flexure, the line of interrupted sutures is gradually brought forward on the lateral parietal peritoneum, picking up the mesentery of the colon, attaching it to the front wall until the beginning of the omentum is reached, when the omentum is attached to the anterior abdominal wall over as far as the midline and sometimes 3 or 4 inches beyond.

In cases of extremely dilated and baggy cecum, it is wise to plicate the cecum for the purpose of narrowing and shortening it, as I [5] have described elsewhere. The results are surprisingly good. In some cases Waugh's improvement of the Wilms operation is the one of choice.

At present I do not hesitate to operate for long continued, annoying right-sided pain with the positive assurance that in a majority of all cases I shall be able to relieve the pain whether it is due to organic lesions or to inorganic disease accompanying defective peritoneal fusion.

ACHLORHYDRIA IN GALLBLADDER DISEASE *

GATEWOOD, M.D.
CHICAGO

Owing to the frequency of epigastric distress in gallbladder disease, the notion has crept into the minds of many medical men (Simnitzky,[1] Griffiths [2] and others) that hyperacidity is apt to be an accompaniment, if not a symptom, of cholelithiasis. That an absence of free hydrochloric acid, or an achylia, more often exists does not seem to be generally recognized, although a number of articles have appeared, from time to time, calling attention to it. Leva,[3] in 1893, was the first to note achylia in patients with gallstones, but the number of his cases was small and part of them so complicated that he drew no conclusions. Little is to be found in the literature following Leva's report until Glaser's [4] work in 1905. He stated that hypochlorhydria was of frequent occurrence in the patient who had presented gallstone symptoms for a long time. Hohlweg's [5] reports in 1910 and 1912 stimulated more systematic research, and a number of excellent articles have appeared since (Rydgaard,[6] Rohde,[7] Wohl[8] and Dangschat[9]).

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[5] Coffey, R. C.: Monograph on Gastro-Enteroptosis, New York, D. Appleton & Co.

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

[1] Simnitzky: Berl. klin. Wchnschr. **38:** 1077, 1901.

[2] Griffiths, H. E., Lancet **1:** 265-271 (Feb. 10) 1923.

[3] Leva: Arch. f. Anat. **132:** 490-501, 1893.

[4] Glaser, R.: Wien. med. Wchnschr. **55:** 1430, 1905.

[5] Hohlweg: Deutsch. med. Wchnschr. **36:** 2220, 1910; Deutsch. Arch. f. klin. Med. **108:** 255-276, 1912.

Most foreign authors have considered achylia and achlorhydria as synonymous terms. Achylia gastrica, however, should be defined as an absence of all gastric secretion, that is, lack of ferments as well as an achlorhydria. While it is reasonably safe to conclude that achylia existed in those patients whose total acidity was 15 or less, nevertheless the proof is wanting unless milk curdling tests have been made whenever free acid is absent. This has not been a routine practice in our clinic, and I have therefore chosen the title, "Achlorhydria in Gallbladder Disease."

The gastric analyses on which this report is based have been made in the usual manner, that is, an Ewald test meal of bread and water was aspirated at the end of from forty-five to fifty minutes except in the occasional case in which emptying was so rapid that a second meal had to be given. In those cases, the meal was removed at the end of thirty minutes. Dimethylamido-azobenzol was used to indicate the presence of free hydrochloric acid and phenolphthalein for the determination of the total acidity.

In order that my statistics may be comparable with those of Rydgaard, Fenger,[10] and others, I have classed as hyperacid (H) all cases showing more than 60 points of free hydrochloric acid; as normal (N), those from 15 to 60; as hypo-acid or subacid (S), those from 15 to 0, and as achylorhydric (A), those with no free acid.

Table 1.—*Frequency of Achlorhydria*

	Men		Women		Total		Gatewood,	Rydgaard,	Fenger,
	No.	%	No.	%	No.	%	%	%	%
H......	6	9	6	5	12	6	55	53	55
N.......	36	51	58	48	94	49			
S.......	11	40	18	47	29	15	45	47	45
A.......	17		40		57	30			

The data were obtained from the records of 500 patients operated on in the Presbyterian Hospital, Chicago, and definitely proved to have had cholelithiasis. In only 192 of these were there records of test meals, the presumption being that, in a little over three fifths of the patients, the diagnosis was so definite that stomach analyses did not seem to be warranted. While there was some slight variation in the acidity when repeated test meals were made, no patient showed achlorhydria in one examination and a normal acidity at another. Of these 192 patients, seventy were men and 122 were women. Their ages varied from 21 to 83, the average being a little over 46. The average age of the patients with achlorhydria was 47, or less than a year more than the general average. The relative frequency is shown in Table 1.

Thus, it appears that fifty-seven patients, or 30 per cent., have achlorhydria, and twenty-nine, or 15 per cent., hypo-acidity, giving a combined total of 45 per cent., or identically the same figures as Fenger obtained in his series of 115 cases, and 2 per cent. less than Rydgaard found in 158 cases.

Grouping these cases according to age, we find, as shown in Table 2, that lessened acidity occurs most frequently in patients over 60 years of age (68 per cent.), and least frequently in the fourth decade. We may disregard the results obtained in patients over 60 years of age, since it is pretty definitely established that achylia is quite frequent in patients of that age.[11] Patients from 20 to 30 years old showed a diminished acidity or an achlorhydria in 43 per cent. of cases, showing that the incidence is not proportionate to the age of the patient and apparently indicating that age has no great influence on the incidence of the achlorhydria.

Table 2.—*Age Incidence*

	20 to 30		30 to 40		40 to 50		50 to 60		60 or Over	Total	
	No.	%	No.	%	No.	%	No.	%			
H....	3	..	4	..	3	..	1	..	1	11;	age unknown, 1
N.....	11	..	25	..	30	..	22	..	6	94	HCl 23, T. 46 at 83 years
S.....	3	43	8	38.3	6	25	7	53	5	29	68%
A. ...	7		10		5		19		16	57	
Total	23		47		44		49		28	191	+ 1 age unknown

It has been impossible to draw any definite conclusions from our statistics as to whether stone impacted in the cystic duct was a real factor in producing achlorhydria. Of twenty-three cases of stone in the common duct, nine (39 per cent.) showed no free acid, and three (13 per cent.) were subacid, making a total of 52 per cent. (Rydgaard found 54.5 per cent. subacid + achlorhydric in twenty-two common duct cases). In this small series, jaundice also seems to have had but little influence, those without jaundice seemingly being more apt to develop anacidity. Of thirteen patients with common duct stone and jaundice, seven, or 54 per cent., had a normal or hyperacidity, and six, or 46 per cent., were subnormal or achlorhydric. Of the common duct patients without jaundice, there were ten. In four (40 per cent.) of these, a normal or hyperacidity was found, and in six (60 per cent.), a hypo-acidity or anacidity.

Hohlweg,[5] who, I believe, was the first to consider the question of achylia or achlorhydria following the loss of gallbladder function, proposed a theory based on some animal experiments, in which a loss of action of the sphincter of Oddi followed cholecystectomy. This permitted an abnormal flow of the bile into the duodenum following the removal of the gallbladder, and he believed this was responsible for the diminished hydrochloric acid secretion. Rost[12] found that, following cholecystectomy, the bile was not always discharged continuously into the duodenum. He showed that there was a lessened liver and pancreatic secretion

Table 3.—*Common Duct Cases* *

	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	
H..........	1	54	1	40	2	8.7	48%
N..........	6		3		3	39.3	
S..........	1	46	2	60	3	13	52%
A..........	5		4		9	39	

* Jaundiced, 13; not jaundiced, 10; total, 23.

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[6] Rydgaard, F.: Arch. f. klin. Chir. **115**: 511-530 (March) 1921.
[7] Rohde, C.: Arch. f. klin. Chir. **115**: 727-743 (March) 1921.
[8] Wohl, M. G.: New York M. J. **105**: 347-349 (Feb. 24) 1917.
[9] Dangschat: Beitr. z. klin. Chir. **128**: 605, 1923.
[10] Fenger, M.: Hospitalstidende, **62**: 1305, 1919.

[11] Liefschütz states that 33 per cent. of men over 60 years of age have achylia.
[12] Rost: Mitt. a. d. Grenzgeb. d. Med. u. Chir. **26**: 710-770, 1913.

in cholecystectomized animals, and concluded that this lessened secretion was responsible for achylia. Rovsing's [13] hypothesis is that in some patients following cholecystectomy an incontinence of the sphincter develops, followed by achylia, while in other patients, the function remains and they continue to have a normal acidity. All of these theories depend on the supposition that there is an activating substance (a hormone) produced somewhere in the bile tracts or in the duodenum by the action of the bile, which is essential to the stimulation of the acid-forming cells of the stomach. This substance is destroyed in gallbladder disease or by cholecystectomy. According to Carlson,[14] the presence of such a gastrin has not been definitely demonstrated. In one of our patients, in whom the gallbladder was evidently entirely destroyed and who had been jaundiced for a number of months from common duct obstruction, the gastric acidity was normal. It would be difficult to explain these findings on the hormone theory, and I can see no reason why it is necessary to assume that one exists. I think it quite as easy to believe that the achylia and achlorhydria which so often occur are a reflex due to the common innervation of the gallbladder and the stomach. I believe that in most patients the resulting anacidity is temporary; but when it has persisted for a sufficient time, it may be permanent.

Table 4.—*Gastric Acidity Following Cholecystectomy*

Case No.	Date of Operation	T — Free HCl	Date of Return	T — Free HCl
1	1912	65 — 33	1922	66 — 52
2	Jan. 1922	24 — 15	Oct. 1922	22 — 18
3	1922	44 — 20	June 1923	42 — 18
4	April 1922	28 — 0	Jan. 1923	20 — 0
5	1913	43 — 24	1917	20 — 0
6	1909	33 — 2	1914	56 — 35
7	1913	85 — 60	Jan. 1914	16 — 0
			1916	8 — 0
			1923	60 — 48

Rydgaard strongly advises against cholecystectomy on the ground that achylia almost invariably ensues. I have been able to find the records of only seven patients who have had gastric analyses before and after cholecystectomy (Table 4). Three of these had normal acidity both before and after operation, the time elapsing varying from three months to ten years. One patient had an achlorhydria at operation and also nine months later. The fifth had a normal acidity at operation and an achylia four years later, while the sixth had an achlorhydria at operation and a normal acidity five years later. The seventh had a hyperacidity prior to his operation. At operation, a stone was found firmly impacted in the cystic duct. Shortly after operation, he developed an achylia which persisted on repeated examinations for at least three years; ten years after his operation his stomach findings were normal. Dangschat, in a series of nineteen cases, found that the stomach acidity remained the same before and after cholecystectomy in thirteen instances; three patients having achlorhydria before operation were normal later, while two who were normal before operation were achlorhydric afterward.

What conclusions can we draw from these seemingly confusing data? The evidence obtained from this small series as well as that presented by Dangschat goes to show that instead of a constant achlorhydria after cholecystectomy, as maintained by Rydgaard, in the majority of patients the acidity persists unaltered after operation, and occasionally there is a return to normal after removal of the gallbladder in patients who have previously had no free acid. There is no doubt that achlorhydria and achylia sometimes do follow cholecystectomy, but this condition may not be permanent. Normal acidity has returned in one of our cases more than three years later (Case 7, Table 4). Animal experimentation is very unsatisfactory, for in dogs, at least, the stomach findings obtained by the use of a bread and water meal, aspirated with a stomach tube, are quite variable. Although it has been contended that achlorhydria invariably follows cholecystectomy in dogs, Dangschat found in two animals that, while the acidity was lowered, it remained present. In two animals from which I removed the gallbladder, I found practically the same acidity both before and after operation. In order to arrive at any definite conclusions from animal experiments, it seems to me that it will be necessary to make Pawlow pouches and obtain pure gastric secretion in that manner. (I am just beginning some experiments along this line.) It seems to me that the evidence obtained from this series of examinations goes to show that achlorhydria does not follow cholecystectomy frequently enough to influence one against removing the gallbladder in case of definite pathologic changes.

I may say that, instead of a hyperacidity, as Griffiths has found, a hypo-acidity or achlorhydria existed prior to operation in 45 per cent. of 192 gallstone cases. This may be temporary or permanent. While it may not be of great diagnostic value, especially as achylia not infrequently occurs in a number of other diseases and rarely even in ulcer,[15] it presents an aid in obscure cases, especially in young patients.

CONCLUSIONS

1. Achlorhydria or hypo-acidity occurred in 45 per cent. of 192 patients with gallstone disease.
2. The incidence of achlorhydria is not significantly influenced by age, jaundice, or by the location of the stone.
3. Achlorhydria does not follow cholecystectomy frequently enough to justify abandonment of the operation in the presence of a definite pathologic condition.
4. Achlorhydria, or absence of free hydrochloric acid, is of definite value as a diagnostic aid in doubtful cases of upper abdominal disease.

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[13] Rovsing: Underlivskirurgien **2** (quoted by Rydgaard).

[14] Carlson, A. J.: Physiol. Rev. **3**: 1-40 (Jan.) 1923.

[15] Hardt, L. L. J.: Studies of Cause of Pain in Gastric and Duodenal Ulcers; Peristalsis as Direct Cause of Pain in Gastric Ulcers with Achylia and in Duodenal Ulcers, Arch. Int. Med. **29**: 684 (May) 1922.

Mikulicz' Disease.—The condition first reported by Mikulicz in 1888 forms the subject of a recent illustrated book by Dr. Menotti Sainati of São Paulo. The author was granted a prize and gold medal by the local medical society for his thorough pathologic and clinical study. When Mikulicz described his case, there were already on record suggestive cases by Arnold and Becker (1872), Abadie (1880), Delens (1886), Power (1886-1887), and Frost (1886-1887). Neither these cases nor those reported by Gallasch (1874), Leber (1878) and Reymond (1883) were really germane. In the first group, the lacrimal swelling was caused by some specific process, and in the second group there was, in addition to the characteristic enlargement of lacrimal and salivary glands, involvement of lymph nodes and spleen.

RIGHT PARADUODENAL HERNIA *

GUNTHER W. NAGEL, M.D.
Fellow in Surgery, the Mayo Foundation
ROCHESTER, MINN.

Examples are recorded in the literature of passage of the intestines through the foramen of Winslow, through the mesenteries, under the cecum, into the intersigmoid fossa and other peritoneal pockets, notably those about the duodenojejunal flexure. The last named constitute the so-called paraduodenal hernias, of which there are two types: left and right. Approximately 100 cases of left paraduodenal hernias have been recorded, and in a thorough search of the literature I have found twenty-eight of the right. The following case is an example of the latter:

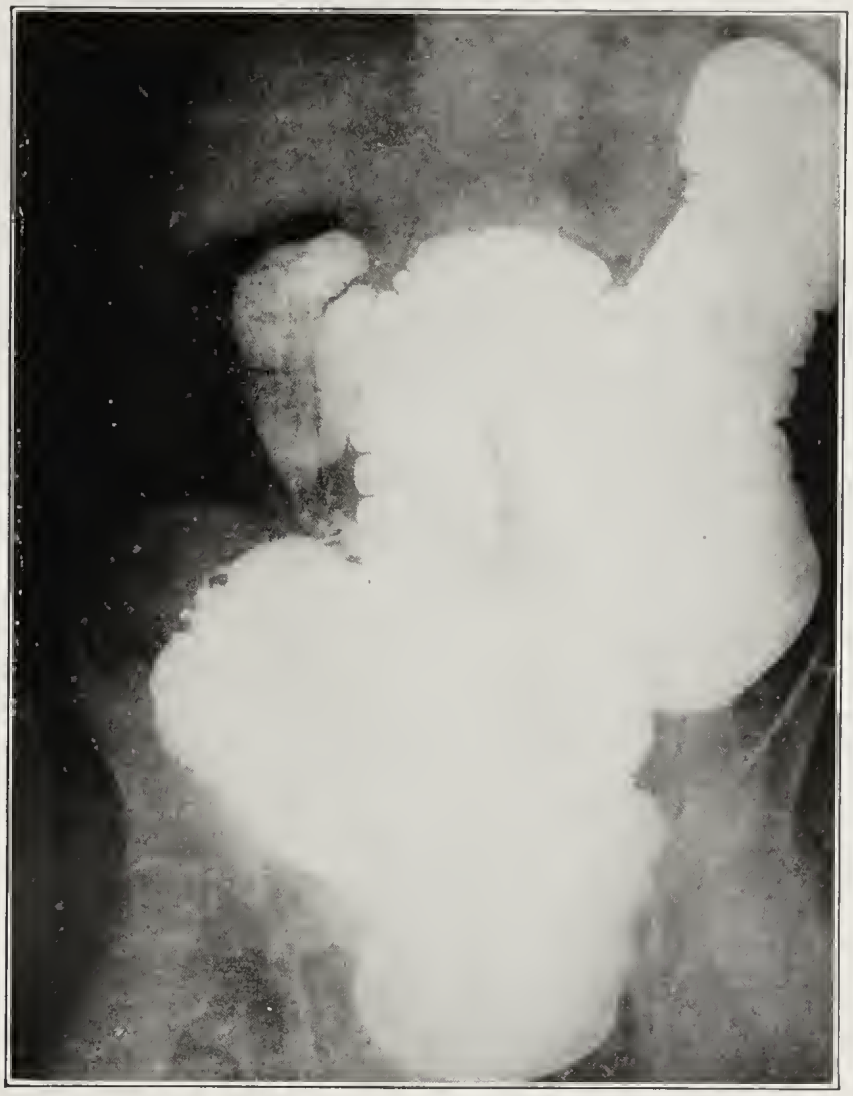

Fig. 1.—Colon filling left half of abdomen, with coils of small intestine grouped to the right.

REPORT OF A CASE

The hernia, unsuspected in life, was found at necropsy in a man, aged 55, on whom a diagnosis of general carcinomatosis had been made during an exploratory laparotomy. He had complained for many years of a slight feeling of discomfort in the right lower abdominal region after meals. Two months before his death, he began having dull, aching pains in the chest and epigastrium, with nausea, bloating, constipation and loss of weight. A roentgenogram of the stomach was negative, but the cecum and ascending colon were low in the pelvis, and fixed and rotated to the left, while a few loops of small intestine were grouped to the right of the ascending colon. The condition appeared to represent an incomplete intestinal rotation, and no further significance was attached to it (Fig. 1).

Necropsy revealed generalized malignant melanoma involving the kidneys, mesentery, intestines and other organs, and general peritonitis. These findings explained the patient's recent symptoms and death, but apparently did not explain the hernia. When the abdomen was first opened, no small intestine was seen, the coils being covered by a long mesentery of the ascending colon. Above, only a small portion of the stomach and the first part of the duodenum were visible. The cecum lay at the pelvic brim near the middle line, and the ascending and transverse colon ran sharply upward on the left side of the abdomen to the normally situated splenic flexure, where it doubled back to form the descending colon (Fig. 2). When the ascending colon and its mesentery were lifted, the coils of small intestine were seen escaping from a retroperitoneal pocket in which nearly the entire bowel had been held captive. This pouch, the neck of which measured 6 cm. in diameter, was situated to the right of the fourth and fifth lumbar vertebrae, and was formed, posteriorly and below, by a thin, nonvascular peritoneal fold which curved laterally and anteriorly on to the root of the mesentery of the small bowel, in which ran the terminal branches of the superior mesenteric artery, and which formed its anterior margin (Fig. 3). The cavity itself was about 12 cm. in depth and extended well out under the mesenteries of the small bowel and ascending colon toward the lateral abdominal wall. In order to replace the coils of intestine into the hernial sac, the upper portion of the mesentery with its attached intestine had to be rolled downward and to the left and under that portion of the root of the mesentery which formed the free anterior margin of the sac. The inferior mesenteric vein and left colic artery were in their normal locations and did not enter into the structure of the hernia. The duodenojejunal flexure was poorly marked and was suspended by a short mesentery, situated just to the right of the middle vertebral line. The visceral and parietal peritoneal surfaces were thickened and opaque, as a result of the general peritonitis, but there were no adhesions or evidences of intestinal obstruction, the small bowel being easily withdrawn and replaced within the hernial sac. The condition was a typical right paraduodenal hernia. The presence of a persistent mesentery to the ascending colon may have aided in forcing the intestines into the pocket, and it undoubtedly helped maintain them there.

COMMENT ON CASES REPORTED FROM THE LITERATURE

According to Moynihan,[4] Cooper's mesenteric hernia is probably the first published example of a right duodenal hernia; but, because of insufficient data, Moynihan did not include it in his list. The hernia reported by Zander [26] also is too briefly described to be added to the well authenticated cases. In Pikin's [25] case, the hernia extends up between the leaves of the mesentery of the small bowel, a condition which is also present in Haasler's second case. Pikin, however, although he classifies his case as a right duodenal hernia, refers to the poorly marked hernial orifice as lying on the right side of the mesentery, and he apparently withdrew the small bowel through an incision, also made in the right leaf of the mesentery. A typical right duodenal hernia enters from the left or under side of the mesentery, and an attempt to withdraw it through the right leaf would result only in a further twisting of the intestine. Willis,[27] in recording his unusual tumor, described what is evidently a retroperitoneal hernia, which from its location may be of the right duodenal type; but he does not recognize it as such, and his description, although detailed, does not permit accurate

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* This work was done in the Division of Pathology, Mayo Clinic, under the supervision of Dr. H. E. Robertson.

* Because of lack of space, this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the author's reprints.

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

classification. One of the hernias in my list of authentic cases may be open to question. I refer to Gruber's complicated case, which, although included by Moynihan, is laboriously but poorly described, and leaves some doubt in the mind of the reader as to its exact nature. The hernia described by MacCallum and Miller [21] differs from the more usual type of right paraduodenal hernia in that it is formed by an outpocketing of both layers of the mesentery, under the superior mesenteric artery. The presence of the latter artery in the anterior margin of the neck of the sac establishes it definitely as a right paraduodenal hernia.

ORIGIN OF RIGHT PARADUODENAL HERNIA

The origin of right paraduodenal hernia has not been definitely established, since it has not been observed in early and progressive stages. Fürst,[5] in 1884, suggested a possible embryonic origin, that is, a late descent of the cecum, with the small bowel impeding its progress and forming a pocket under the mesocolon, in which it remains lodged. Others attribute its formation to a primary failure of the root of the mesentery to unite with the posterior abdominal wall, or to the prevention of such fusion by a loop of small bowel being caught under the mesentery during intestinal rotation. Such theories have little to support them and have never been widely accepted. Nearly all observers agree that the condition represents a true herniation of the intestines into one or the other of the fossae around the duodenojejunal flexure.

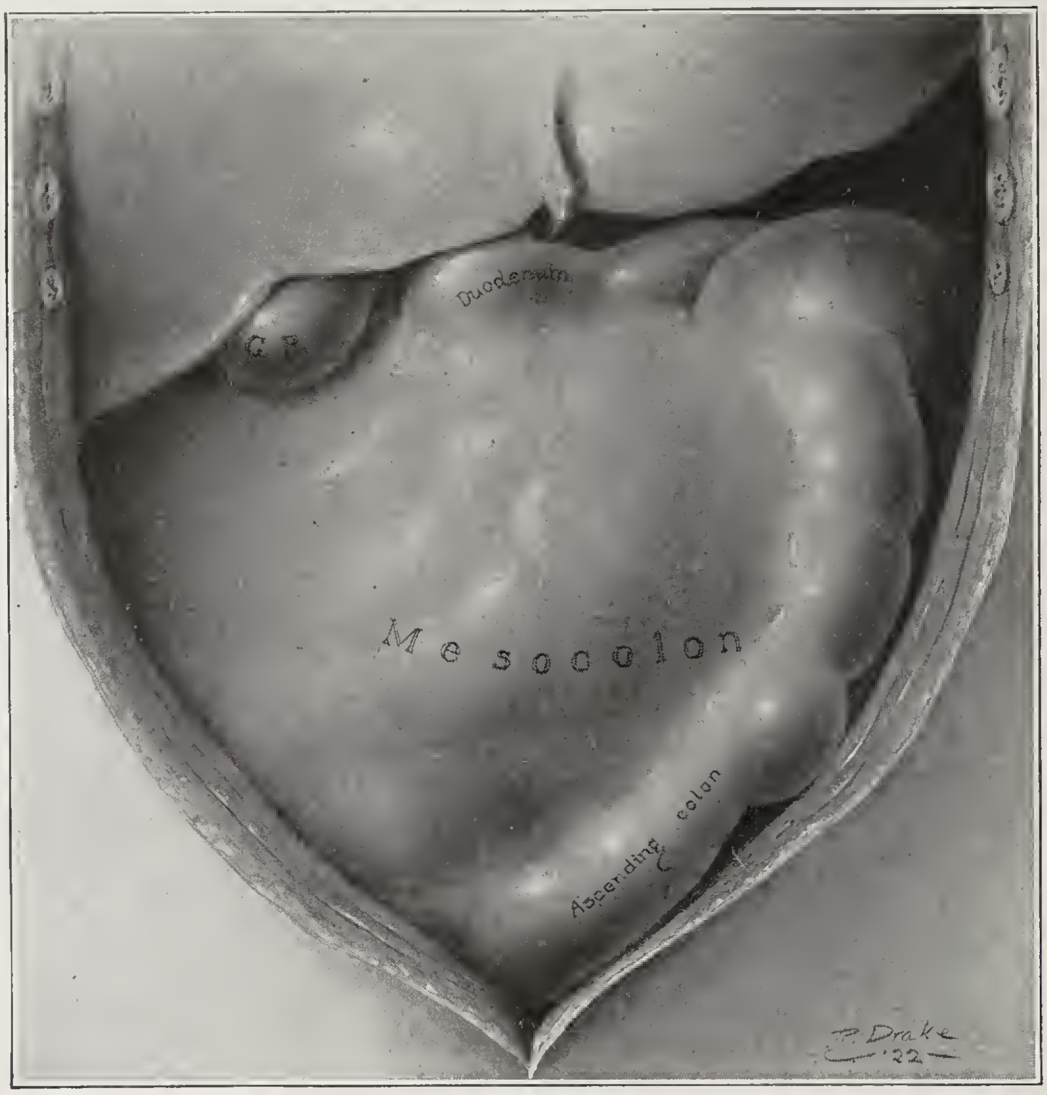

Fig. 2.—Mesentery of ascending colon covering the right paraduodenal hernia.

A knowledge of the embryology and anatomy of these fossae is essential to a proper understanding of this type of hernia. The whole subject has been needlessly complicated and confused by the different names attached by various investigators to identical structures, this nomenclature being due no doubt to the wide normal variations in size, shape and minor anatomic details of the peritoneal folds found in this region. Such variations can be understood if the mode of origin of these folds is borne in mind. Treitz [28] believed them to be traction folds produced during intestinal rotation and fixation. Waldeyer thought that they were caused by blood vessels lifting up small areas of peritoneum, and spoke of them as vascular folds. However, as the majority of the folds are not associated with vessels, this explanation does not apply in all instances, although it may explain the formation of the fossa of Landzert, in the anterior margin of which runs the inferior mesenteric vein. The theory advanced by Moynihan [4] and accepted by most modern writers is that they are fusion folds originating in fetal life by the so-called process of physiologic adhesions, first described by Langer and Toldt,[29] in which, during intestinal rotation, portions of the common dorsal mesentery, destined later to become obliterated, first adhere and then fuse with the posterior abdominal wall.

In dissecting a number of fetuses, I was able to observe different stages of intestinal rotation and fixation. The mesenteries, which normally disappear, first fold to the right and left in the ascending and descending colon, respectively, their under surfaces adhering lightly to the underlying parietal peritoneum. In the early stages they can be pulled away by gentle traction, leaving a slightly roughened surface, much as if they had been glued down and then separated before the glue had dried. Later the union becomes complete, all traces of the opposing peritoneal surfaces disappear, and the free side of the mesentery remains as the parietal peritoneum covering that portion of the abdominal cavity. In a similar manner, the duodenum loses its mesentery, and that of the small bowel becomes attached along a line extending diagonally from left to right across the posterior abdominal wall. This movement of intestine, and the gluing process of the mesenteries, results in the raising up of peritoneal folds at certain points, especially around the duodenojejunal angle and the cecum. That such folds vary greatly is readily understood.

Moynihan,[4] who was the first English writer to organize our knowledge on the subject, describes nine fossae around the duodenojejunal flexure. Only those of direct interest will be considered here. The most common folds and their corresponding fossae are the superior and inferior paraduodenal. These folds are composed of thin, nonvascular peritoneal membranes passing laterally from the bowel to the posterior abdominal wall, and may be present singly or together

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[28] Treitz, W.: Hernia retroperitonealis: Ein Beitrag zur Geschichte innerer Hernien, Prague, Credner, 1857.

[29] Toldt, C.: Bau und Wachsthumsveränderungen der Nekröse des menschlichen Darmkanales, Ed. 2, Vienna, Tempsky, 1889.

(Fig. 4). In the latter case, their lateral margins are usually united, forming a semicircular fold, in the margin of which, usually about 5 mm. from its free border, lies the inferior mesenteric vein. It is this laterally placed pouch under the inferior mesenteric vein which constitutes the fossa of Landzert, and into which the left duodenal hernia occurs. It may exist in conjunction with the other fossae as just described (Fig. 4), or alone (Fig. 5). In an examination of eighty-five adult subjects and seventeen fetuses of from 2 to 8 months, I found the fossae present as shown in Table 1. The high percentage of negative findings in the fetuses is due to the fact that the folds had not yet formed in the younger ones.

My findings differ considerably from those of Treitz,[28] Moynihan,[4] Desjardins[30] and others, who found that the inferior fossa was the one most constantly present, namely, in as high as from 60 to 70 per cent. of cases. Treitz and Desjardins each examined 100 subjects, and while none of these series are large enough to furnish accurate statistical data, they serve again to emphasize the variations to which these folds and fossae are subject. In none of my cases, with the possible exception of the one described, did I find the type of fossa said by Moynihan[4] and others to be the only source of origin of right paraduodenal hernia, namely, the mesentericoparietal, or fossa of Waldeyer. Moynihan[4] describes it as lying in the first part of the mesojejunum, bounded in front by the superior mesenteric artery and behind by the lumbar vertebrae, its orifice pointing to the left, and its blind extremity to the right. The characteristics of a hernia into this fossa are its situation, at least in the early stages, on the right side of the body, and the presence of the superior mesenteric artery, or the root of the mesentery, in its anterior margin. Moynihan[4] was able to find the fossa three times in his series of adults, and six times in seventeen embryos. In four of my subjects, the inferior duodenal fossa was situated very low, near the beginning of the third portion of the duodenum and over the center of the vertebral column, or even to the right of the middle line, the peritoneal fold passing over the duodenum and losing itself on the mesentery of the small bowel (Fig. 6). In one of these cases, there was an associated persistent mesentery to the ascending and descending colon. Herniation into such a fossa would naturally progress toward the right, and by a peeling back of its superior peritoneal margin until it reached the mesenteric vessels, would form a typical right paraduodenal hernia.

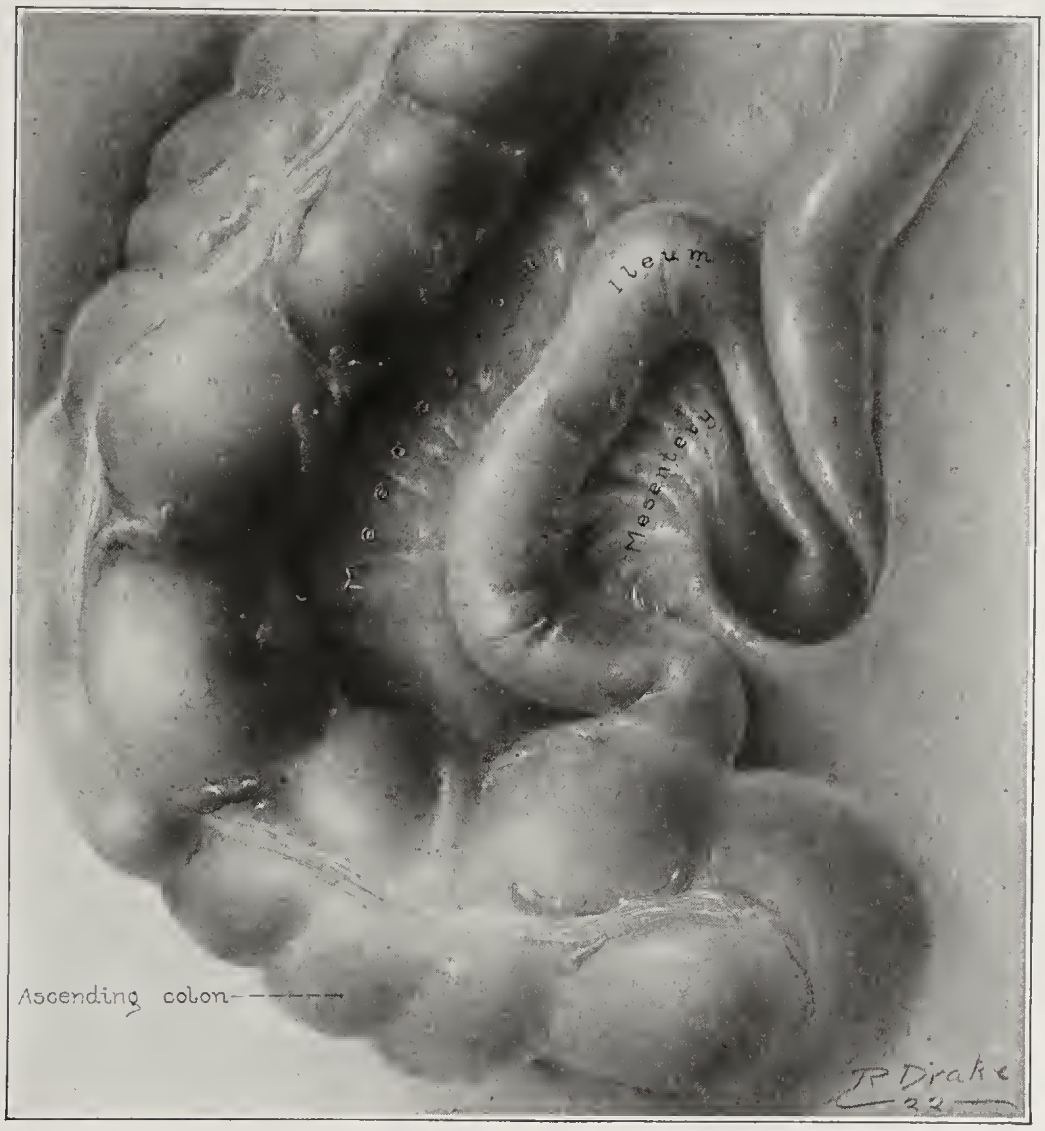

Fig. 3.—Orifice of right paraduodenal hernia, with greater part of small intestine withdrawn from the sac.

Klob,[1] who first described this form of hernia accurately, ascribed its origin to the inferior duodenal fossa, and Jonnesco[31] later concurred in this view. Gruber[2] reported a case associated with a persistent mesentery for the large bowel. He attached considerable significance to this finding, associating it with a fossa situated to the right of the middle line. Moynihan[4] and Broesike[8] do not believe that a right duodenal hernia can arise in the inferior duodenal fossa, and the former asserts, further, that there is no recognized variation in the situation of either the superior or inferior duodenal pouches. My findings and those of others, however, do not support this view. Moynihan[4] quotes a case of Molins' of herniation into the inferior duodenal fossa, which differs from the usual right type of hernia in two essentials: (1) The anterior boundary of the neck of the sac does not contain the superior mesenteric artery, and (2) its orifice is well to the left of the root of the mesentery. In this instance, the inferior fossa was undoubtedly in its more usual position, high and to the left of the middle line (Fig. 4), in which case a right duodenal hernia would not be likely to occur. Two cases reported by Meyer[32] and one by Wallace and Allen[33] are probably also of this type.

Unusual situations of these fossae, however, have been observed, and occasionally one may well give rise to a right paraduodenal hernia. The fossa shown in Figure 6 is undoubtedly the one referred to by Haasler[20] as being a possible source of origin of right paraduodenal hernia.

Additional types of paraduodenal hernias to those described above have been recorded. Any of the fossae about the duodenojejunal flexure may, under favorable conditions, give rise to hernias. It is not essential that a vessel of any appreciable size be found in the neck of the sac. Kohlmann[34] describes a hernia in the posterior duodenal fossa. This is a pocket lying directly behind the fourth portion of the duodenum, its blind end directed downward and to the right, in the direction of the long axis of this portion of the intestine and its orifice facing upward and to the left. Cunha Lamas[35] reports a case of herniation into the superior duodenal fossa. Morton[36] describes a right sided, retroperitoneal hernia in an infant, associated with a congenital atresia of the duodenum. The orifice of the sac was formed by a nonvascular peritoneal band attached to the second portion of the duodenum and lying to the right of the mesentery of the small bowel. The foregoing cases must be separately classified as rarer forms of paraduodenal hernias.

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[30] Desjardins, A. U.: Left Paraduodenal Hernia: Description of One Case, Ann. Surg. **67**: 195-201 (Feb.) 1918.

[31] Jonnesco, T.: Hernies internes rétro-péritonéales, Paris, Steinheil, 1890.

[32] Meyer, W.: Ueber zwei Fälle von Darmeinklemmung in noch nicht beschriebenen Bauchfelltaschen, Deutsch. Ztschr. f. Chir. **53**: 547-556, 1899.

[33] Wallace, W. L., and Allen, J. S.: Intraperitoneal Hernia: A Case, Buffalo M. J. **66**: 300-303, 1911.

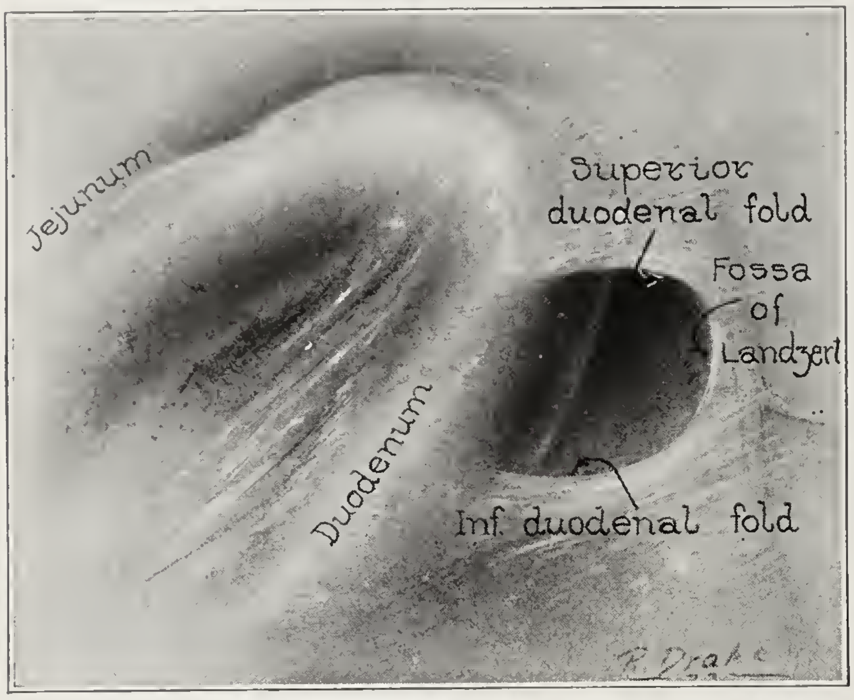

Fig. 4.—The superior and inferior duodenal folds, and the fossa of Landzert.

A poorly marked duodenojejunal flexure was found by Haasler[20] in both his cases, a condition which was also present in my case. In Clarke's[10] subject the entire third portion of the duodenum was to the right of the superior mesenteric vessels and possessed a short mesentery. A fossa of Waldeyer, capable of giving rise to a right paraduodenal hernia, may be present when all other anatomic relations are normal. The fairly frequent association, however, of a persistent mesentery to the ascending colon in examples of this type of hernia may be of some significance. Abnormal or unusual fossae are more apt to be present when intestinal rotation is not complete, and, besides, the presence of the entire large bowel on the left side of the abdomen, by crowding the small intestine to the

Table 1.—*Distribution of Fossae in Eighty-Five Adult Subjects and Seventeen Fetuses*

	Adults		Fetuses	
	Number	Per Cent.	Number	Per Cent.
Superior and inferior duodenal fossae	51	60.0	5	29 4
Superior duodenal fossa	20	23.5	1	5.8
Inferior duodenal fossa	3	3.5	1	5.8
Fossa of Landzert alone or combined with superior fold	4	4.7	4	23.5
No fossae	6	7.1	6	35.2
Unclassified	1	....	..	....
Total	85	....	17	....

Table 2.—*Recorded Cases of Right Paraduodenal Hernias*

No.	Observer	Year	Age	Sex*	When Diagnosed	Symptoms of Acute Obstruction	Operation	Result
				Authentic Cases				
1.	Klob	1861	36	♂	At necropsy	....	No	
2.	Gruber	1868	25	♂	At necropsy	....	No	
3.	Moutard-Martin	1870	..	..	Dissecting room	....	No	
4.	Guy's museum Specimen 1084	1870-1871	..	..	Museum specimen	No	No	
5.	Fürst	1884	61	♂	At necropsy	....	No	
6.	Zwaardemaker	1884	Adult	♂	At necropsy	Yes	No	
7.	Quénu (Jonnesco)	1885	50	♂	At operation	Yes	Yes	Death
8.	Gerard-Marchant	1885	..	..	Dissecting room	....	No	
9.	Broesike	1884-1885	2	♂	Dissecting room	....	No	
10.	Broesike	1886	Adult	♂	Dissecting room	....	No	
11.	Barrs	1891	18	♂	At necropsy	Yes	No	
12.	Clarke	1893	Adult	♂	At operation	Yes	Yes	Death
13.	Rose	1895	68	♀	At operation	Yes	Yes	Death
14.	Morestin	1896	Advanced age	♂	Dissecting room	Yes	No	
15.	Neumann	1898	55	♀	At operation	Yes	Yes	Cure
16.	Griffith (Moynihan)	1898	..	..	Museum specimen, Leeds Infirmary	....	No	
17.	Küppers	1899	..	..	....	....	....	
18.	Schwalbe	1903	14 mo.	♂	Dissecting room	....	No	
19.	Schwalbe	1903	Adult	♂	Dissecting room	....	No	
20.	Selby	1904	40	♂	At operation	Yes	Yes	Death
21.	Paton	1906	3 mo.	..	At operation	Yes	Yes	Death
22.	Haasler	1907	43	♀	At necropsy	....	Yes	Death
23.	Haasler	1907	10	♂	At operation	Yes	Yes	Death
24.	MacCallum and Miller	1908	41	♂	At operation	Yes	Yes	Death
25.	Van Rossum	1909	..	..	....	....	....	
26.	Merrigan	1911	..	..	Dissecting room	....	No	
27.	Mueller	1911	47	♂	At operation	Yes	Yes	Death
28.	Carson	1912	29	♂	At operation	Yes	Yes	Cure
29.	Nagel	1923	55	♂	At necropsy	No	Yes	Death
				Unauthentic Cases				
1.	Cooper	....	..	..	....	....	....	
2.	Pikin	1912	27	♀	At operation	Yes	Yes	Cure
3.	Zander	1917	..	..	Not stated	....	....	
4.	Willis	1922	11	♂	At operation	Yes	Yes	Not stated

* In this column, ♀ indicates female; ♂, male.

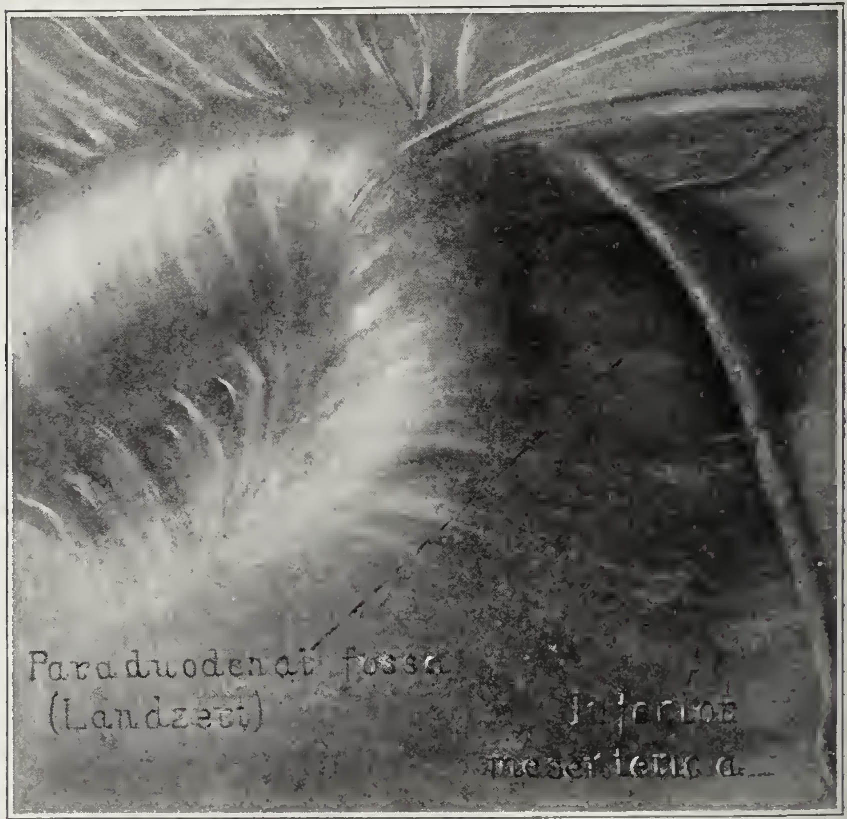

Fig. 5.—The fossa of Landzert (Desjardins).

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[34] Kohlmann, J.: Ueber Retroperitonealhernien: Ein Fall von Hernia retroperitonealis totalis accreta, Leipzig, F. Peter Nacht, 1913.

[35] Cunha Lamas, A.: Sobre hernias para-duodenaes, Med. contemp., Lisbon **31**: 403-407, 1913.

[36] Morton, J. J.: Atresia of the Duodenum and Right Internal Hernia, Am. J. Dis. Child. **25**: 371-378 (May) 1923.

right, may well be a factor in the production of this type of hernia. Broesike[8] emphasized a fusion of the first part of the jejunum with the posterior abdominal wall, which he found in both his subjects, and believed to be essential for the formation of this type of hernia. In these cases only the efferent loop of intestine may be seen to pass through the hernial orifice, the afferent loop entering retroperitoneally from above.

This condition has also been observed by others (Schwalbe[16]), but the jejunum has been found free in a number of instances (Neumann,[13] Merrigan,[22] Clarke,[10] Nagel and others). Moynihan[4] makes this the basis for a division of right hernia into two types, calling those in which the jejunum is adherent "hernia mesenterico-parietalis parajejunalis," and those in which it is free "hernia mesenterico-parietalis paraduodenalis." Such titles are anatomically accurate, though cumbersome.

Whether the hernia in my case arose in a typical fossa of Waldeyer, or in the type of inferior duodenal fossa I have described, I am unable to determine. Unfortunately, the duodenal folds were not observed, but either origin would explain the condition as found, the low position of the orifice being due to migration of its peritoneal margins. While the majority of right duodenal hernias probably arise in the fossa of Waldeyer, it is reasonable to assume that some of them may originate in the type of inferior duodenal fossa shown in Figure 6. It is axiomatic that the pocket must be large enough to admit an entering wedge of intestine, and its margins sufficiently resistant to allow an undermining of the peritoneum, and prevent a simple flattening out of the fold that would otherwise result.

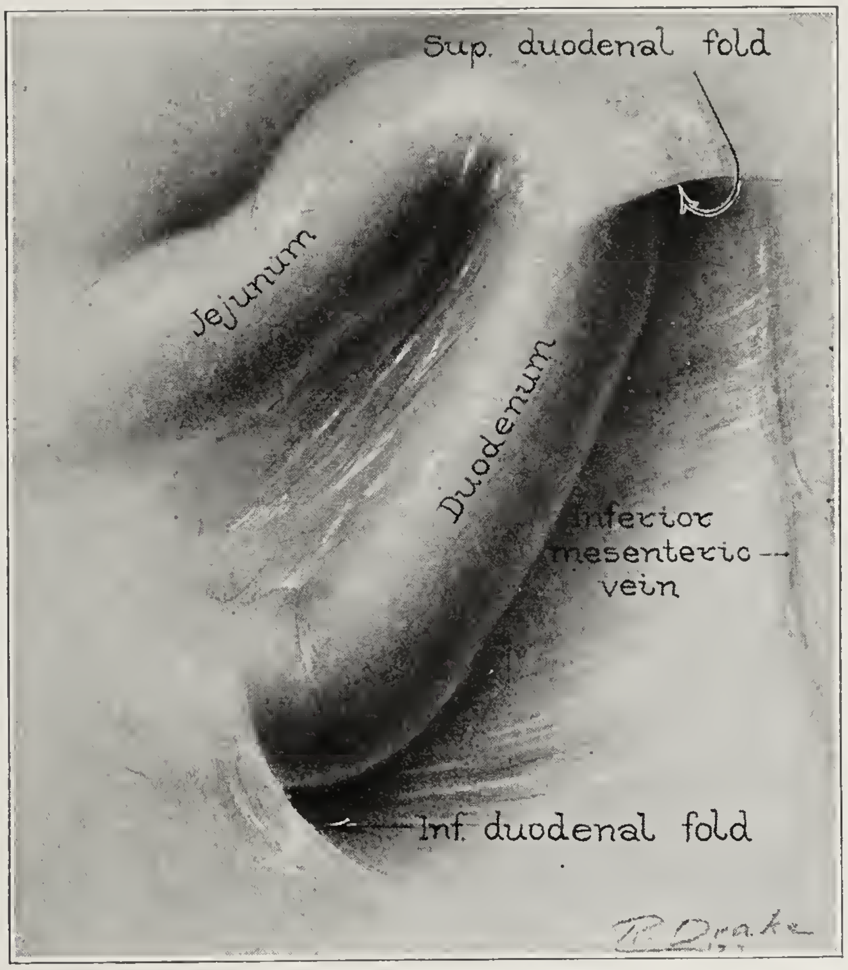

Fig. 6.—Inferior duodenal fossa situated unusually low, and to the right of the middle line.

SYMPTOMS AND DIAGNOSIS

In a discussion of the symptoms and clinical diagnosis of paraduodenal hernia, no sharp dividing line can be drawn between the right and left types. Table 2 is a summary of twenty-nine cases, including my own, of right paraduodenal hernia which I have been able to find in the literature. A correct clinical diagnosis was not made in a single instance. In seventeen, the condition was found at examination after death. Thirteen patients had definite symptoms of acute intestinal obstruction, six with histories of previous similar attacks. Twelve patients were operated on, and in ten of these, the symptoms were found to be due to the hernia. Of ninety-one cases of left duodenal hernia collected by Pikin,[25] only three were clinically diagnosed. The majority of patients did not have symptoms, the condition being found accidentally at necropsy, while a few showed signs of either acute or chronic intestinal obstruction, with occasionally a visible or palpable, well defined, globular, abdominal mass. A roentgenologic examination has been made in a few instances of left duodenal hernia (Scheele,[37] Wagner,[38] Kummer[39] and others), and in my case of the right duodenal type. The diagnosis may be suggested by finding a dilated duodenum, due to a constriction of the first part of the jejunum by the neck of the sac; and the small intestines may appear to be compressed into an ovoid mass, which remains supported in the abdomen instead of gravitating downward when the patient assumes the erect position.

TREATMENT

In the presence of symptoms, the treatment of these hernias is surgical. It is important to recognize the exact type of hernia present. As already noted, if it is left paraduodenal, its orifice opens to the right with the inferior mesenteric vein or left colic artery traversing its anterior margin; if right, the opening is posterior and to the left, and the superior mesenteric vessels lie in its anterior superior border. Small hernias may lie either in the left or right half of the abdomen, but when large, they occupy the greater part of the abdominal cavity. In most instances, particularly in the left type, reduction and obliteration of the sacs are accomplished without great difficulty. The sac should be closed if conditions will permit. In the cases in which Paton[19] and Mueller[23] operated and in which this procedure was not carried out, necropsy revealed that a considerable portion of the intestines had reentered the sacs. Combining the summaries of Short[40] and Philips,[41] it is found that of twenty-eight patients with left paraduodenal hernia, seventeen were operated on, with thirteen cures and three deaths; in one patient the operation was abandoned. Of the twelve patients operated on for right duodenal hernia in the series here reported, only two were cured, while ten died. Usually the bowel was easily withdrawn, although occasionally slight adhesions were encountered, especially near the orifice of the sac. Neumann[13] closed the neck of the

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37. Scheele, E.: Beitrag zur Diagnostik der Hernia duodeno-jejunalis, Centralbl. f. Chir. **48**: 188-190, 1921.

38. Wagner, A.: Zur Pathologie, Klinik und Chirurgie der Duodenojejunalhernien, Deutsch. Ztschr. f. Chir. **135**: 497, 1916.

39. Kummer, E.: Signes radiologiques de la hernie interne duodenojejunale, J. de radiol. et d'électrol. **5**: 362-364 (Aug.) 1921.

40. Short, A. R.: A Case of Retroperitoneal Hernia Cured by Operation, with a Report on the Literature of the Subject, Brit. J. Surg. **3**: 48-54, 1916.

41. Philips, R. S.: Paraduodenal Hernia: Description of a Case and Summary of the Literature to Date, Bull. Ayer Clin. Lab. Pennsylvania Hosp. **89**, May, 1922.

sac, leaving only a small opening below for purposes of drainage. In Haasler's [20] second case, in which the bowel had ruptured through a rent in the mesentery and become strangulated, the mesenteric rent was closed, but the orifice of the sac was not interfered with. Occasionally, the bowel becomes incarcerated, and then an incision must be made in the wall of the sac, care being taken to avoid the inferior mesenteric vein or superior mesenteric vessels, as the case may be. By relieving pressure, this allows the intestine to be withdrawn through the hernial orifice, after which the latter can be closed. Gangrenous bowel and other complications must, of course, be dealt with according to recognized surgical procedures. The obliteration of the sac in right duodenal hernia might present greater difficulties than in the left, especially in a case such as Case 29, Table 2, in which the superior margin was formed by the root of the mesentery, and in which only the posterior inferior margin could be cut away. This, however, should be sufficient to destroy its character as a hernial pouch.

Although all internal abdominal hernias are rare, particularly the right paraduodenal type, they are of practical as well as academic interest. In patients with obscure gastric and intestinal complaints, and particularly in those with acute or recurring symptoms of intestinal obstruction, the possibility of their presence must be borne in mind. At operation, the type of hernia should be recognized promptly and appropriate surgical procedures carried out.

SUMMARY

Right paraduodenal hernia constitutes a rare form of internal abdominal hernia. Twenty-eight authentic cases have been previously reported, to which number I add one. This form of hernia may arise in the fossa of Waldeyer, or in the type of inferior duodenal fossa I have described. Clinically, no sharp dividing line can be drawn between hernias of the left and right types. I have not been able to find a reported case in which right duodenal hernia has been correctly diagnosed clinically. If patients have obscure intestinal complaints, and particularly if they have symptoms of acute obstruction, the possibility of the presence of internal hernia must be borne in mind. At operation it is important to recognize the type of hernia, so that reduction may be effected with dispatch, and without injury to vital structures.

Effect of Tropical Climate on Efficiency.—Tropical climate plays a primary part by undermining or lowering the bodily resistance; secondly, mental factors, such as conflicts come in during this debilitated state and determine the nature of the psychoneurotic symptoms. Imperfection of organic functions tends to produce an undue prominence in consciousness of the bodily self and, therefore, an introspective and brooding habit of mind. It is during this stage that problems seem hard to face, decisions cannot be made, and sleepless nights or nightmares develop. In the worst cases, the family history and early life clearly indicate a psychopathic tendency and it is suggested that in selecting individuals for service in the tropics we should take this into consideration.—T. S. Rippon: *Proc. Roy. Soc. Med.* **16**:53 (Aug.) 1923.

THE CHOICE OF OPERATIONS FOR GASTRIC AND DUODENAL ULCERS

WITH ESPECIAL REFERENCE TO PYLOROPLASTY *

J. SHELTON HORSLEY, M.D.
RICHMOND, VA.

An appreciation of the proper therapy for ulcer of the stomach and duodenum depends on a knowledge of the pathologic conditions present, and an acquaintance with the physiology of these viscera. It is of prime importance in surgical operations to remove or to correct the pathologic conditions, but it is also essential to restore physiologic function. Much of the physiology of the stomach remains undetermined. As Alvarez says, in observing the function of the stomach, we see more than we can understand. However, there are many established facts, especially from recent research work, which are very helpful in comprehending the pathogenesis of gastric and duodenal ulcers, and in adopting the proper treatment for these lesions. Consequently, I will review briefly the relevant physiology, concerning (1) the motility of the stomach, and (2) its secretion.

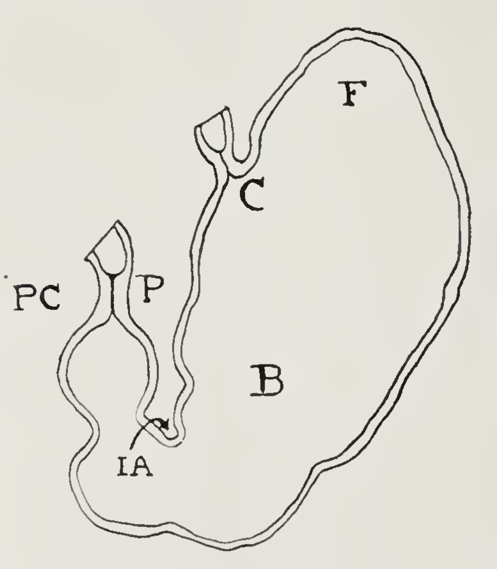

Fig. 1.—Schematic outline of the stomach: *C*, cardia; *F*, fundus; *I A*, incisura angularis; *B*, body; *P C*, pyloric canal; *P*, pylorus. The antrum is the portion from *I A* to *P C*, inclusive. (From Cannon.) The pyloric canal is very muscular and about 3 cm. in length. To secure physiologic rest in this region, the pyloric canal should be divided.

PHYSIOLOGY

The stomach is divided by the insisura angularis into two main portions, the pyloric and the cardiac (Fig. 1). The cardiac portion consists of the body of the stomach, and the cardiac pouch, or fundus, lying above the level of the esophageal opening. In roentgenograms, this pouch usually contains gas. The pyloric portion of the stomach has a greater muscular supply than the cardiac portion, and the muscular coat increases in strength toward the pyloric sphincter. The antrum of the pyloric part of the stomach extends from the incisura to the pyloric canal. The pyloric canal is about 1¼ inches (3 cm.) long, and terminates in the pyloric sphincter. It is more marked in children, and has a thick, powerful, circular muscular coat. It is here that congenital pyloric stenosis occurs in infants. The contractions of this canal are very vigorous, and in a pyloroplasty it should be divided in order to obtain physiologic rest during healing of the wound. The contractions of the pyloric canal necessarily affect the adjoining portion of the duodenum.

A short time after the ingestion of food, peristalsis begins about the center of the body of the stomach and extends toward the pyloric canal. According to Cole, each peristaltic wave lasts about two seconds, and consists of a systole, or period of contraction, taking seven tenths of the time, and a diastole, or a period of relaxation, during three tenths of the two seconds.

Recent observations by Luckhardt, Phillips and Carlson, and by Wheelon and Thomas [1] seem to show that the pyloric sphincter relaxes as each strong peristaltic wave reaches it, and not on account of acid or chemical control. The left part of the body of the stomach and the cardiac pouch have no peristaltic waves, but remain tense like a rubber bag, acting as a hopper to push the food, when it is needed, into the pyloric portion.

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

[1] Macleod, J. J. R.: Physiology and Biochemistry, Ed. 4, St. Louis, C. V. Mosby Company, pp. 491-494.

The chief digestive elements in the gastric juice, hydrochloric acid and pepsin, are secreted mainly in the body of the stomach. Carlson [2] has shown that there is to some extent a continuous secretion of gastric juice. He says that there is no such thing as hyperacidity, because normal gastric juice may contain 0.5 per cent. of hydrochloric acid, and the pathologic variation is toward hypo-acidity. According to his observation, even "appetite" gastric juice is not essential to good digestion, and perfect health may be maintained with gastric juice of very low acidity. The pyloric portion of the stomach produces neither acid nor pepsin. The pyloric secretion is alkaline.

When the stomach is full, it is pyriform. As it empties, it becomes tubular. This change in shape is not produced by symmetrical contraction toward the central axis of the stomach, but by the greater curvature moving toward the lesser curvature, which remains comparatively fixed (Fig. 2). The axis of the peristaltic waves tends to be along the lesser curvature. Gravity plays practically no part in emptying the stomach, so it is important in midgastric or "sleeve" resections to have the lesser curvature in a straight axis, no matter how many pouches or irregularities of contour are along the greater curvature. In the Polya resection also, as has been pointed out by C. H. Mayo, the exit for food should be along the lesser curvature.

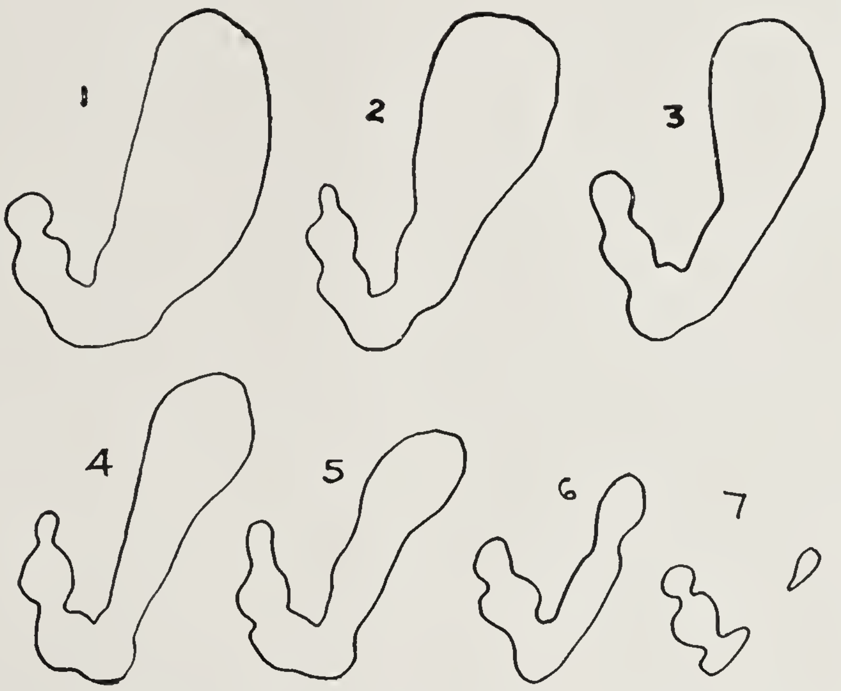

Fig. 2.—Outline of the roentgen-ray shadows cast by the stomach of a cat at hourly intervals after ingestion of food containing bismuth. (From Cannon.) The appearance is quite similar to the stomach of man. There is change from a pyriform shape to a tubular outline, with the lesser curvature remaining almost stationary and the greater curvature approaching the lesser curvature; hence the importance of proper alinement of the stomach along the lesser curvature after a resection.

ETIOLOGY

Mann and Williamson [3] have recently done some excellent work on the experimental production of peptic ulcers. Their summary is as follows:

> Experiments were devised for diverting the secretions which neutralize the gastric juice, as it leaves the stomach, to another portion of the intestine removed from the point of emergence of the acid. Under such conditions, typical subacute or chronic peptic ulcer, quite comparable pathologically to that found in man, developed in the intestinal mucosa, just adjacent to the gastric mucosa, in a high percentage of cases.

Among the experiments made by Mann and Williamson was a series in which the duodenum was severed from the stomach, and the end of the duodenum was closed. The jejunum was severed lower down, and the distal end of the jejunum was sutured to the pyloric end of the stomach, and the upper end of the severed jejunum was sutured end-to-side to the ileum. These operations were done with great care, no clamps were placed near the sutures, the bleeding was controlled, and 00 chronic catgut was used for sutures. In sixteen animals in which this experiment was performed and which came to necropsy, fourteen had ulcers of the subacute or chronic type, similar to peptic ulcers in man. These ulcers were usually in the intestine a short distance from the point of union of the intestine with the stomach.

Rosenow's [4] work on the affinity of certain strains of streptococci for the mucosa of the stomach and duodenum is well known, and emphasizes the important rôle of focal infection. This, however, is doubtless not the sole cause for peptic ulcers, and even these bacteria would probably locate at some point in this region where a small thrombus or lesion existed. Reeves [5] has shown that the blood vessels in the pyloric portion of the stomach and the first part of the duodenum take a very oblique course in the gastric and duodenal walls, which apparently renders them particularly susceptible to thrombosis. Lesions of the nervous supply of the stomach may produce ulcer, as shown by Durante; but this may be caused by the effect on the vascular circulation. We have seen, too, that the most vigorous peristaltic motion is in the pyloric portion of the stomach, and that this region has a normal alkaline secretion.

It seems probable that the hydrochloric acid of the gastric juice may not only act on a local lesion in a portion of the mucosa whose vitality has been impaired by a septic thrombus or injured by vigorous peristaltic action, but, as in jejunal ulcers, may actually initiate the lesion.

TREATMENT

Medical treatment should go hand in hand with the surgical treatment in operations for gastric or duodenal ulcer. Certain foods, as meats, carry a marked stimulus not only for gastric juice, but also for peristalsis. As gastric digestion chiefly is concerned with animal proteins, to rest the stomach this kind of food should be limited or omitted. If the diet can be so arranged as to reduce the work of the stomach to a minimum, and at the same time provide sufficient nutrition for the patient, we shall be taking advantage of the physiologic rest, and in this way healing will be promoted after operation, or in early superficial ulcers in which operation does not appear to be indicated. The physiology of the stomach is necessarily altered to some extent by any surgical operation, and the operation should be made to fit the pathologic condition. Consequently, when the pathologic changes in the stomach are extensive, and the operation is therefore mutilating, even more care should be paid to the diet than when a slighter operation is done.

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[2] Carlson, A. J.: The Secretion of Gastric Juice, Physiol. Rev. **3**: 1-41 (Jan.) 1923.

[3] Mann and Williamson: Experimental Production of Peptic Ulcer, Ann. Surg. **77**: 409-422 (April) 1923.

[4] Rosenow, E. C.: The Causation of Gastric and Duodenal Ulcer by Streptococci, J. Infect. Dis. **19**: 333 (Sept.) 1916.

[5] Reeves, T. B.: Surg., Gynec. & Obst. **33**: 374 (April) 1920.

The cause of pain in ulceration of the stomach and duodenum is from hypersensitiveness of the sensory nerves that lie deep in the stomach wall, and this hypersensitiveness, probably due to hyperemia on account of the ulcer, causes these nerves to register pain and discomfort, particularly when excessive peristalsis is present. A diet that tends to lessen the work of the stomach not only promotes rest and healing, but also relieves pain.

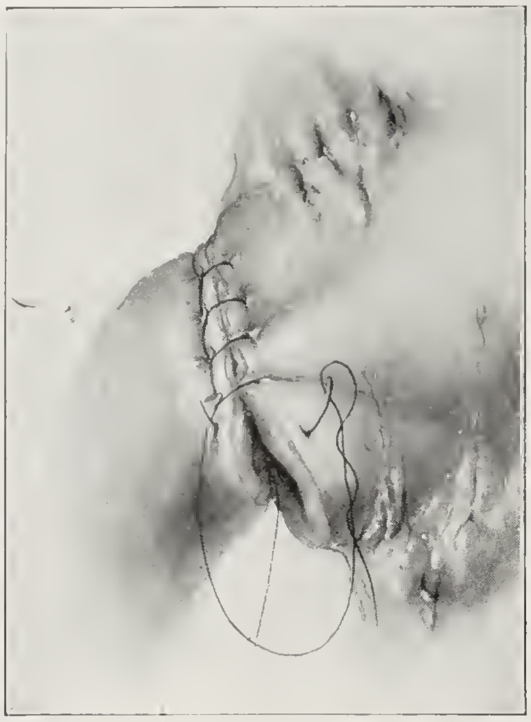

Fig. 3.—Billroth I operation, modified by alinement of the structures along the lesser curvature, instead of along the greater curvature as in the original Billroth operation. The lower border is easily tucked in and can be sutured safely. The internal row of sutures is a continuous lockstitch, and no effort is made to invert the tissues. This controls bleeding. The outer row of sutures infolds the slightly exposed mucosa.

The method by which soda or alkalis relieve the pain from gastric or duodenal ulcers has not been fully determined (Carlson). Reducing the acidity of the gastric juice may tend to lessen peristalsis, though a few ulcers are accompanied by a low acidity of the gastric juice. Then, too, some observers[6] find pain without marked peristalsis. Possibly the alkalis act reflexly and thus cause a temporarily decreased hyperemia, so reducing the sensitiveness of the nerves. These things, however, have not been determined.

As foci of infection may harbor streptococci with affinity for the mucosa of the stomach and duodenum, these foci should be removed. They commonly exist in diseased teeth, tonsils, appendix or gallbladder.

There are many operations that may be indicated in ulcers of the stomach or duodenum. Any surgeon who follows blindly one type of procedure will get unfortunate results in many cases, no matter how cleverly he may perform the operation. When we consider that ulcers of the stomach or duodenum vary from a superficial erosion that may be cured with medical treatment to a large saddle ulcer or complete stenosis, we can readily appreciate the folly of making any one operation fit all of these different conditions. We must first bear in mind a principle applicable in all types of surgery, and that is to remove or correct the pathologic condition, and at the same time restore the physiologic condition of the tissue involved. This principle is nowhere more needed than in the surgery of the stomach or duodenum. With a small, callous ulcer in the duodenum or stomach without extensive inflammatory exudate, we have an opportunity to remove the pathologic condition and at the same time to restore physiologic condition to practically normal. When there is marked stenosis of the pylorus, extensive adhesions, or a large infiltrating ulcer of the duodenum, restoration is impossible, as the tissues are permanently and extensively damaged, and gastro-enterostomy should be done.

As I[7] have previously pointed out, with pyloric stenosis the alkalinity of the duodenal contents is retained at its maximum, and seems to protect the mucosa of the jejunum from the acid of the stomach at the stoma of the gastro-enterostomy. When the pylorus is open and unobstructed, however, the acid gastric juice passing through it lowers this alkalinity and takes away the protection of a highly alkaline content.[8] It is in such cases that every operator will find sooner or later considerable trouble after a gastro-enterostomy; either this is in the congestion and irritation of the mucosa of the jejunum at the stoma of the gastro-enterostomy, or else this precedes an actual jejunal ulcer. Jejunal ulcer is exceedingly rare except after gastro-enterostomy with an open pylorus, and the treatment for this ulcer is to uncouple the gastro-enterostomy and to do a pyloroplasty. Would it not seem much more logical in patients with an open pylorus to do a pyloroplasty with excision of the ulcer in the first instance?

Macleod[9] says:

> An important surgical application of these facts about gastric peristalsis concerns the behavior of food after gastro-enterostomy. It has been thought that this operation would cause the food to be drained from the stomach into the intestine and thus leave the region of the stomach between the fistula and the pylorus inactive. This assumption is based on the idea, which we have seen to be erroneous, that gravity assists in the emptying of the stomach. As a matter of fact, it has been found that, if the gastro-enterostomy is made when there is no obstruction at the pylorus, the chyme takes its

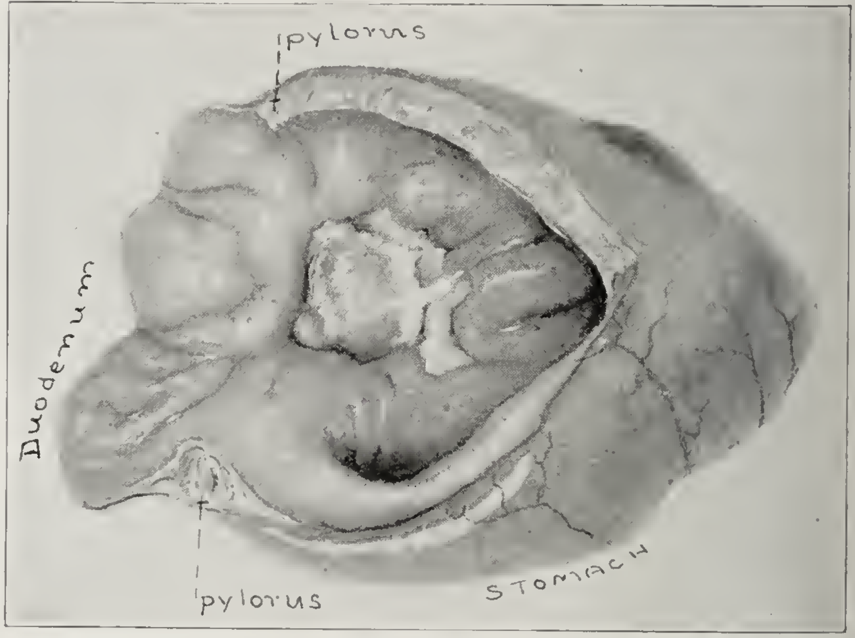

Fig. 4.—Drawing of a pylorectomy in Mr. G., aged 70, done after method shown in Figure 3. He gave a definite history of "stomach trouble" for forty years. The ulcer was cancerous, and there was a small lymph node with metastasis along the greater border. It seems probable that this was a cancerous change in a previously benign ulcer. The margins are corrugated and the ulcer appears rather superficial, compared with the benign ulcer in Figure 7.

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[6] Reynolds, L., and McClure, C. W.: Motor Phenomena Occurring in Normal Stomach in the Presence of Peptic Ulcer and Its Pain, as observed Fluoroscopically, Arch. Int. Med. **29**: 1 (Jan.) 1922.

[7] Horsley, J. S.: Clinics and Collected Papers of St. Elizabeth's Hospital, pp. 177-179; Some Underlying Principles of Gastric and Intestinal Surgery, Ann. Surg. **73**: 199-210 (Feb.) 1921.

[8] Horsley, J. S.: Operative Surgery, St. Louis, C. V. Mosby Company, 1921, pp. 564-565.

[9] Macleod: Physiology and Biochemistry, Ed. 4, pp. 494-495.

normal passage through the sphincter and, almost without exception, none leaves by the fistula. When the pylorus is partly occluded, the food sometimes passes in the usual way, and sometimes by the fistula. The cause for this predilection for the pyloric pathway depends on the pressure conditions in the gastric contents. Gastro-enterostomy, therefore, is efficient only when gross mechanical obstruction exists at the pylorus. The operation should never be performed in the absence of demonstrable organic pyloric disease. Another objection to gastro-enterostomy in the presence of a patulous pyloric sphincter rests on the fact that the food, after passing the sphincter and moving along the intestine, may again enter the stomach through the fistula.

Davis[10] says: "Gastrojejunal ulcers are secondary to gastro-enterostomies in approximately 8 per cent. of all such operations." The exact number of patients with jejunal ulcers following gastro-enterostomy with an open pylorus is difficult to ascertain. As has already been explained, when there is a stenosis of the pylorus and consequently high alkalinity of the duodenal contents, the jejunum is protected by this alkalinity from the acid of the gastric juice. So far as I am aware, there has been no effort to sort out the cases in which jejunal ulcer occurs after gastro-enterostomy with an open pylorus, from those after gastro-enterostomy with an actual or a potential stenosis. It is universally acknowledged that in pyloric stenosis a properly performed gastro-enterostomy gives satisfactory results and rarely, if ever, is followed by trouble. If, then, we assume that there are several cases of congestion and irritation of the mucosa of the jejunum for every ulcer—and it seems that this assumption is not violent—the percentage of unsatisfactory results that follow gastro-enterostomy with an open pylorus would mount high.

In view of all these facts, and particularly in the light of the work of Mann and Williamson already mentioned, it is evident that the practice of performing gastro-enterostomy with an open pylorus is very likely to be followed by unsatisfactory results. It is also obvious that all operations are undesirable which are designed in such a manner as to prevent the protection afforded by the alkaline contents of the duodenum to the jejunal mucosa apposed to the stomach. This includes the Roux gastro-enterostomy, in which the jejunum is divided and the oral end implanted lower down end-to-side on the jejunum, and the distal end is attached to the stomach. Here, of course, the end of the jejunum implanted on the stomach is unprotected by the alkalinity of the duodenal contents. Operations, such as have been proposed by Moynihan and others, in which the distal end of the divided jejunum is attached to the stump of the stomach after pyloric resection and the oral end implanted on the jejunum lower down, would seem also to be unphysiologic and in all probability will be followed by ulcers in the jejunum. Methods in which there is a loop of intestine in making a gastro-enterostomy and in which, to prevent a vicious circle, an anastomosis is made between the afferent and efferent limbs of the intestine, deprive the jejunal mucosa that is attached to the stomach of the protection afforded by the alkaline contents of the duodenum. In the Polya operation, in which a loop of jejunum is sutured to the stump of the stomach after resection of the pylorus, it seems better practice to appose the jejunum in such a manner that the proximal or oral end of the jejunal loop will be at the lesser curvature, and will have a free opening with the stomach at this point, the distal portion of the loop being at the greater curvature. Not only is the opening in the axis of the gastric peristalsis at the lesser curvature, but the alkaline duodenal contents are delivered at the top of the wound and in the direction of the peristaltic waves of the jejunum. For these reasons it is much more probable that in this position the duodenal contents will satisfactorily cover the exposed jejunal mucosa, than if the oral end of the jejunum were applied to the greater curvature.

When the ulcer is on the pyloric end of the stomach, and particularly if it is large, a pylorectomy should be done. This may be accomplished by the Billroth I method, in which the stomach is united to the stump of the duodenum, or by the Polya-Balfour operation. The Billroth I method has a certain limited field, when the structures can be united without tension after a portion of the pyloric end of the stomach sufficient to include all of the diseased area has been removed. Here, however, the union of the duodenum to the stomach should be in line with the lesser curvature, and not with the greater curvature. In this way we keep the axis of the peristalsis straight (Figs. 3, 4 and 5).

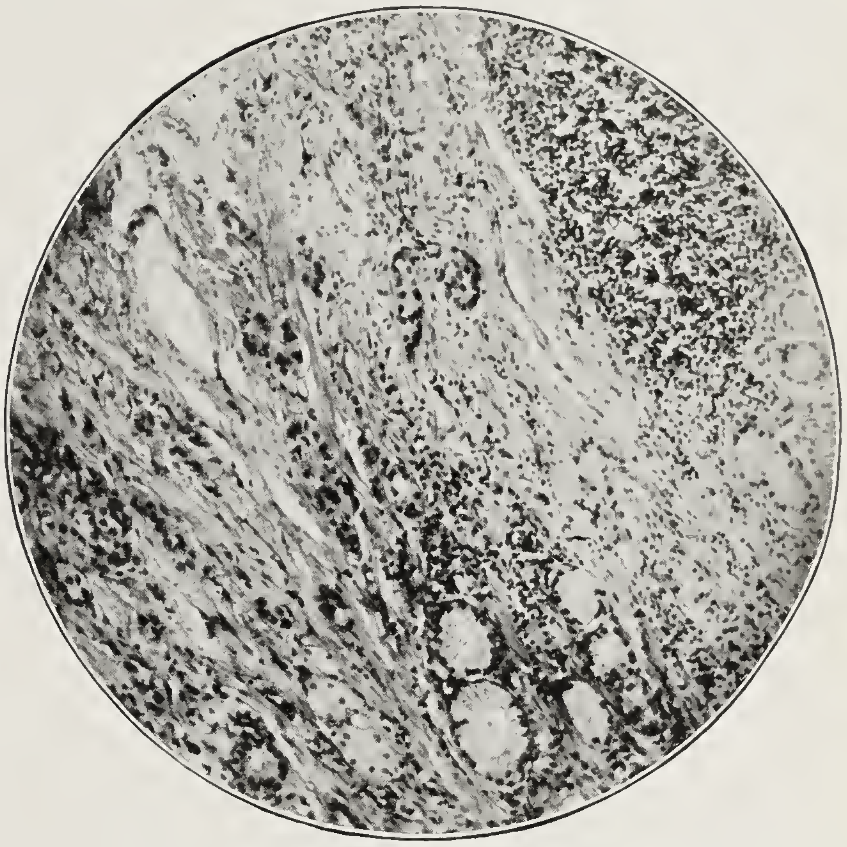

Fig. 5.—Tissue from the margin of the cancerous ulcer shown in Figure 4. In the lower right-hand portion, the pyloric glands appear normal. In the center and to the left there is definite histologic appearance of cancer. In the upper right hand portion is leukocytic infiltration. The cancer is apparently of slow growth. Slightly reduced from a photomicrograph enlarged 150 diameters.

In the Polya operation, the anterior method of Balfour is usually most acceptable. This operation seems to have displaced almost entirely the Billroth II operation for pylorectomy, in which a posterior gastro-enterostomy is made after resection of the pyloric portion of the stomach and closure of the stumps. The advantages of the Polya method are obvious. When an ulcer is in the body of the stomach, and is not very extensive, it can sometimes be removed by a local excision. Here no more tissue should be taken than is necessary, and the wound is sutured in three layers with tanned or chromic catgut. The mucosa is first united, then the muscular and peritoneal coats are approximated without attempting to invert them, a third row of sutures which inverts the second row is placed, and, finally, the gastrohepatic omentum is sewed over the wound for further safety. If the ulcer requires more than a small excision, a "sleeve" or midgastric resection should be done. This operation gives very gratifying results, and should be employed in all of the larger ulcers along the lesser curvature and on the posterior wall of the stomach (Figs. 6, 7, 8 and 9). An extensive V-shaped incision seems to interfere with the harmony of the peristalsis, as it interrupts peristalsis along the lesser curvature but not along the greater curvature. In certain instances, as when the ulcer is inaccessible, the cautery method of Balfour is an excellent procedure. After a V-shaped or local excision of an ulcer, a pyloroplasty should be done in order to lessen the physiologic resistance of the outer end of the stomach and so give comparative rest by removing the necessity for strong peristaltic waves to overcome the pyloric sphincter and canal. This is the same principle as divulsion or division of the sphincter ani in operations on the rectum. A pyloroplasty seems unnecessary after a "sleeve" resection, for all peristaltic waves have been reduced, from the nature of the operation.

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[10] Davis, D. L.: Gastro-Jejunal Ulcers, Internat. Abst. Surg. (Sept.) 1921, pp. 177-180.

If a duodenal ulcer is more than an inch from the pylorus and is not extensive or adherent, it may be excised by a diamond-shaped incision, and the wound sutured transversely, as practiced by E. S. Judd.

Four years ago I[11] described a pyloroplasty that was based on an effort to remove the pathologic conditions and to restore the physiologic function of the stomach as nearly as possible (Figs. 10 and 11).

The indication for this pyloroplasty seems definite. In small or medium sized ulcers of the pylorus or first inch of the duodenum, when there is no marked inflammatory exudate or no adhesions except to the gallbladder, after local excision of an ulcer in the body of the stomach, and in a narrow pyloric stenosis, this pyloroplasty gives excellent results. If the gallbladder alone is involved in the adhesions, it should be removed at the time of the pyloroplasty and no drainage used.

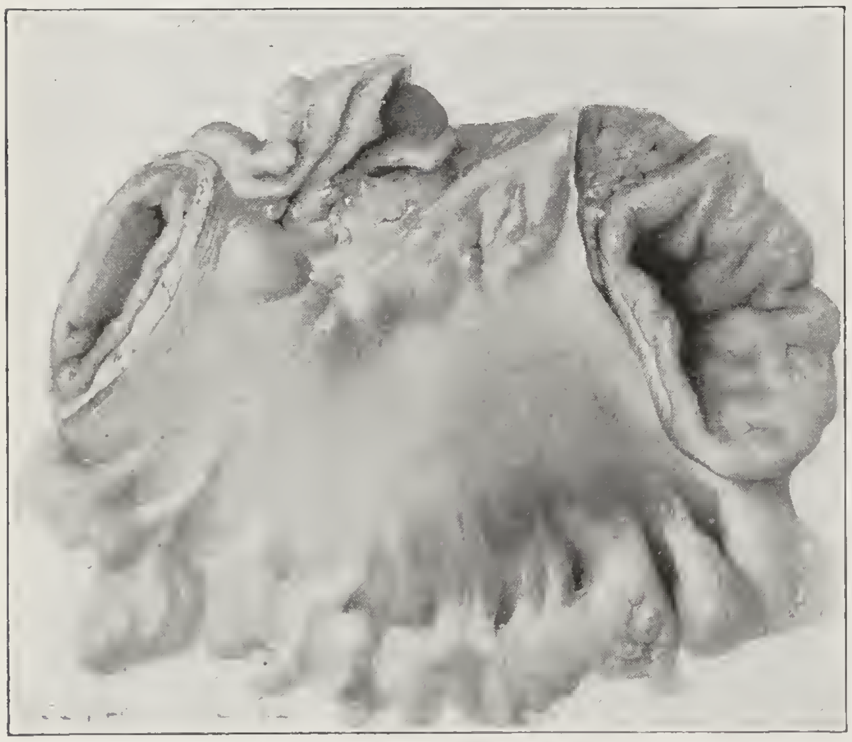

Fig. 6.—Specimen from "sleeve" resection of the stomach of Mr. M., aged 48. The roentgen-ray examination showed a defect in the body of the stomach which was thought to be ulcer, but cancer could not be excluded.

Adhesions are the bane of pyloroplasty, and if extensive and beyond the gallbladder, a pyloroplasty should not be done.

When there is a large infiltrating ulcer in the duodenum or in the presence of extensive adhesions, a gastro-enterostomy gives good results. When the gastro-enterostomy is done, a stout kangaroo tendon is placed as a ligature around the pyloric end of the stomach and tied just tight enough to produce occlusion. The pylorus is probably not permanently occluded by this procedure, but it gives at least temporary physiologic rest to the upper duodenum, and should promote healing of the ulcer.

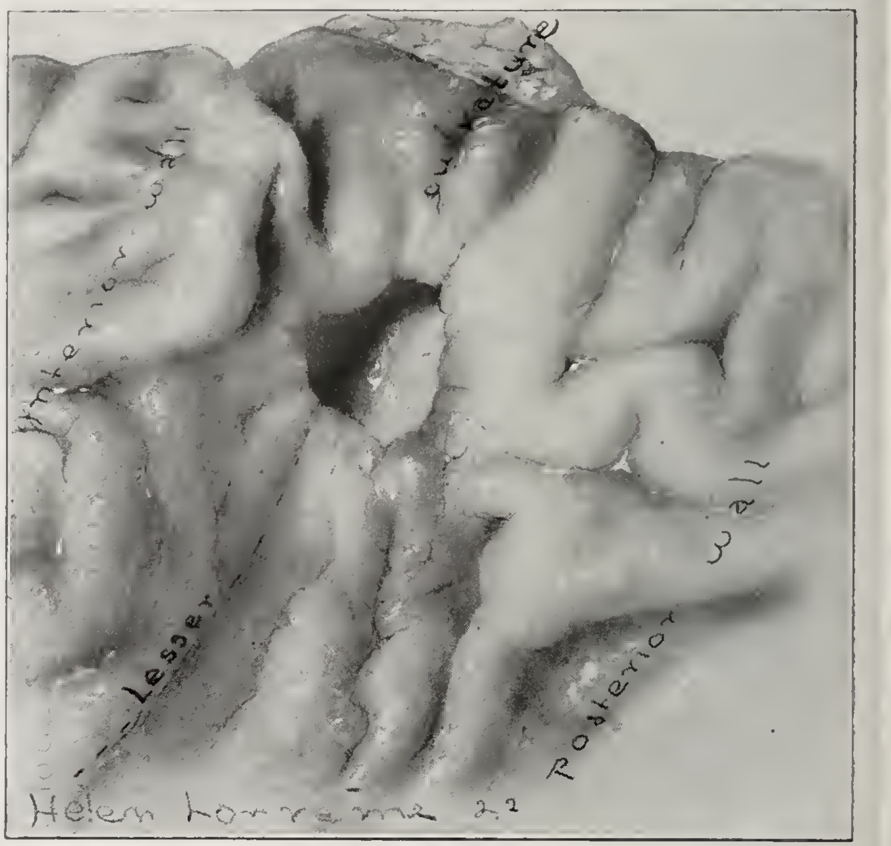

Fig. 7.—Internal view of the specimen shown in Figure 6. The ulcer was along the lesser curvature, chiefly in the posterior gastric wall. It is "punched out" in appearance, and measures 1¼ inches in diameter. It is usually supposed that an ulcer of the stomach an inch or more in diameter is malignant. This was benign.

In the first description of this pyloroplasty,[11] eleven cases were reported, with two deaths following operation. The twelfth operation resulted fatally from uremia. None of these deaths can be justly attributed to the technic of the pyloroplasty, for after all three fatalities necropsies were done, but to faulty surgical judgment in operating on a nephritic patient who died of uremia, and to improper technic in excising a gastric ulcer in the body of the stomach in one case, and in cutting a stenosis too deeply in the other. These deaths have been discussed fully elsewhere.[12] I do not believe they would occur now.

To the present time I have done fifty-six of these pyloroplasties, and there have been no further operative deaths. The first pyloroplasty in this series was done, April 31, 1918, and the last, April 17, 1923. The list includes all that I have done. Patients that are complaint free for three or four months after operation usually continue without gastric symptoms, whereas many patients that have gastric symptoms during the first few months after pyloroplasty later become complaint free. In gastro-enterostomy with an open pylorus, this course is often reversed. In the last forty-four cases, the patients have made a satisfactory operative recovery. The accompanying table shows the end-results.

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[11] Horsley, J. S.: New Operation for Duodenal and Gastric Ulcer, J. A. M. A. **73**: 575 (Aug. 23) 1919.

[12] Horsley, J. S.: Clinics and Collected Papers of St. Elizabeth's Hospital **1**: 171-174, 187, 1922.

Those patients who have no indigestion and no symptoms referable to the stomach under the regular ordinary habits of life are classified as "complaint free." There are thirty-two complaint free patients. Patients who are better, but still have some gastric symptoms, are classified as "improved." The "unimproved" have not been benefited by operation. Two patients could not be traced to the present, though both of these were complaint free when last heard from.

Results of Pyloroplasty

56	Dead 3	(Following operation		
	Living 53	Not traced 2		
		Complaint free 32	Pyloroplasty for:	
			Uncomplicated duodenal (9) or gastric (1) ulcer	10
			Uncomplicated pyloric stenosis.	2
			Duodenal (3) or gastric (2) ulcer, with separation of gallbladder adhesions	5
			Duodenal ulcer, with cholecystectomy	11
			Pyloric stenosis, with cholecystectomy	1
			Duodenal ulcer; cholecystectomy at subsequent operation	1
			Congenital band, with cholecystectomy	1
			Acquired pyloric hypertrophy in adult	1
		Improved 14	Pyloroplasty for:	
			Uncomplicated duodenal ulcer.	2
			Duodenal ulcer with separation of gallbladder adhesions	2
			Duodenal ulcer, with cholecystectomy	6
			Duodenal ulcer; cholecystectomy at subsequent operation	1
			Duodenal ulcer, with aortitis	1
			Jejunal ulcer following gastro-enterostomy	2
		Unimproved (now complaint free) 5	Subsequent gastro-enterostomy.	4
			Subsequent pylorectomy	1

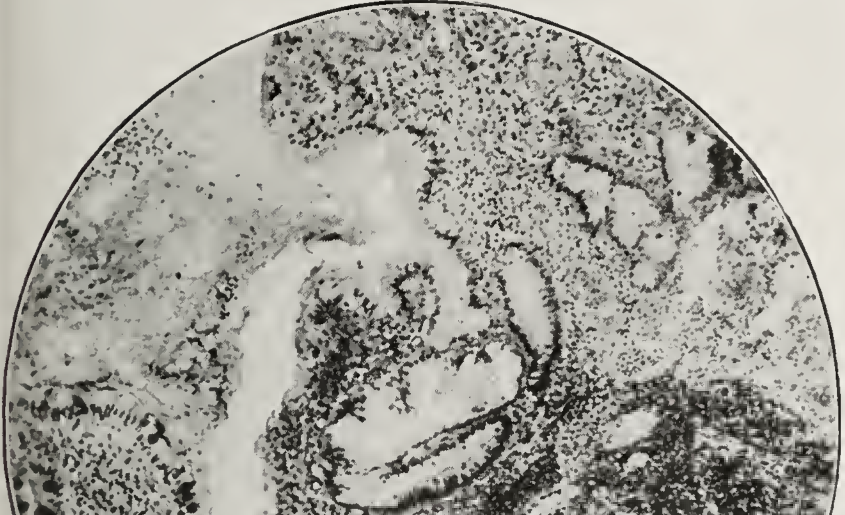
Fig. 8.—Appearance of margin of ulcer shown in Figure 7: leukocytic infiltration; regularity of epithelial cells; slightly reduced from a photomicrograph enlarged 100 diameters.

Of the thirty-two complaint free patients, ten had a simple peptic ulcer with no adhesions to the gallbladder or elsewhere, and in two there was uncomplicated cicatricial stenosis. In nineteen there were adhesions to the gallbladder. The gallbladder was removed in thirteen patients at the time the pyloroplasty was done; in five, the adhesions to the gallbladder or liver were merely separated; in one case of cholecystitis and no adhesions, cholecystectomy was done at a subsequent operation. In one case there was cicatricial stenosis and an adherent gallbladder; in one, an obstruction by a congenital band; and in one, hypertrophic muscular stenosis in an adult.

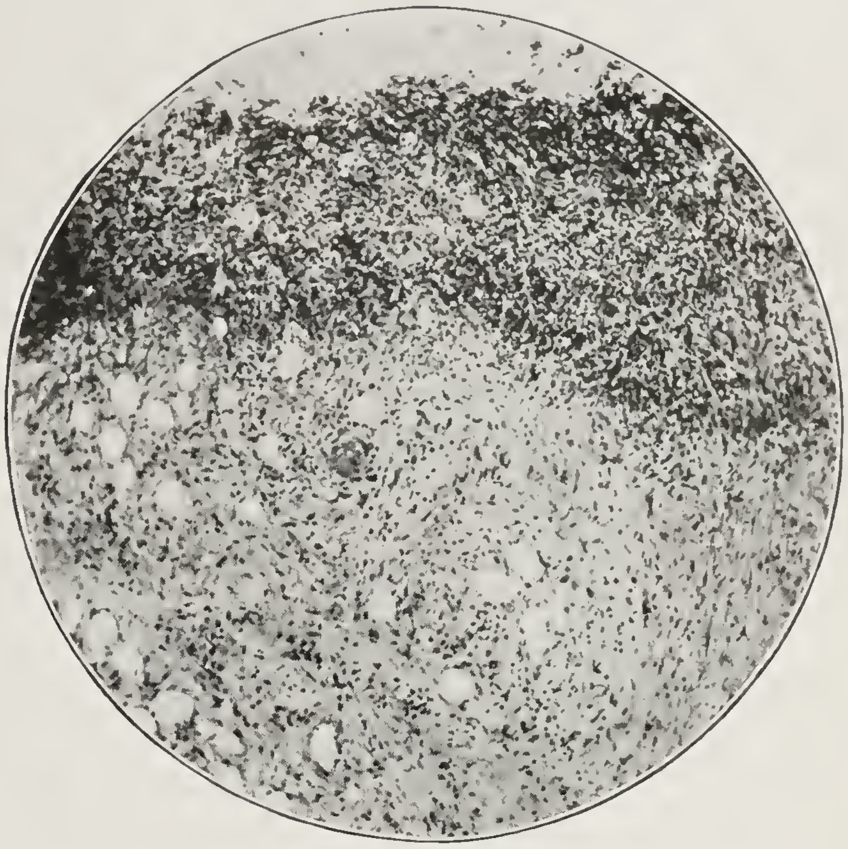
Fig. 9.—Tissue from bottom of ulcer shown in Figure 7. Connective tissue is well organized, with the top layer of leukocytic infiltration. There is no evidence of malignancy.

There were fourteen improved patients. Of these, one is but slightly improved, while five are greatly improved, being almost complaint free; the others are much benefited. In only two of these "improved" patients was there a simple ulcer uncomplicated by adhesions, and one of these is almost complaint free. The other patient is rather fat, with varicose veins, and had a pulmonary infarct during convalescence from her operation. She is very slightly benefited.

In nine of the fourteen improved patients there were adhesions around the gallbladder. The adhesions were merely separated in two. These were early in the series, for now when the gallbladder is adherent it is removed. In six improved patients, cholecystectomy was done at the time of the pyloroplasty, and, in one, stones were removed from the common duct; in one case, cholecystectomy was done at a subsequent operation.

There were five unimproved patients. In one, a young man who had been gassed in France, there were recurrent hemorrhages from the pyloric mucosa till a Polya-Balfour pylorectomy was done. He is now complaint free. In four there were adhesions about the gallbladder at the time the pyloroplasty was done, but the gallbladder was not removed then. They were early in the series. In two of these four patients a cholecystectomy was subsequently done with only temporary relief, and finally the pyloric end of the stomach was ligated with a stout kangaroo tendon, and a gastro-enterostomy was done (Figs. 12 and 13). They are now complaint free. In the other two patients the adhesions recurred to some extent, but there was also a recurrent ulcer. They were operated on again, the gallbladder being removed and gastro-enterostomy done in both. In one, the recurrent ulcer near the scar of the pyloroplasty was excised, and the duodenal and gastric walls were folded in (Fig. 14). In the other case, with recurrent ulcer in the upper border of the duodenum a half inch from the pylorus, the pyloric end of the stomach was ligated (Fig. 15). Both patients are now complaint free. The roentgenograms and fluoroscopic studies in these four cases were made by Dr. Fred M. Hodges.

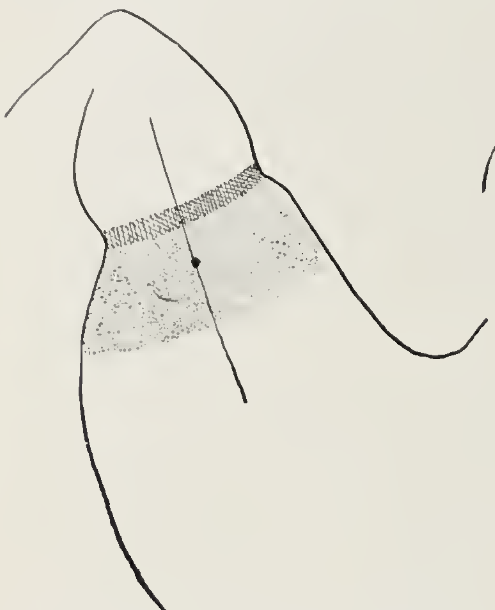

Fig. 10.—Diagram of the stomach, showing the pyloric sphincter, which is cross-hatched, and the pyloric canal, stippled. The pyloric canal is normally about an inch and a quarter (3 cm.) long. The incision for this pyloroplasty should extend no farther than an inch into the duodenum, and into the stomach at least twice the length of the incision in the duodenum. The center of the incision is shown as a black dot. Such an incision will insure division of the most muscular part of the pyloric end of the stomach, and provides that both angles of the wound, when sutured, will be in the wall of the stomach.

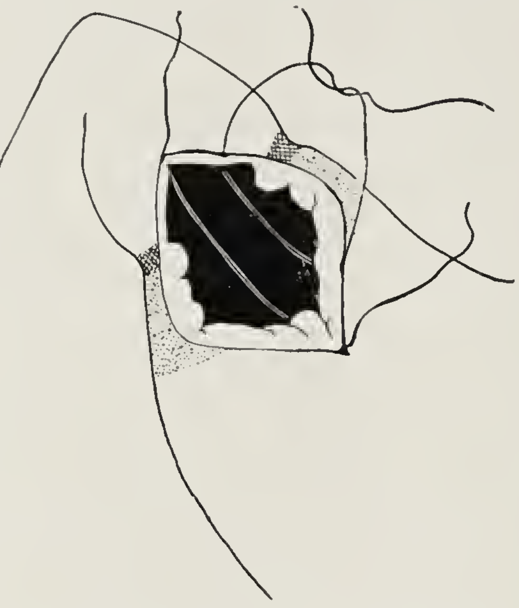

Fig. 11.—The incision indicated in Figure 10 has been made. The diagram shows the insertion of two tractor sutures, the first from the extremity of the incision in the stomach to the extremity of the incision in the duodenum, and the second about one-half inch above this. When tied, they approximate these two ends of the incision and make the suturing in three layers comparatively easy.

Recurrent duodenal or pyloric ulcers after pyloroplasty are quite different from jejunal ulcers after gastro-enterostomy. The two recurrent ulcers in the cases just reported were in a region where primary peptic ulcers usually occur and the adherent gallbladder —a potential source of reinfection—had not been removed when the pyloroplasty was done. A jejunal ulcer, however, is almost unknown except as a result of a gastro-enterostomy.

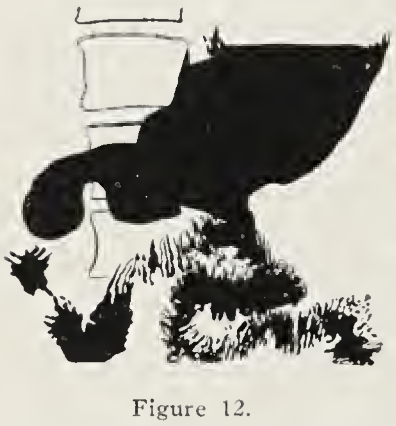

Figure 12.

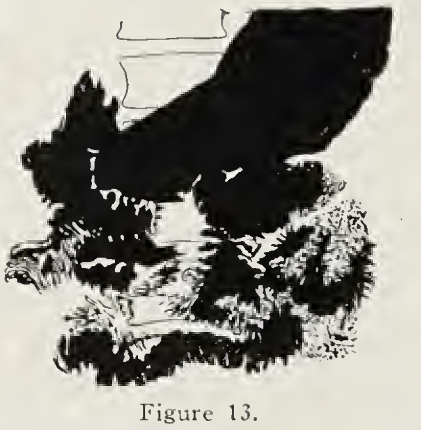

Figure 13.

Fig. 12.—Tracing from roentgenogram of stomach of Mr. W. J. B., taken twenty-five days after gastro-enterostomy. In this case, there was no permanent improvement after pyloroplasty, because of persistently recurring adhesions. The pyloric end of the stomach was occluded with a kangaroo tendon, and a gastro-enterostomy was done. The fluoroscope shows some passage of food through the pylorus. The patient is now complaint free.

Fig. 13.—Tracing from roentgenogram of stomach of Mr. L. W. P., taken nineteen months after gastro-enterostomy, which was performed because of lack of improvement of clinical symptoms after pyloroplasty. The pylorus was occluded with a stout kangaroo tendon. About half of the food now goes through the pylorus. The patient is now complaint free.

With two exceptions, all of the pyloroplasties were done for ulcer, or the effect of ulcer. In one of these two patients a congenital band had pulled up and narrowed the pylorus; in the other, a man, aged 45, there was narrowing of the pylorus by marked muscular hypertrophy of the pyloric canal. Both of these patients are now complaint free.

The essentials for successful end-results after pyloroplasty are the elimination of active or latent foci of infection (particularly an adherent gallbladder), the selection of proper cases for this operation, and reasonable care in the postoperative medical and surgical treatment.

617 West Grace Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. COFFEY, GATEWOOD, NAGEL AND HORSLEY

Dr. Frederick A. Speik, Los Angeles: Dr. Coffey attempts to define pain in the right iliac fossa as being due to a mobile cecum, or one bound down by adhesions. I do not think he throws much light on the uncured appendicitis cases referred to in his quotation of Dr. Lichty's paper, in which it was stated that 60 per cent. of 1,300 cases were uncured. Because Dr. Coffey shows several cases it does not prove the case. The case should be proved before operation. These uncured cases are the result of an incorrect diagnosis. My plea is for accurate work. Sound investigative work is necessary to establish the cause of pain in the right iliac fossa and therefore will bring about fewer operations for appendicitis. Dr. Coffey's paper simply opens the door for more surgery in that part of the body.

Dr. C. H. Magee, Burlington, Iowa: This question of internal hernia has interested me. I fear that in the description of those fossae in the abdomen there have been too many refinements, and consequently it befogs the situation to a great extent. There are only three: one is where the duodenum comes forward from behind the peritoneum; the second under the sigmoid, and the third under the cecum.

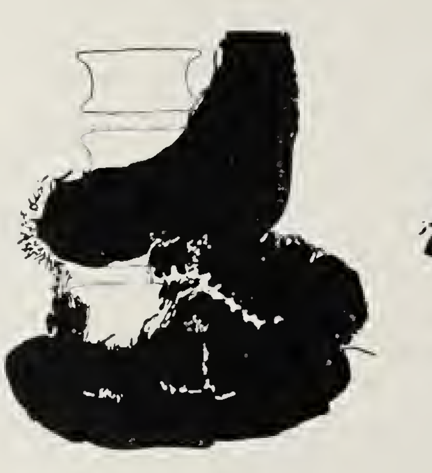

Figure 14.

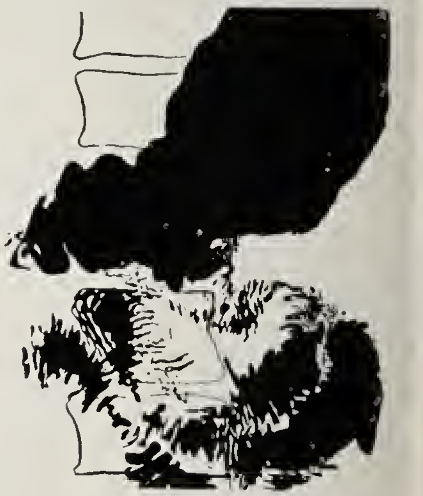

Figure 15.

Fig. 14.—Tracing from a roentgenogram of the stomach of Mr. G. B. S. This patient was not relieved by pyloroplasty. There was a recurrent ulcer near the wound from the pyloroplasty. This was excised and the tissues were infolded and sutured, and a gastro-enterostomy was done. This roentgenogram was taken nine months after the gastro-enterostomy. Practically no food passes through the pylorus. The patient is now complaint free.

Fig. 15.—Tracing from a roentgenogram of the stomach of Mr. J. C., taken ten months after gastro-enterostomy. He was not relieved by pyloroplasty. There was a recurrent ulcer in the upper duodenal border about one-half inch from the pylorus. Fluoroscopic examination shows very little food going through the pylorus, a large majority of it leaving through the gastro-enterostomy. The patient is now complaint free. Of these three cases in which kangaroo tendon was used, the occlusion in this case seems to be almost complete after ten months. In the presence of recurrent ulcer or marked adhesions, simple ligation of the pylorus appears to make a more effective occlusion than is obtained experimentally in the normal stomach of an animal.

We call one the duodenojejunal fossa, the other the intrasigmoid fossa, and the third the subcecal fossa. The intrasigmoid fossa is very shallow, except in children, so we can rule that out. The fossa under the cecum may be under the cecum itself or it may be at the point where the cecum and ileum join. The fossa duodenojejunalis is about an inch deep. Sometimes I have seen it 2½ inches deep. Usually it will take about one finger, but I have seen it when I could introduce two fingers. Dr. Nagel spoke of one form of hernia being behind or in juxtaposition to the vein. I cannot see how that is possible. Really, the vessel interfered with is the artery. If we use a knife to reduce such a hernia we are apt to cut the superior mesenteric artery, and that will lead to the death of the entire small intestine.

Dr. B. B. Davis, Omaha: A few years ago, many of us were congratulating ourselves that we were reaching some definite conclusion in regard to the method of dealing with gastric and duodenal ulcer; but since then there has been a good deal of a revolution in our views. At present, gastro-enterostomy is under suspicion. I do not believe that we are accomplishing what we formerly thought we were. I see a great many patients, not only those operated on by myself but by others, that come back without having the symptoms relieved; often they are worse than they were before operation. When we are operating in cases of that kind we should open the abdomen, without deciding on a particular operation before seeing the conditions that exist. In some cases a gastro-enterostomy is the only thing to do. In others, the physiology points to some form of pyloroplasty rather than gastro-enterostomy. I have done the Horsley operation many times, and I have found that in most of these cases I have been able to excise the ulcer. I feel that excision of the ulcer is going to be the final word. My opinion is that gastro-enterostomy relieves in that class of case in which the ulcer might have been cured by medical treatment. In cases of deep indurated ulcers excision is about the only thing to do. In cases in which the induration was so great that it was a question as to whether it was an indurated ulcer or a beginning malignancy, I did a pylorectomy. I find I am doing more pylorectomies right along, especially in cases in which there is a peculiar browning of the ulcer in the region of the pylorus. It seems to me that the results have been more satisfactory than by any form of pyloroplasty or gastro-enterostomy. To be sure, the mortality is a little higher, but the results have been more satisfactory. We should not forget the gallbladder in these cases. I think it was Moynihan who said years ago that in many of these cases there was cholecystitis. I never call an operation complete until I investigate the condition of the gallbladder.

Dr. J. Earl Else, Portland, Ore.: For some years, patients coming into the office complaining of pain in the lower right quadrant of the abdomen have been passed through the following routine: general physical examination; a roentgenologic examination, including a fluoroscopic examination made at the end of twenty-four hours, as well as at the end of six hours; a study of the gastric contents; examination of the urine and stool, and after operation a study of the appendix. In the study of the records of patients who have been completely relieved by the operation, I find that almost all show one or more of three findings: (1) a definite history of one or more attacks of acute appendicitis; (2) definite tenderness, as shown by the fluoroscopic examination over the cecum at the place of attachment of the appendix, and (3) an appendix that does not empty until after the cecum has emptied. I have had patients who had definite pathologic changes in the appendix, and yet they were not relieved by its removal. Unless the appendix shows gross changes, the probabilities are that even if there are microscopic changes the appendix was not causing the trouble. Pain may be referred from lesions outside the lower quadrant of the abdomen to this part. Recently a patient was referred by an internist with the diagnosis of chronic appendicitis. The roentgen-ray examination showed definite tenderness over the appendix, and pathologic examination of the appendix after its removal showed the evidence of chronic appendicitis. The woman left the hospital apparently cured, but returned three months later with a history of the same pain. At this time she said she was passing a little blood with the stool. Examination of the rectum through a speculum disclosed a small ulcer on the posterior surface about 1 inch above the sphincter. This was painted with 10 per cent. silver nitrate, three or four times, with satisfactory results. The woman has been free from pain since that time.

Dr. M. G. Wohl, Omaha: These papers impress on us forcibly that the solution of the surgical approach to the gallbladder, like many other baffling surgical problems, will be found in physiology rather than in morbid anatomy. Luciani, Rost, Judd, Mann and others have contributed to our knowledge of the physiology of the gallbladder, yet we have to admit that the exact function of the latter is still a mooted question. The nausea, gaseous distention and epigastric distress so commonly present in gallbladder disease have been conventionally accounted for on a reflex basis. It would seem to me, however, that these symptoms, in great measure, might be due to the altered gastric secretion, especially hypochlorhydria and achlorhydria, as pointed out by Dr. Gatewood, and the accompanying diminished function of liver and pancreas. From the work of Delinski we know that prosecretin in the mucous membrane of the duodenum, when acted on by the hydrochloric acid of the stomach, is changed into secretin. The latter, entering the blood stream, stimulates the liver and the pancreas. In cases of gallbladder disease, accompanied by absence or diminished amount of free hydrochloric acid, the gastric symptoms might reasonably be explained on this basis. The amount of hydrochloric acid necessary to convert prosecretin into secretin is a problem for the physiologist to determine. In my first series of cases of gallbladder disease, reported in 1917, 55 per cent. of cases have shown either a diminution or a total absence of free hydrochloric acid; in 7 per cent. there was a hyperchlorhydria; in 38 per cent. the free hydrochloric acid was normal. Holweg's figures are as high as 84 per cent. of cases of functionless gallbladders that have shown a deficiency of hydrochloric acid. The pathologic changes of the gallbladder in my cases that have shown a decrease or absence of free hydrochloric acid consisted in an erosion of the epithelium of the villi of the mucosa, with a distortion and destruction of the mucous glands, and with a round cell infiltration within the walls of the gallbladder. I admit that my series of cases is too small to form the basis of a definite opinion, yet I feel that the findings of Dr. Gatewood and others, as well as my own, are significant. It is true that the gastric findings are not going to solve the question of early diagnosis of gallbladder disease, yet I feel that in a case presenting symptoms in the upper right quadrant of the abdomen, a diminution or total absence of free hydrochloric acid will not exclude the gallbladder as the cause of the symptoms, but rather will strengthen the clinical diagnosis.

Dr. Robert E. Farr, Minneapolis: I have been making some observations on the abdominal viscera of conscious patients. In locating the cause of pain outside the great cavities of the body, we use palpation, traction, and so on, producing effects which we have learned to interpret. Inside the abdomen, however, we have been compelled to do a great deal of guessing because conditions apparently similar produce symptoms which are not alike. Coffey, Lane, Johnson and Wilms do not agree regarding the interpretation of the physical conditions found within the abdomen. I believe that in the future this subject will be elucidated to some extent by the use of what I term the "physiologic test." One may, by the aid of the patient's cooperation and a good psychanesthetist, be able to interpret the conditions found by means of this test. The gallbladder, appendix or cecum, the ovary or the uterus, may be placed under suspicion if by pressure or traction on any one of these the patient's symptoms are reproduced. In more than a hundred observations in which the diagnosis was in doubt, we have received evidence that we consider trustworthy by the use of this method. I believe that at this time, when group medicine is being extensively used, we should not forget that in order to open a patient's abdomen and conscientiously give to him what he should have, we should be acquainted with the psychic condition of the patient and know something about his mentality. It is not sufficient to read the history that some one else has taken or to operate on a patient for whom some one else has made the diagnosis. In some instances, knowledge of the mental make-up of the patient will clear up the diagnosis without difficulty. As Hertzler says, one should recognize certain of these individuals without difficulty. He describes such a patient as "one who has a drooping mustache, works for $40 a month, and does not play baseball on Sunday."

Dr. Gunther W. Nagel, Rochester, Minn.: I agree with Dr. Magee that simplicity is to be greatly desired in surgery, as in all branches of the medical sciences. The statement, however, that there is only one duodenal fossa and that all duodenal hernias have the same anatomic relationships is overlooking facts for the sake of false simplicity. Moynihan describes nine duodenojejunal fossae. Quain, Spalteholz, Cunningham, Piersol and other anatomists also describe various fossae about the duodenojejunal flexure. Bearing in mind their mode of origin during intestinal rotation, and the process of physiologic adhesions previously described, their possible number and variations can readily be understood. That hernias taking place into different fossae will have different anatomic relationships appears obvious.

Dr. R. C. Coffey, Portland, Ore.: Dr. Speik has mentioned my reference to the fact that Dr. Lichty has said that less than 60 per cent. of 1,300 patients were cured, and suggested that I must have received my inspiration from Dr. Lichty's paper. I have always considered Dr. Lichty a splendid internist. However, I talked on this subject in Pittsburgh as far back as 1913. In the days of heated discussions on the ulcer question, Dr. W. J. Mayo used to say jocularly that he never operated for ulcer until it had had at least seven medical cures. In a similar vein, he also said that before he had done any abdominal surgery, he knew everything in or about the abdomen. He could diagnose any disease in the abdomen with absolute accuracy; but, when confronted with skin diseases, he knew absolutely nothing about them. He could not tell one from another. You will notice that the man who gets the largest percentage of medical cures of ulcer is the man who relies least on the roentgen ray and least frequently sees the inside of the abdomen. The patients I have discussed have had all that Dr. Speik referred to in the question of diagnosis. He has no monopoly on diagnosis, nor has Los Angeles a monopoly on internists. We have them up in Portland, as Dr. Else has said, and most of these patients have gone through the hands of an internist before they reach the surgeon. We operate on and cure those patients whom the medical man has not cured.

Dr. J. Shelton Horsley, Richmond, Va.: I feel exactly as Dr. Davis does—that we must always fit the operation to the ulcer, not the ulcer to the operation. This, of course, means that the ulcer must be excised whenever it is possible to do so; but if excision or cauterization is impossible without great danger, as in a large infiltrating ulcer of the first part of the duodenum, the next best thing to do is to give the tissues complete rest by ligating the pyloric end of the stomach with stout kangaroo tendon, and doing a gastro-enterostomy. This usually permits the ulcer to heal, which is the next best thing to excision. When such an ulcer is in the pyloric end of the stomach, instead of the first part of the duodenum, usually a pylorectomy should be done.

Dr. Gatewood, Chicago: There were two objections that might have been raised to my paper. One was that I used the Ewald test meal rather than the fractional method. Dr. Judd's statistics are based on the latter method. He found in 302 cholelithiasis cases 14.56 per cent. anacid and 32.45 per cent. hypo-acid, making virtually an identical total. Another was that anemia might be the cause of the lowered acidity. Last night, I looked up my statistics on this point and found that anemia evidently played no part. In connection with Dr. Horsley's paper, Dangschaat has suggested that cholecystectomy be done in gastric ulcer patients when resection was impracticable. From my statistics, it is evident that as a means of lowering acidity, removal of the gallbladder would be of little or no value.

A NOTE ON THE PURIFICATION AND ADMINISTRATION OF INSULIN *

N. F. FISHER, A.B., M.S.
CHICAGO

In view of the work recently reported by Mills on absorption of insulin from the intestine, and the work by Best and Scott on the recovery of insulin from urine, it was thought best to report a summary of the results obtained with insulin in a similar type of experiments during the past year. The details of the work will be left for a later communication.

The Doisy-Somgyri-Shafer method of preparing insulin was modified and used with great success. One of the modifications was to precipitate with one volume of 95 per cent. alcohol, whereas the workers mentioned used nine volumes to precipitate the final product. This precipitate, thrown down by one volume of 95 per cent. alcohol, raised the blood sugar of animals when injected subcutaneously. When a small amount was given intraperitoneally to rats or guinea-pigs, death invariably resulted within fifteen minutes. The injection of this substance subcutaneously into diabetic dogs produced abscesses at the sites of injection within two days.

To the filtrate, eight volumes of 95 per cent. alcohol were added, precipitating the active fraction (insulin). A more potent insulin was thus obtained by the removal of the antagonistic substance. By this method, using calf pancreas, one rabbit unit of insulin could be obtained from 1 gm. of pancreas, or 1,000 rabbit units per kilogram of fresh pancreas. The injection of this insulin subcutaneously never produced any local reactions at the sites of injection. Six totally depancreatized dogs were treated, one having already received two injections daily for 210 days. All injections were made in one place within an area of 3 inches in diameter.

The administration of insulin by Thiry fistula was tried on totally depancreatized dogs. There was a prompt lowering of blood sugar to 0.100 or lower, and this level could be maintained if insulin was administered continuously. From two to four hours after the administration of the last insulin, the blood sugar returned to the original level. Similar results were obtained when insulin was introduced into the vagina. Insulin injected into the scrotal sacs of rabbits produces a more prompt fall of blood sugar and acts longer than when given subcutaneously. A greater effect is thus produced per unit of insulin when given by the scrotal route. A normal dog, starved for twenty-four hours, was given 700 units of insulin by stomach tube. There was a slight rise of blood sugar similar to the results obtained by Mills when he gave insulin by mouth.

An attempt was made to learn whether the insulin was excreted in the urine in these cases. When given by Thiry fistula, one half could be recovered from the urine. The amount recovered was determined by the effects produced on the blood sugar of normal rabbits. When insulin was injected subcutaneously into human diabetic patients and diabetic dogs, about one third could be recovered from the urine. Half of the insulin was recovered from the urine of the dog from which 700 units was given by mouth. It might be mentioned

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* From the Hull Physiological Laboratory of the University of Chicago.

that this dog did not micturate until twenty-four hours after the administration, during which time much of the insulin might have been destroyed. When insulin is injected intravenously into dogs under barbital, the insulin produces its usual effect on the blood sugar, and is rapidly excreted by the kidneys, so that the entire amount of insulin injected can be recovered from the urine. That is, the insulin recovered from the urine will produce the same effect on rabbits that it would have produced before it was injected into the dog.

THE AFTER-CARE OF POLIOMYELITIS IN VERMONT

ROBERT W. LOVETT, M.D.
BOSTON

The history of the after-care of poliomyelitis in Vermont is of interest as it was the first state-wide work in this field undertaken anywhere in the country, and is today the most fully developed scheme for the after-care of the disease on a state-wide scale which exists. There has been no attempt to make the present account a technical one. It is rather the object of this report to show how the plan of after-care now in operation in Vermont developed, what difficulties were encountered, and how they were met.

In the years 1910, 1911, 1912 and 1913, cases of poliomyelitis were reported in Vermont, but in 1914 there occurred an epidemic of great severity, with a very high incidence across the northern half of the state, and from this epidemic 306 cases were reported. Undoubtedly, not all of the cases were reported; but of those that were, the mortality rate was 23.5 per cent., so that at the close of this epidemic 226 victims were left with varying degrees of paralysis. This was the condition that faced the state board of health, and it was obvious that, unless something was done in the way of treatment, the amount of resulting disability and disabling deformity would be very great.

Vermont is essentially an agricultural community with comparatively few inhabitants; large cities are few, and the specialties of medicine are not highly developed except in one or two medical centers. The state consists of 9,565 square miles of mountainous country, and many of the less traveled roads are difficult to negotiate even in the best of weather. Indeed, in the winter, deep snows and bitter weather make automobiling impossible, and the difficulties of traveling by rail almost prohibit that as a method of getting about.

Knowing the situation, an anonymous friend of the state placed at the disposal of the state board of health a generous sum to be used in the study of the prevention and care of poliomyelitis. It was decided that first an attempt should be made to care for as many of the affected patients as possible, and in December, 1914, I was asked by the state board of health to go to Vermont and undertake the work.

Poliomyelitis is a condition which is attended by high mortality in the acute disease. When the acute stage is over, spontaneous improvement immediately begins and continues for a time, after which disabling deformities are likely to set in. As is well known, in a certain number of instances these deformities cause such disability that the patient becomes a dependent, or in any event, fails to obtain the degree of recovery which would seem possible under favorable conditions of treatment.

On making a survey of the situation it was found to be impossible at this or, in fact, at any other time to see the patients individually in their homes, and it was decided to hold clinics at certain centers in the infected regions to which patients might be brought for examination and direction as to treatment. After consideration, the best solution seemed to be to examine the cases in consultation with the family physician, who was invited to come to the clinic, and to advise with him as to the measures to be followed, as well as to instruct the family in carrying out such exercises and manipulations as seemed advisable.

The first series of free, public clinics for poliomyelitis in this country were conducted in this way in December, 1914, and January, 1915, in the state of Vermont. I was aided in this work by my assistant in private practice, Miss Wilhelmine G. Wright. The most important centers were visited—Burlington, Montpelier, Barton, Rutland and St. Albans—five in all. At this time 212 cases were examined, and physicians and parents were advised as to the care and treatment to be given each patient. There was no provision made for follow-up work after the patient was seen at the clinic, a matter which later proved to be a serious defect in the work, but at the outset the whole proposition was so very uncertain that it seemed best to progress slowly and see what measures were possible.

During the summer—in July, 1915—clinics were again held in the same places, and had the advantage of the presence of Dr. E. G. Martin, at that time assistant professor of physiology in the medical school of Harvard University, now professor of physiology in Leland Stanford University. Dr. Martin was interested with me in evolving a quantitative method of estimating muscle strength, which we used at this time, and which has been extensively used since. Up to this time the strength of the muscles was estimated by hand, and the condition was much as if one were studying typhoid without the advantage of a thermometer. The method proved to be practical, and much of the information derived from the study of the Vermont cases was due to the more accurate method afforded by the so-called spring balance test.

At these July clinics, 122 examinations were made. The patients who had followed the treatment prescribed at the previous clinic showed marked improvement; but it was realized that even better results could be obtained if the advice to parents could be supplemented by the supervision of a trained field worker who could visit the homes and follow up the treatment prescribed. Such a worker was therefore secured and spent two months in Vermont during the summer of 1915, after the clinics, making her headquarters in Burlington. The difficulty of getting about the country because of the rather inadequate train service restricted her work to the care of those patients living in or near the larger centers; but, acting in cooperation with the family physician, the field worker personally supervised the muscle training of the patients with whom she was able to get in touch, and taught some member of each family to give the exercises, massage and other treatment in her absence. At the end of her stay in Vermont, the muscle test given to each patient by Dr. Martin demonstrated beyond question the value of the work and supervision. The tests showed that the improvement in each case was in exact ratio to the amount of training and supervision given.

By the close of 1915, enough new patients had been seen at the summer clinics or had applied to the field worker for treatment to bring the total number of cases under the care of the department up to 261. During the year, 334 clinical examinations were made either by the surgeon or by his assistants.

In June, 1916, the field worker resumed her work and prepared the way for the third series of clinics, which I held in the five centers visited the previous year. In addition to the reexaminations made at this time, forty-two patients who had had infantile paralysis and had not previously been examined came to the clinics and were taken for treatment. No work was done by the department during the autumn, but in the winter the field worker held biweekly clinics in the larger centers, which made it possible for her to give careful supervision to such cases as could be brought to her, and to see the patients at least once in two months.

In 1917, a severe epidemic occurred in the Montpelier district, and, because of the additional demands, two field workers were required. Clinics were held by me in August, with the assistance of the field workers, and 186 examinations were made. During the year 1917, 119 new patients were admitted for treatment, seventy-nine of this number being cases of recent onset. Prior to 1917, the work had been of necessity restricted to the larger centers and the territory immediately adjacent, and it was limited to those patients who applied to the clinics for treatment. Now, with an extra field worker, for the first time an effort was made by the department to investigate the cases of those near each center who had not reported to the clinics for examination, and all patients needing care were admitted for treatment.

In 1918, the war depleted the staff to such an extent that the work of the department was practically brought to a standstill. No clinics were held, and only fourteen new patients were admitted for treatment during the whole year. At the end of the summer the one worker who had been taking care of the patients, left, and from that time until the spring of 1919 the department ceased functioning and the patients were without supervision.

Meanwhile, the board of health was besieged with requests for help: existing deformities were increasing and new ones were developing; braces had been broken or outgrown; new patients needed examination and advice, so that when the department resumed its activities again in May, 1919, in charge of Miss Bertha E. Weisbrod, the situation was acute. An accumulation of work in arrears required attention, in addition to the need for meeting each day's new demands; a certain discouragement engendered in some of the patients by the interruption of the work and the uncertainty of its continuance had to be met and overcome; 500 or more cases scattered over the northern part of the state had to be followed up—these were some of the conditions that faced the new régime.

An immediate effort was made to get in touch with as many patients as possible and to persuade them to attend the clinics, with gratifying results. In 1919 the first clinics since August, 1917, were held by me in July, and a sixth center, St. Johnsbury, was added at this time. The examinations showed conclusively that the previous work had been well worth doing, as patients who had followed the prescribed treatment of rest, massage and carefully graded muscular exercises had made great gains.

During the year, 418 patients reported for examination—more than had ever been examined in any one previous year, and more than double the number of examinations in any of the three preceding years. During the year 1914-1915, 334 clinical examinations had been made; but this was the year of the epidemic, when excitement was rife and parents seized every opportunity for help. From 1916 through 1918, there were fewer patients at the clinics for several reasons: first, many had been discharged as cured; secondly, a natural reaction had set in—the parents had grown used to the situation and were inclined to let things drift, and thirdly, the element of uncertainty due to war conditions had not been favorable to a growth of the work. The increased number in 1919 shows how fruitful was the effort to counteract discouragement and stimulate interest.

The department inaugurated a new policy with regard to the follow-up work during 1919. Before this time, the visits to the homes of the patients had been restricted to the summer months; and, while clinics were held by the supervising nurse during the winter, only such patients as could be brought to the clinics could be kept under constant supervision. In 1919 the department not only held winter clinics, but also continued to make home visits during the entire year. This is still the policy of the department, and the follow-up work in the homes is carried on without interruption even through the most severe Vermont winter.

Of the cases seen during 1919, there were comparatively few of recent onset, and a number of the old cases had reached the stage at which operations were advisable and braces more essential than continued muscle training. These two outstanding features offered new problems to be solved. Hitherto, braces and other apparatus had been made at an appliance shop in Boston; but the large amount of apparatus now needed called for a more efficient way of handling the situation. An expert in mechanics was therefore secured who was interested and who learned to make the various types of apparatus needed. The results of the experiment were so satisfactory that the appliance shop has become a permanent institution of the department, and has greatly expedited the care and treatment of patients.

The second problem was the matter of the patients now requiring operation. At the end of the second year, and sometimes earlier, deformities begin to arise in poliomyelitis, such as the contraction of the knee or hip, or similar conditions which, although preventable, occur in a certain number of cases. To allow these deformities to go uncorrected is to bid for disability; and the relief of them, in the majority of cases, is a simple matter if the patients are operated on under proper conditions. Up to 1919, a few operations in urgent cases had been performed in hospitals in Vermont, or the patients had been sent to the Children's Hospital in Boston or the Hospital for the Ruptured and Crippled in New York; but the number of operative cases were becoming too numerous to be handled in this way, and it became evident that some definite plan for their care would have to be adopted.

The matter presented certain difficulties, however, because many of the parents were opposed to having operations performed, and a great deal of time had to be spent in educational work before the necessary permission could be secured. When this was finally achieved, the next problem was to find adequate accommodations for the increased number of operative cases. In order to secure the best results with the patients from the rural districts, it was important to keep them close at hand until the plaster casts had been removed and all apparatus had been fitted. The remoteness of their homes made it impossible to give them proper supervision in any other way. Therefore it was decided to secure hospital space in Vermont, where the operations could be performed and where postoperative care could be continued as long as possible.

As a result of this decision, in the winter of 1919 two wards of six beds each were rented from the Proctor Hospital, in Proctor, Vt.; a nurse especially trained in orthopedics was placed in charge, and all necessary orthopedic apparatus was procured by the department. Twelve patients were taken to the hospital, December 5, and, December 7, Dr. F. R. Ober of Boston arrived with his staff. He performed operations for two days, and stayed one day longer to observe the condition of the patients. After that he returned for four week ends to perform subsequent operations and to change plaster casts.

By the middle of March, the last patients were discharged; the venture was in every respect successful, and the patients showed great improvement. The change in these children, together with the fact that they had been so well cared for and actually happy while in the hospital, did much to mitigate the dread of operations and to remove the prejudice against hospitals in the parts of the country from which these little patients had come. The results in these operative cases were highly satisfactory. Each patient was followed up at home by the field worker, and kept under careful supervision until everything possible had been done to insure a complete recovery. This plan of providing proper postoperative care in the homes, initiated in 1919, has become a permanent part of the regular work of the department.

Throughout 1919, Miss Weisbrod carried on the field work entirely alone, but in the autumn a secretary was provided to assist her in the office and with the records. During the year, sixty-nine new patients applied for treatment.

It will be remembered that prior to 1919 the field work had been restricted to the cases comparatively near the clinic centers, and in 1919 attention was directed toward following up all the cases in and about those centers and getting the patients to report for examination. In 1920, however, a special effort was made to locate all the patients on record in every part of the state, in addition to carrying on the regular work. An assistant field worker was added at this time. It was found that 250 patients had not been seen for two years or more, and all but twenty-four of these were traced. Even the most remote localities were visited, and the condition of each patient, the treatment prescribed, the care in following it, the extent to which disability interfered with education and self-support, and the approximate amount of improvement were noted on each record, in order that a statistical study might be made showing what the work had accomplished. The compilation of the figures was begun in September, and has been continued since that time.

During the summer of 1920, clinics were held in seven centers, and in the autumn three subsidiary clinics were held by Miss Weisbrod with the addition of still another center, making eight clinic centers in all.

By the fall of 1920 there was an increasing number of patients requiring operation, and it seemed desirable to have them where they could be followed up closely and continuously for two or three weeks after operation. It was decided to rent Kimball Cottage, a hospital building connected with the New England Hospital for Women and Children, in Boston. The hospital furnished heat, light, food and laundry, but in other respects the organization was wholly independent, and the department was in complete charge of the cases. Kimball Cottage was opened in November with thirty-six patients from 3 to 26 years of age. They had all been brought to Boston on the same day by train, and were met at the station by the volunteer Red Cross motor service, which carried them to the hospital.

During the year, forty-eight patients in all were operated on at Kimball Cottage. Besides the necessary orthopedic operations, all of the patients were taken care of in the matter of needed operations for tonsils and adenoids; the eyes of all patients were examined, and those needing glasses were fitted; the teeth of all patients were cleaned and all necessary filling and extracting were done. In addition to the excellent physical care given the children, those of school age were supplied with teachers so that they were able to keep up with their classes, and everything possible was done to make them contented and happy.

The scope of the department's work had gradually broadened, and the area covered had increased until in 1920 practically the whole state was under supervision, the surgical care was as good as we could make it, and hospital and postoperative care had reached a high point of efficiency; but there were still problems to be solved. The home surroundings of some of the patients were such that it was impossible to secure the best results if the children had to be sent back from the hospital to face these living conditions. Sometimes it was merely a question of remoteness—the child could not be visited often enough to insure proper care; again, the financial status of the parents or the demands of a large family made it impossible for them to give the necessary treatment at home; and, what was also very important, in many cases a combination of these circumstances made it impossible for the children to attend school at all. This problem was now met, and provision was made for just these children. Through the generosity of a public spirited citizen of Vermont, Ormsbee House, a boarding school for crippled children, was opened in Proctor in January, 1921. This school can take care of eighteen children between the ages of 6 and 12, and although it cannot meet the entire need, because of its size, it is ideal for those to whom it is available. The school is free to those who cannot afford to pay, so that the children who need it most may enjoy its privileges. The house was built especially for them, and has an incline to the second floor, in addition to the staircase; there is a well equipped gymnasium in which exercises and muscle training are given; a real home atmosphere pervades the school, and there is nothing remotely suggestive of institutional life.

Of the children at Ormsbee House, when this was written, five of the fifteen could only crawl when they originally came to the clinics, and now they walk amazingly well, even though braces and crutches are still necessary. All of the children show great improvement from month to month, physically, mentally and in their general attitude; and not only do they have the best of care and understanding, but they are spared the continual struggle to keep up with the physically normal children that would be inevitable elsewhere. Lessons are given to them in shorter periods than in the schools for normal children, and, in addition to the regular school work, cooking, sewing, handicraft and music are taught.

Summing up the figures for the work during 1920, sixty-eight new patients applied for treatment, 482 home visits were made, and seventy-two patients were operated on.

In July, 1921, Dr. Ober and I held clinics with the addition of a ninth center at Proctor, and Miss Weisbrod conducted subsidiary clinics in May and October. The method of caring for operative cases in 1920 had shown such excellent results that Kimball Cottage was again rented, and was opened Dec. 1, 1921, with thirty-four patients. Forty-one patients in all were operated on here during the year, in addition to which thirty patients were operated on in Vermont, New York or Boston. During the year, 463 patients were under supervision; seventy-nine new patients applied for treatment; 568 home visits were made, and seventy-one patients were operated on.

In 1921, an addition was made to the work that seems to have been as important as any previous extension of activities. A careful study of the patients under the supervision of the department showed that while the greater number of adults were self-supporting, there were a few who, because of their disability and isolation from suitable work, were unable to contribute materially to their own support. In September, 1921, a department of vocational training was started under Miss Margaret B. Ives, a woman especially trained in occupational therapy. She finds suitable work for the patients; furnishes the raw materials needed, to be paid for when the products are sold; gives instruction free, and finds a market for the articles made. The results, interest and appreciation manifested have proved this branch of the work to be well worth the undertaking. Aside from the economic value of enabling these individuals to discharge their debt to the community, the psychologic and moral effect of this work on the patients themselves can scarcely be overestimated, for through it they have acquired independence and self-respect and have been stimulated to real ambition. The work that has been done includes toy making, knitting, loom weaving, basket weaving, Italian needlework, and filet and other types of needlework.

During 1922, no changes of any significance were made in the work of the department. Dr. Ober and I held a series of clinics in nine centers in August, and Miss Weisbrod held clinics in the same centers in May and October. At the clinics in both 1921 and 1922, very few operative cases presented themselves, a situation in great contrast to the conditions of the earlier clinics. It would seem that not only have the operative cases been taken care of, but also the persistent following up of the cases and holding them to treatment have resulted in preventing, in a large measure, the severe deformities requiring operative treatment.

The plan for the after-care of poliomyelitis in Vermont has thus gradually expanded until, from being in 1914 just a series of public clinics, it is now a definitely organized department of the state board of health, functioning the year round and undertaking the supervision of every case of poliomyelitis in the state from the time the quarantine is lifted until the best possible recovery has been made.

Through the various branches of its work, the department endeavors to give the best possible surgical treatment and physical care to its patients; to secure home conditions that will render a satisfactory recovery possible, and to establish the patient as a useful member of the community. Besides carrying on the actual work, the department makes every effort to record all results accurately and to keep such records clear and immediately available so that the statistics compiled therefrom may prove of definite value in the further pursuit of the work and serve as a basis of comparison for any future experiment along the same lines.

SUMMARY

1. In the beginning, the supervision was purely surgical.
2. Then was added after-treatment by a trained field worker.
3. The scope of the field work was enlarged, and the worker investigated cases throughout the state needing treatment, instead of waiting for the patients to be brought to the clinics.
4. A definite plan for handling operative cases was instituted.
5. A school for crippled children was founded.
6. A department of vocational training was established.

CONCLUSIONS

After eight years of experience in the work, it seems fair to present my personal conclusions as to its value and to estimate what has been accomplished. It seems evident to me that the number of disabilities from poliomyelitis has been greatly diminished, and the number of serious resulting deformities is considerably smaller than it would otherwise have been; that the patients have been, on the whole, appreciative and cooperative, and that many of them are now independent, useful citizens, capable of self-support, who otherwise would have been severely crippled if not quite helpless.

At present, some years after a serious epidemic, my impression is that the problem has resolved itself into one largely of after-care, as practically all of the cases are on a level at which they should remain stationary. Unless another epidemic occurs, few surgical problems will arise in these cases; but the continuance of these patients as active, useful individuals depends on their being carefully and persistently followed up. In other words, from being chiefly a surgical problem, the work has become largely a problem of supervision and after-care.

Immediately after an epidemic and for two or three years more, the problem is an acute surgical one with definite requirements in the way of effective following up in the homes. After three or four years, the surgical element becomes less insistent and the follow-up work more so. The study of poliomyelitis seems to indicate that the disease is a periodic one; and, until more is known about the way in which it is transmitted, there is reason to believe that Vermont may be the scene of future epidemics. If this should be the case, the presence of an effective organization such as now exists is a real insurance, as it could be expanded to meet an emergency.

234 Marlborough Street.

HODGKIN'S DISEASE AND LYMPHOSARCOMA

A CLINICAL AND STATISTICAL STUDY *

ARTHUR U. DESJARDINS, M.D.
AND
FRANCES A. FORD, M.D.
ROCHESTER, MINN.

Hodgkin's disease and lymphosarcoma, while not common conditions, are not rare. Since attention was attracted to this type of disease by the reports of Hodgkin in 1832, and especially by the contributions of Samuel Wilks in 1856 and 1865, much effort has been expended in attempts to determine the etiology, with but little success. Owing chiefly to the work of Dorothy Reed,[1] the pathology of the Hodgkin's type of lymphoma is well established. In general, this is also true of lymphosarcoma, but many cases are encountered in which it is not easy even by careful microscopic study positively to differentiate it from certain allied conditions. Many forms of treatment, medical and surgical, have been tried. Various drugs have been advocated from time to time, but, aside from brief and transient improvement in certain cases, the fatal course of the disease has not been greatly impeded. Nor has surgical excision of notably involved groups of glands been successful, and it is seldom considered at the present time.

The only form of treatment that exerts noteworthy influence on such morbid states is irradiation by means of roentgen rays and radium, used independently or in combination. The intelligent employment of such treatment often yields striking results even in cases in which complications of a more or less serious nature are impending. Many patients are completely restored to normal health, while others are only partially improved. Even in the presence of extensive mediastinal glandular involvement, with or without pleural effusion, it is often possible to cause such adenopathy to disappear and the fluid to be absorbed. Unfortunately, the improvement is not permanent; it may continue for months or even for two or three years or more, but sooner or later recurrence in the same, or in some other, region occurs, and is usually fatal.

Table 1.—*Patients Living and Dead, Jan. 1, 1923*

	Hodgkin's Disease				Lymphosarcoma			
Year	Cases	Heard From	Living	Dead	Cases	Heard From	Living	Dead
1915..........	31	20	0	20	8	4	1	3
1916..........	32	20	3	17	14	10	0	10
1917..........	27	19	2	17	22	20	4	16
1918..........	22	14	3	11	24	17	2	15
1919..........	23	19	2	17	34	25	2	23
Total......	135	92	10	82	102	76	9	67

There can be no question that systematic treatment by irradiation is of the greatest service in such conditions, and many patients can be kept in relatively good condition for a variable period of time; but whether or not their lives are actually prolonged has not been determined. In undertaking to study this subject, we immediately realized that it would be worthless to ascertain the average length of life of patients treated by irradiation without preliminary investigation of the average duration of the disease without systematic treatment. In order to obtain such information, to serve as a basis for a later study of the actual effect of irradiation treatment on the longevity of such patients, the histories were consulted of all patients registering at the Mayo Clinic for the five-year period, between 1915 and 1920, in whom a definite diagnosis of Hodgkin's disease or lymphosarcoma had been made on the basis of microscopic examination of excised glands. Besides studying the average duration of the disease in these two groups of patients, it seemed desirable to take advantage of this opportunity to gather from the histories as much clinical information as possible; it is the results of this study that we now present.

Table 2.—*Patients Living, Jan. 1, 1923, Grouped According to the Decade During Which the Onset of Symptoms Occurred*

	Hodgkin's Disease				Lymphosarcoma			
			Duration of Disease				Duration of Disease	
Decade	Sex*	Age at Onset	Years	Months	Sex*	Age at Onset	Years	Months
0 to 10........	♀	6	8	9	0	0	0	0
11 to 20........	♂	16	13	0	0	0	0	0
	♀	16	8	0				
21 to 30........	♂	20	4	9	0	0	0	0
	♂	21	6	0				
	♂	22	16	0				
31 to 40........	♀	32	10	0	♂	30	9	8
					♂	33	6	5
41 to 50........	♀	41	5	10	♂	42	5	0
					♂	44	4	2
					♀	49	4	5
51 to 60........	♂	59	6	0	♂	52	6	2
61 to 70........	♀	63	6	0	♂	67	7	4
					♂	67	7	0
					♀	67	**6**	2

* In these columns, ♀ indicates female; ♂, male.

That approximately 11 per cent. of each group of patients were living three years or more was not unexpected, but we were rather surprised by the information gathered from a review of these living patients (Table 2).

A detailed review of these cases will not be given, since the value would be considerably diminished by the fact that in several instances complete information concerning subsequent treatment was not available. In some cases, "block" dissection (excision) of enlarged cervical or axillary glands was followed by more or less systematically repeated roentgenization; in other cases, rather indifferent roentgen-ray treatment followed the excision of one or more glands for microscopic study. In some cases, a biopsy was followed by roentgen-ray treatment or injections of Coley's fluid, or both, and in others, the biopsy was not followed by treatment. In only a few cases was the irradiation treatment given in a manner that would now be considered adequate.

The only conclusions, therefore, that may be drawn from these cases are, either that the relatively long life of the patients was due to treatment, or that the condition happened to be unusually chronic, or both factors may have occurred in combination. It is probable that an etiologic factor of low activity, and a comparatively high resistance, combined with an inhibitory influence exerted by the treatment, prolonged the existence of the patient.

From the foregoing data, it is seen that the male is 2.3 times more susceptible to Hodgkin's disease than the female, while lymphosarcoma attacks the male 4.4 times more often than it does the female.

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* From the Section on Radium and Roentgen-Ray Therapy, Mayo Clinic.

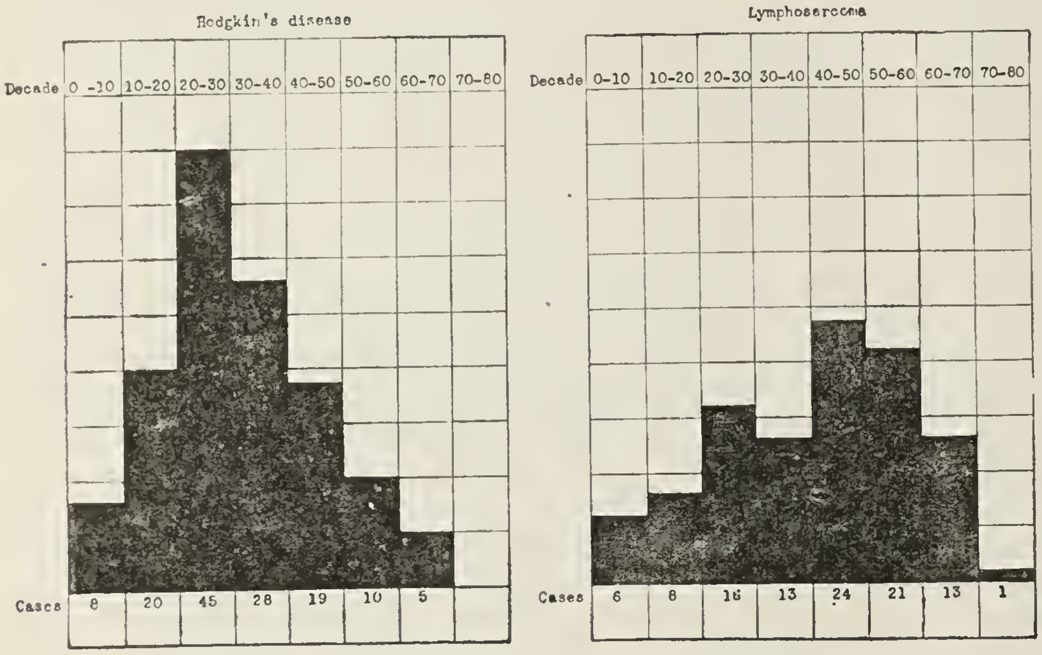
* Read before the Kalamazoo Academy of Medicine, June 12, 1923, Kalamazoo, Mich.

[1] Reed, Dorothy M.: On the Pathological Changes in Hodgkin's Disease, with Especial Reference to Its Relation to Tuberculosis, Johns Hopkins Hosp. Rep. **10**: 133-196, 1902.

In the accompanying charts is shown the rate of incidence by decades. The period of greatest susceptibility to Hodgkin's disease is during the second, third, fourth and fifth decades, with strong emphasis on the third and fourth. Lymphosarcoma is most prevalent during the third, fourth, fifth, sixth and seventh decades, and particularly the fifth and sixth.

Table 3.—*Incidence of Hodgkin's Disease and of Lymphosarcoma by Decades (Based on the Age at the Time of Onset of Symptoms), and by Sex*

	Hodgkin's Disease			Lymphosarcoma		
Decade	Male	Female	Total	Male	Female	Total
0 to 10	7	1	8	4	2	6
11 to 20	10	10	20	6	2	8
21 to 30	31	14	45	12	4	16
31 to 40	21	7	28	11	2	13
41 to 50	16	3	19	21	3	24
51 to 60	7	3	10	17	4	21
61 to 70	3	2	5	11	2	13
71 to 80	6	0	0	1	0	1
Total	95	40	135	83	19	102



Incidence of Hodgkin's disease and of lymphosarcoma.

In Hodgkin's disease, the dyspnea or shortness of breath, when present, was always associated with, and caused by, mediastinal adenopathy. Venous engorgement and edema are classified together, because some of the histories made it impossible to separate them; in some instances, the condition was frankly called venous engorgement, while in others apparently the same condition was described as edema. This occurred only in cases in which there was marked mediastinal involvement and pronounced circulatory obstruction. Pruritus, general or local, is not as common as we have believed it to be. More careful investigation might have elicited this complaint in a larger number of cases. Usually, it is general, and causes the patient much distress; it undoubtedly has a toxic basis. In one case, itching occurred only in the skin over the glands, which was red and edematous. In another, pruritus was present only for a short time after the onset of glandular enlargement. It had been our impression, after studying many cases of Hodgkin's disease, that toxic pruritus was associated in most cases with mediastinal involvement, but this proved to be true in only two thirds of the cases in which itching was present. Other skin changes are occasionally encountered; for instance, in two cases there was a general dusky pigmentation or diffuse bronzing. Whether or not this was due to associated suprarenal disturbance could not be determined.

In general, the discussion of Hodgkin's disease applies equally to lymphosarcoma. Indeed, the most noteworthy fact is the close parallelism of the symptoms in both groups, a parallelism which has led many observers to believe that the two conditions are, to say the least, very closely related. Toxic pruritus occurs only one third as often in cases of lymphosarcoma as in cases of Hodgkin's disease; however, since in our cases of Hodgkin's disease it was present in only 9 per cent. of 135 cases, the difference between 9 per cent. and 3 per cent. hardly constitutes a very important point in differential diagnosis.

In both Hodgkin's disease and lymphosarcoma, pain is a frequent symptom and may be of two types. One is due to pressure phenomena, such as enormous mediastinal adenopathy; in some cases abdominal pain was complained of, and was probably due to pressure by masses of enlarged glands. In the late stages of the disease, pain in various bones and joints is quite common. It is not constant in any one location, but moves from one bone or joint to another. Examination of such painful bones or articulations has failed to disclose anything that might account for such pain.

On reviewing the histories, we were impressed by the frequency with which the adenopathy seemed to have a more or less definite relation to common chronic lesions around the mouth and throat, such as bad teeth, diseased tonsils and nasopharyngeal infection. Unfortunately, in many cases the information available was not sufficiently explicit to warrant definite conclusions.

The adenopathic distribution given in Table 5 is of little value per se, because the degree and extent of glandular involvement depends on the particular stage of the condition during which the patients were examined. In many cases of Hodgkin's disease, enlargement of lymphatic glands was limited to certain groups on first examination, while in others the adenopathy was more or less general. In most instances, lymphatic enlargement started in one group of glands, usually the cervical, and gradually spread to other groups as the disease progressed. Definite involvement of the tonsil was observed in two cases of lymphosarcoma. In

Table 4.—*The Chief Symptoms in One Hundred and Thirty-Five Cases of Hodgkin's Disease, and One Hundred and Two Cases of Lymphosarcoma*

	Hodgkin's Disease, per Cent.	Lymphosarcoma, per Cent.
Glandular enlargement	100.0	100.0
Loss of weight	54.5	53.9
Loss of strength	50.8	60.8
Fever	31.3	26.5
Pallor	30.0	27.5
Dyspnea or shortness of breath	24.7	32.3
Cough	14.8	11.7
Venous engorgement and edema	13.4	14.7
Pruritus (general or local)	9.0	3.0
Pain (in many cases)	....	....

lymphosarcoma, abdominal involvement is much more common, and in some cases it is the outstanding feature.

The percentage of cases of gastric and intestinal lymphosarcoma represents involvement discovered by exploratory laparotomy. It undoubtedly is more common than these data indicate, but because it produces few and only minor symptoms in most cases, and because slight or moderate intra-abdominal adenopathy is difficult to determine, it is often overlooked.

Moderate leukocytosis is common in Hodgkin's disease, but less so in lymphosarcoma. In one case of Hodgkin's disease, there were 83,000 leukocytes, and eosinophils represented 88 per cent. of the total; in another, the leukocytes numbered only 3,000. In lymphosarcoma, leukocytosis was noted in but twelve cases, in one of which the count reached 247,000, with 93 per cent. of lymphocytes. In this particular case, clinical diagnosis of lymphatic leukemia was made, but the pathologist who examined sections of a gland excised from the left cervical region reported "lymphosarcoma." On reviewing the history of this patient, one cannot escape the impression that he was in the last stages of the disease, and this undoubtedly explains the rapid increase of leukocytosis. Leukopenia, on the other hand, was present in four cases.

METASTASIS

More definite knowledge of metastatic dissemination in Hodgkin's disease and lymphosarcoma would have been of distinct value. Unfortunately, by clinical examination alone, it is impossible to avoid overlooking some of the less prominent manifestations of the disease. Moreover, necropsy findings were available in very few of these cases. In the 135 cases of Hodgkin's disease, definite metastatic lesions were noted in but six instances; in four, it was pulmonary; in one case, there was a subcutaneous tumor between the eyes; and in one, the liver was involved. In the lymphosarcoma group, metastatic foci were noted in the lungs in three cases, in the cecum and left kidney in one; in the suprarenal in one; in the liver in four; in the right tibia in one; in the sternum and right fibula in one; in the abdominal wall in one, and in the chest wall in four. Such information is of little value except to indicate possibilities.

Table 5.—*Physical Findings*

	Hodgkin's Disease, per Cent.	Lymphosarcoma, per Cent.
Adenopathy:		
Cervical	96.3	83.3
Axillary	59.4	50.0
Inguinal	36.5	49.2
Mediastinal	33.3	24.5
Abdominal*	11.8	48.4
Nasopharynx, including tonsils	1.5	7.8
Splenic enlargement	14.9	17.6
Stomach	0	6.8
Intestine	0	4.0
Hydrothorax	10.4	0
Ascites	2.2	0
Leukocytosis (11,000 or more)	46.2	11.7

* The abdominal adenopathy referred to consisted of enlargement of mesenteric, biliary and prevertebral or retroperitoneal lymphatic glands determined by palpation or by definite symptoms strongly suggesting such adenopathy; in some cases, the symptoms may have been due to other causes.

Table 6.—*Enlargement of Lymphatic Glands Belonging to the Superficial Groups Which Had Remained Unilateral*

	Cases
Left cervical and axillary glands	3
Right cervical and axillary glands	4
Right cervical glands	8
Left cervical glands	7

AVERAGE DURATION OF THE DISEASE

One of the important items of information to be derived from this study is the average duration of the disease, because, without such knowledge, any attempt to compare results of different forms of treatment is a waste of time, at least so far as prolongation of life is concerned. As we have stated, the patients included in these two groups were treated in various ways. Some were given arsenic; others, tuberculin; many had more or less irradiation treatment, and others had block dissection, alone, or followed by irradiation. The period between 1915 and 1920, coincided with the work of Yates and Bunting,[2] and a certain number of these patients were referred to them for treatment by vaccines. Many were treated symptomatically; the majority did not receive systematic treatment. While the results do not supply sufficient data on which to base conclusions with regard to the value of any one form of treatment, they do provide us with a basis from which to calculate the average duration of the disease.

Table 7.—*Average Duration of the Disease From the Onset of Symptoms in Seventy-Three Cases of Hodgkin's Disease and Fifty-Five Cases of Lymphosarcoma in Which the Date of Death Is Known*

	Hodgkin's Disease			Lymphosarcoma		
		Average Duration of Disease			Average Duration of Disease	
Decade of Incidence	Cases	Years	Months	Cases	Years	Months
0 to 10	3	4	0	4	1	4
11 to 20	4	2	9	4	4	1
21 to 30	24	2	11	13	1	11
31 to 40	23	2	7	5	5	4
41 to 50	10	1	8	12	1	8
51 to 60	8	2	3	14	2	7
61 to 70	1	3	0	3	0	4
Total	73	2	7	55	2	5.5

Table 8.—*Patients Living*

	Hodgkin's Disease		Lymphosarcoma	
	Patients	Per Cent.	Patients	Per Cent.
One year or less	9	12.7	20	37.0
Two years or less	19	26.0	13	24.0
Three years or less	19	27.0	4	7.4
Four years or less	10	13.7	8	14.8
Five years or less	9	12.7	3	5.5
More than five years	7	9.8	6	**11.0**

The data here presented will enable us later to determine the effect of systematic irradiation treatment as now practiced. We do not know whether such comparison will show definite prolongation of life, but we do know that such treatment may keep the disease under complete or partial control for varying periods, and that at the present time it is the most effective means of bringing relief to the unfortunate victims.

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[2] Yates, J. L., and Bunting, C. H.: The Rational Treatment of Hodgkin's Disease, J. A. M. A. **64**: 1953-1961 (June 12) 1915.

Genesis of Antimovements.—It may be asked by the thoughtful man, what is the genesis of these "anti" movements, what impulse drives a sincere man into the pulpit of intolerance and bigotry. Probably the answer is to be found in the elemental passion of mankind for self-advertisement; a loud voice and a gift of the gab can make any partly educated man into a very effective something or other.—*Medical Officer* **30**:4, July 28, 1923.

TREATMENT OF ENCEPHALITIS *

ROSS MOORE, M.D.
LOS ANGELES

For more than two years I have been treating certain patients showing symptom groups referable to the basal ganglions by injecting intraspinally their own blood serum, either untreated or inactivated. To summarize a paper I[1] read a year ago:

> Expectant treatment of epidemic encephalitis is frequently unsatisfactory.
>
> At the same time, no other treatment has been found to be more available and useful.
>
> The blood serum of patients suffering from encephalitis has been used intraspinally in this series.
>
> The cases in which it has been used have been for the most part of very long standing and, therefore, there is likely to have been definite destruction of tissue.
>
> In five out of seven cases, temporary but definite improvement has followed these injections.
>
> These results may be due either to the irritating effect of the injections, or to therapeutic substances in the blood serum not present in the cerebrospinal fluid.
>
> The results in this series of cases suggest that symptoms in chronic central nervous disease usually considered permanent may not be so. They may be due to the overwhelming, and consequent paralysis of nerve tissue, by toxic substances. Early relief of such irritation may result in recovery.

Since this paper was written, I have had a considerable experience, including several cases in which Rosenow's antiencephalitis serum was used both intravenously and intraspinally. A statistical summary of the work will not be as useful as the consideration of individual cases, because the series is hardly large enough yet to warrant more than speculative conclusions. My earlier paper is referred to concerning technic and related matters.

REPORT OF CASES

Case 1.—W. G. S., a man, aged 49, married, a mine foreman, complained of tremor in the right arm. The history, except for a light attack of influenza in 1919, was negative. In 1917 the right hand began to tremble and the movements became slow. There was no pain or loss of muscular power. This patient was seen in 1920 and given the ordinary treatment for paralysis agitans with no real relief. In June, 1922, he came back to Los Angeles. At that time examination revealed an intensification of the parkinsonian type of symptoms in the right hand and a masklike rigidity of the face. The cerebrospinal fluid was negative to all tests. From June 22 to Aug. 24, 1922, he received a series of seven intraspinal injections of his own serum. He returned to his work in much better general health, with a definite relaxation of his facial expression and with a small but definite betterment in control of the right hand and arm. After each injection his hand was very much steadier for from two to five days. This was noticeable both subjectively and objectively. The patient was a person of common sense, who was not likely to see improvement when there was none. The improvement in both facial expression and steadiness of the hand was noticeable to many persons who saw him constantly during the period of treatment. For ten days following the third injection, the patient wrote easily with the right hand—a thing he had been unable to do for three years. A diagnosis of Parkinson's disease was made.

To recapitulate, a typical case of Parkinson's disease which had existed for more than five years, with a gradual tendency to get worse, was treated by this method with some apparently permanent results and very marked temporary amelioration of symptoms.

Case 2.—E. M., a man, aged 26, single, a railroad clerk, whose family history and past personal history were negative, and who had not had influenza or acute nasopharyngeal disease during the last four years, took a long automobile ride, Jan. 21, 1923, and in the evening ate boiled noodles in Chinatown. There was no evidence of food poisoning. Next day he felt queer, but went to work. He worked the third day, but felt less able to do so. In the evening his father noted that the patient looked as if something was wrong with him. On the fourth day he stopped work at noon and consulted a physician. Examination by me on the fifth day revealed a classical picture of Parkinson's disease: fixed attitude, semiflexed arms, head thrust forward, mouth open, drooling, eyelids not covering the eyes when winking automatically, gait typical, mind alert. Cerebrospinal fluid recovered under pressure on the sixth day was negative to the usual tests. All symptoms were intensified on the seventh day. Blood was taken for serum on the ninth day, but there was no material change in the general condition. On the tenth day, 30 c.c. of inactivated serum was injected intraspinally at 11 a. m. The nurse's notes indicate a decided improvement six or eight hours after the injection. On the fourteenth day, another injection of 30 c.c. of blood serum was made although the patient had been steadily improving since receiving the first injection. There was no rigidity on the seventeenth day. The patient visited the office on the eighteenth day and said he had fully recovered. He showed some evidence of exaltation in emotional reactions. There was apparently a slight renewal or continuance of lack of quick muscular control. On the thirty-eighth day, he had been at work for five days and had evidently recovered.

These two cases are as unlike as possible in their progress, and yet very much alike in general clinical appearance. The first is thoroughly typical of what we have come to know as Parkinson's disease, or paralysis agitans. The second was just as typical in appearance, but was atypical in onset and progress.

There can be no doubt about the temporary improvement in the first case, an improvement different from and greater in extent than any change I had noted heretofore in the course of treatment of well developed Parkinson's disease.

The second patient remains entirely well five months after the attack. His recovery was spectacular in the extreme. It began directly after the first injection, as is attested by the hospital attendants, who in their more or less calloused and experienced attitude had no expectation of seeing the patient get better.

Twelve or fifteen cases of chronic paralysis agitans have been treated by this method. In more than half these cases, improvement occurred, temporary in nature, but of a quality different from that seen in the course of other treatment. This improvement has been usually in the nature of muscular relaxation. Relief from tremor has not been marked. All patients having a well developed tremor of long standing continued to have it even though very great muscular relaxation was secured.

There were several cases of very acute encephalitis in which the progress was apparently uninfluenced by the injections. There appeared to be an overwhelming infection, as if the protective mechanism of the body was not functioning.

Failure to produce cures in the acute cases was probably due to the absence of antibodies in both the blood and the cerebrospinal fluid. Failure in the chronic cases was due to the same factor and also to the fact that degenerative changes had doubtless taken place.

The temporary recovery in Case 1, when considered in connection with a number of other cases of like

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* Read before the Section on Nervous and Mental Diseases at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

[1] Moore, Ross: California State J. M. **20**: 387-389 (Nov.) 1922.

nature, is to be explained by the fact that parkinsonian rigidity is, at least in some instances, due to obtunding rather than destruction. The use of the patient's own blood serum intraspinally had the effect of temporarily destroying or neutralizing the obtunding factors. I think that this is a conclusion justified both by this series of cases and by the results seen generally in connection with intraspinal therapy.

At this point one might speculate with much interest about the mechanism of production of tremors as compared with that causing rigidity.

Rosenow's experimental antiencephalitis serum was used in half a dozen cases. In four cases it was given intravenously twenty-four hours before blood was taken for intraspinal use. In the other two it was given intraspinally. Although results were negative, the efficacy of the serum is not disproved thereby, because the cases treated were very extreme ones.

With reference to Parkinson's disease, I am ready to take the same stand as is gradually being assumed regarding general paralysis: that the name is being applied to a group of cases much too large. A diagnosis of general paralysis should be made only when degenerative processes are undeniable. Other cases should be called cerebrospinal syphilis and should be considered amenable to therapeusis.

The syndrome of paralysis agitans should be diagnosed Parkinson's disease only when degenerative central nervous conditions are certain. Other cases should be considered as encephalitis, however much they resemble the chronic incurable form.

In the present state of our knowledge we are unable to say just when nerve cells that are being attacked by infectious disease or toxic processes die. They may be poisoned and inactive functionally a long time before they actually die. If they are inactive functionally, their inactivity will give rise to the same symptoms as their later death. Functional inactivity anywhere in the body is amenable to treatment.

CONCLUSIONS

1. The purpose of this paper is to suggest that even such a chronic disease picture as paralysis agitans is not necessarily the evidence of death and destruction in the central nervous system.
2. It may be due to the abolition of function in the nervous system resulting from poisoning or infection.
3. As such, it is unquestionably amenable to proper therapeusis.
4. Therapeutic effort in the immediate future should be along two lines: (*a*) an increase in the antitoxic qualities of the blood serum used for injection, and (*b*) application of the serum more directly to the seat of the trouble.

628 South Normandie Street.

Mental Hygiene Problem a Study of Man.—In tracing out the thread of mental maladjustment, as it leads back from the hospital into the community, psychiatrists and psychiatric social workers have found themselves facing problems in delinquency, in education, in the home, the social agency, and the like. Each step has led to the next step, so that there has been a gradual unfolding and a mental hygiene program, not in the terms of any one organization but in social thought, is coming to be closely identified with the large questions of human behavior. We are approaching a study of man as man—a study that has never been made.—F. E. Williams, *Modern Hospital* **20**:140 (Feb.) 1923.

Clinical Notes, Suggestions, and New Instruments

FORMULA FOR ESTIMATING NUMBER OF CUBIC CENTIMETERS OF STANDARDIZED BACTERIAL EMULSION TO MAKE BACTERIAL VACCINE OF KNOWN STRENGTH

Jennie G. Drennan, M.D., C.M., Olds, Alta.

As many bacteriologic workers are notoriously poor mathematicians, perhaps a formula for the estimation of the correct number of cubic centimeters of a standardized bacterial emulsion necessary to be added to a certain number of cubic centimeters of a saline or oil solution to make a vaccine of a known number of bacteria per cubic centimeter may be helpful.

Example: Thirty cubic centimeters of a vaccine, each cubic centimeter of which shall contain 500,000,000 bacteria, is required to be made from an emulsion, each cubic centimeter of which contains 10,000,000,000 bacteria. By mathematical calculation it will be found that this vaccine must be made up to 28.5 c.c. of saline solution + 1.5 c.c. of the 10,000,000,000 standardized bacterial emulsion.

FORMULA

$$\frac{\text{No. of c.c. of vaccine} \times \text{No. of bacteria required per c.c.}}{\text{No. of bacteria per c.c. of standardized emulsion}}$$

$$= \text{in this case } \frac{30 \text{ c.c.} \times 500{,}000{,}000}{10{,}000{,}000{,}000} = 1.5 \text{ c.c. of emulsion.}$$

As the resulting vaccine must consist of 30 c.c., then this 1.5 c.c. must be subtracted from the 30 c.c., giving 28.5 c.c. of saline, to which the 1.5 are added.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

PROTEIN EXTRACTS DIAGNOSTIC-P. D. & CO. (See The Journal, Aug. 11, 1923, page 477).

The following products have been accepted:

*Goldenrod Pollen Protein Extract Diagnostic-P. D. & Co.‡; Tobacco Protein Extract Diagnostic-P. D. & Co.**

Prepared by the methods given in The Journal, Aug. 11, 1923, page 477.

SOLUTION BRAIN EXTRACT (See New and Nonofficial Remedies, 1923, p. 132).

Thromboplastin-Lederle.—An extract of cattle brain in physiological solution of sodium chloride prepared according to the method of Hess.

Actions and Uses.—See general article, Fibrin Ferment and Thromboplastic Substances (New and Nonofficial Remedies, 1923, p. 129).

Dosage.—For local application, see Solution Brain Extract (New and Nonofficial Remedies, 1923, p. 129). When local application is not possible, 10 to 20 Cc. may be injected subcutaneously or intramuscularly. Thromboplastin-Lederle is marketed in 20 Cc. vials which bear an expiration date, after which the contents should not be used.

Manufactured by Lederle Antitoxin Laboratories, New York. No U. S. patent or trademark.

The potency of thromboplastin-Lederle is tested as follows: Oxalated blood plasma is obtained by adding 2.5 Cc. of sodium oxalate solution 1 per cent. Transfer 0.5 Cc. of oxalated blood plasma to each of a series of tubes, and add 0.2 Cc. of thromboplastin-Lederle to each tube. Also transfer 0.5 Cc. of oxalated blood plasma to each of a control series of tubes and add 0.2 Cc. of physiological solution of sodium chloride. To each tube (and control) add 0.3 Cc. of calcium chloride solution (0.5 per cent.) dissolved in physiological solution of sodium chloride. Thromboplastin-Lederle must cause clotting of the oxalated blood (such as to permit complete inversion of the tubes) within one minute; the controls must fail to show clotting at the expiration of 20 minutes.

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SATURDAY, SEPTEMBER 15, 1923

THE AMMONIA CONTENT OF THE BLOOD

The normal food of man contains less basic radicals (such as sodium, potassium, calcium and magnesium) than acidic radicals, if one includes the phosphoric and sulphuric acids derived from the oxidation of the sulphur and phosphorus of proteins in the body. Consequently, in order to avoid undue accumulation of acids, an effective physiologic mechanism for eliminating the excess is required. The strong, fixed acids cannot be excreted as such at the normal reaction of human urine, which ranges from p_H 4.8 to p_H 7.4. They must be removed as salts with bases. The excretion of acids therefore involves the possibility of depleting the organism of its bases. Fortunately, a substitution of ammonia for some of the requisite fixed bases often occurs, thereby permitting the retention of the latter although the acids are removed. Wilson[1] has pointed out, in a recent discussion of neutrality regulations in the body, that ammonium ions when present in the blood are toxic, so that the usual concentration there is very low. The current teaching maintains that ammonia produced by the deaminization of amino-acid derived from the proteins is ordinarily converted directly into the nontoxic urea, but may be "deflected" from this process in order to serve in the neutralization of excess of acids.

The liver was long regarded as the site of this regulatory reaction. Several months ago, however, Nash and Benedict[2] of Cornell University Medical College put forth the novel hypothesis that the place of ammonia formation in the body is in the kidneys, the small quantities found in the blood being regarded as an "overflow" from these organs into the systemic circulation. Their view was based on the normally low content of blood ammonia, on the fact that in nephrectomized animals it was markedly lower, and that there seems to be a higher content in the renal vein than elsewhere in the circulation. Wilson[1] has remarked that this theory furnishes a much more satisfactory basis for explaining the delicately adjusted mechanism for excreting bases and acids which regulates the acid-base equilibrium of the body. With the formation of ammonia located in the kidneys, he adds, the retention of base by substitution of ammonia, and the retention of base during the excretion of acid radicals by variation in the hydrogen ion concentration of the urine, may be more closely related.

Russell[3] has clearly appreciated that if the ammonia present in the urine has been preformed in the blood and simply excreted by the kidneys, one would expect cases with marked urea retention also to show ammonia retention in somewhat comparable degree. This need not be the outcome, however, if the kidneys are the site of ammonia formation. Estimations of the blood ammonia in advanced renal disease in patients at the London Hospital have shown, in fact, values under 0.1 mg. per cent., which are thus comparable to the figures recorded for normal persons. The Nash-Benedict hypothesis has thus received further support. Blood ammonia is never augmented, but may be decreased when renal functions are suppressed.

RESULTS OF CANCER RESEARCH

The twenty-first annual report[4] of the Imperial Cancer Research Fund, just issued, summarizes the results of the work of the organization and indicates the present line of attack on the cancer problem. Vitamin deficiency, even when severe enough to be incompatible with life, has apparently no inhibitory effect on the growth of cancer. A deficiency of the water soluble and fat soluble vitamins, developed under the most stringent conditions, produced no effect as to cancer, but experiments were not performed with the antiscorbutic vitamin C. This was considered too dangerous to permit of application to the treatment of cancer in man. The curious fact is also reported that absence of vitamins from the diet produces atrophic lesions similar to those produced by exposure to roentgen ray and radium radiation. Exposure to radium has a profound effect on intestinal activities, and large doses may lead to severe intestinal lesions. There is also an effect on the blood platelets which, if allowed to continue, is associated with an incurable anemia of the pernicious type. The obesity that sometimes follows small doses of irradiation is related to testicular atrophy and hypertrophy of the interstitial cells.

In tissue cultures, the differentiation and loss of differentiation have been reduced to an orderly sequence and can now be reproduced at will. It has been shown that differentiation is absent in cultures of normal kidney and skin when the parenchyma cells are grown in pure culture without the admixture of connective tissue.

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[1] Wilson, D. W.: Neutrality Regulations in the Body, Physiol. Rev. **3**: 295 (July) 1923.

[2] Nash, T. P., Jr., and Benedict, S. R.: The Ammonia Content of the Blood and Its Bearing on the Mechanism of Acid Neutralization in the Animal Organism, J. Biol. Chem. **48**: 463 (Oct.) 1921; Note on the Ammonia Content of Blood, ibid. **51**: 183 (March) 1922.

[3] Russell, D. S.: Ammonia Content of the Blood in Nephritis, Biochem. J. **17**: 72, 1923.

[4] Imperial Cancer Research Fund, Twenty-First Annual Report, 1922-1923, July, 1923, under the direction of the Royal College of Physicians of London and the Royal College of Surgeons of England.

The addition of a pure culture of connective tissue, however, is quickly followed by typical histologic differentiation, the kidney producing convoluted tubules with bulblike extremities, and the squamous epithelium keratinizing into cell nests. It is virtually impossible, under experimental conditions, to maintain an exact balance between the two tissues in culture; but the sequence of forms presented by squamous epithelium leaves no doubt that in this lies the explanation of the ordinary range of cell forms known in human pathology and in the tar carcinoma of animals. When cultures of undifferentiated mammary carcinoma of the mouse grew in the presence of an abundance of active connective tissue, the large alveolar masses of polygonal cells became broken up into small trabeculae in which a small lumen appeared, and there resulted a loose adenomatous structure that closely resembled developing mamma. When the connective tissue was removed from the culture, the undifferentiated conditions returned. Drew concluded, therefore, that the loss of differentiation is merely a superficial peculiarity of cancer cells. Even when exhibited in the most superlative degree, the loss of differentiation may be replaced by wonderfully perfect differentiation without in any way affecting the essential malignancy of the cells.

Other experiments may possibly lead to some insight into the essential nature of malignant transformation. It is known that tumors and embryonic tissue grow without delay in a suitable medium, but that adult tissues begin to proliferate only after a considerable lapse of time. The delay with adult kidney tissue, for example, may be fourteen days. But if an extract of adult minced kidney which has been incubated along with the fluid used for extraction is added to the culture medium, growth begins at once in every case. If the extract is made with ice-cold saline solution without incubation, the delay is as long as it is in cultures made without it at all. Now, if a similar ice-cold extract is made from a rapidly growing transplantable tumor, growth starts as promptly as when the incubated extract of minced kidney is used. It may be, it is said, that malignant cells produce automatically and continuously growth-activating substances that normal tissues elaborate only in response to injury. The mode of production of these activating substances, Murray believes, is an essential part of the difference between normal and cancerous cells. This conception helps to explain at least the rôle of irritation in cancrogenesis. It may be imagined, he says, that the specific irritants that are known to lead to the development of cancer set up a slight degree of protoplasmic disintegration which is still compatible with the life of the cell. That sudden change which, after a long period of irritation, marks the beginning of cancer would then correspond to a change in the protoplasm by which the production of the activating substance turns from its purely reactive character to a self-acting process, the result of a sort of education of the cells. Deelman has shown that this preparatory stage can be shortened by combining trauma with the application of the specific irritant.

These experiments will be set forth in detail in a forthcoming scientific report, in which Russell's work in obtaining tar sarcomas in rats will also be published.

THE BLOOD IN INTESTINAL OBSTRUCTION

The severity of the symptoms that follow acute intestinal obstruction or injuries to the bowel that may simulate this condition often seems to exceed what the mechanical factors involved might warrant. The most striking fact is that prompt recovery by no means always attends the removal of the obstruction, so that it has become customary of late to assume an intoxication of widespread physiologic effect as the result of the production of some sort of toxin in the damaged areas. The possible nature and precise etiology of the intoxication still remains in doubt, one of the differences of opinion involving the question of bacterial intervention, as has already been pointed out in The Journal.[1]

Several years ago, Cooke, Rodenbaugh and Whipple [2] observed that cases of acute intestinal obstruction, whether produced experimentally in animals or occurring in man, are regularly accompanied by a rapid rise in the nonprotein nitrogen content of the blood, amounting to from three to ten times the normal figure. It is, of course, readily conceivable that such an outcome is due to involvement of the kidney functions, though the possibility of accelerated tissue or protein destruction also presents itself. The attempts to determine the etiologic facts have led to some confusion. A recent exhaustive study by Connors, Killian and Eisberg [3] in New York indicates that in simple but complete experimental intestinal obstruction the first change noted in the blood is a rise in the nonprotein nitrogen. This is more rapid, the nearer the obstruction is placed to the duodenum, where the toxemia is most severe. The clinical cases are in general accord with this. In many instances, the urea nitrogen is above normal, but it forms less than half of the nonprotein nitrogen. Following operation, with relief of the obstruction, in most instances there is a steady decrease in nonprotein nitrogen; and this is associated with the clinical improvement in the patient's condition.

When there is an accumulation of the nitrogenous waste products, they follow the order of retention characteristic of renal impairment, namely, a successive rise in uric acid, urea and creatinin. The New York investigators believe that the extent of toxemia is related to the level of the nonprotein rather than the urea nitrogen; and it depends on the location and type of the obstruction. In any event, they conclude that from the practical standpoint the chemical examination of the blood is of "inestimable value" in preoperative diagnosis and prognosis. It is always encouraging to discover new helps in difficult situations.

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[1] The Consequences of Intestinal Obstruction, editorial, J. A. M. A. **61**: 1988 (Nov. 29) 1913; Intestinal Obstruction, ibid. **63**: 1299 (Oct. 10) 1914; Newer Knowledge Regarding Intestinal Obstruction, ibid. **64**: 1914 (June 5) 1915; The Blood in Intestinal Obstruction, ibid. **67**: 364 (July 29) 1916; The Toxemia of Intestinal Obstruction, ibid. **68**: 914 (March 24) 1917.

[2] Cooke, J. V.; Rodenbaugh, F. H., and Whipple, G. H.: Intestinal Obstruction, VI, A Study of Non-Coagulable Nitrogen of the Blood, J. Exper. Med. **23**: 717 (June) 1916.

[3] Connors, J. F.; Killian, J. A., and Eisberg, H. B.: Chemical Changes in the Blood in Intestinal Obstruction, Proc. Soc. Exper. Biol. & Med. **20**: 357 (April) 1923.

THE HEALTH HAZARD OF THE AUTOMOBILE

The pessimist who has exalted the "drawbacks of civilization" will find new additions to his theme in the contemplation of some of the dangers brought by the automobile. The weekly toll of deaths chargeable in one way or another to this motor vehicle is largely exceeded by the number of nonfatal accidents in which health may become temporarily or permanently impaired; and attention is called to a subtle menace in the form of the poisonous exhaust gases from the automobile. Reference has frequently been made to this, for the most part in relation to workers in automobile repair shops and garages. And now the important studies of Henderson and Haggard[1] add a new concern. Their findings are said to apply in all large cities, and to the business portions even of cities and towns of moderate size. One is impressed, in fact, with the statement that the conditions are much more inimical to health than has heretofore been supposed.

The foremost danger lies in the carbon monoxid contained in the exhaust gases. It is colorless, and may be present when there is neither smoke nor smell to betray the obtrusion of something objectionable in the way of unconsumed fuel into the atmosphere. The presence of more than one part per ten thousand in respired air over any considerable period is now admitted to be harmful, or at least objectionable. In some parts of the country the exhaust gases from other types of fuel contain, in addition to carbon monoxid, the toxic vapor of benzene and other substances. Analyses made in New York showed that one part of carbon monoxid in ten thousand parts of air is a quite frequent condition in streets where traffic is heavy; and two parts of carbon monoxid are not unusual. It is asserted that even more than this occurs in limited areas and for short periods, so that subacute asphyxiations may actually become possible not only in confined spaces but also at open posts where traffic policemen are continuously stationed.

Henderson and Haggard believe that the conditions can be ameliorated largely by the use of the vertical exhaust on motor vehicles, whereby the hot toxic gases are carried up out of the streets. The attempt to improve the combustion processes in the automobile is not so immediately practicable. We are not concerned so much here with the chemistry and mechanics of the automobile as with the recognition that methods of prevention are desirable. In any event, the report of these physiologists should make us alert to detect actual cases of poisoning with exhaust gases in every-day practice. The incipient symptoms—headache, fatigue, nausea, disturbances of temper—are familiar. Their etiology is, of course, manifold and by no means always clear.

Current Comment

FRÖHLICH'S SYNDROME AND THE HYPOPHYSIS

There is a group of manifestations, including retarded growth, adiposity, sluggishness and lack of sex urge, which is sometimes described under the designation of Fröhlich's syndrome. These manifestations are not only observed at times in man, but have been elicited experimentally in animals by damage to the hypophysis. Consequently, this organ has been held responsible for the absence of Fröhlich's syndrome, and, conversely, the latter has been attributed to a lack of hypophysial function. Experimentation in this field is attended with much uncertainty, particularly because of the difficulty of localizing injuries accurately at the base of the brain. Considerable skill has been developed in recent years, however, in operation on the hypophysis through the oral route. By this technic, involving the further removal of the structure by cautery, Brown[1] of the University of Chicago has demonstrated that completely hypophysectomized dogs may live indefinitely without showing anything of the Fröhlich syndrome, though the latter may be exhibited by some of the animals in varying degrees. These facts seem to indicate, as Brown has pointed out, that the hypophysis itself is not the only factor involved in this malady. The obvious varying or uncontrollable additional factor, he adds, is the injury to the base of the brain in the experimental operations. One is constrained at present, therefore, to look for new developments in the study of the genesis of a group of symptoms that have long been of large clinical interest and have been observed with considerable reliance for their diagnostic import.

THE DEVELOPMENT OF RED BLOOD CELLS

The development of red blood cells is a function of great importance to the organism. What the restoration of a sufficient number of erythrocytes may mean to the body when its circulation has been seriously depleted by hemorrhage or blood-destroying disease is obvious. If it happens, as is currently believed, that a physiologic destruction of red blood cells is proceeding in some degree even in health, their replacement belongs to the continuous normal activities of the hematopoietic tissues. To locate their function in the bone marrow or spleen gives only an incomplete suggestion of what the process may be. There has been considerable embryologic evidence that in the earliest stages of the development of the organism the red cells of the blood differentiate intravascularly. For the adult bone marrow it has been taught, on the other hand, that there is a different type of genesis. Thus, the belief that the erythrocytes develop there in extravascular clumps has been so generally accepted that investigators have labored assiduously to discover how the mature red cells formed in this manner make their way into the blood stream. Studies conducted in the Department of Anatomy at the Johns Hopkins University on the bone marrow of both birds and mammals seem destined to present the problem in a new light.[1] When this structure is largely depleted of its myelocytes by suitable procedures and has not yet begun to form new white cells to any appreciable extent, the endothelial membranes come into prominence. It appears there that the red cells arise by proliferation of endothelial cells, which remain in the bone marrow in a relatively undifferentiated state. The erythrocytes are observed only intravascularly, the leukocytes extravascularly. If these findings prove to be tenable, an additional and most important physiologic significance for the endothelium will have been discovered.

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[1] Henderson, Yandell; and Haggard, H. W.: Health Hazard from Automobile Exhaust Gas in City Streets, Garages and Repair Shops, J. A. M. A. **81**: 385 (Aug. 4) 1923.

[1] Brown, C. G.: The Effects of Complete Extirpation of the Hypophysis in the Dog (Preliminary Report), Proc. Soc. Exper. Biol. & Med. **20**: 275 (Feb.) 1923.

A TEST FOR HEPATIC INEFFICIENCY

In 1921, Maclean and de Wesselow [2] showed that a normal adult could ingest 50 gm. of levulose without any appreciable increase in the blood sugar. It was also pointed out that levulose was the only sugar in ordinary use that did not produce a rise in the blood sugar concentration. In the same year, Spence and Brett [3] published the results of a series of cases in which this test was applied. They concluded that in diminished liver efficiency a definite rise in blood sugar resulted from the ingestion of levulose, the height and length of the blood sugar curve being in proportion to the degree of liver inefficiency present. They asserted, further, that the test afforded a means of estimating liver damage in cases of toxic jaundice following administration of arsphenamin and in other diseases of the liver. Covell [4] has recently applied this test in various diseases, particularly amebic dysentery. He used it on a total of fifty-eight patients, giving 50 gm. to those weighing 168 pounds (76 kg.), 40 gm. to those weighing 126 pounds (57 kg.), and 35 gm. to those weighing 98 pounds (44.5 kg.). The blood sugar was estimated immediately before giving the levulose and at intervals of one and two hours after its ingestion. When it failed to return to nearly normal after the two hour interval, hepatic inefficiency was considered present in proportion to the degree it remained high. The tests were controlled by ten presumably normal subjects. Covell concluded that the test forms a valuable means of determining the degree of hepatic inefficiency in amebiasis, and of showing whether liver efficiency has been restored by a course of treatment. It is of value in chronic as well as in acute cases of liver disease, although the response is less marked. The test also forms a valuable indication of hepatic disease in certain cases in which there is no clinical evidence of damage to the liver.

CIRCULATORY RESPONSES OF MAN TO ANOXEMIA

Physicians are so commonly concerned with the breakdown of some part of man's physiologic apparatus, or with a deterioration of its functions, that they are likely to forget some of the remarkable adjustments of which the human mechanism is capable. There are numerous protective devices in the organism that cannot fail to awaken the enthusiastic admiration of any one who studies them carefully. Among them are, for example, the chemical reactions whereby various harmful substances become detoxified in the body. Again, there are the phenomena of compensatory changes whereby a defect of one part is counterbalanced by a strengthening or hypertrophy of another. Adaptations of the latter sort take place gradually, since they ordinarily involve more or less profound structural changes which cannot be brought about over night. However, sudden physiologic emergencies may elicit equally sudden responses. A striking illustration of this has been described in the case of acute and extreme oxygen want by Schneider and Truesdell [1] as the result of their studies at the School of Aviation Medicine, Mitchell Field, L. I. Extreme anoxemia can be induced, without other complicating factors, by permitting persons to breathe pure nitrogen until pronounced symptoms appear. Under these circumstances, the heart accelerates with amazing promptness. The effect can be detected within the short period of ten seconds, and thereafter the increase in pulse rate continues gradually as long as such an experiment can safely be continued. The return to normal on breathing good air occurs within thirty-five seconds, as a rule. Accompanying alterations in blood pressure appear with almost equal promptness. Thus, there is no waste of time by the organism in responding to the call for more oxygen; and it is fortunate, indeed, that the sensitive nervous system is not permitted to remain long without a vigorous attempt on the part of the circulatory mechanism to prevent it from succumbing to oxygen deprivation.

HYPERTENSION IN YOUNG PERSONS

What constitutes an abnormal blood pressure? This question is almost continually before the practitioner; and recently the hygienist has been forced to give attention to it in connection with the propaganda for health conservation. The criterion of hypertension depends somewhat on the age of the person concerned. Current opinion is probably reflected fairly well in the statement that an arterial pressure exceeding 140 mm. of mercury in a young person is abnormal. Although some years have elapsed since the more general use of the arterial manometer has made the measurement of blood pressure in man part of clinical routine, it is probably still too early to foretell to what extent the "standards" of normal conditions will need to be modified. This expression of pending uncertainty seems further warranted by the data recently published by Alvarez[1] from the University of California. They show that, judged by current standards, hypertension is "very common among the younger men" there, about 45 per cent. of the freshmen having pressures exceeding 130 mm. and 22 per cent. exceeding 140 mm. Among the women in the freshman year, about 12 per cent. had pressures exceeding 130 mm., and only 2 per cent. showed figures above 140 mm. The measurements show, further, that among these persons the average blood pressure for both men and women drops gradually during the first years of adult life. Here are statistics from fifteen thousand young persons, not hospital patients but students admitted to college. Of these, Alvarez asserts that hypertension cannot be ascribed regularly to infections or to the strenuous life. He believes that it is an inherited peculiarity, the appearance of which can be suppressed in women as long as the ovaries function; for in this sex there seems to be a high degree of correlation between the incidence of hypertension and the presence of the various symptoms and signs of ovarian hypofunction. From this standpoint it might be worth while, as Alvarez proposes, to test the effects of ovarian extracts on men with high blood pressure. After all, one cannot forbear to inquire, in the face of all these figures, whether the criteria of hypertension, or at any rate the judgment as to its physiologic significance, are not too severe.

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[1] Doan, C. A.: On the Intravascular Development of Erythrocytes in the Bone Marrow of the Adult Pigeon, Poc. Soc. Exper. Biol. & Med. **20**: 260, 1923. Cunningham, R. S., and Doan, C. A.: On the Intravascular Development of Erythrocytes in the Bone Marrow of the Adult Rabbit, ibid. **20**: 262, 1923.

[2] Maclean, H., and de Wesselow, O. L. V.: Quart. J. Med. **14**: 103 (Jan.) 1921.

[3] Spence, J. C., and Brett, P. C.: Lancet **2**: 1362 (Dec. 31) 1921.

[4] Covell, Gordon: The Laevulose Tolerance Test for Hepatic Efficiency and Its Application in Certain Tropical Diseases, Guy's Hosp. Rep. **73**: 354 (July) 1923.

[1] Schneider, E. C., and Truesdell, D.: The Circulatory Responses of Man to a Sudden and Extreme Anoxemia, Am. J. Physiol. **65**: 379 (July) 1923.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

Personal.—Dr. Frank Hausman, Tuscaloosa, superintendent of the Druid City Hospital, has tendered his resignation, effective September 1.

Hospital News.—The new $100,000 Walker County Hospital, Jasper, will be opened about October 10, it is announced. Miss MacLean, superintendent of the Fraternal Hospital, Birmingham, has been appointed superintendent.

Chiropractic Bill Defeated.—Legislation looking toward the establishment of an independent chiropractic examining board was unanimously reported adversely by the committees of house and senate at Montgomery, September 6. This represents final action. Rules were adopted in June giving chiropractors and other drugless healers limited rights to practice in the state, provided they pass the state medical board's examination (The Journal, July 14, p. 140).

Dr. Harris Establishes Scholarships.—Dr. Seale Harris, Birmingham, has established a scholarship at the University of Virginia Department of Medicine, to be known as the Charles Hooks Harris Scholarship, in memory of his father. This will provide $100 annually to be loaned by the university to a medical student, the loan to bear interest at 4 per cent., and to be returned to the university within four years after the student graduates. Preference is given to applicants from Cedartown, Ga., the birthplace of the donor.——As memorials to his mother and brother, Dr. Harris has founded the Ann Monks Harris scholarship and the James Coffee Harris scholarship at the University of Alabama School of Medicine, Tuscaloosa, and the University of Georgia Medical Department, Augusta, respectively.

CALIFORNIA

A Token of Respect.—In memory of Dr. Olline Burton Doyle, all physicians in the city of Fresno closed their offices for one hour, August 29, during the funeral services.

Warrant Issued for Abrams' Disciple.—It is reported that a warrant was recently issued for the arrest of "Dr. J. E. Martin, Ontario," on a charge of practicing medicine without a state license. Martin is, it is said, a disciple of Albert Abrams.

Chiropractor Pardoned.—H. C. Saunders, chiropractor, Huntington Beach, was released from the county jail recently, having been pardoned by the governor. Saunders, it is reported, was convicted of practicing medicine without a license, and was sentenced before the new law providing for a chiropractic examining board became effective.

Personal.—Dr. Bernard F. McElroy, San Francisco, has been elected a member of the lunacy commission to succeed the late Dr. Daniel D. Lustig.——Dr. Albert K. Dunlap, Sacramento, has been selected by the board of supervisors as superintendent of the county hospital, to succeed Dr. Henry E. Morrison, Sacramento, who recently resigned, following an investigation of complaints by student nurses.

Medical Society to Survey County Hospital.—A committee of five physicians will make a survey of the medical administration of the county hospital, Riverside, and report to the county supervisors in the near future. This, it is reported, is part of the plan of cooperation agreed on by the local physicians and the supervisors when the medical society was given supervision of the medical administration of the hospital. The committee appoined to make the survey includes: Drs. William W. Roblee, Hugh R. Martin, Wendell A. Jones, Bonnie O. Adams and Arthur L. Brown.

State Board Cannot License Chiropractors.—In reply to a query from the state board of medical examiners asking if the board can legally admit and examine certain groups of chiropractors, Attorney-General Webb filed an opinion which read in part as follows:

> Your board is without jurisdiction to examine or license applicants for license to practice medicine as drugless practitioners who have graduated from chiropractic schools. This conclusion is reached because it appears to have been the intent and purpose of the chiropractic act that those persons who seek to practice the system or method of treating the sick and afflicted according to the system or theory known as chiropractic should be licensed and required to qualify exclusively under the chiropractic act and independently of your board of medical examiners.

Sterilization Law to Undergo Test.—California's law which provides for the sterilization of subnormal persons and habitual criminals will soon undergo a test in the supreme court to decide whether it will be enforced, according to Judge Robinson of the Alameda County Superior Court. The law permits the state prison board and the state board of medical examiners to sterilize epileptics, habitual criminals, feebleminded and incurable tuberculous persons, it is reported, but has not been enforced because officials will not take the risk of being sued for damages. Judge Robinson said the enforcement of the law was demanded by the increase in subnormal persons, of whom there were 18,000 in the state prisons, insane asylums and schools for the feebleminded.

COLORADO

State Medical Association Election.—At the annual meeting of the state medical association, at Glenwood Springs, September 6-8, the following officers were elected: president, Dr. Henry Sewall, Denver; vice presidents, Drs. Byron B. Blotz, Rocky Ford; Walter H. Lewis, Hotchkiss; Charles A. Ringle, Greely, and S. Julian Lamme, Walsenburg; secretary, Dr. Frank B. Stephenson, Denver; treasurer, Dr. William A. Sedwick, Denver; delegate to the American Medical Association, Dr. Lewis H. McKinnie, Colorado Springs; alternate, Dr. George F. Curfman, Salida. The next meeting will be in Denver. The council ruled that any member who practices the "Abrams treatment" shall be guilty of unethical conduct. This ruling was approved by the house of delegates. The annual dues were increased in order that a fund may be set aside to use in educating the public in medical affairs.

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[1] Alvarez, W. C.: Blood Pressures in Fifteen Thousand University Freshmen, Arch. Int. Med. **32**: 17 (July) 1923.

CONNECTICUT

Hospital News.—The Mount Sinai Hospital, Hartford, has opened and is functioning as a general hospital.

FLORIDA

Personal.—Dr. Joseph B. Farrior has been elected chairman of the bureau of public health and hospitals of the Tampa Board of Trade.

Hospital News.—The contract has been let for the erection of the new addition to the City Hospital, St. Petersburg, at a cost of $75,000.——The new Mercy Hospital (colored), St. Petersburg, has been completed and will soon be ready for occupancy.

GEORGIA

Hospital News.—A new hospital, to be known as the John D. Archbold Memorial Hospital, will be erected at Thomasville. The capacity will be eighty beds.——The Sycamore Hospital, Sycamore, has been reorganized under the name of the Turner County Hospital. The institution will be enlarged and newly equipped.

Tobacco Tax to Support Hospital.—Governor Walker, August 15, signed the Milner tobacco tax act, which levies a 10 per cent. sales tax on cigars and tobacco. The act is effective Jan. 1, 1924. It will raise an estimated revenue of $2,500,000 annually, of which the first $500,000 will be used for the development of the State Tuberculosis Sanatorium, Alto, and the remainder for the payment of amounts due Confederate pensioners. Tobacconists of the state are entering formal protest against the measure.

Personal.—Dr. Theodore Toepel, Atlanta, was recently elected president of the Georgia State Council of Health.——Dr. Burr T. Wise, Plains, was sworn in as a member of the state board of medical examiners, by Governor Walker, August 22.——Dr. Linton Gerdine has been elected president of the board of health of Athens to succeed Dr. John C. McKinney.——Dr. Benjamin F. Bond, Americus, has resigned as county health commissioner of Sumter County in order to accept a position at the United States Marine Hospital, Savannah.

ILLINOIS

Typhoid Epidemic at Peoria.—The state health department is investigating an epidemic of typhoid fever at Peoria, in cooperation with the local authorities. Physicians have reported sixteen cases. It is thought that contaminated milk is responsible for the outbreak.

Record Enrolment at Baby Conference.—The State Fair better babies conference, which opens September 15, has an entry registration of 1,455. This is more than 100 greater than last year, according to the state health department records. A staff of thirty physicians and dentists, twenty-five nurses and about fifty clerks and attendants will be employed during the conference. Since its establishment eight years ago, the baby conference has grown from a registration of 250, and the conference movement has spread over the state. At practically every county fair of importance and at cities many better baby conferences are held on their own merits.

Slight Increase in Poliomyelitis.—Reports to the state department of public health for the first eight months of 1923 show eighty-eight cases of poliomyelitis, whereas for the same period of last year there were fifty-three cases reported. Of forty-two cases of poliomyelitis reported during July and August, twenty-four occurred in Cook County. Typhoid fever cases reported for the eight months were fewer by seventy-seven than for the same period last year. It is believed, says the director, that the letter written to every physician who reported typhoid, calling attention to the use of vaccine on contacts and the fact that vaccine is distributed free by the department, has had a good effect on the typhoid situation.

Physical Examination Campaign Organized.—A conference was held in the office of the director of public health, September 5, to promote a physical examination campaign in line with the National Health Council movement. Sixteen different organizations, including three of the state departments, were represented. An organization was formed with Dr. Isaac D. Rawlings, chairman; Mr. J. W. Becker of the Illinois Tuberculosis Association, secretary, and Mr. Walter Davidson of the American Red Cross, treasurer. A meeting of the board of directors and the finance committee will take place, October 24, when it is expected that the organization will be completed and plans outlined. The national movement has been limited to one year, but it is the purpose in Illinois to establish a permanent institution with the object of stimulating annual physical examinations as a routine matter.

Chicago

Society News.—The third annual meeting of the American Association of Oral and Plastic Surgeons will be held at the Congress Hotel, October 22-23, under the presidency of Dr. Truman W. Brophy, Chicago.——The annual dinner of the Chicago Medical Society will be held, October 10.

Help for Undernourished School Children.—Chicago provides special feedings for her undernourished school children by giving them free at noon a pint and a half of milk, and maintaining sixty penny luncheons at which a child can obtain, for a penny, meat and potatoes, three slices of bread and butter, and cocoa or milk. These children are also put in special classes, of which there are already eighty, and given an hour and a half rest on couches at midday; in cool weather they are also wrapped in blankets. In the course of the school year, more than 6,000 children will be taken care of in this way, according to the director of the special schools. The aim to help crippled children is the same as with the undernourished.

IOWA

Clinic for Backward Children at State Fair.—The maternity and infant hygiene division of the college of medicine at the University of Iowa is conducting a clinic for backward children at the state fair. This, the first clinic of its kind to be held at the fair, has a staff of two physicians and five nurses, and hereafter will be held annually. It was pointed out by the officials that healthy children are always brought to the fair baby shows, but the subnormal ones who most need attention are left at home and possibly neglected. The clinic only diagnoses conditions found and advises parents to consult their family physician.

KENTUCKY

Mental Clinics Established.—The state board of charities and corrections has recently established mental clinics at the Central, Eastern and Western state hospitals for the insane.

Medical Service for Day Nursery.—The Public Health nursing Association has opened a new medical service for the children of East End Day Nursery, Louisville. Nurses will visit the institution every Monday morning and examine the children who are entering the nursery for the first time. This nursing service is provided to prevent an outbreak of contagious disease.

County Societies Formed.—The Bracken County Medical Society was recently organized, with Dr. William B. Wallin, Brooksville, president; Dr. James C. Norris, Augusta, vice president, and Dr. James M. Stevenson, Brooksville, secretary-treasurer.——The Estill County Medical Society has been formed, with the following officers: president, Dr. Cornelius Marcum, Irvine; secretary, Dr. Samuel T. Scrivner, Irvine, and treasurer, Dr. Alvies Agee, Ravenna.——The Johnson County Medical Society has been reorganized, with Dr. John P. Wells, Paintsville, president; Dr. Green V. Daniel, Paintsville, vice president; Dr. Paul B. Hall, Paintsville, treasurer, and Dr. Ernest E. Archer, Paintsville, secretary.

MARYLAND

Hospital News.—The Colonial Hospital, North Mount Street, Baltimore, has announced the completion of improvements to the hospital buildings. All of the hospital units are now open for the reception of patients.

Personal.—Dr. Charles Edmund Simon, managing editor of the *American Journal of Hygiene*, has been appointed resident lecturer at the School of Hygiene and Public Health of Johns Hopkins University, Baltimore. He will be in charge of the division of filtrable viruses in connection with the department of medical zoology.

MASSACHUSETTS

Physician's License Restored.—It is reported that the license of Dr. Joseph Arthur Levek, Lawrence, was automatically restored, August 22, by the board of registration in medicine. Dr. Levek's license was suspended for one year in August, 1922, on the charge that he assisted in producing an abortion.

Dormitory for Medical Students.—The dormitory fund committee of the alumni of Harvard University Medical School, Boston, organized to raise $1,000,000 for a dormitory for medical students, has agreed on a site at the northwest corner of Pasteur and Longwood avenues. The building will accommodate 250 students. The assembly hall will seat 600.

MICHIGAN

Upper Peninsula Medical Society.—At the annual meeting of the society held at Iron Mountain, August 22-23, under the auspices of the Dickinson-Iron County Medical Society, Dr. Joseph A. Crowell, Iron Mountain, was elected president; Dr. Charles J. Ennis, Sault Ste. Marie, vice president, and Dr. Gereon Frederickson, Iron Mountain, secretary. Dr. Beverly D. Harison, Detroit, secretary of the state board of medical registration, gave an address.

MISSISSIPPI

New Chemistry Building at Medical School.—The new chemistry building at the University of Mississippi School of Medicine, University, which contains the laboratories for biochemistry and toxicology, is completed and will be ready for occupation at the fall term.

MISSOURI

University News.—The addition to McAlester Hall, the medical laboratories building of the University of Missouri School of Medicine, Columbia, is completed and ready for occupancy.——The new University Hospital is also completed. The hospital building and equipment cost in all $250,000.

Report on Treatment of Crippled Children.—A report of the disposition and progress of ninety-seven crippled children who entered on treatment following the St. Louis Medical Society's free clinic last April (The Journal, August 18, p. 585) was given, August 22, by the committee on public health and instruction of the society. It shows that improvement, ranging from slight to complete correction of physical deformity, was accomplished in ninety-four of the ninety-seven children, only three being returned to their homes as beyond medical or surgical aid. Forty-six of the children were hospitalized an average of forty-seven days; forty were operated on; twenty-eight were supplied with corrective braces; sixteen were put into plaster casts; eight were placed in traction or complete demobilization; eight were referred for hydrotherapeutic treatment, and four were given corrective shoes. More than twenty children are still in hospitals. Twenty-five different diagnoses were made among these patients, fifteen of whom were suffering from more than one ailment. Thirty-five per cent. of the children had had infantile paralysis. The next largest group had rickets. Fourteen children were afflicted with club feet. The medical, surgical and hospital care of the children was without charge to parents who were unable to pay. In addition, the cooperation of public agencies, such as the Children's Aid Society, made it possible for some of the children to be placed in homes. Some children in whom the maximum correction of deformity has been attained are being retained in hospitals so that their general condition can be built up to a degree not possible in their home surroundings.

MONTANA

Plan to Comply with Sterilization Law.—It is reported that a number of inmates of the state insane asylum at Warm Springs and the school for the feebleminded at Boulder have made application for sterilization since the recent enactment of the law that provides for that procedure, and that plans have been made to comply with the law despite protests filed with the officials. Sterilization, if authorized by the state board, it is said, can be ordered only when requested by parents, legal guardians or the subjects themselves.

NEW YORK

Personal.—Dr. Edward H. Marsh, Brooklyn, has been appointed secretary of the New York State Health Department to succeed Curtis E. Lakeman, who resigned.——Dr. Ellis J. Kellert, Albany, has resigned as head of the Bender Hygienic Laboratory to become head of the laboratory of Ellis Hospital, Schenectady.

New York City

Campaign for College of Pharmacy.—The Kings County Pharmaceutical Society will soon launch a campaign for $300,000 to defray the cost of a new building to replace the Brooklyn College of Pharmacy at 265 Nostrand Avenue. Of the amount required, $125,000 is already on hand. A site for the new college has not been selected.

Free Cancer Clinic at Bellevue.—A department of radiotherapy for the free treatment of cancer will be established at Bellevue Hospital, New York, it was announced, August 31, by Dr. John J. McGrath, president of Bellevue and Allied Hospitals. Dr. McGrath recently returned from Europe, where he studied methods of cancer treatment in the clinics of Hamburg, Berlin, Frankfurt and Leipzig.

Personal.—Dr. Crawford D. Beasley, Brooklyn, was seriously injured in an automobile accident on Fire Island, August 29. He is being cared for in the Southside Hospital at Bay Shore, where it was found that he had a fractured hip and other injuries.——Nicholas Kopeloff, Ph.D., has been granted a year's leave of absence from the Psychiatric Institute, Ward's Island, in order to do research work at the Pasteur Institute, Paris.

A School Nutrition Experiment.—The Dairymen's League Cooperative Association, Inc., has just made public the results of a milk-feeding demonstration conducted by its bureau of nutrition during the last school year in Public School No. 17, in West Forty-Seventh Street. The report shows that in one group of nine classes, composed of boys and girls of various ages, 59 per cent. were underweight in October, 1922, when the experiment began; in June, 1923, eight months later, only 22 per cent. of these children were underweight. The demonstration will be continued during the coming year. It was the opinion of the principal and teachers that the milk-drinking children showed a marked physical improvement and also an increased capacity for mental work.

Laboratory Services by Contract.—Among important legislative measures enacted by the legislature of 1923 is Chapter 638, which authorizes a county or city to establish a laboratory or provide laboratory service by contract, and requires, under certain conditions, that a referendum be held on the question of establishing a laboratory. When the district, site, design and construction of buildings, equipment, work and conduct of a laboratory is approved by the state commissioner of health or his representative, the director of the division of laboratories and research, provision is made for state aid in an amount not exceeding one half of the cost of maintenance, the maximum being $7,500 per annum, and $2,500 toward initial installation and equipment. A county or city previously maintaining a laboratory or providing laboratory service may apply for state aid and, on complying with the requirements of the act, may receive grants from any balance of the appropriation remaining after payments have been made to those establishing laboratories or providing service under the act. Appeals from decisions of the comptroller or state commissioner of health may be made to a laboratory appeal commission.

NORTH CAROLINA

Hospital News.—A new forty-bed hospital was opened, August 15, at Shelby. The institution, erected at a cost of $100,000, was financed by township bond issue. Dr. John W. Harbison has been appointed resident physician.——The new Guildford County Tuberculosis Hospital, near Jamestown, erected at a cost of $100,000, is completed. It is expected to be ready for the reception of patients by November 1.

Personal.—Dr. David A. Stanton, High Point, has been appointed by Governor Morrison a member of the North Carolina State Board of Health to fill the vacancy caused by the resignation of Dr. F. R. Harris, Henderson, who has assumed charge of the health work of Vance County.——Prof. A. H. Patterson, professor of physics and dean of the School of Applied Science in the University of North Carolina, Chapel Hill, will spend a year in study at Harvard University. Prof. Paul H. Dike, who has been in charge of physics at Robert College, Constantinople, for several years, will take Professor Patterson's place during his leave of absence.——Dr. David R. Perry, Lexington, health officer of Davidson County, has resigned, effective, October 1, when he will succeed Dr. Joseph L. Spruill as state clinician of the state sanatorium at Sanatorium. Dr. Spruill resigned to become superintendent of the Guildford County Tuberculosis Hospital, Jamestown, September 1.——Dr. John R. Parker, Burlington, was awarded the honorary degree of LL.D. by Elon College at the recent commencement exercises.——Dr. Forrest J. Lancaster, Lexington, has been elected county health officer to succeed Dr. David R. Perry.

NORTH DAKOTA

Bismarck to Receive Replica of Famous Statue.—Dr. Henry Waldo Coe, Portland, Ore., former president of the North Dakota Medical Association, has informed the state historical society that he will present it with a replica of the equestrian statue of Theodore Roosevelt which he donated to the people of Portland, Ore.

OHIO

Death Rate of Epileptics.—According to the report of the superintendent of the Ohio Hospital for Epileptics, Gallipolis, the death rate at that institution is higher than at any other state institution. The report to the welfare director shows that 101 men and fifty-eight women died during the last year. There are now 1,746 patients in the institution, which was opened in 1893. Since then, 7,811 patients have been admitted, and there have been 2,678 deaths.

Personal.—Col. Benjamin F. Hayden, for more than three years surgeon of the eastern branch of the national military homes, Togus, Maine, has been appointed assistant chief surgeon of all the homes, with headquarters at Dayton.——Dr. Charles A. Files has resigned as superintendent of the District Tuberculosis Hospital, Lima, on account of ill health.——Dr. Jane Nye Gilliford, Middleport, has been appointed health commissioner of Meigs County to succeed the late Dr. James A. Miller.——Dr. Amy A. Kaukonen has resigned as mayor of Fairport and will reside in Seattle.

OKLAHOMA

Hospital News.—Dr. James W. Henry, Oklahoma City, and Dr. Guy W. Taylor, Cardin, have taken over the direction of the new State Drug Addicts Institution at Darlington, the former as medical superintendent and the latter as assistant in charge of clinical work.——The Tulsa County Medical Society recently passed a resolution that a committee be appointed to look into the hospital needs and the general hospital conditions of Tulsa. Dr. A. Ray, chairman, and Drs. Garrett, Thomas W. Stallings, Fred Y. Cronk and Clarence S. Summers were appointed. The chamber of commerce of Tulsa also appointed a committee to see what can be done to expand the hospital facilities and to complete the St. John's Hospital project or to arrange for its transfer to some other organization that will finish it.

PENNSYLVANIA

Pure Food Law Enforced.—During July, thirty-one violations of the pure food law were successfully prosecuted in Pennsylvania. These prosecutions were instituted by food officials against manufacturers and dealers who were using saccharin in their products instead of sugar. Most of these violations came from manufacturers and vendors of soft drinks, and eighty cases concerned the sale of milk and cream which lacked the required fats and solids. Canned milk sold by one dealer contained fat but not milk fat. The continued use of sulphur dioxid and sulphites in food, the use of benzoate of soda without proper labeling, coal tar dyes in fruit syrups, excessive moisture in creamery butter, misbranded food products, and soft drinks bottled under unsanitary conditions were some of the other infringements, according to the report of Director Foust.

Philadelphia

Personal.—Dr. Ward Brinton, Philadelphia, has been appointed by the mayor chief of the new division of tuberculosis.

New Buildings at Temple University.—The state appropriated $45,000 in the last year to Temple University School of Medicine, Philadelphia. This was the second payment of the $90,000 appropriation made by the legislature in 1921. The laboratories of histology and embryology, physiologic chemistry and physiology have been completely reconstructed and equipped, and a new necropsy room installed. Plans have been drawn for the addition of a seven-story wing to the Samaritan Hospital, which will afford ninety additional beds and a new operative suite.

RHODE ISLAND

Hospital News.—The Westerly Hospital obtained $393,000 in its recent drive. The plans call for a $200,000 building, exclusive of furnishings and equipment, which will cost $35,000. The nurses' home will cost, including furnishings, $37,500.

TENNESSEE

Personal.—Dr. Howard C. Stewart, Clarksville, has resigned as head of the Montgomery County health unit. He will be succeeded by Dr. Jesse R. Harris, former city health officer of Tampa, Florida.

Hospital News.—The Hospital for Crippled Adults, Memphis, formerly known as the Presbyterian Hospital, will be opened this month.——The George W. Hubbard Hospital of Meharry Medical College, Nashville, is being enlarged. The General Education Board appropriated $88,000 for this purpose.

Tribute to World War Physicians.—A tablet was unveiled in Confederate Park, Memphis, July 4, bearing the names of four members of the Memphis and Shelby County Medical Society who died in France during the World War: Capt. Robert B. Underwood, Lieut. Abner P. Hubert Sage, Lieut. Grover Carter, M. C., U. S. Army, and Lieut. Norwin Battle Norris, M. C., U. S. Navy.

TEXAS

University News.—A scholarship of $150 a year is now open to undergraduates in medicine at the University of Texas Medical School, Galveston, to be known as the Dr. J. B. Kass Scholarship for Research in Preventive Medicine.——Baylor University College of Medicine, Dallas, has purchased, from the city of Dallas, the three-story building adjoining the present laboratory building, to be remodeled for the autumn session. The departments of pathology, bacteriology and histology will be housed in the new building, while the present medical school building will house the departments of anatomy, physiology, biochemistry and pharmacology.

VIRGINIA

University News.—President Alderman of the University of Virginia Department of Medicine, Charlottesville, has appropriated $25,000 from a previous gift of $250,000 made several years ago by Colonel Payne of New York, to be used by Dr. Alderman in meeting the needs of the institution. This was added to a gift of $50,000 made in 1922 by Mr. McIntyre for a new wing to the university hospital.

WASHINGTON

Personal.—Dr. Howard L. Hull, formerly of the U. S. Veterans' Hospital, Walla Walla, has accepted the position of superintendent and medical director of the Oakhurst Tuberculosis Sanatorium at Elma.

American Society of Clinical Pathologists.—At the second annual convention of this society, Dr. William C. MacCarty, Rochester, Minn., was elected president; Dr. John A. Kolmer, Philadelphia, vice president, and Dr. Ward Burdick, Denver, secretary-treasurer. The funds of the society will be largely devoted to the publication of a journal which will soon be established. The next meeting will be held in Rochester, Minn., the week previous to the American Medical Association session in Chicago.

CANADA

Clinical Society Formed.—A new society, called the Montreal Clinical Society, has been formed in Montreal. The following were elected officers: president, Norman Viner; vice president, Max Rabinovitch; secretary-treasurer, Nathan Freedman; executive committee, Samuel Ortenburg, Samuel Eidlow, Charles J. Gross, Abraham P. Ship and David L. Mendel.

Tuberculosis Dispensaries.—Dispensaries for the treatment of tuberculous people in the Province of Quebec will be established soon throughout the province. The dispensaries will be located in hospitals already established, or in other institutions. The government does not intend to erect buildings of its own. School dispensaries are to be established in Montreal and Quebec, where nurses and physicians will be trained.

Personal.—Dr. George D. Porter, Toronto, has been appointed head physical director at the University of Toronto, succeeding Dr. James W. Barton, who resigned last spring. Dr. Porter will continue his other duties as lecturer on hygiene at the university.——Dr. Henri A. LaFluer, Montreal, has been nominated, by the governor general of Canada, to succeed the late Sir Thomas George Roddick on the Medical Council of Canada.

Canada and Insulin. — In order that the manufacture of insulin can be carried out on the cheapest possible basis, the Drury government, by order-in-council, recently made a grant of $25,000 to the board of governors of the university in response to a request for the purchase of additional manufacturing equipment. Laboratory equipment worth $18,000 has already been ordered. The work will be under the direction of the Connaught Laboratories.——The University of Toronto's exhibit of the manufacture of insulin at the Canadian National Exhibition, Toronto, is attracting considerable attention, as the original utensils used by Dr. Banting, who officially opened the exhibition, are on display. The university has converted the old Y. M. C. A. building into a plant for the manufacture of insulin under the supervision of Prof. C. H. Best.

Canadian Vital Statistics.—The preliminary summary of the returns of births, deaths and marriages for the year 1922 for the provinces of Prince Edward Island, Nova Scotia, New Brunswick, Ontario, Manitoba, Saskatchewan, Alberta and British Columbia (Dominion Bureau of Statistics) has been published. The total birth rate for these provinces was 24.8 per thousand population, compared with 26.3 for the previous year. British Columbia has the lowest birth rate, with 18.0, and New Brunswick the highest, with 29.2. The infant mortality rate was 86.6, ranging from 64.6 in British Columbia to 103.7 in New Brunswick. Maternal deaths were 5.5 per thousand living births. Alberta was highest with 6.90, and Prince Edward Island was lowest with 3.4. Puerperal albuminuria and convulsions were responsible for most of the deaths. The death rate per thousand population was 10.4 compared with 10.6 in 1921. Cancer accounted for seventy-five deaths in every 1,000, and tuberculosis for sixty-eight. The marriage rate was 7.3 in 1922 and 8.0 in 1921.

GENERAL

Directory of Welfare Agencies.—The Children's Welfare Federation has recently announced that the *Directory of Child Welfare Agencies* is now ready for distribution. This directory gives information regarding all work which is carried on to safeguard and care for children.

Health Laws in Many States.—During recent sessions of state legislatures in forty-one states, legislation pertaining to health was an important activity. It is reported that New York led in the number of health bills introduced, and was followed in order by Illinois, California, Connecticut, New Jersey, Minnesota, Nebraska, Wisconsin, Missouri and Delaware, each having had twenty or more bills to consider.

Priestley Medal Awarded.—At the annual meeting of the American Chemical Society at Milwaukee, September 12, the Priestley Medal, awarded triannually by the society for distinguished services to chemistry, was bestowed on Dr. Ira Remsen, president and professor emeritus of Johns Hopkins University, Baltimore, at ceremonies at Marquette University. Dr. Remsen, who is 77 years of age, is editor of the *American Chemical Journal* and a past president of the American Chemical Society.

Society News.—The American Red Cross will hold its annual meeting in Washington, D. C., September 24-27.——The American Hospital Association's annual session will be held this year in Milwaukee, October 29.——October 25, the New York City Tuberculosis Conference will be held at the Academy of Medicine.——The annual meeting of the Tri-State District Medical Association (comprising Iowa, Illinois, Wisconsin and Minnesota, and districts of surrounding states) will be held at Des Moines, Iowa, October 29-November 1, under the presidency of Dr. Horace M. Brown, Milwaukee.

Iowa-Illinois Medical Society.—At the annual meeting of the Iowa and Illinois Central District Medical Association in Davenport, Iowa, August 30, the following officers were elected for 1923-1924: president, Dr. Frank J. Otis, Moline, Ill.; vice president, Dr. William S. Binford, Dixon, Iowa; secretary, Dr. Karl W. Wahlberg, Moline, and treasurer, Dr. William D. Snively, Rock Island, Ill. Drs. Benjamin H. Orndoff, Dean Lewis and Julius R. Grinker, all of Chicago; Dr. Rood Taylor, Minneapolis, and Dr. Aldred S. Warthin, Ann Arbor, Mich., were among the visiting physicians who addressed the meeting.

Filled Milk Bills Passed.—The legislatures of Washington and Oregon at their 1923 sessions adopted laws which prohibit the manufacture and sale of filled milk products and of margarins containing vegetable oils. The laws in the two states are practically identical. In both states the retail grocers made use of the referendum and succeeded in getting the laws suspended until November, 1924, when they will be voted on by the people of the two states. It is stated that during the next year and a half the people of the two states will continue to use margarin. It is said that this is the first time that a law prohibiting the sale of margarins containing vegetable oils has been passed, and a distinction drawn between margarin and oleomargarin. Advocates of these laws consider them health measures.

Resident and Travel Scholarships to Physicians.—The American Child Health Association has appropriated $10,000 for scholarships for physicians to afford an opportunity to secure training in child health work which will fit them for positions with state and municipal organizations. The fund will be allotted in amounts suited to the objectives arranged for the students. Physicians in good standing in their local medical societies, who present evidence of the following qualifications, will be eligible for these scholarships: (1) graduation from a Class A medical school and a license to practice in the states from which they apply; (2) real interest in child health, and (3) either special instruction or practical experience in public health or child hygiene, including school health work. Preference will be given those having such experience. Scholarships will be available during the school year of 1923-1924 and the summer of 1924. Additional information may be obtained from the American Child Health Association, 370 Seventh Avenue, New York City.

Fellowships of National Research Council.—During the first year of the operation of the fellowships in medicine of the National Research Council, thirty-one persons were appointed for work in various fields of medicine in different institutions. Fourteen of those requesting reappointment were reappointed as follows:

Name	Place of Work	Specialty
Errctt C. Albritton	Ohio State University	Physiology
William D. Andrus	University of Cincinnati	Surgery
Barry J. Anson	Harvard Medical School	Anatomy
Michael J. Bent	College of Physicians and Surgeons, New York	Bacteriology
William V. Cone	Iowa State University	Neuropathology
George M. Curtis	Rush Medical School	Surgery-medicine
Loyal E. Davis	Northwestern University	Neurosurgery
Ronald M. Ferry	Harvard Medical School	Biochemistry
William G. Lennox	Harvard Medical School	Medicine
Paul B. MacCready	Johns Hopkins Medical School	Laryngology
Jay McLean	Leipzig, Germany	Surgery
Paul Reznikoff	Harvard Medical School	Physiology-medicine
Sanford M. Rosenthal	Johns Hopkins University	Pharmacology
Gerald S. Shibley	Columbia University, New York	Medicine

Following a recent decision of the medical fellowship board, for a time at least, no fellows will be appointed directly for work in a clinical branch of medicine unless they have served or plan to serve an apprenticeship in one of the medical sciences. New fellows appointed for the year beginning July 1, or shortly thereafter, are as follows:

Name	Place of Work	Specialty
Edwin Cowles Andrus	University of London	Physiology
Howard B. Barker	University of Michigan	Anatomy
Nathaniel Kleitman	Oxford Univ., England	Physiology
David P. Morgan	Harvard Medical School	Biochemistry
Erich W. Schwartze	University of London	Pharmacology
Joseph M. Scott	Johns Hopkins School of Hyg. and Pub. Health	Bacteriology and parasitology
Harry P. Smith	Columbia University	Chemistry and pathology

FOREIGN

Formaldehyd Nondutiable.—The Board of Trade, London, England, has ruled that formaldehyd be excluded from the list of articles chargeable with duty under Part 1 of the Safeguarding of Industries Act.

German Medical Journals Suspend Publication.—The London *Times*, August 23, announces that the *Deutsche medizinische Wochenschrift*, the *Münchener medizinische Wochenschrift* and the *Klinische Wochenschrift* have suspended publication, owing to the exorbitant cost of production.

Child Welfare in Hungary.—The first Hungarian Child Welfare Exhibition was opened in Budapest, July 16. The exhibits were divided into various groups—hygienic, educational and medical. A collection of apparatus for the correction of deformities, a number of skulls of children from the pathologic museum of the pediatric clinic, a series of models illustrating the various diseases of childhood and statistics relating to child accidents were among the exhibits.

Primitive Surgical Instruments Exhibited.—Capt. M. W. Hilton-Simpson, author of *Arab Medicine and Surgery,* has donated, to the Museum of the Royal College of Surgeons of England, a series of primitive surgical instruments used at the present day by the Shawiya, a Berber tribe living in a remote part of Algeria. The collection includes the primitive bone saw known to Ambroise Paré and modified by Hey. A collection of ophthalmic instruments used in the island of Crete during the Venetian occupation, collected in Crete seventy years ago by Admiral Spratt, were also recently presented to the museum by Colonel Spratt-Bowring.

The International Conference on Cancer.—In this meeting held recently at Strasbourg, Ishikawa pointed out that by painting the inside instead of the outside of the rabbits' ears with tar, the animals are unable to rub it off, and the proportion of "takes" is much larger. He reported 30 per cent. "takes," with 1.8 per cent. metastases. Fibiger emphasized that the experimental cancer continues its evolution after cessation of the irritation. Murray urged special research on the refractory condition entailed by one cancer, which seems to prevent the "take" of a second of any kind. Bayet insisted on the identity of "tar disease" and chronic arsenic poisoning. Bruno Bloch of Zurich reported the production of experimental cancers by the action of the roentgen rays alone, two sittings a week for three years. The advantages of cancer thus produced are the exact dosage thus possible and the invariability of the causal agent. Daels stated that preliminary injection of tar under the skin always prevented the development of cancer above.

International Dental Federation.—The second annual meeting of the International Dental Federation was held at the Sorbonne, Paris, August 6-10, under the presidency of Dr. Truman W. Brophy of Chicago, U. S. A. The federation has given several hundred pounds (sterling) for the relief of dentists in Russia. The Miller Memorial Prize, a gold medal, a sum of money and an illustrated diploma, was presented to Dr. John Howard Mummery, a dental surgeon of London, for work in dental histology. Jensen exhibited a metal plate for a denture which is used among employees in Krupp's factories at Essen. The plate has the appearance of platinum but is very thin stainless steel; five years' use had shown it to be practically unbreakable, and not acted on by the oral fluids. Messrs. Krupp, makers of the metal, have refused to divulge the secret of its manufacture, it was stated. The meeting was opened by M. Maunoury, minister of the interior, in the absence of President Poincaré. An excursion was made to the country home, near Versailles, of Pierre Fauchard, "the father of French dentistry," who died in 1786.

Deaths in Other Countries

Dr. **R. C. Ackland,** physician and dentist; formerly dental surgeon to St. Bartholomew's Hospital, London, and, during the World War, medical officer in charge of the Red Cross Hospital for Facial Injuries, London; died, August 6, aged 58. ——Dr. **J. Edgar P. Davies,** secretary of the S. Wales division of the British Medical Association.

CORRECTIONS

Treatment of Epilepsy.—In the abstract in The Journal, August 11, p. 510, the drug used by Maillard and Meignant was phenobarbital, not barbital.

Medical School Exists.—The name of the University and Bellevue Hospital Medical College, New York City (The Journal, August 18, p. 576), should have been printed in heavy faced type, and in the column under "Classification"; should have been shown rated in Class A from 1907 to 1924.

The Integrity of the Spinal Symphyses.—In The Journal, July 21, appeared a letter from Dr. L. C. Kellogg, College of Medical Evangelists, Loma Linda, Calif., with the heading, "Impossibility of Moving the Vertebrae." The letter showed the strength of the union between the bodies of the vertebrae and their adjacent cartilages. The title, "Impossibility of Moving the Vertebrae" was placed on the article by the editor. The title should have been, "The Integrity of the Spinal Symphyses."

Discussion on Paper of Dr. Boyd-Snee.—In the discussion on the paper by Dr. Boyd-Snee, published last week, the following was accidentally omitted:

Dr. Austin A. Hayden, Chicago: The paper contemplates a radical change in the indications for operation in mastoid disease. The following symptoms ordinarily lead to mastoid operation: First, a history of nose and throat infection with the occurrence of pain in the ear and tenderness over the mastoid, a bulging drum, and general symptoms of absorption. That includes temperature, malaise, vertigo, joint infection, heart infection, etc. Up to the present time perhaps the pain and tenderness in the course of an acute otitis media have been given more attention than any one symptom in the diagnosis or decision for operative interference. Scant attention had been paid to the character of the exudate from the tympanic cavity. Now, to subvert these findings almost entirely to the bacteriologic findings in the exudate from the tympanic cavity is of course a most radical change. If I understand Dr. Boyd-Snee's contention correctly, the finding of the streptococcic organism is of little importance. Setting aside these symptoms, the contention that the discovery of the organism in the exudate is of itself an indication for immediate operation is, of course, a most radical departure. This is substantiated by an unusual clinical experience in Dr. Boyd-Snee's cases, an experience backed up by ample postmortem and laboratory confirmatory work. There is just this objection, however: that the general number of these cases occur in one single epidemic, or at least in one locality, and they may well be regarded as a single epidemic of ear infection. Dr. Boyd-Snee saw many of the patients that were not operated on, possibly many of the patients that were operated on late; he saw unfavorable results in his military work, and perhaps in his private work, but I believe that other groups of cases should be studied before these conclusions can be generally accepted. His premise is not sufficiently wide to justify the radical conclusions that are drawn.

Foreign Letters

PARIS

(From Our Regular Correspondent)

Aug. 17, 1923.

Extent of Physicians' Property Rights

As I pointed out in a previous letter (The Journal, May 19, 1923, p. 1467), the protection of the results of scientific researches in France is still merely a plan and not an accomplished fact; literary productions and artistic creations are amply protected by law. Such legislation is of interest to a large number of physicians. The law is obliged to take account of the ever widening practical applications of art and tends to interpret as broadly as possible the principle of ownership. The utilitarian purpose of an artistic creation cannot be held to deprive it of the protection to which works of pure art are entitled, provided it bears enough of individual stamp to be considered a personal creation. With reference to physicians, the question arose for the first time in connection with a lawsuit instituted by the surgeon Doyen. From the first invention of cinematography, Doyen employed this means for the portrayal of surgical operations. The films were turned over to a custodian, with the understanding that they were to be preserved but that the custodian should have the privilege of showing them at medical gatherings; all other rights were to be retained by Doyen. The custodian, however, sold the films to a motion picture syndicate, which exhibited them to the general public. Doyen thereupon petitioned the courts for a restraining order, setting up his proprietary rights. In this suit the proprietary rights of the physician were clearly and fully established, and today it is universally recognized that the physician who, in the course of his service, produces a work of art possesses all the rights over such artistic production that inure to any author. Surgeons hold proprietary rights over illustrations used in their books. The same is true of models prepared to illustrate conditions in patients, or statuettes that reproduce certain deformities for purposes of instruction. Likewise, roentgenologists hold property rights in their roentgenograms.

In recent articles on the juridical aspects of this question, E. H. Perreau, professor on the law faculty of the University of Toulouse, points out, as one of the necessary consequents of the proprietary rights in artistic productions, the fact that photographs, roentgenograms, films, models, statuettes, etc., taken of the patients or applied to them cannot be claimed from the physician by the client unless there has been some agreement to that effect. The client is under the same obligations as any one else to respect the property rights of the physicians, and he may not, without the consent of the physician, reproduce photographs, roentgenograms, etc., that the physician has intrusted or given to him. On the other hand, respect for the personality of the client imposes certain restrictions on the proprietary rights of the physician. The rights that every one exercises over his own physiognomy prevents the physician from exposing to public gaze, and particularly by publication in a book, any reproduction of the features or physical peculiarities of the client, which would lead to his recognition, without the consent (at least implied) of the person in question. Any violation of such rights of the client would entitle him to recovery of damages, besides the suppression of the illustration, a suppression that might be disastrous if a book containing the illustration in question has already been put in circulation. Furthermore, if a publication reveals facts that may work harm to the patient, it would constitute a violation of privileged communication. The law decides that even scientific interest cannot be pleaded in defense of a violation of privileged communication on the part of a physician; it furnishes no justification for such a publication even in an exclusively scientific book. A physician desiring to insert such a reproduction in a medical publication must therefore carefully obliterate all marks of identification. The question has even been raised whether the consent of the client would suffice to authorize the publication in a form in which the identity of the person could be recognized.

"Dental Surgeons" and the Doctorate in Medicine

The art of dentistry was long practiced in France without restraint; many dentists were empirics or even out-and-out charlatans, whose shamelessness had become proverbial—"he lies like a tooth puller" was said of a man who lied with effrontery. The law of 1892 regulating the practice of medicine had the effect of elevating the profession of dentistry, in that it established regulations for its control and decreed that the practice of dentistry should be confined to persons who possessed a degree of doctor of medicine or a diploma of "dental surgeon," conferred by the French government on the basis of special studies and examinations taken before the authorities of a state institution for higher medical instruction.

A considerable number of doctors of medicine have devoted themselves to the art of dentistry, and of this profession, in which formerly technical skill was everything, they have made a veritable branch of medicine: stomatology. Not content with what has been accomplished, the dental surgeons would like to raise still further the rank and dignity of their profession by a reform of dental studies. Two main tendencies or schools are manifesting themselves and are giving rise to many lively discussions. These two tendencies are represented by the odontologists and the stomatologists. The odontologists, who comprise especially the professional group of the Ecole dentaire of Paris, would like to see the diploma hitherto granted to the *"chirurgien-dentiste,"* or dental surgeon, replaced by a diploma to be given to a *"docteur en chirurgie dentaire"* (doctor of dental surgery); they recommend, in addition, that there be created a scientific university doctorate for the dental art to be known as the "doctorate in odontology," which shall be open only to those who hold the diploma of a dental surgeon. They demand thus, in reality, two doctorates: a doctorate in dental surgery and a sort of "superdoctorate" to be called "doctorate in odontology"; for the latter one or two years of extra study would be required.

The stomatologists, on the other hand, demand simply the suppression of the diploma of dental surgeon and the substitution of the degree of doctor of stomatologic medicine; they recommend further that temporary measures be adopted to enable the present "dental surgeons" and dental students, to secure the doctorate in medicine.

The program of the odontologists has raised a storm of criticism. For instance, Dr. J. Noir, in a contribution to the *Concours médical,* expresses the fear that the realization of their program would be the beginning of a flood of special doctorates, which would eventually undermine the degree of doctor of medicine and would soon destroy the essential unity of the medical profession.

Dental Hygiene in France and in the United States

One argument that is presented against the extension of dental studies is that the present number of dentists is not sufficient for the needs of the French population. If, it is urged, with the present standard of requirements for the diploma of dental surgeon it is impossible to secure a sufficient number of recruits, how would it be if the degree of doctor of medicine were a prerequisite to the practice of dentistry? In an article on the reorganization of instruction in dentistry, which appeared in the *Revue de stomatologie,* Dr. Sauvez replies to this objection. We often hear it said that there are not enough dentists in France, and our attention is called, at the same time, to conditions in the United States. But, Sauvez remarks, one must take into account the different mentality of the two peoples. From the point of view of dental hygiene, "the mentality of the American people is immeasurably higher than that of the French people." The American people have their teeth cared for and consider, justly, that the care of the teeth is as necessary as the care of any other part of the body. The French people take poor care of their teeth. The more highly educated classes, especially the society people, are about the only persons who go to the dentist. The remainder let their teeth go to ruin. If there were today, in France, double the number of dentists, that would not change the mentality of the people. This mentality, to be sure, began to change under the influence of the war, and gradual improvement may be expected, as the result of the instruction in dental hygiene in common and secondary schools and universities, as the result of the dental care that, according to the new military regulations, will be given our young soldiers, and as the natural result of the more rational treatment of general diseases when the general practitioners shall finally have realized the importance of the teeth, their infections and their presence or absence in the organism.

In this respect, as in so many other fields of hygiene, the Americans have exerted a beneficent influence in France. Dr. J. Noir, in an article in the *Concours médical,* affirms that "the war and the presence in our midst of the Americans, who take especially good care of their teeth, has awakened an increased interest in the hygiene of the mouth, even among the peasants, who were heretofore hard to convince." A dentist told Dr. Noir recently that, since the war, a considerable number of agriculturists living in the environs of Paris were coming to the city to have gold fillings put in their teeth and receive other dental attention—something he had never seen before.

The Number of Dentists in France and in Foreign Countries

The question has been raised whether, leaving out of consideration the United States, it is true that the number of dentists in France is less than that of other countries. Dr. Sauvez gives some interesting statistics. In the German empire, before the war, there were 3,575 so-called *approbierte Zahnärzte* (graduate dentists), corresponding to the "dental surgeons" of France, and from twenty-five to thirty doctors of medicine practicing dentistry, although they had not received the degree of *"Zahnarzt,"* making 3,600 officially recognized dentists for a population of approximately 65,000,000, or fifty-five dentists for each million inhabitants. It is true, there were also about 5,000 persons practicing dentistry without a diploma, which is permissible in Germany, and if we include these nongraduate dentists, we find that Germany had 132 dentists for each million inhabitants. In England, according to the records of the British Dental Association, the number of registered dentists in Great Britain and Ireland at the beginning of 1920 was 5,420 for a population of about 44,000,000. The number of registered dentists in Great Britain at the beginning of 1922 was 5,831. There are no statements in the Medical Register of 1922 in regard to the number of nongraduate dentists, but we know that the number was very large. These data will, however, soon be made known, for the Dentist Act of 1921 is practically a new law regulating dental practice in the British Isles. Whatever may be the number of nongraduate dentists in England, the number of graduate dentists per million inhabitants is about 132.

It will be noted as a coincidence that this figure (132) is exactly the same as that representing the proportion of dentists in Germany, but with the difference that for Germany the nongraduate dentists are included. There are, then, in England a great many more dentists, in proportion, than in Germany. As for our two small neighboring countries, Belgium and Switzerland, in which a graduate diploma is required for the practice of dentistry, we find about 350 dentists in Switzerland for four million inhabitants and in Belgium 600 dentists for eight million inhabitants. Thus, in Switzerland, where the teeth of the inhabitants are very bad, though the people take proportionately better care of their teeth than in France, there are only eighty-seven dentists for each million inhabitants. In Belgium the proportion is seventy-five per million inhabitants.

In the face of these figures, let us inquire into the proportion of dentists in France. According to the most recent and the most complete information that Sauvez was able to secure, there are in France about 5,000 *"chirurgiens-dentistes"* and 700 *"médecins stomatologistes,"* or a total of about 5,700 for a population of less than 40,000,000. In other words, the proportion of dentists in France, including the so-called dental surgeons and the stomatologists, is about 140 specialists for each million inhabitants.

Of the five countries whose statistics we have inquired into, France has the largest proportion of graduate dentists, and England has evidently the largest proportion of dental specialists if we include both graduate and the nongraduate dentists.

It is of historical interest to note that, in 1790, there were only five dentists in Paris; in 1814, twenty; in 1828, about 140, 100 of whom were doctors of medicine. In 1841 the number of dentists in Paris had passed the 300 mark.

Distribution of Dentists in France

At present, of the 5,700 dentists or stomatologists in France, there are 1,500 at Paris and in the department of the Seine; that is, more than 25 per cent. of the total for approximately 5,000,000 inhabitants, while there are only 4,200, less than three quarters, for the other departments with a population of 35,000,000. According to Sauvez, nine tenths of the dentists are located in the large cities. The small towns often have not a single dentist, but in many regions the dentists in the large cities make a practice of spending one or two days each week in the neighboring small towns. However, to judge from recent 1923 reports, towns of less than 10,000 inhabitants are beginning to have one or two dental practitioners.

Truss Manufacturer Sentenced for Fraud

A case that was tried recently before the correctional court of Mamers (department of Sarthe) shows to what length charlatanism may go in the illegal practice of medicine. A farmer who had received several circulars announcing the sojourn of a "hernia specialist" at Mamers went to the address indicated. He found himself in the presence of a representative of a manufacturer of hernial supports, who requested him to remove his clothing, and who examined him; he then invited him to be seated and to count up to forty. Hereupon he announced that the farmer was suffering from hernia, which would require two years' treatment to cure and would entail a cost of 1,600 francs. When the peasant refused to pay this sum, he consented to grant a rebate of 600 francs. The client still refusing to accept his offer, he showed him an illustration representing a man suffering from an enormous eventration, and said: "This is what you are coming to if you do not take care of yourself. Your hernia will become strangulated; you won't be able to work and you will soon be confined to your bed." Frightened by this prognosis and this dreary outlook, the farmer then consented to purchase an apparatus at the price of 1,000 francs, of which sum he paid, by way of earnest money, 150 francs, the balance of 850 francs having been paid on receipt of two appliances, one for day wear and one to be worn at night.

It happened that the peasant was suffering from a hydrocele. The manufacturer's agent was perfectly aware of that fact, but, since he had received from his employer instructions "not to let a client off with less than 500 francs a year," he made the peasant believe that he had a hernia. In the illustrated prospectus of the manufacturer, which was sent to the homes, it was stated that "hernia is a great menace to life. Almost all persons with hernia die from this infection in the full strength of their years," and it went on to say that hernia is hereditary but can be radically cured, and that hundreds of unfortunates owe their good health to the appliances manufactured by the house in question.

The court declared the manufacturer and his representative guilty of fraud, and sentenced the former to two months in prison, together with the payment of a fine of 2,000 francs. The manufacturer's agent was given a sentence of one month in prison. They were also compelled jointly to return to their client the sum of 1,000 francs.

Aside from the question of fraud, illegal practice of medicine may also be charged in such cases. If a client merely requests a salesman of surgical supplies to take his measure for an appliance suitable for his infirmity which has been previously diagnosed by a physician, the seller could not under those circumstances be charged with having practiced medicine illegally. The merchant even has the right to show his client the method of using the appliance that he has sold him; for example, the method of applying a bandage or of wearing an orthopedic girdle. But if the patient comes to a surgical supply house and asks to be examined to see whether he has a hernia and needs a truss, the merchant must refuse to give a diagnosis, since he is not a physician. If he sells a patient a truss after having examined him and given his opinion as to the diagnosis, he may be found guilty of fraud, either separately or combined with illegal practice of medicine, and may also be charged with having caused wounds through imprudence, for, filled solely with a desire to sell an apparatus, a merchant sometimes applies trusses improperly over lesions that are not hernias. Serious disease processes and disorders have been noted as the result of the application of a truss over a hydrocele or an inguinal adenitis.

LONDON

(From Our Regular Correspondent)

Aug. 27, 1923.

The Cancer Menace

The ministry of health has issued a circular to the local health authorities stating, in nontechnical language, the present status of our knowledge of malignant disease as summarized by a departmental committee on cancer of experts appointed for the purpose. Apart from the appointment of this committee, the minister has directed the medical intelligence service of the department to keep in touch with the developments of cancer investigation, and the department undertakes the prosecution, in regard to cancer, of researches of an epidemiologic and statistical character, both at home and abroad. The circular points out that in the space of two generations the recorded mortality of cancer has trebled. This increase cannot wholly be accounted for by longer life or better diagnosis. On the other hand, the death rate from cancer is not now increasing for men up to 45 years, and for women up to 60. The most rapid increase is occurring in extreme old age. Hereditary predisposition to cancer has not been proved to be of any practical importance in the case of man. Nor can it be said that the use of any particular food increases the liability to cancer or prevents it from occurring. The idea of "cancer houses" is unsupported. Cancer has not been proved to be infectious or contagious. The danger of long-continued irritation, such as from a clay pipe on the lip or a jagged tooth, is indicated. It is urged that every form of chronic irritation, suppuration or ulceration be treated at once. Early recognition not only of cancer but also of precancerous states is important. The public should know that cancer in its early stages is almost invariably not accompanied by pain, and is sometimes painless throughout. The good results of operation in early cases and treatment by radium, roentgen rays and diathermy are mentioned, and a warning is given against recourse to quack remedies.

The Health of London

The annual report of Sir William Hamer, health officer for London, has just been issued. He points out that the wet, cool summer resulted in a remarkable diminution of infantile diarrhea, the mortality for infants under 1 year being 6.26 per thousand births, as against 18.6 in 1921, and 24.2 on the average of the four years 1911-1914. The general death rate was 13.5 per thousand, one in excess of that for the previous year. Typhoid fever continued to decline, only 264 cases being notified. As the table shows, the infant death rate has been steadily declining in recent years:

Infant Death Rate—Under One Year Per Thousand Births

1915	1916	1917	1918	1919	1920	1921	1922
112	89	104	108	85	76	81	75

There were sixty-five cases of smallpox, of which twenty were fatal. The majority of these cases, possibly all of them, were primarily due to the nature of the illness being overlooked in the first instance. The bulk of the cases occurred in an institution in which vaccination had fallen into abeyance. London was not invaded by mild smallpox, which has been prevalent in the North and Midlands for two years. Measles caused 1,563 deaths in 1922; whooping cough, 1,128; scarlet fever, 301, and diphtheria, 1,145. The death rates from "consumption" were: men, 2,841, and women, 2,047, giving a total death rate of 1.08 per thousand, as against 1.07 in 1921.

The twenty-fifth annual report of the Metropolitan Asylums Board (the body that controls the fever hospitals of London) for the year ending May 31, 1923, has just been issued. The year 1922 was the third from the beginning of high prevalence of infectious disease in London. The incidence here of scarlet fever and diphtheria fluctuates greatly. In 1922, the incidence fell rapidly toward normal, and the fall has continued in 1923, so that London appears now to be on the way to an interepidemic trough. A remarkable feature of the epidemic years was the increase of diphtheria. The number of cases rose from 2,551 in 1921 to 3,237 in 1922. In 1922-1923, the incidence of diphtheria gained to a greater and greater extent on that of scarlet fever, overtaking it in October, and exceeding it for many months late in 1922 and early in 1923. This phenomenon has been observed only once before during the last thirty years.

The Smallpox Epidemic

The number of cases of smallpox continues to decline. In the last weekly return the number of fresh cases was twenty-eight, of which twenty occurred in Gloucestershire. At Gloucester, there are now only a few mild cases. As previously stated, the epidemic in that city has been remarkably mild. The authorities are showing vigor in carrying out the law. One man has been fined $25 for obstructing the removal to a hospital of his daughter, who was suffering from smallpox. Dr. Hadwen, the antivivisection and antivaccination leader, paid the fine. He submitted that there was sufficient accommodation for isolation in the defendant's house. He also said that another physician and he were perfectly convinced that the case was a mild form of chickenpox. Those readers who know anything of his recent American campaign will not be surprised at the mischief his position as a physician enables him to do.

Tour of British Medical Students

A party of eighteen British medical students has started on a three weeks' tour of the principal European hospitals. They are visiting the most famous clinics in France, Belgium, Holland, Germany, Czechoslovakia, Austria and Switzerland. The tour has been arranged by the National Union of Students. In each country the party will be met and taken in charge by medical students on the spot, who will look after their English guests and assist the authorities of the hospitals in showing them everything of interest. The National Union of Students pays especial attention to providing opportunities of this kind for its members. It has arranged tours for agricultural students to Denmark, for engineers to Switzerland and Germany, and for chemists to Czechoslovakia. All these trips are carefully carried through with the help of the university students in the countries visited. They not only provide educational advantages for British students, but also serve to promote a good international understanding among the countries of Europe.

The Spahlinger Serum

The press campaign in support of Spahlinger's claim that he has discovered a cure for consumption continues, but, as yet, the ministry of health has declined to do more than state that the matter is one for investigation. Impressed by this campaign, some of the approved societies (friendly societies recognized by the government under the National Insurance Act) desire to use their funds in order to secure treatment by Spahlinger's serum for their members. The ministry of health has refused to sanction this. The Lancashire Insurance Committee asked permission to grant $5,000 to assist in securing the serum for Lancashire consumptives, but the minister of health replied that neither the government nor the approved societies could legally make this grant. It has therefore been decided that a party of representatives of the societies will visit Spahlinger's laboratories at Geneva and that afterward a public appeal for funds will be made. How the lay representatives of approved societies can decide the question of the value of Sphalinger's serum, on which experts cannot make up their minds, is a difficulty that does not appear to have been considered.

Light and Heat from Sewage

At a recent conference of the Royal Sanitary Institute, a paper was read by Mr. Arthur Martin on "Hot Water Supply and Sludge Disposal." He showed that it might be possible to utilize sewerage works to illuminate and supply houses with hot water. As is well known, gas is generated in large quantities by the spontaneous decomposition of sludge. The sewerage works at Exeter were lighted for many years with gas from the septic tank. The Leper Hospital near Bombay pumps its sewage, lights its buildings and cooks its food by gas derived from the same source. The gas is due to the decomposition of cellulose by bacteria. It consists of methane (in largest quantity) carbon dioxid, hydrogen, nitrogen and oxygen. The problem of heating and lighting from this source is simply an economic one.

The Dental Condition of the Population

At the annual meeting of the British Dental Association, the president, Mr. George G. Champion, in his inaugural address said that the views of the association had at last received recognition by the government, which had laid down a skeleton organization for dealing with this urgent problem of national health and efficiency. It was now known, on the authority of a government committee's report, that one third of all the disease in the country was due, directly or indirectly, to dental disease. Among the general population, the condition of the teeth in women was worse than in men. In the western command of the army it was found that between 80 and 90 per cent. of the recruits needed dental treatment. To avoid the trouble which follows dental disease, it was essential to provide from earliest childhood for adequate inspection and treatment, including the practice of cleanliness, the use of a detergent diet, and early conservative dentistry. The state and local authorities had created a nucleus of an organization by arranging a dental service in 232 of the 1,870 maternity and child welfare centers. Other forms of dental service were those of school clinics, tuberculosis clinics, "additional benefit" under the Health Insurance Act, industrial dental clinics, and the naval and army dental services. But, even with the clinics privately organized by the large number of industrial firms, the national service was quite inadequate. The school clinics were staffed with dental officers only to the extent of one to more than 15,000 children, while for efficient work there should be one to every 5,000 children.

BELGIUM

(From Our Regular Correspondent)

Aug. 23, 1923.

The Belgian Surgical Society

The Belgian Surgical Society has held its regular general assembly at Brussels under the presidency of Professor de Beule of Ghent. The meeting was rendered of especial interest by the demonstration of operations by the surgeons of Brussels. Three main subjects were discussed:

ETIOLOGY OF PULMONARY EMBOLISM

Coryn presented a comprehensive paper demonstrating that all the phenomena of embolism originate from thrombophlebitis. Infarcts must be distinguished from true emboli. The statistical figures for infarcts are practically identical with those for thrombophlebitis in regard to the type of patients, their age, the interval since operation, the character of the disease, and the nature of the operation performed. One may conclude that the genesis of the infarct is identical with that of thrombophlebitis.

Similar correlations exist for emboli, but, on closer scrutiny, certain discrepancies appear. Embolism occurs, in the large majority of cases, in patients predisposed by cardiac or chronic vascular disease, is more frequent in men than in women, and occurs earlier than thrombophlebitis and especially after operations on the abdomen or pelvis: fibromyomas and cancer of the uterus (in which circulation is slow, and the veins are devoid of valves and have thin walls surrounded by loose cellular tissue). The origin of emboli may be attributed to the development of a thrombus due to a lesion of the vein wall, in a region in which the blood circulation is slow. This thrombus becomes detached, owing to the absence of organization. The pathogenesis of postoperative pulmonary complications is being attributed more and more to embolism.

SURGERY OF THE SYMPATHETIC NERVOUS SYSTEM

Lemoine gave a detailed report on the new and controversial problem of surgery of the sympathetic nervous system. He reviewed the various indications for section or resection of sympathetic nerve fibers, cervical, visceral, pelvic or periarterial. The results of sympathectomy in these various conditions are not constant, but the future of periarterial sympathectomy and surgery of the sympathetic nervous system in general is full of promise and seems to justify the hopes awakened by the importance and the extent of its applicability.

THERAPY OF CEREBRAL TUMORS

Referring to the studies of Cushing, Bremer discussed the difficult subject of cerebral tumors as revealed by the practice of the American surgeon. Bremer has confidence that the combined use of radiotherapy and surgery will bring better results.

Results of the Campaign Against Alcohol

In a comprehensive article published by the Office central d'études contre l'alcoolisme, Dr. Boulenger has pointed out the results of the laws at present in force in Belgium. There has been a 50 per cent. reduction in the consumption of alcoholic beverages since 1910. The per capita consumption is, however, still 2.5 liters. As an indirect result, a decrease in the number of cases of insanity due to alcohol is noted. In this connection, it is interesting to observe that 77.05 per cent. of the cases of syphilis are occasioned by alcoholism. There is also a close relation between alcoholism and criminality. The effects of this important legislation are readily apparent, for alcoholism has been reduced to a stage unknown in Belgium for more than forty years.

Clinic for Weakly Children

A clinic for the weakly infants and children of the less well-to-do has been opened in Brussels. It is operated under the direction of a society for anthropologic study. The clinical results already secured are worthy of interest, especially as they are accompanied by a detailed discussion of the biologic history of the child and a description of his present condition as determined by anthropometric indexes and clinical symptoms. The service is supplemented by the organization of eugenic inquiries in families that present particular medical interest. The model for the questionnaire adopted is that of the Office belge d'eugénique.

The Library of Louvain

The dedication of the first part of the library of Louvain, which was destroyed in 1914, has just taken place amid great festivities. The dignity of the occasion was heightened by the presence of the crown prince of Belgium, who deposited the first book on the shelves of the library. This volume was dedicated to the memory of the 196 students who gave their lives for the liberation of Belgium in 1914. Nicholas Murray Butler, president of Columbia University and chairman of the American Committee for the restoration of the University of Louvain, presented an interesting volume containing the names of the children in the primary schools of New York who subscribed, a few months ago, the sum of $45,000 for the library of Louvain. France was also represented by the Comité français de l'oeuvre de Louvain. The French minister of public instruction sent as a souvenir a collection of eighty fine photographs of the ruins of Reims cathedral.

Appointment

At a recent election, the Royal Academy of Medicine appointed as a foreign correspondent F. C. Waite, professor of histology and embryology in the Western Reserve University of Cleveland, Ohio.

BUCHAREST

(From Our Regular Correspondent)

Aug. 16, 1923.

Changes in the Roumanian Universities

The professorial board of the University of Cluj has introduced a regulation concerning the admission of new students to the medical school, under the terms of which they must pass a special entrance examination. The subjects included in this examination are: Roumanian language, history and geography; natural history; anthropology, and physiology. The examinations are both oral and written. Applicants are admitted to the university conditionally, final registration taking place only after the successful passing of the examination. Under the new statutes, Roumanian citizens must first be admitted to the universities, foreign students being received only when there are vacancies.

The length of the course has also been altered. Instead of the five years heretofore required, students must now attend for six years. In practice this will not lengthen the course, because the final year of practical instruction after graduation is canceled and is replaced by practical experience in clinics and hospitals during the summer vacation months. Professor Vasilin has also proposed that the lectures on descriptive and regional anatomy be restricted to one and one-half years instead of the two years heretofore required, and that students be examined in only one of these subjects. He argued that the present system of medical education is highly theoretical and lengthy. The first two years have been occupied almost entirely by anatomy. Several professors opposed this suggestion, but Vasilin's proposal was accepted with the modification that instead of dropping the fourth half year the study of biochemistry will be introduced.

Devastations by the Columbaci Fly

In almost all villages and towns in Oltenia County, the pastures have been attacked by huge swarms of the Columbaci fly, which have caused the death of more than 30,000 animals. In and around Calrafat, a town in the valley of the Danube, the flies have attacked men also, and many have succumbed to the bites. According to official reports, the Columbaci fly has never before attacked animals and men to such a degree, and it is feared that the flies may spread throughout the villages along the lower Danube. The Columbaci flies resemble the mosquitoes, gnats and tsetse flies; they are of ash-gray, and thickly haired. The first stage of their existence is passed in water, and they mature in May or June. The flies are about 2 or 3 mm. in length, and they swarm about animals (cows, oxen, pigs, goats) in enormous numbers and suck the blood. The infested animal is injured in three ways: rapid loss of blood, the pains of the innumerable stings, and the intoxication that follows the bites. Either of these is capable of causing the death of even the strongest animal. The minister of agriculture has given orders that the animals be taken out to pasture after dusk and driven to the stables before daybreak. In front of the stables smudge fires are to be made from wet twigs and manure. If for any reason the animals must be taken from the stables, the parts of the body devoid of hair are to be smeared with petroleum or tar. If the animals are pastured in the day, they should be driven near rivers with ample water, so that in case of infestation with flies, they can take refuge in the water. Treatment of animals or men attacked is palliative only; the termination is generally fatal, death ensuing in two or three days.

Abolition of the Death Penalty

The Roumanian chamber of deputies has discussed the question of death sentences. M. Cosma, minister of justice, argued that, in the interest of the safety of the state, it is imperative that the death penalty be retained. MM. Vailoiann and Yoanibescn opposed the death sentence. The ministerial board finally decided that the death penalty shall be stricken from the penal code.

Medical Congress in Bucharest

The medical officers of health of Roumania held a congress in Bucharest a few days ago. They discussed chiefly the condition of the hospitals, and agreed that at present the hospitals are disorganized, and their equipment is much behind the times. Dr. Buzenchi, chief medical officer of Bucharest, said that there are many sanitary directorates and superintendencies in the country which cost a lot of money and are really sinecures. It would be wise to discontinue these and to erect new hospitals and equip the old ones with up-to-date installations. A similar opinion was expressed by Professor Marinescu, who proposed that the congress prepare a memorial to the government asking the abandonment of the sanitary superintendencies. Further, he demanded, decentralization of the sanitary institutions, hospitals and insurance offices (all of which are managed from a central office in Bucharest), the hospitals to be made autonomous. At present, if a hospital needs 50 kg. of cotton batting or an artificial leg, it must write to the central hospital superintendency at Bucharest for approval; if the answer is delayed, the man who has lost his leg must leave the hospital without an artificial limb.

BERLIN

(From Our Regular Correspondent)

Aug. 18, 1923.

Making of Surgical Motion Picture Films

A few months ago, I mentioned the use of motion picture films for recording and elucidating surgical operations for teaching purposes. A recent number of a technical journal gives a detailed description of the technic for making these films. Photographs taken with the style of apparatus used by the French surgeon Doyen twenty years ago would give only a perspective projection, in which the area of operation would constitute only a small portion of the field; the operator and his assistants would be unduly large by comparison. The picture also would give a diagonal view of the wound from a distance of from 3 to 4 meters, and would thus be so distorted that details could not be distinguished. Such distortions can be prevented only by placing the camera vertically above the wound. At first thought, it would seem that any kind of photographic apparatus could be used. However, certain complications arise. In order to magnify the operative field as much as possible, a lens of ordinary focal length must be used at close range, from 50 to 75 cm. The focusing of the objective and the correct position of the film carrier must be carefully regulated and maintained. It must be possible for the surgeon himself to make these adjustments from below. The field of operation must be illuminated from above in a manner to eliminate shadows. Finally, the carriers must be large enough to contain sufficient film for half an hour's use. Technical arrangements also must be subordinate to the demands of surgical asepsis.

To meet these conditions, the lamps, the motors required for moving the camera, and part of the apparatus itself, which is of immense size as compared with the ordinary cinematograph, are placed on the floor above the operating room. Light from arc lamps, with suitable reflectors, is thrown from above vertically downward on to the operating table. In the glass ceiling a short sleeve about 25 cm. in diameter is inserted which serves as support for an iron rod about 5 meters long. This rod carries below the front of the cinematograph, and above two film boxes 50 cm. in length, and two steering motors. The rod within the sleeve can be raised and lowered and also turned about its longitudinal axis. The adjustable part of the apparatus is counterpoised, so that little power is required for raising and lowering, which are accomplished by means of a motor located on the floor above. A ball-bearing adjustment is employed to allow of rotation, power for the purpose being furnished by the second steering motor mentioned.

The necessary switches are arranged on a portable switchboard. Since either the surgeon or an assistant must operate the switches, all parts of the apparatus that may be touched by the surgeon must be susceptible of sterilization by boiling. The switch buttons are covered with a sterile cloth, and the buttons are adjusted by means of clamps placed over the cloth. The switch that controls the operation of the film is placed on the floor so that the machine can be started and stopped at will.

The head portion of the apparatus is spherical, and about 40 cm. in diameter. This contains the mechanism proper, including the finder and the objective, arranged about a horizontal axis. Focusing and adjustment of the field of the picture require special training. Both are of supreme importance, since the object to be photographed—the area of the operation—is close to the objective, and slight changes in distance will throw the picture seriously out of focus; slight changes in the field of the picture may also cause important deviations. Therefore, a method had to be devised to meet these difficulties. For this purpose the objective is mechanically connected with a long telescope. By focusing the eyepiece of this telescope, the objective and the film are automatically adjusted to correspond. The eyepiece is covered with sterilizable material.

The film as it runs between the carriers and the exposure chamber lies in a channel beside the long finding telescope. A series of rollers insures uninterrupted movement of the film.

Pictures of operations taken thus far, some of them of considerable length, furnish evidence that the apparatus works well. The illumination of the operative field is so distinct that the pictures, even when greatly magnified, are perfectly clear in all details. Also the perspective in the pictures is brought out unusually well. The important technical details, such as the motions of the knife, the suturing and the position of the various anatomic parts, are brought out distinctly. It is evident that, if the pictures are shown as ordinary lantern slides, important phases of the operation may be retained on the screen for detailed discussion; in this respect the motion picture has an advantage over actual observation of the operation.

In the Empress Frederick House, a few days ago, a Berlin urologist showed motion pictures of the human urinary bladder, and the movements of the bladder musculature were reproduced in a most interesting manner.

Marriages

Allan William Mulligan, Grand Rapids, Mich., to Miss Eloise Carr of Beatrice, Neb., July 30.

Worth Bagley Daniels, Baltimore, to Miss Josephine January of St. Louis, September 3.

Russell Rollin Best to Miss Jane Nye Johnson, both of Omaha, at Cleveland, June 14.

Alice Gracy, Jamaica, N. Y., to Mr. Alfred S. Giordan of South Bend, Ind., August 31.

Mark Hopkins Tibbetts to Miss Mary McGonagle, both of Duluth, Minn., in August.

Frederick David Coleman, Ulysses, Neb., to Miss Lucia Wills of Lincoln, August 29.

Sherrod Austell Lindsey to Miss Irene Hammett, both of Fort Meade, Fla., July 18.

John G. F. Holston to Miss Jessie M. Richards, both of Zanesville, Ohio, July 11.

David W. Register to Miss Margaret H. Vignaux, both of Atlanta, Ga., August 25.

Jerome Powers, Pittsburgh, to Miss Natalie Bergman of Detroit, recently.

Deaths

James Kelly Young ⊕ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1883; assistant demonstrator of surgery, 1886-1892, lecturer and associate professor of orthopedic surgery at his alma mater, and professor of orthopedics at the Graduate School of Medicine of the University of Pennsylvania at the time of his death; member of the American Orthopedic Association, the Philadelphia Academy of Surgery, the Philadelphia Pediatric Society, and the Philadelphia College of Physicians; on the staffs of the Women's Hospital and the Philadelphia Lying-In Charity Hospital; author of "Manual and Atlas of Orthopedic Surgery" and "Synopsis of Human Anatomy"; aged 61; died, August 28, at Beach Haven, N. J.

Seth Scott Bishop, Evanston, Ill.; Chicago Medical College, 1876; died suddenly, September 6, of heart disease; Dr. Bishop was formerly professor of otology, rhinology and laryngology at Loyola University School of Medicine, and the Post-Graduate Medical School, Chicago, and on the staffs of the Illinois Charitable Eye and Ear Infirmary, the Post-Graduate Hospital and Medical School, the Mary Thompson and Jefferson Park hospitals, Chicago, the Silver Cross Hospital, Joliet, and the Illinois Masonic Orphans' Home, La Grange. He was author of "Diseases of the Nose, Throat and Ear" and "The Ear and Its Diseases."

Charles Christian Manger ⊕ Los Angeles; Medico-Chirurgical College of Philadelphia, 1906; member of the Philadelphia Psychiatric Society; formerly professor of neurology and psychiatry at the University of Southern California, Los Angeles, on the staff of California Lutheran Hospital, Los Angeles, and at one time superintendent of the Canyon Crest Sanitarium, Glendale; aged 52; died, August 21.

Charles David Schaeffer ⊕ Allentown, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1889; member of the American Roentgen Ray Society; formerly mayor of Allentown; for many years president of the board of health; on the staff of the Allentown Hospital; aged 58; died, September 2, of pericarditis.

Alexander Dwight Parce ⊕ major, M. C., U. S. Army, Washington, D. C.; University and Bellevue Hospital Medical College, New York, 1903; on the staff of the Walter Reed General Hospital, where he died, August 21, aged 43.

Leonard Scofield E. Sugden, White Horse, Yukon; Cooper Medical College, San Francisco, 1888; for seventeen years surgeon to the Canadian Northwest Mounted Police; aged 60; was drowned, June 8, in the Stewart River.

Harry B. Innes, Pleasureville, Ky.; Hospital College of Medicine, Medical Department Central University of Kentucky, Louisville, 1892; died, August 28, of a self-inflicted bullet wound, while suffering from ill health.

Chester Byron Owens, Brodhead, Ky.; University of Louisville Medical Department, 1921; member of the Kentucky State Medical Association; aged 30; died, June 17, at St. Joseph's Hospital, Louisville, of septicemia.

John Patrick Davin ⊕ New York; Medical Department of Columbia College, New York, 1885; aged 69; died, September 2, at the Franklin Square Hospital, Baltimore, following an operation on the gallbladder.

Charles Rich Butler, Brooklyn; Medical Department of the University of the City of New York, 1893; aged 53; died, August 29, at the Brooklyn Hospital, of chronic nephritis and cirrhosis of the liver.

Walter T. Bolton, Biloxi, Miss.; Louisville (Ky.) Medical College, 1884; formerly member of the board of health and city health officer; Spanish-American War veteran; aged 64; died, August 28.

Albert Andrew Scheller, Angelica, Wis.; Marquette University School of Medicine, Milwaukee, 1920; member of the State Medical Society of Wisconsin; aged 31; died, July 12, at Shawano.

Ira J. Cantrell, Springfield, Mo.; Washington University Medical School, St. Louis, 1906; member of the Missouri State Medical Association; aged 50; died, August 22, of uremia.

Robert Kantz Dodge, Fall River, Kan.; Missouri Medical College, St. Louis, 1887; member of the Kansas Medical Society; aged 59; died, August 27, of cerebral hemorrhage.

Thomas Marlin Kelly, Philadelphia; Baltimore (Md.) University School of Medicine, 1904; served in the M. C., U. S. Navy, during the World War; aged 46; died, August 27.

Olline Burton Doyle ⊕ Fresno, Calif.; Kentucky School of Medicine, Louisville, 1898; aged 47; died, August 28, at a local sanatorium, following an appendectomy.

Hunter Montgomery, Okemah, Okla.; Medical Department of the Tulane University of Louisiana, New Orleans, 1897; died suddenly, August 23, of heart disease.

. **Herbert Robertson Macaulay**, Guelph, Ont., Canada; McGill University Faculty of Medicine, Montreal, Que., 1898; aged 61; died recently, following a long illness.

Josiah B. Martin, Plattsmouth, Neb.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1877; aged 77; died, August 21, of cerebral hemorrhage.

Forrest H. Phillips, Harlem, Ga.; University of Georgia Medical Department, Augusta, 1890; aged 57; died, August 23, following a long illness.

Julian Carr Hardy ⊕ Lecompte, La.; Medical Department of the Tulane University of Louisiana, New Orleans, 1909; aged 35; died, August 12.

Walter D. Fischer ⊕ Chicago; Rush Medical College, Chicago, 1904; aged 44; died, September 7, of acute bronchitis and chronic myocarditis.

Joseph Frederick Watson, Lamar, S. C.; Louisville (Ky.) Medical College, 1892; aged 71; died suddenly, August 20, of cerebral hemorrhage.

Arthur Dare Gary, Ringoes, N. J.; Jefferson Medical College of Philadelphia, 1912; aged 33; died, August 20, of cirrhosis of the liver.

Charles F. Williams, Anderson, Ind.; Medical College of Indiana, Indianapolis, 1882; aged 72; died, August 24, following a long illness.

Louis Haupt ⊕ New York; Medical Department of the University of the City of New York, 1877; aged 72; died, September 2.

Ira A. Lee ⊕ Erick, Okla.; Eclectic Medical University, Kansas City, Mo., 1905; aged 46; died, August 1, of angina pectoris.

Frederick W. Kohlhamer, Chicago; Missouri Medical College, St. Louis, 1890; aged 56; died, August 31, at La Mesa, Calif.

Henry B. B. Poppe, Milwaukee; Keokuk (Iowa) Medical College, 1891, aged 67; died, July 17, following a long illness.

Joseph Chase, Jr. ⊕ East Weymouth, Mass.; Boston University School of Medicine, 1878; aged 73; died, August 23.

James Jackson Barnes, Benton, Tenn.; Chattanooga Medical College, 1899; aged 51; died, August 9, of acute enteritis.

Albert Lincoln Clarke, Brooklyn; Bellevue Hospital Medical College, New York, 1878; aged 70; died, August 29.

Charles Lewis Spangler, Louisville, Ky.; Eclectic Medical Institute, Cincinnati, 1872; aged 73; died recently.

The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other General Material of an Informative Nature

SOME MORE MISCELLANEOUS NOSTRUMS

Abstracts of Recent Notices of Judgment Issued by the Bureau of Chemistry of the United States Department of Agriculture

Cowan's Rheumatism Herb.—John J. Cowan of Santa Monica, Calif., who did business under the name of Rheumatism Herb Co., shipped a quantity of "Rheumatism Herbs" in November, 1920, from California to Colorado. The federal chemists reported that analysis showed the product to consist of the dried and moldy leaves of a species of eucalyptus. It was claimed on the trade package that the product was an effective treatment and cure for rheumatism and all kidney affections. These claims were declared false and fraudulent. In February, 1923, John J. Cowan pleaded guilty and was fined $11.—[*Notice of Judgment No. 11345; issued June, 1923.*]

Jad Salts.—The Wyeth Chemical Company of Detroit (which of course has no connection with the pharmaceutical house, John Wyeth and Brother of Philadelphia) shipped between June and September, 1922, from Michigan to Wisconsin a quantity of a nostrum known as "Jad Salts." When analyzed by the Bureau of Chemistry, the product was found to consist essentially of citric and tartaric acids, salt, baking soda, sodium phosphate and very small amounts of hexamethylenamin, lithium carbonate and potassium bicarbonate. The stuff was falsely and fraudulently represented for kidney disease, rheumatism, headache, backache, etc. In December, 1922, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 11395; issued Aug. 10, 1923.*]

MEAT CAUSE OF KIDNEY TROUBLE
Take Salts to Flush Kidneys if Back Hurts or Bladder Bothers
Salts Fine For Aching Kidneys
IF BACK HURTS BEGIN ON SALTS
Flush the Kidneys at once when Back aches or Bladder bothers—Meat forms uric acid.
MEAT INJURIOUS TO THE KIDNEYS
Take a tablespoonful of Salts if Back hurts or Bladder bothers—Meat forms uric acid
4 AV. OUNCES
KEEP DRY AND SECURELY CORKED
Jad Brand Salts
REGISTERED TRADE MARK
Cooling and Refreshing
FORMULA.
PRICE 75 CENTS
THE JADS SALTS CO., INC.
NEW YORK. N. Y.
Jad Salts
FOR RHEUMATISM

Crane's Quinine and Tar Compound, Crane's Liver Pills and Crane's Kidney Pills.—The Crane Medicine Company of Chicago shipped in October, 1919, and March and May of 1920, a quantity of "Crane's Liver Pills," "Crane's Kidney Pills" and "Crane's Quinine and Tar Compound," all of which were misbranded.

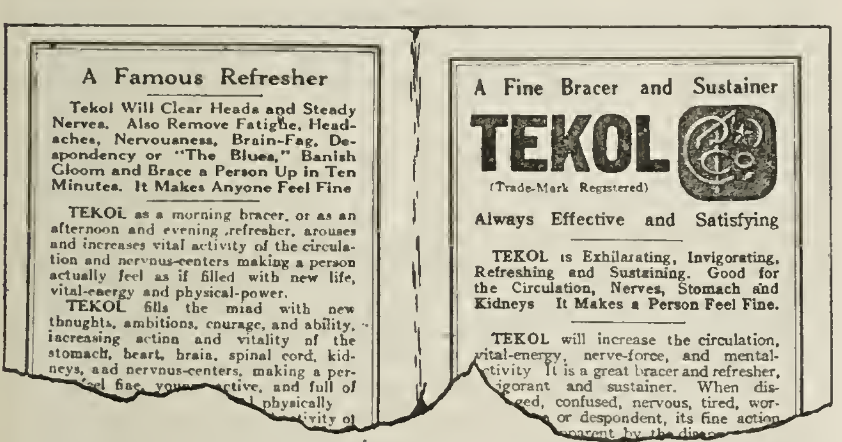
When the federal chemists analyzed the "Crane's Liver Pills" they reported that these consisted, essentially, of aloes and magnesium carbonate coated with sugar and chalk and colored orange. These tablets were falsely and fraudulently represented as an effective treatment, remedy and cure for headache, malaria, indigestion, etc.

"Crane's Kidney Pills," when analyzed by the Bureau of Chemistry, were reported to contain methylene blue, hexamethylenamin, plant material and iron sulphate. They were falsely and fraudulently represented as an effective treatment, remedy and cure for kidney disorders, inflammation of the bladder, backache, rheumatism, as a blood purifier, lumbago, Bright's disease, diabetes, enlarged prostate, gallstones, female weakness and several other things.

Analysis of a sample of "Crane's Quinine and Tar Compound" made by the Bureau of Chemistry showed that the product consisted, essentially, of quinin, sodium salicylate, ammonium chlorid, Epsom salt, oil of anise, tar, menthol, table salt, calcium phosphate, sugar, alcohol and water. The preparation was falsely and fraudulently represented as an effective treatment, remedy and cure for all pulmonary troubles, coughs, croup, whooping cough, asthma, difficult breathing and sore throat.

All three of the products were further misbranded in that they had a statement on the labels representing that the articles conformed to the Food and Drugs Act. In March, 1923, the Crane Medicine Company entered a plea of not guilty. The court, however, declared them guilty and fined them $200 and costs.—[*Notices of Judgment Nos. 11372 and 11373; issued Aug. 10, 1923.*]

Tekol.—Frederick J. Rief, who did business at Boston, Mass., under the trade name Colonial Tablet Co., shipped, in April, 1919, from Massachusetts to New Jersey a quantity of "Tekol," which was misbranded. When analyzed by the federal chemists, Tekol was found to contain ground celery seed and cocoa with about half a grain of caffein in each tablet. Some of the claims made for Tekol were:



A Famous Refresher

Tekol Will Clear Heads and Steady Nerves. Also Remove Fatigue, Headaches, Nervousness, Brain-Fag, Despondency or "The Blues," Banish Gloom and Brace a Person Up in Ten Minutes. It Makes Anyone Feel Fine

TEKOL as a morning bracer, or as an afternoon and evening refresher, arouses and increases vital activity of the circulation and nervous-centers making a person actually feel as if filled with new life, vital-energy and physical-power.

TEKOL fills the mind with new thoughts, ambitions, courage, and ability, increasing action and vitality of the stomach, heart, brain, spinal cord, kidneys, and nervous-centers, making a per- ...eel fine, youn... active, and full of ... physically ...ivity of

A Fine Bracer and Sustainer

TEKOL

(Trade-Mark Registered)

Always Effective and Satisfying

TEKOL is Exhilarating, Invigorating, Refreshing and Sustaining. Good for the Circulation, Nerves, Stomach and Kidneys It Makes a Person Feel Fine.

TEKOL will increase the circulation, vital-energy, nerve-force, and mental-activity It is a great bracer and refresher, ...igorant and sustainer. When dis...ged, confused, nervous, tired, wor... or despondent, its fine action ...parent by the dis...

> "Remember that Tekol is guaranteed to comply with all the requirements of the pure Food and Drug Law."
>
> "Tekol is always Refreshing, Bracing and Sustaining. It will Increase Circulation of the Blood; Nerve Force and Vital-Energy, Clear Heads, Steady Nerves, Relieve Fatigue, Brain-Fag, Headache, Nervousness, Lassitude, Despondency or 'The Blues' and that Tired Feeling, in Ten Minutes making the average person Feel Fine."

These and similar claims were declared false and fradulent and in March, 1923, Frederick J. Rief entered a plea of *nolo contendere* neither admitting nor denying his guilt. He was fined $25.—[*Notice of Judgment No. 11360; issued Aug. 10, 1923.*]

Veronica Water.—The Veronica Medicinal Springs Water Company of Santa Barbara, Calif., shipped to Wisconsin in March, 1922, a quantity of Veronica Water, which the federal officials declared misbranded. Some claims made for this product were:

> "As An Eliminant and Diuretic It Has No Equal."
>
> ". . . for the symptomatic relief of chronic nephritis."
>
> "In many forms of liver, kidney, bladder and urethral troubles it is the desideratum, stimulating them to healthy action and asissting nature to throw off the waste products of the body. At the same time the powerful solvent properties of the alkaline salts is obtained and the hyper-acid condition of the blood neutralized."
>
> "It would be necessary to take a review of the whole nosological index, if I was to occupy myself here with all the diseases which have been benefited or cured by the use of Veronica Mineral Water."

The Bureau of Chemistry reported that the analysis of Veronica Mineral Water showed it to contain magnesium sulphate (Epsom salt), sodium nitrate, sodium chlorid (common salt), calcium bicarbonate, calcium sulphate and magnesium chlorid. The government held that the claims made for this water were false and fraudulent, and in December, 1922, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 11336; issued June, 1923.*]

Correspondence

PRELIMINARY REPORT OF THE COMMITTEE FOR THE STUDY OF TOXIC EFFECTS OF LOCAL ANESTHETICS *

To the Editor:—The executive committee of this body, the General Committee for the Study of Toxic Effects of Local Anesthetics, wishes to announce that the individual members of this committee have presented reports to date of forty-two deaths following the use of local anesthetics occurring within the last three years, independent of those reported on by former committees of the Association. Few, if any, of these have been reported in the medical journals.

These reports have been sent to the chairman of the committee and have been tabulated by him for the study of the committee. Nineteen necropsies were made, and in most of them full protocols are in the possession of the committee and are being carefully studied preparatory to the full report. Minor changes may be made in the following list, but the main facts will remain. The deaths reported are:

Anesthetic	Number
Stovain	1
Alypin	1
Procain[1]	3
Apothesin	4
Butyn	4
Butyn and cocain	1
Procain[1] and cocain	10
Cocain	18
Total	42

1. Under this heading, novocain is included. One is reported as procain; the twelve others are stated to be due to novocain.

As the five deaths following the use of butyn are the first recorded, the committee is very desirous of receiving full details of other fatalities for comparison as to relative toxicity.

Any information received by the chairman from physicians will be considered as strictly confidential. This does not apply to official reports received from coroners, medical examiners or district attorneys procured at the expense of this committee.

Emil Mayer, M.D., Chairman, New York.
40 East Forty-First Street.

REMOVAL OF ADHESIVE PLASTER

To the Editor:—Relative to detaching adhesive plaster from the skin with a minimum of discomfort to the patient: An adjunct is a liquid which dissolves rubber readily; is not inflammable; is free from noxious or explosive vapors; is not too volatile; does not unduly irritate the skin; is comparatively inexpensive, and is readily obtainable. Surgeons will find that carbon tetrachlorid possesses all of these desirable attributes, and one other which is rather undesirable, namely, a somewhat unpleasant odor which, fortunately, dissipates readily. If the odor is found to be objectionable, it may be mitigated by the addition of methyl salicylate or other inexpensive substances available among the essential oils.

The chemical should be obtainable as such in any drug store; but if, perchance, it is not available as carbon tetrachlorid, it may be bought, at a slightly increased price, under one of the many trade names by which a host of "safe cleaning fluids" is exploited nowadays.

If purchased under a trade name, care should be exercised to select a preparation that is guaranteed to be free from the equally efficient but highly dangerous substances benzin or gasoline.

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* The Committee for the Study of the Toxic Effects of Local Anesthetics (Dr. Emil Mayer, chairman) was appointed by the Therapeutic Research Committee of the Council on Pharmacy and Chemistry. The Therapeutic Research Committee and the Council have considered the preliminary report of Dr. Emil Mayer and have approved of its publication. W. A. Puckner, Secretary.

Carbon tetrachlorid has been used with success for this purpose by prominent Philadelphia surgeons for a number of years.

Ambrose Hunsberger, Philadelphia.

To the Editor:—In The Journal, July 7, Dr. H. F. Zoller recommended the use of ethyl acetate for the removal of adhesive plaster. Since this is almost impossible to obtain, especially in the country drug stores, I want to suggest the use of ordinary benzene. If the adhesive strips are moistened lightly with the benzene by daubing it on with bits of cotton, the plaster will come away nicely; then the stains from the adhesive plaster are scrubbed off with the remainder of the benzene in cotton.

John P. Brandon, M.D., Essex, Mo.

To the Editor:—In The Journal, August 25, Dr. J. E. Stinson recommends a mixture of ether, alcohol, iodine and acetic acid for the removal of adhesive plaster. I have used gasoline for this purpose for more than nine years. It will loosen the plaster quickly if the plaster is wet with it generously, and any sticky material remaining can be very easily removed by rubbing gently with cotton wet with the gasoline. Gasoline is smooth to the touch, and I have never had any irritation from it.

Lester R. Mellor, M.D., Syracuse, N. Y.

DESTRUCTION OF LARVAE OF FLIES AND MYIASIS

To the Editor:—In the Spanish edition of The Journal, July 2, appears an abstract on the use of ethyl chorid for the destruction of larvae of flies that may exist in the nose, ears or other passages. In this connection, Dr. Filadelfo Masis, professor of the Salvador Faculty of Medicine, has for some time utilized insufflation of iodoform for the use of nasal myiasis. As this disease is found frequently in tropical countries, it might be advisable to call attention to this simple, economical and effective medicine.

Afilio Salinas, Usulutan, Salvador.

DEATH RATE OF NITROUS OXID

To the Editor:—I was greatly surprised to read in Queries and Minor Notes (The Journal, July 28, p. 320) that the "accepted" mortality rate from nitrous oxid is "about 1 death in 1,000,000 anesthesias."

In the *New York Medical Record,* July 29, 1916, I reported fourteen nitrous oxid deaths that had occurred in Columbus alone, with full details of each death. Gwathmey, in his review on anesthesia in the *New York Medical Journal,* Oct. 28 and Nov. 4, 1916, states that "gas should never be used alone, as it is unsafe for even *short* operations." The same writer in the *Annals of Surgery,* August, 1921, in writing of nitrous oxid-oxygen, states that the advocates of this anesthetic agent "are probably responsible for more deaths than are the advocates of any one anesthetic or single method."

Since the communication to the *Medical Record,* nitrous oxid-oxygen has been little used as a general anesthetic in Columbus, but I have records of six more deaths. A leading anesthetist of Chicago (Morgan) told me sometime ago that he did not think there was a general hospital in that city that had not had one or more deaths from nitrous oxid. Bevan (The Journal, Oct. 23, 1915) says that in prolonged anesthesia nitrous oxid is more dangerous than ether, and in nonexpert hands "much more dangerous than ether."

Henry Robinson, senior anesthetist to the Cancer Hospital, who has just brought out the fifth edition of Hewitt's book on anesthetics (1922), refers to "numerous fatalities" from nitrous oxid. Blomfield, senior anesthetist to St. George's Hospital, and lecturer on anesthetics to the Medical School, in his work on anesthetics (1923) says of nitrous oxid-oxygen: "Since its wide employment in surgery, many fatalities have been reported."

Judging from reports which I have received from physicians and surgeons from all over the country, I think it is safe to state that if all the deaths from nitrous oxid that have occurred in the last ten years were reported, the number would fall little short of one thousand, and I do not know of any anesthetist of large experience who does not agree with Gwathmey in his statement that in major surgery nitrous oxid-oxygen is the most dangerous anesthetic in use.

J. F. Baldwin, M.D., Columbus, Ohio.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

CROOKE'S LENSES

To the Editor:—Kindly discuss the advantages and disadvantages, if any, of the use of Crooke's lenses. Are they of value in reading under artificial light?

J. F.

Answer.—Crooke's glass is manufactured in the "A" (light) and "B" (dark) shades. The A shade absorbs about 18 per cent. of visible light and cuts off the ultraviolet end of the spectrum sharply at 4,000 Angström units, and the infra-red at about 7,800 Angström units. The B shade absorbs well over 40 per cent. of visible light (depending on the thickness of the glass used) and eliminates the entire violet end of the spectrum as well as the majority of the red end. The B shade is and should be used almost exclusively in the trades in which an excess of light and an excess of damaging rays is present. Except in certain disease conditions, the B shade should not be considered for the routine use by an average person. On the other hand, the A shade has found great favor among persons who complain of the irritation of ordinary daylight or the usual artificial illumination. Possibly some slight relief follows the partial elimination of the ultraviolet rays from the line of direct vision, but undoubtedly the greatest relief is the psychic element. There is no advantage to be gained by the use of Crooke's A for routine use, provided the person has no pathologic change beyond an error of refraction. On the other hand, there is no disadvantage from the routine use of the glass beyond the fact that about twice as much light is absorbed by this glass as by ordinary crown glass.

DEATHS FROM NITROUS OXID ANESTHESIA

To the Editor:—In Queries and Minor Notes (The Journal, July 28, p. 320), in reply to a question as to the comparisons of dangers of different anesthesias, I note that you say the mortality rate from nitrous oxid is one in a million. I am wondering whether that is a mistake in print or is an established fact. Please let me know if these figures are from the reported cases or if it is a comparison based on an unestablished comparison.

C. E. Purcell, M.D., Paducah, Ky.

Answer.—The reference to a death rate of one in a million under nitrous oxid anesthesia was probably drawn from the records of the Royal Dental Hospital of London, England. In this institution for many years all anesthesias, even for the simplest extractions, have been given by a staff of six or seven visiting physician anesthestists. So far almost one and a half million administrations of nitrous oxid and nitrous oxid-oxygen have been given in this way without a fatality. In America, one of the most noted series of nitrous oxid administrations is that of Thomas, a well known Philadelphia dentist (now retired), who gave nitrous oxid more than 250,000 times without a fatality. Quite a few dentists have records of from 50,000 to 75,000 administrations of nitrous oxid without a death. Since the advent of major oral surgery in the dental chair and the use of nitrous oxid-oxygen in major surgery, especially for hazardous risks, the death rate has materially increased, and in the opinion of various observers it ranges from 1 per cent. (Baldwin) to one in 1,200 (Waters) to one in 50,000 or more (Gwathmey). Deaths from nitrous oxid-oxygen are reported occasionally, but not in proportion to the large number that occur. Possibly in the hands of the untrained anesthetist, nitrous oxid-oxygen is less safe than ether.

POISON IVY AND POISON OAK DERMATITIS

To the Editor:—What is the difference between a dermatitis caused by poison ivy and one caused by poison oak? Patients with a dermatitis venenata are often unable to tell how they contracted the disease otherwise than an outing to the country or the woods. Dr. Albert Strickler of Philadelphia has two specific toxins (antigens): one for poison ivy (rhus tox antigen) and another for poison oak (rhus venenata antigen). How is one to determine which specific antigen to use without a true history?

John O'Connell, M.D., Overland, Mo.

Answer.—There is no clinical difference between the dermatitis caused by poison ivy and that caused by poison oak. McNair's textbook on Rhus Dermatitis, published by the University of Chicago Press, 1923, describes the differences between rhus dermatitis and dermatitis caused by other external irritants, but makes no distinction between the eruptions caused by the various types of rhus.

It would be necessary to test the patient's sensitiveness for poison ivy and poison oak to determine whether one or both antigens should be used, as described by Strickler.

COMBINING DIGITALIS AND QUININ

To the Editor:—I was much interested in the paper "Cinchona Derivatives in the Treatment of Heart Disorders," by K. F. Wenkebach (The Journal, August 11, p. 472). What is the best way to combine digitalis therapy with quinin for oral use?

Samuel Ginsburg, M.D., Buffalo.

Answer.—The capsule form, such as the following, may be recommended:

	Gm.
Powdered digitalis	1
Quinin sulphate	5

Mix and divide into fifteen capsules.
Label: One three times a day after meals.

If idiosyncrasy is suspected, it might be well to start with one-fourth as much quinin, later increasing the amount.

TREATMENT OF VITILIGO

To the Editor:—Kindly give references to recent articles concerning vitiligo, and also if possible give synopsis of latest accepted treatment. Please omit name.

——— California.

Answer.—There is no accepted treatment for vitiligo. Nothing has been discovered that does it any good. Treatment with thyroid gland extract is said to have proved useful in rare instances.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Arizona: Phoenix, October 2-3. Sec., Dr. W. O. Sweek, 404 Heard Bldg., Phoenix.

California: San Francisco, October 15-18. Sec., Dr. Charles B. Pinkham, 906 Forum Bldg., Sacramento.

Florida: Tallahassee, October 9-10. Sec., Dr. W. M. Rowlett, Tampa.

Georgia: Atlanta, October 9-11. Sec., Dr. C. T. Nolan, Marietta.

Idaho: Boise, October 2. Dir., Mr. Charles Laurenson, Boise.

Illinois: Chicago, October 9-11. Supt. Mr. V. C. Michels, Springfield.

Iowa: Des Moines, September 25-27. Sec., Rodney P. Fagen, State House, Des Moines.

Kansas: Topeka, October 9. Sec., Dr. Albert S. Ross, Sabetha.

Michigan: Lansing, October 9. Sec., Dr. Beverly D. Harison, 707 Stroh Bldg., Detroit.

Minnesota: Minneapolis, October 2-4. Sec., Dr. Thomas S. McDavitt, 539 Lowry Bldg., St. Paul.

Montana: Helena, October 2. Sec., Dr. S. A. Cooney, 205 Power Bldg., Helena.

New Jersey: Trenton, October 16-17. Sec., Dr. Alexander MacAlister, State House, Trenton.

New Mexico: Santa Fe, October 8-9. Sec., Dr. W. T. Joyner, Roswell.

New York: New York, Albany, Syracuse, Buffalo, September 24. Sec., Dr. William D. Cutter, Albany.

Porto Rico: San Juan, October 2. Sec., Dr. Jorge del Toro, 1 Olimpe St., San Juan.

Book Notices

Leishmaniasis y Blastomicosis en America. Por el Dr. Edmundo Escomel. Paper. Pp. 83, with 12 illustrations. Lima: Imp. Americana, 1923.

For a long time Escomel has ranked among the prominent students of tropical diseases. In this, his latest, contribution, he revises with his usual thoroughness the history, distribution, symptomatology, pathology, etiology, diagnosis, prognosis and treatment of two diseases, the importance of which has just begun to be realized in both North and South America. It seems, indeed, that South Americans were much slower than their northern colleagues in detecting these conditions, in spite of their endemicity and greater prevalence there. American readers interested in this subject may read profitably this little book, especially as regards geographic distribution, differential diagnosis and varied local names (uta, botón de Bahía, espundia, bubón de Vélez, forest yaws, úlcera de los chicleros) both of leishmaniasis and of blastomycosis in South America. The one criticism that might be offered Dr. Escomel's work is its apparent neglect of recent American and English literature. He is the greatest loser, however, as a perusal, especially of the Indian workers Brachamaria and Patton might have led him to modify his views, at least to some extent. Escomel, however, is fully convinced that the South American leishmaniasis is a separate entity, and American physicians might help to clear up the matter by comparing imported cases from the Old World and South America. The illustrations add little to the significance of the book, as most of them, except the photomicrographs, are very poor reproductions.

Die Lehre vom Tonus und der Bewegung. Zugleich Systematische Untersuchungen zur Klinik, Physiologie, Pathologie und Pathogenese der Paralysis Agitans. Von F. H. Lewy, Professor an der Universität Berlin. Paper. Price, $9.60. Pp. 673, with 577 illustrations. Berlin: Julius Springer, 1923.

This welcome monograph is a mine of authoritative information concerning most timely subjects, namely, paralysis agitans in particular, and disorders of tonus and motility in general. Especial attention is given to the histologic changes in paralysis agitans, but the whole subject of the pathology and pathogenesis of allied disorders of tonus and motility is considered. The underlying problems in physiology and chemistry are also discussed. Professor Lewy has devoted a lifetime to investigation of these subjects, and is the author of the chapter on the pathology of paralysis agitans in Lewandowsky's "Handbuch der Neurologie." The numerous colored illustrations add greatly to the attractiveness of this work, which should be carefully studied by all who are interested in neuropathology.

Inflammation in Bones and Joints. By Leonard W. Ely, M.D., Associate Professor of Surgery, Stanford University. Cloth. Price, $6. P. 433, with 144 illustrations. Philadelphia: J. B. Lippincott Company, 1923.

It is Dr. Ely's thesis, supported by this book, that, in inflammation of bones and joints, only two of the osseous tissues are active: the marrow and the synovial membrane; that the ligaments, the cartilage, the bone tissue itself and probably the fibrous periosteum all take a purely passive part. This theory, as the author admits, is by no means generally accepted. In fact, by far the weight of opinion lies on the other side, most writers believing that the bone tissue itself is capable of active inflammation. The author considers the marrow, especially the lymphoid marrow, the constituent vulnerable to infection, and that its location determines the site of the localization of infection. In infancy practically all marrow is lymphoid; in childhood the lymphoid marrow gradually disappears from the shafts, and then slowly, with the lapse of years, from the ends of the bones also. The adult has little lymphoid marrow in his long bones. It persists longer in the bodies of the vertebrae. The marrow of spongy bone, at least well into adult life, and in children the marrow of the shafts also, is essentially a lymphoid tissue; and if pus germs of sufficient virulence are carried to the lymphoid marrow, it suppurates and breaks down just as does a lymph node. The difference in the course of the two diseases, he believes, is in the amount of tissue involved and the fact that in osteomyelitis the process is shut up in an almost impermeable shell, making the process much more severe and increasing the danger immeasurably. This explanation of the frequency of the occurrence of infections of the bone marrow in the young is not the standard one, the accepted view being at present the one held by Lexer, who ascribes the causal rôle of the frequency of infections near the end of the bone to the arrangement of the blood vessels about the epiphyseal line. The marrow and synovial membrane are vulnerable to the same infectious changes; any bacteria that infect one can infect the other; however, certain infections show a preference for the marrow, certain infections for the synovial membrane, and certain others affect both tissues without preference. A knowledge of this fact helps us in our diagnosis. *Spirochaeta pallida* belongs in the first class, the gonococcus in the second, and the tubercle bacillus in the third.

The author points out also that the direction in which the various infections spread is a matter of interest and often an aid in diagnosis, tuberculosis always traveling toward the joint if it travels at all; pus infections usually traveling toward the shaft, less often toward the joint, but streptococcic infections showing a contrary tendency, traveling toward the joint. He states that there is probably no such thing as a primary disease of the articular cartilage, or invasion of it from the joint side; authorities differ on the last point, the majority holding the contrary opinion.

The discussion of acute osteomyelitis is disappointing. In considering the "typical, severe, spreading osteomyelitis," the author properly calls attention to the fact that the disease almost invariably begins in the metaphysis of one of the long bones. He states that inflammation spreads in the spongy bone, killing the marrow and the bone as it goes, and the process then adopts one of four different courses:

1. The typical, severe, spreading osteomyelitis, in which the inflammation prevails in the general direction of the central marrow canal, gains this and involves its marrow for a greater or smaller distance. It also passes through the minute canals in the cortex and comes to the under surface of the periosteum, lifting the periosteum from the cortex. The pus later breaks through the periosteum and finally makes its way to the surface. The author does not even mention the extremely interesting paper on acute hematogenous osteomyelitis by C. L. Starr (*Arch. Surg.* **4**:567 [May] 1922). Starr points out that while the disease begins in the metaphysis, extension does not occur directly to the central medullary canal, as has been taught in the past, and presents evidence that the purulent material extends primarily to the surface beneath the periosteum, spreads shaftward, dissecting the periosteum from the cortex, and reaches the medullary canal only secondarily, after penetrating the cortex from without inward. The author states that redness and swelling, often edema, soon appear. Starr, on the other hand, emphasizes the fact that redness, swelling and edema should be looked on as relatively late manifestations, and that if the case is seen early it is bad surgery to wait for these findings. Starr points out that, in cases seen early, if the metaphysis is exposed over the point of localized tenderness and the periosteum is incised and no pus is yet present beneath it, proper surgery consists in merely making two or three drill holes into the metaphysis, being careful not to injure the epiphyseal cartilage and not to enter the medullary canal, which is probably not affected. Ely, on the contrary, says: "In no circumstances must fear of infecting the marrow cavity induce one to stop here. A long strip of cortex should be removed, the marrow canal should be inspected and if it be found infected, the removal of the lid of bone over it should be continued until the limits of the disease have been reached. It is not enough to open simply the central marrow canal." This surely would be considered bad teaching by many surgeons. Certainly many children's lives have been sacrified by such extensive surgical intervention in cases of hyperacute hematogenous osteomyelitis.

2. The superficial form in which the disease starts, as in the preceding form, and probably near the cortex, never reaches the central marrow canal, but, breaking through the thin cortex near the end of the bone, gains the under surface of the periosteum and spreads shaftward.

3. In the circumscribed form, the disease remains localized in the metaphysis.

4. In the articular form, the disease starts as in the preceding forms, but shows a marked tendency to spread toward the joint. It is caused usually by a streptococcus, less often by pneumococcus or typhoid bacillus.

In the consideration of treatment, the interesting experiences learned during the war concerning the treatment of tunneling osteomyelitis are not discussed or even mentioned. In treatment of acute suppurative hematogenous arthritis, Willem's treatment is not mentioned. The author does not discuss débridement in compound fractures, although he refers to it in Chapter 9, which deals with suppurative arthritis from wounds, and yet no mention is made that the procedure should be carried out within the first six hours.

A little more than one third of the book is devoted to the consideration of tuberculosis of the bones and joints. On page 216 the author states that "a positive diagnosis cannot be made by a clinical examination. . . . If, on the other hand, we admit our inability to arrive at a positive conclusion without the aid of the microscope, we are on the road to a correct handling of our cases." If our knowledge of tuberculosis were limited to the facts presented by the author, no one would disagree with his statements; but, fortunately, this is not the case. Most surgeons would not feel that they were "on the road to a correct handling of their cases" if they followed the author's suggestion of opening the joint and removing a piece of synovial membrane for guinea-pig inoculation, in case the joint contained no fluid that could be aspirated for guinea-pig inoculation. He states that "certainty can usually be secured by opening the joint and removing a piece of synovial membrane, making an emulsion and injecting a guinea-pig." Such a suggestion cannot be too strongly condemned. The author himself states, on page 222, that "no operation should be done to open up the diseased area."

Legal Medicine and Toxicology. By Many Specialists. Edited by Frederick Peterson, M.D., LL.D., Manager Craig Colony for Epileptics; Walter S. Haines, A.M., M.D., and Ralph W. Webster, M.D., Ph.D., Assistant Professor of Medical Jurisprudence in Rush Medical College. Second edition. Two Volumes. Cloth. Price, $20 net, per set. Philadelphia: W. B. Saunders Company, 1923.

Twenty years' progress in legal medicine and toxicology are reflected in the increased size of these volumes, from 1,470 pages to 2,120 pages of text, and in new titles and changes in old ones. The chapter on "Insanity" has become a chapter on "Mental Disorders in Medicolegal Relations"; "Idiocy, Imbecility, and Feeble-Mindedness" is now the "Mental Defect Group"; "Ptomains and Other Bacterial Products in Their Relation to Toxicology" is "Poisonous Proteins"; "Food Poisoning" has expanded into "Food Poisoning and Food-Borne Infection," and "Malpractice" into the "Legal Rights and Obligations of Physicians." Among new titles we find "Forensic Questions Relative to Toxicology," "Industrial Poisonings," and "Poisonous Mushrooms." The brief reference to the Bertillon system of identification in the first edition is supplemented by a translation of Bertillon's paper on the "Identification of the Living," covering sixty-nine pages. The present importance of organic and inorganic arsenic compounds, methyl alcohol and carbon monoxid, and of the precipitin test for blood is recognized in the more ample space now assigned to them. "Summaries of the State Laws Relating to the Insane" covers about 10 per cent. of the text—an excessive amount, it would seem—but a search of the citations in this chapter shows only one later than 1917. The reader looks in vain, however, for any statement of the principles underlying such laws and for any discussion of the legal aspects of personal responsibility, civil and criminal, as correlated to the views of the advanced psychiatrist of the day. Some of the space devoted to the elaborate summary of these state laws, which relate to the restraint and custody of the insane, might with advantage have been given up to important topics now discussed scantily if at all: such as the regulation of the practice of the healing arts; quasipublic functions of the physician, as the reporting of births, contagious diseases, deaths and crimes; the legal relations of hospitals and dispensaries; narcotic addiction and narcotic drug control; state and national prohibition laws, and the medical aspects of the workmen's compensation laws. Some of the contributors appear to have lost sight of the legal implications of the subjects they discuss. Some of the phraseology—as "mortuary nomenclature," "vulnerating force," "heterozygous status," and "toxicogenic"—is rather technical for a work intended for the use of lawyers as well as physicians; the technical terms, if unavoidable, should have been defined at the bottoms of the pages, or a glossary appended. The use of footnotes in all articles, as they have been so well used in some, showing sources of authority, would have aided materially to the value of the work. But, after all is said and done, this work is one that every expert and every lawyer will have to consult if he would be sure of his knowledge in any case involving medicolegal questions. It represents today the latest and most generally available work in the English language on the subject of which it treats.

LES GLANDES ENDOCRINES ET LEUR VALEUR FONCTIONNELLE. Méthodes d'exploration et de diagnostic. Par Jacques Parisot, Prof. agr., chargé du cours de Pathologie générale et expérimentale à la Faculté de Nancy, et Gabriel Richard, Ancien interne des Hôpitaux de Nancy. Paper. Price, 15 francs. Pp. 247, with illustrations. Paris: Gaston Doin, 1923.

The volume is one more in the avalanche of monographs on endocrinology, and by authors who appear to have done little real work in the field. The subject matter is organized in the conventional way. The exposition is lucid, but theoretical generalizations overshadow the critical analysis of facts. The authors do not show the extremes of credulity exhibited by many other writers in this field. But in Chapter IX, in which cases of alleged endocrinopathies are cited, diagnosis of such conditions as "hyperadrenalism" and combined "hypothyroid-hypopituitarism" are made on what appears to be very uncertain evidence. The references to the real endocrine literature is meager, especially the publications in English and in German. There is no index.

TRANSLATION OF SELECTED PASSAGES FROM DE L'AUSCULTATION MÉDIATE. (First Edition). By R. Théophile H. Laennec. With a Biography by Sir William Hale-White, K.B.E., M.D., Consulting Physician to Guy's Hospital. Medical Classic Series. Cloth. Price, $3.75. Pp. 193, with 8 illustrations. New York: William Wood & Co., 1923.

Twenty-five pages are devoted to an excellent life of Laënnec. This brief biographic sketch is more than a mere list of names and facts. It makes of Laënnec a living personality. His appearance, his surroundings, his character, his acts, his ideals are set forth with remarkable distinctness. The selections have been made with good judgment. The fact that we are dealing with a translation is forgotten, for the editor has not only caught the spirit of the French author but has rendered his words into clear, idiomatic, virile English that reads with natural ease and smoothness. Hale-White has performed a service of real value. He has made easily available to those who do not read French readily some of the best of the writings of the great pathologist and clinician who lived the life and wrote the book that had such a remarkable influence in shaping medical practice and thought of the last century. One is spared, also, the perusal of much that is relatively dull, for even Laënnec wrote some things that make dreary reading. Medical students might well be urged to consult the book. It is hard to get them interested in biography or medical history. This work, however, is one that might well attract them by its form and content, and thus interest them in the lives and writings of other leaders in medicine.

DER AUFBAU DER PSYCHOSE. Grundzüge der psychiatrischen Strukturanalyse. Von Dr. Karl Birnbaum, Privatdozent der Psychiatrie an der Universität Berlin. Paper. Price, 75 cents. Pp. 106. Berlin: Julius Springer, 1923.

This is an intricate essay in which the author attempts to set forth a "structural analysis" and synthesis of the various psychoses, and to show that psychiatry is more than a descriptive science. Psychiatrists with a philosophical turn of mind and capable of understanding complicated German will enjoy the book.

Medicolegal

Liability for Death of Insane Patient After Fall in Attempted Escape

(Bennett v. Punton Sanitarium Association (Mo.), 249 S. W. R. 666)

The Kansas City (Mo.) Court of Appeals, in reversing a judgment for $5,000 damages that was rendered in favor of the plaintiff for the alleged negligent killing of her husband, says that, at his request, he had been permitted to sleep on the fourth floor of the defendant's sanatorium, where there were only two or three other patients. The windows were covered with heavy wire screening, the wires being about the size of a lead pencil and fitted into iron frames which were bolted to the window casings with hinges and locked on the outside. Late one night an attendant found this patient on the ground below the bathroom window. The patient said that he had got a key and opened the lock of the window, but the evidence showed that no key was missing. Out of sheets he had made an improvised rope which reached to within about 12 or 14 feet of the ground, but evidently did not put his weight on the sheets, as the knots were not pulled tight. The result was a fall on a cement walk and an iron cap connecting the sewer pipe, whereby he sustained a dislocation of the third and fourth lumbar vertebrae of his spine, and became paralyzed in the lower extremities. His death occurred about two years and three months thereafter.

The superintendent and another physician employed by the defendant, who were called as witnesses by the plaintiff, said that the patient was perfectly rational at the time he attempted to escape. Of course, in order for the plaintiff to recover in this action, it was necessary for her to show that the patient was insane when he attempted to escape, that he escaped by reason of his insanity, and that the defendant had knowledge of his insane condition. But she was not conclusively bound by the testimony of these witnesses, although she had placed them on the stand.

The evidence showed an unbalanced mental condition of the patient prior to his entry into the sanatorium, and showed that while in the sanatorium he had manifested peculiar traits indicating an abnormal condition of mind. The mere fact that he attempted to escape might not alone be strong evidence of his insanity, for many perfectly sound-minded persons who have been deprived of their liberty by confinement have attempted to escape. But the manner in which he attempted to escape, in making a rope with knots that would not hold, and extending only to within 14 feet of the ground and over a cement sidewalk, and then going down the rope without making an effort to break his fall by using the rope to any extent or putting much weight on it, together with the other facts, tended to show an unbalanced condition of mind at the time. Moreover, another physician testified that the patient was insane a few days before the attempted escape, and on the day following. These facts, together with the fact that the patient was confined on account of his insanity, and that he was undergoing periods of irrationality which came on suddenly during the time of his confinement until shortly before his attempted escape, were certainly sufficient evidence for the jury to say that he was insane at the time of his escape, although the defendant's physicians testified that he was not.

It was insisted that the case involved the proper care and treatment of an insane person by a physician, and that the plaintiff failed to introduce any evidence tending to show that the patient was not given the usual care and attention given to such patients by ordinary institutions of similar character. But the court does not think it was necessary to produce expert testimony on this subject. It was competent for the jury as laymen to judge of the patient's insanity from the facts, and, having found that the patient was insane and that the defendant knew or might have known that he would attempt to escape, it was for the jury to say what would constitute ordinary care on the part of the defendant in taking precaution to prevent him from escaping during an irrational period, which the evidence showed came on suddenly. It was the duty of the defendant, as a matter of law, to safeguard the patient from danger due to his mental incapacity to care for himself.

However, the court finds it necessary to reverse and remand the case on account of the asking of an improper hypothetic medical question, in that it did not contain all the pertinent history of the patient prior to the fall and the medical history after it, whereas the patient suffered from a complication of disorders both before and after his injury.

Not Required to Pay Injured Employee's Physician

(Whitehead Coal Mining Co. et al. v. State Industrial Commission et al. (Okla.), 213 Pac. R. 838)

The Supreme Court of Oklahoma says that this action was instituted by the petitioners to have an award of $253 made by the industrial commission to a physician for compensation for medical services vacated. The commission made no specific finding as to who employed the physician. The substance of the findings of the commission was that another physician discontinued treatment before the injured employee had recovered, and that it was necessary for the latter to have further treatment, and he was treated at various times until May, 1921, by the physician in whose favor this award was made; also that the petitioners had failed to furnish the injured employee necessary medical attention, although they knew that the physician whom they had furnished had discontinued treatments, Aug. 1, 1919; that the physician who was awarded this compensation attended the man in connection with the treatment that was given by the first physician between July 1 and Aug. 1, 1919, and that the total amount of his bill was $253, which was reasonable. It was clear from the record that the second physician was employed by the injured man's family and not by the petitioners; that they furnished the first physician to treat the injured employee during the first fifteen days following the injury, at which time he discharged the patient, and that no request was ever made by the injured employee or by any one for him to the employer mining company for medical treatment. This presented a case in which the injured employee, through some member of his family, employed the physician, without having made any request to the employer for medical treatment, and the employer furnished another physician immediately following the injury, and no complaint was made that the physician so furnished was unskilful or did not furnish proper treatment. Under such circumstances, it could not be said that the second physician was called under emergency caused by the employer's failure to provide medical aid. In these circumstances, it seems clear to the court that the industrial commission committed error as a matter of law, in making the award complained of. The court knows of no provision of the workmen's compensation act of Oklahoma whereby the employee may employ a physician at the expense of the employer, except in a case in which he has requested the employer to furnish medical attention, and the employer has failed or refused to do so. Wherefore the award in this case is reversed.

"Osteopathy" and "Manipulation" Do Not Cover Surgery

(State v. Sawyer (Idaho), 214 Pac. R. 222)

The Supreme Court of Idaho, in affirming a judgment of conviction of the defendant of practicing medicine and surgery without a license, with the intent of receiving compensation therefor, says that the operation performed consisted of making an incision into the abdomen of a human being and removing the appendix. It was shown that the defendant did not have a license authorizing him to practice medicine and surgery, but held a license authorizing him to practice osteopathy. In 1907, the legislature passed an act regulating the practice of osteopathy, which provides that a successful applicant shall receive "a certificate granting him or her the right to practice osteopathy in the state of Idaho." Unless, therefore, the term "osteopathy" is broad enough to comprehend surgery, or in other words, unless the practice of osteopathy includes the practice of surgery, the statutory prohibition of the practice of medicine and surgery, except by one who has obtained the license to practice medicine and surgery as prescribed by Chapter 90 of Title 16 of the Compiled Statutes, still prevails.

"Osteopathy," the court feels justified in concluding, from various definitions, is a system of treating diseases of the human body without drugs and by means of manipulation. The word "manipulation" certainly does not cover and include the practice of surgery in any form. Since, therefore, the term "osteopathy" does not include medicine and surgery within its content, the court concludes that it was the legislative intent that a license to practice osteopathy does not carry with it the right to practice medicine and surgery, or either of them.

The defendant sought to show that the standard and accredited colleges of osteopathy include medicine and surgery as a part of their curriculums; that the science or practice of osteopathy contemplates and comprehends the practice of medicine and surgery; that the colleges of osteopathy use the same textbooks on the practice of medicine and surgery that are used in the best recognized medical schools, and devote as much time to the subject as is consumed in the best medical colleges in this country. The trial court refused to receive such evidence. In this it did not err. The evident purpose of the proposed testimony was to show that graduates of recognized and accredited colleges of osteopathy now possess the requisite knowledge and skill to engage in the practice of medicine and surgery; but the only question here was as to whether the defendant possessed the statutory qualifications—his actual qualifications were not in issue. The evidence was therefore irrelevant.

"Sound Health," "Deformity" and "Infirmity"

(Eastern Dist. Piece Dye Works, Inc., v. Travelers' Ins. Co. (N. Y.), 138 N. E. R. 401)

The Court of Appeals of New York says that a Mrs. Klein, in her application for insurance on her life payable to the plaintiff, stated that she was in sound condition mentally and physically, and had "never had any bodily or mental infirmity or deformity." It appeared, however, that about thirty years previously, she had received in childbirth a laceration of the perineum or related parts, but that it had never interfered with her general health. Yet, six months after she made the foregoing statements, she went to a hospital to have an operation performed for this laceration. When the operation was undertaken, the surgeon discovered some tissue which was thought to be cancerous, and also an abnormal intestinal or rectal formation, which led him to perform a major operation that resulted in the death of the patient, whereas it subsequently appeared that the suggestion of cancerous tissue was entirely unfounded, and that the abnormal formation, which had existed from birth, did not in any manner interfere with the normal operation of the parts in question, and was in all probability unknown to Mrs. Klein. Under these conditions a jury clearly could say that she was in sound health.

The evidence of the abnormal condition of her intestinal or rectal organs did not satisfy the requirement for fraud in a warranty, because of the apparent lack of knowledge on her part of the existence of any such condition as was found. On the whole, it was also doubtful whether she had any such knowledge of the laceration as would make her guilty of falsehood and fraudulent intent when she stated that she had no physical deformity or infirmity. Such words as "deformity" and "infirmity" in such a connection must have a reasonable interpretation, and, assuming that they cover such a condition as an accidental laceration from which Mrs. Klein suffered, they should not be construed as so covering a defective condition of insignificant extent and of no practical effect on the bodily condition of an insurance subject as to make a denial of their existence conclusive evidence of fraud. Therefore, the court thinks that a jury might say that Mrs. Klein was not guilty of any intentional falsification or fraudulent intent in stating, as against this laceration, that she had no physical deformity or infirmity, and it was an error to hold otherwise as matter of law and to dismiss the complaint as was done.

So far as concerned the laceration, that was not a "deformity," but, if anything, an "infirmity." One who cuts his finger does not, under a reasonable interpretation of language, produce a deformity which implies some sort of a malformation. On the other hand, the difficulty with the applicant's intestinal or rectal organs was apparently a deformity. But, assuming that the applicant under the broadest possible meaning of those words in one case had an infirmity and in the other a deformity, the question still remained whether these defects were of sufficient extent and importance so that within a reasonable meaning of the words a statement by the applicant that she was free from deformities and infirmities constituted a material misrepresentation which avoided the policy; this, the court thinks was a question for the jury. No person is entirely free from deformities and infirmities. In the broadest interpretation of this language, a crooked nose would be a deformity, and the slightest impairment of full bodily vigor an infirmity. But, of course, the language of a representation contained in an application for insurance is not to be construed in any such unreasonable way as this. It must be construed as meaning a deformity or an infirmity of a substantial character which apparently in some material degree impairs the physical condition and health of the applicant and increases the chance of that death or sickness against which the insurance company is asked to issue insurance, and which, if known, would have been liable to deter the insurance company from issuing the policy. Applying this interpretation to the language used, the court thinks that the jury could have said that the existence of the defects referred to did not render the applicant's statement a material misrepresentation.

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, Washington, D. C., Oct. 15-20. Dr. Luther C. Peter, 1529 Spruce St., Philadelphia, Secretary.

American Association of Obstetricians, Gynecologists, and Abdominal Surgeons, Philadelphia, Sept. 19-21. Dr. James E. Davis, 111 Josephine Avenue, Detroit, Secretary.

American Association of Railway Surgeons, Chicago, Oct. 18-20. Dr. L. J. Mitchell, 29 E. Madison St., Chicago, Secretary.

American Child Health Association, Detroit, Oct. 15-17. Dr. Philip Van Ingen, 125 East 71st St., New York, Secretary.

American Electrotherapeutic Association, Atlantic City, Sept. 18-21. Dr. Richard Kovacs, 223 E. 68th Street, New York, Secretary.

American Public Health Association, Boston, Oct. 8-11. Mr. A. W. Hedrich, 370 Seventh Avenue, New York, Secretary.

American Roentgen Ray Society, Chicago, Sept. 18-23. Dr. W. W. Watkins, Goodrich Building, Phoenix, Ariz., Secretary.

Association of Military Surgeons of the United States, Carlisle Barracks, Pa., Oct. 4-6. Col. James Robb Church, Army Medical Museum, Washington, D. C., Secretary.

Central States Pediatric Society, Detroit, Oct. 18-19. Dr. H. T. Price, Westinghouse Building, Pittsburgh, Pa., Secretary.

Delaware State Medical Society, Middletown, Oct. 8-9. Dr. W. O. La Motte, Industrial Trust Building, Wilmington, Secretary.

Indiana State Medical Association, Terre Haute, Sept. 26-28. Dr. Charles N. Combs, Terre Haute, Secretary.

Interstate Society of Radiology and Physiotherapy, Omaha, Sept. 18-19. Dr. Roland G. Breuer, Security Mutual Life Building, Lincoln, Neb., Secretary.

Kentucky State Medical Association, Crab Orchard, Sept. 17-20. Dr. A. T. McCormack, 532 West Main Street, Louisville, Secretary.

Medical Association of the Southwest, Kansas City, Mo., Oct. 4-8. Dr. E. H. Skinner, Rialto Building, Kansas City, Mo., Secretary.

Minnesota State Medical Association, St. Paul, Oct. 10-12. Dr. Carl B. Drake, Guardian Life Building, St. Paul, Secretary.

Mississippi Valley Medical Association, Hot Springs, Ark., Oct. 9-11. Dr. John L. Tierney, University Club Bldg., St. Louis, Secretary.

Missouri Valley, Medical Society of the, Omaha, Sept. 20-21. Dr. Charles W. Fassett, 115 East 31st Street, Kansas City, Secretary.

Nevada State Medical Association, Reno, Sept. 28-30. Dr. Horace J. Brown, Thoma-Bigelow Building, Reno, Secretary.

New England Surgical Society, Boston, Oct. 18-19. Dr. P. E. Truesdale, 151 Rock Street, Fall River, Mass., Secretary.

Pennsylvania, Medical Society of the State of, Pittsburgh, Oct. 1-4. Dr. W. F. Donaldson, Jenkins Arcade, Pittsburgh, Secretary.

Tri-State District Medical Society, Des Moines, Iowa, Oct. 29-Nov. 1. Dr. William B. Peck, 82 Stephenson Street, Freeport, Ill., Managing Director.

Vermont State Medical Society, Bennington, Oct. 11-12. Dr. W. G. Ricker, St. Johnsbury, Secretary.

Virginia, Medical Society of, Roanoke, Oct. 16-19. Mr. G. H. Winfrey, 104½ W. Grace St., Richmond, Secretary.

Washington State Medical Association, Spokane, Sept. 20-22. Dr. C. H. Thomson, 508 Cobb Bldg., Seattle, Secretary.

Wisconsin, State Medical Society of, Milwaukee, Oct. 3-5. Mr. J. G. Crownhart, 558 Jefferson St., Milwaukee, Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

166: 1-156 (July) 1923

*Retained Gallbladder. Difficulties and Disadvantages of Secondary Cholecystectomy. DeW. Stetten, New York.—p. 1.

Associated Pneumonia and Appendicitis at Same Time. S. R. Roberts, Atlanta, Ga.—p. 31.

Primary Lymphoblastoma of Stomach with Metastases. S. Ruffin, Washington, D. C.—p. 37.

*Nonspecific Granuloma of Intestine. E. Moschcowitz and A. O. Wilensky, New York.—p. 48.

Rôle of Spasticity in Diseases of Digestive Tract: Case of Visceral Tetany, Causing Acute Cholangitis and Pancreatitis. J. Kaufmann, New York.—p. 67.

*Chemistry of Pseudochylous Ascites and Other Types of Exudates. R. B. Gibson and C. P. Howard, Iowa City, Ia.—p. 80.

*Cardiovascular Complications of Kyphoscoliosis; Case of Paroxysmal Auricular Fibrillation in Patient with Severe Scoliosis. E. P. Boas, New York.—p. 89.

*Absorption from Urinary Bladder. F. C. Mann and J. A. H. Magoun, Rochester, Minn.—p. 96.

*Method of Establishing Diabetic Patients on High Calory Diets with Ketogenic-Antiketogenic Ratio within Limits of Safety. F. A. Evans, Pittsburgh.—p. 106.

*Medical Treatment of Gastroduodenal Ulcer; Use of Rice-Water Mixture. T. G. Schnabel, Philadelphia.—p. 114.

Stability of Epinephrin Hydrochlorid in Various Solutions. D. Vander-Hoof and C. C. Haskell, Richmond, Va.—p. 119.

Cholecystectomy for Retained Gallbladder.—On the basis that the retained gallbladder, at least one that has been drained, is a menace to health, even to life, Stetten urges that a primary cholecystectomy should be performed, if this is at all possible, irrespective of the degree of structural change in the gallbladder itself. If, for any reason, either on account of the general condition of the patient or because of local difficulties, primary cholecystectomy cannot be performed and only cholecystostomy is done, this should be looked on as an emergency procedure. A secondary cholecystectomy should be practiced when the patient's condition has improved, unless there are specific contraindications. The one only exception to this rule is irremediable occlusion of the common duct, such as carcinoma of the head of the pancreas or impermeable stricture. Here the gallbladder must be retained for anastomosis with some part of the gastro-intestinal tract. In chronic pancreatitis with jaundice, cholecystostomy should first be performed, and after the fistula has closed without symptoms, so that the patency of the common duct is assured, secondary cholecystectomy should be undertaken. In chronic pancreatitis without jaundice, primary cholecystectomy is the operation indicated. In certain cases of so-called "silent" gallstones, accidentally discovered during the course of a laparotomy for some other condition, when the gallbladder is found to be comparatively normal, Stetten has on several occasions practiced "ideal cholecystotomy" closing the abdomen without drainage. This is, at times, a useful, alternate, method, conserves the more or less healthy gallbladder and obviates the disadvantage of cholecystostomy. Stetten has never seen any harm come from the absence of the gallbladder.

Granuloma of Intestine.—Four cases of nonspecific granuloma of the intestine are described by Moschcowitz. All involved the colon; one involved both colon and small intestine. The histologic characteristics were those of a simple granuloma. No evidences of tuberculosis, syphilis or lymphogranulomatosis were present. The granuloma may involve any portion of the colon. The infiltration of the wall may be more prominent on the mucosal or the mesenteric aspect. In both instances, the lumen is narrowed. Ulcerations, which are usually superficial, many be present; exceptionally, an abscess will form. The cause most often is unknown. In a few cases foreign bodies and colitis have been reported. Clinically, these cases present signs of constriction of the intestinal lumen and a mass in some portion of the colon. Thus far, they are not diagnosable before operation and have usually been mistaken for carcinoma and tuberculosis of the intestine. Not infrequently these tumors disappear after simple sidetracking of the intestine. The prognosis is excellent.

Chemistry of Pseudochylous Ascites.—The chemical composition of a milky peritoneal fluid from a case of malignancy, and the comparative data of three cases with serous ascites are presented by Gibson and Howard. The milky effusion was characterized by its high content of lecithinphosphoric acid and to a lesser degree of cholesterol. Net fatty acid figures were low for all the fluids. Calcium in protein combination is not responsible for the opacity of the fluid. Milky fluid obtained at necropsy one hour after death following three days of anuria has a nonprotein nitrogen partition such as is found for the blood in severe retention cases. It is concluded that the milky fluid obtained in the authors' case was a true pseudochylous ascites.

Cardiovascular Complications of Kyphoscoliosis.—Attention is called by Boas to the frequent visceral disturbances that accompany severe kyphoscoliosis. Hypertrophy and dilatation of the right chambers of the heart, followed by signs and symptoms of myocardial insufficiency are common sequelae. A case is described with paroxysmal auricular fibrillation and symptoms of myocardial insufficiency.

Absorption from Urinary Bladder.—Experiments made by Mann and Magoun definitely prove that absorption takes place from the urinary bladder, but only to a very limited extent.

Diabetic Dietary.—A conception of the diabetic dietary based primarily on the caloric, rather than principally on the glucose tolerance of the patient, is presented by Evans and a simple formula for the necessary computations is derived. This method of procedure is helpful because it enables one to study diabetic patients without first establishing the glucose tolerance, which is so difficult to determine accurately. The early results obtained by this method of feeding diabetic patients have so far been extremely gratifying.

Rice Water Mixture in Gastroduodenal Ulcer.—Schnabel reports good results from the use of this mixture in the treatment of gastric and duodenal ulcers: One-half cup of rice is boiled in five cups of slightly salted water until soft. One quart of the water is strained off and cooled. Four tablespoonfuls of lactose, the whites of four eggs, slightly beaten, and one-half cup of cream are then added. The mixture is kept in a cool place. The palatability of the rice-water mixture may be influenced by the addition of peppermint, chocolate, nutmeg or coffee. It is a difficult matter accurately to determine the caloric value of this mixture, but it is quite likely that a quart will yield at least 750 calories. From two to 6 ounce portions of this preparation are usually taken at hourly intervals for thirteen feedings per day. After the symptoms are allayed for twenty-four hours at least, the caloric value of the rice-water mixture is increased by adding more cream, sugar or whites of eggs. Very quickly after this the patient goes on to either a partial or entire milk and cream mixture, and, if well tolerated, passes on to a soft or light diet, usually preponderantly carbohydrate.

Archives of Dermatology and Syphilology, Chicago

8: 165-324 (Aug.) 1923

*Syphilis of Orbit. J. E. Kemp, Baltimore.—p. 165.
Importance of Blood Chemistry in Dermatology. Edwin Pulay, Vienna.—p. 175.
*Kahn Precipitation Test in Leprosy. E. M. Yagle, J. A. Kolmer, Philadelphia.—p. 183.
Lymphangiomatous and Hemangiomatous Nevus Associated with Enormous Hypertrophy of Sweat Glands and Localized Hyperhidrosis on Excitement. J. H. Stokes, Rochester, Minn.—p. 186.
Prurigo Nodularis. E. W. Netherton, St. Louis.—p. 193.
*Etiology of Pemphigus. F. Eberson, Rochester, Minn.—p. 204.

Syphilis of Orbit.—The similarity of the clinical picture in the four cases cited by Kemp was striking. The patients acquired syphilis some years previously. The duration of symptoms referable to the eye ranged from six months to three weeks, in two cases the onset being comparatively acute. The complaint was uniformly unilateral pain, referred to the affected eye, and worse at night. In each instance there was unilateral exophthalmos together with some degree of paralysis of the extra-ocular muscles, ranging from weakness of a single muscle to complete ophthalmoplegia externa. Three of the four patients showed a more or less complete ptosis of the upper lid, and in each instance the pupillary reactions were abnormal on the affected side. There was usually pain on pressure over the bulb. In three cases, there was complete anesthesia in the distribution of the first branch of the trigeminal nerve. In three cases, there was a marked decrease in vision on the affected side, in one instance accounted for ophthalmoscopically by the presence of unilateral choked disk, in the others probably due to pressure on the optic nerve.

Kahn Precipitation Test in Leprosy.—The serums of twenty-eight lepers were examined by Yagle and Kolmer by the Kahn precipitation test for syphilis. Of this series, twenty-three cases showed no evidences of syphilis; the Kahn reactions were negative in all except two, and the new complement fixation reaction was negative in all. In two cases of leprosy lesions suspicious of syphilis, the Kahn reaction was ± in one and the complement fixation reactions were negative. Three cases showed unmistakable evidences of syphilis in addition to leprosy; the Kahn and complement fixation reactions were strongly positive in all.

Etiology of Pemphigus.—An organism has been isolated by Eberson from the blood of seven patients, five with undoubted, and two with probable, chronic pemphigus. The organism was obtained repeatedly in every case, and was morphologically, culturally and immunologically the same. It is gram-positive, anaerobic, nonmotile, ovoid or coccoid in form, resembling a streptobacillus in certain respects, is pathogenic for guinea-pigs and rabbits, and possesses definite toxic properties. The bacterium has not been found in normal persons, or in those having certain other skin diseases. Suggestive lesions have been produced with recently isolated strains of the organism, and a definite clinical picture has been experimentally demonstrated. It has been reisolated from the blood of infected animals. Cultures have been obtained from patients, both early and late in the disease and in intervening stages, and have been agglutinated by patients' serums. Clinical and experimental data have been presented and analyzed, and the characters of the organism described as far as the work has gone. The organism has been named provisionally *Bacterium pemphigi.*

Archives of Internal Medicine, Chicago

32:1-156 (July) 1923

*Metabolic Studies in Pernicious Anemia. R. B. Gibson and C. P. Howard, Iowa City.—p. 1.
*Blood Pressures in Fifteen Thousand University Freshmen. W. C. Alvarez, San Francisco.—p. 17.
Blood Concentration Changes in Extensive Superficial Burns, and Their Significance for Systemic Treatment. F. P. Underhill, New Haven, Conn.—p. 31.
*Observations on One Hundred and Ninety-Two Consecutive Days of Basal Metabolism, Food Intake, Pulse and Body Weight in a Patient with Exophthalmic Goiter. C. C. Sturgis, Boston.—p. 50.
Effect of Alkalies on Secretion and Motility as Measured by Fractional Gastric Analysis. B. C. Lockwood and H. G. Chamberlain, Detroit.—p. 74.
*Acute Lymphadenosis Compared with Acute Lymphatic Leukemia. H. Downey and C. A. McKinlay, Minneapolis.—p. 82.
*Three Fatal Adult Cases of Malabsorption of Fat. H. L. Blumgart, Boston.—p. 113.
*Chylous and Pseudochylous Effusions. M. A. Blankenhorn, Cleveland.—p. 129.
Causes of Turbidity in Milky Ascitic Fluids. M. A. Blankenhorn, Cleveland.—p. 140.

Metabolic Studies in Pernicious Anemia.—Eleven cases of pernicious anemia, and for comparative data, one case each of an aplastic anemia, pregnancy anemia, hemolytic icterus and splenic anemia, have been studied by Gibson and Howard. Low whole blood and plasma fats were found in the severe pernicious anemia cases and tended to increase with improvement in the blood picture for the individual cases. The low blood fats seem to be associated with higher iodin numbers (by a micro-adaptation of the Hanus method), though the amounts of the unsaturated fatty acid groups as evidenced by the total iodin absorbed are not excessive. An increased unsaturated fatty acid content, therefore, should not be a factor for hemolysis in pernicious anemia. That blood and plasma cholesterol figures are low in pernicious anemia cases and increase as the blood is regenerated is confirmed. Low figures were found also for one splenic anemia case. More favorable nitrogen and especially iron balances may readily be established in pernicious anemia and some other anemias (excepting iron in one case of splenic anemia) when diets rich in food iron (Whipple) and comparatively low in calory and protein values are given. Negative nitrogen balances and coincident iron retention may obtain. Characteristic but not constant alterations in the nitrogen partition in pernicious anemia are low urea and moderate ammonia nitrogens, and high uric acid figures. The immediate effects of blood transfusions on the daily nitrogen partition (two cases) were an increase in the total, urea, uric acid, and creatinin nitrogen elimination, persisting over at least two days. The use of iron-rich and vitamin adequate diets in the anemias is urged, but established therapeutic measures to promote hematogenesis should not be neglected.

Blood Pressure Study.—An analysis was made by Alvarez of the systolic blood pressures of 6,000 men and 8,934 women freshmen entering the University of California. The pressures of the women were more uniform than those of the men, and averaged 11 mm. lower. Hypertension was very common among the younger men, about 45 per cent. having pressures exceeding 130, and 22 per cent. having pressures exceeding 140 mm. Among the women, about 12 per cent. had pressures exceeding 130, and about 2 per cent. had pressures exceeding 140 mm. The average pressure for both men and women drops gradually during the first years of adult life. The pressures for the men are grouped mainly about 127 mm. at the age of 16, and about 118 mm. at the age of 30. The pressures for the women are grouped about 118 mm. at the age of 16; about 111 mm. at 24, and about 117 mm. at 40. Alvarez says that hypertension cannot be ascribed regularly to infections or to a strenuous life. It seems to be an inherited peculiarity, the appearance of which can be suppressed in women so long as the ovaries function well.

Continuous Basal Metabolism Study in Case of Exophthalmic Goiter.—A patient with exophthalmic goiter was observed by Sturgis while at rest in bed for 192 days. During this time the basal metabolism, resting pulse, food intake and body weight were determined practically every day. After a rest of several weeks in bed there was a tendency for the basal metabolism to become stabilized, and during a period of several months the variation on consecutive days rarely exceeded 5 per cent. The number of calories adequate to maintain a patient with exophthalmic goiter in caloric balance, when resting in bed, may be estimated as approximately an 85 per cent. increase over the number of calories which represent the patient's basal metabolism for twenty-four hours. Acute infections, such as an acute tonsillitis with fever, may exert a serious influence on a patient with exophthalmic goiter, owing to the great excess of heat produced and the large amount of weight which is lost as a consequence of a high basal metabolism and a small food intake. The menstrual periods did not exert an appreciable effect on the basal metabolism in this patient. Four roentgen-ray treatments over the thyroid gland at intervals of three weeks had no effect on the course of the disease. Ligation of two thyroid arteries was followed by a transient drop in the daily basal metabolism, and removal of approximately half of the gland had a similar effect.

Blood in Lymphocytosis.—Cytologic study of the blood in nine cases of benign lymphocytosis accompanied by adenoid hyperplasia has shown Downey and McKinlay that the blood picture is sufficiently characteristic to warrant inclusion of all of the cases in one large group. The blood is characterized by the presence of a relatively large number of atypical "leukocytoid" lymphocytes, which show sufficient variation in structure to suggest division of the cases into three types. The abnormal cell characters may be interpreted as due to higher differentiation and special cell activity. In one case, these characters were combined with the nuclear signs of immaturity in a few cells. The blood of this case contained some other leukemic features, but they were not sufficient to warrant a diagnosis of acute leukemia. Special attention was given to comparison of these specimens of blood with the picture in acute leukemia. In every case, it was possible to determine the nonleukemic nature of the blood, even though the clinical picture suggested acute leukemia. A detailed comparison was made between one of these cases and one case of acute lymphatic leukemia having a total leukocyte count and lymphocyte percentage. A case of mouth infection with similar counts is described, and it is shown that the blood cytology is totally different from that of the leukemic case and from the group of cases of benign lymphocytosis. All three cases showed clinical symptoms of acute leukemia, but the blood picture differed in each case, and was sufficiently characteristic to permit correct diagnosis.

Fatal Cases of Malabsorption of Fat.—Three cases are presented by Blumgart, which, because of certain features which they shared in common, suggested a possible clinical entity; the disease tended to occur in early middle life, with insidious onset, gradual downward progression over a period of one and a half to two years, and final termination in death. The presenting symptoms were weakness, emaciation, and, on an average, three soft, semisolid, yellow bowel movements daily, containing an excess of fat. Acidosis and tetany were noted in two cases. In the two cases tested, there was an absence of free hydrochloric acid in the gastric contents. Examination of the blood showed a secondary anemia of from 2,500,000 to 3,000,000 per cubic millimeter, a color index of approximately 1, but no other indications of primary anemia. All of the special studies and tests were essentially negative. Pathologically, the significant changes were confined to the intestines and to the mesenteric lymph nodes. In all three necropsies, only incidental changes were found elsewhere. The small intestine showed small granular elevations of the mucosa, usually gray in appearance. Microscopically, these elevations were found to consist of phagocytes containing ingested fat. The phagocytes were large, mononuclear, and contained a foamy reticulated cytoplasm. The lymph nodes were noticeably enlarged and hyperplastic, and contained phagocytes, with ingested fat.

Milky Effusions.—Seven cases are recorded by Blankenhorn in all of which milky fluids were found. In one case, in which the patient had a tumor of the mediastinum, the fluid contained large amounts of fat in coarse and fine emulsions. This fluid can well be called chylous. In the remaining six cases, in all of which the patients were known to have lesions capable of effusion from chyliferous or blood vessels, the fluids contained smaller amounts of fat, in fine emulsion; these fluids might be classed as pseudochylous, but the only difference between them and the first fluid is that they lacked large fat particles.

Archives of Surgery, Chicago

7: 1-236 (July) 1923

*Pyogenic Infection of Parotid Glands and Ducts. V. P. Blair and E. C. Padgett, St. Louis.—p. 1.
*End Results of Surgery of Thyroid. J. D. Pemberton, Rochester, Minn.—p. 37.
*Histopathology and Etiology of Varicose Veins. B. B. Nicholson, Charlottesville, Va.—p. 47.
Physiology of An Arteriovenous Fistula. E. Holman, Baltimore.—p. 64.
*Skin Signs or Viscerosensory Phenomena in Acute Appendicitis. E. M. Livingston, New York.—p. 83.
Studies in Experimental Traumatic Shock. McK. Cattell, Boston.—p. 96.
Prolonged Intravenous Infusion and Clinical Determination of Venous Pressure. W. G. Penfield and D. Teplitsky, New York.—p. 111.
Blood Transfusion: Study of Two Hundred and Forty-Five Cases. G. H. Copher, St. Louis.—p. 125.
Studies in Exhaustion: V. Hemorrhage. G. W. Crile, Cleveland.—p. 154.
*Chemical Pathology of Pyloric Occlusion in Relation to Tetany. H. A. Murray, Jr. New York.—p. 166.
Traumatic Lesions of Intestine Caused by Nonpenetrating Blunt Force. B. M. Vance, New York.—p. 197.
*Viability of Bone After Removal from Body. S. L. Haas, San Francisco.—p. 213.
Desmoid Tumors: Report of Thirty-One Cases. R. W. Nichols, Rochester, Minn.—p. 227.

Pyogenic Infection of Parotid.—Experience in dealing with pyogenic parotitis has lead Blair and Padgett to three practical conclusions: (1) Acute suppurative parotitis is, in the great majority of cases, an ascending infection from the duct related to decreased salivary flow, fever and depressed general condition. (2) Early adequate liberation and drainage of the parotid gland is a safe and useful procedure in all cases; it may be life saving. (3) Meatotomy of the duct is useful in certain cases of parotitis associated with obstruction not due to stones. Thirty-five cases of acute parotitis are reported. The death rate for the series was 42.8 per cent. Of these thirty-five cases, eight were so mild as to require no treatment. Eight cases were terminal involvements for which no special parotid treatment was given. Of the sixteen patients operated on, five died before the parotid wound healed. Among seventeen other cases reported, three patients developed a salivary fistula; in eight cases there was something which suggested that the glandular trouble was associated with, or dependent on, a partial obstruction of the duct, and that when suppuration occurred it was secondary to this obstruction. Stones were demonstrated in a few of these cases. Nine cases are reported that represent more chronic types in which the presenting symptom was lack of free drainage of saliva and in which, from the history, it appears to have recurred several times. In the first three cases the duct was split at operation, which was performed with the idea of widening the meatal constriction to aid drainage. In one case, the natural opening of Stenson's duct was situated close to the gingiva of the second upper molar tooth, and this malposition was thought to be the cause of the chronic infection of the duct. Four additional cases could not be classified in any particular group. Each represented a case in which the etiology was more or less obscure. No particular treatment was recommended.

End-Results of Thyroid Surgery.—At the Mayo Clinic, during 1922, there were 1,983 operations on 1,497 patients with goiter, with a mortality by operation of 0.95 per cent. and by case of 1.2 per cent.

Cause of Varicose Veins.—Nicholson's investigation was concerned primarily with varicose veins of the lower extremities, and more particularly with the etiology of the condition. Various theories have been advanced to explain the dilatation of the vessels. Nicholson's theory is that various factors are operative, each somewhat dependent on the other. Since the saphenous opening is always protected by two or more valves, and the saphenous wall must at least intermittently bear the weight of the contained column of blood, it appears that the primary cause for varicose veins of the leg is not valvular insufficiency and static pressure. On the other hand, valvular insufficiency, which allows an ill directed and retarded blood flow, is a very important secondary factor. The infrequency of varices in the arms, where the weight of the column of blood in the veins is from a level only a little above the elbow, proves that static pressure is a secondary factor. Similarly, the relatively less severe process in the upper saphenous, as compared with lower levels, supports this conclusion. The primary cause may be mechanical, trophic, inflammatory or toxic. Valves in the veins of the leg do not relieve the vessel wall of the static pressure exerted by the contained column of blood. During the brief interval of contraction of the muscles of the leg, the static pressure of the column of blood above the site of contraction is not exerted on the vessel wall below. Even during this interval the vessel wall is not relieved of any pressure, for the arterial pressure in the lower part of the vessel must be greater than the static pressure normally exerted by the column of blood in the saphenous. The chief functions of the valves are: (*a*) to aid the muscles as they contract in pumping the blood toward the heart; (*b*) to direct the blood toward the heart; (c) to protect the openings of small branches from a backward flow, and (*d*) to prevent blood from being forced backward by intermittent muscular or mechanical pressure. An erect posture, demanding little activity of the legs, tends to induce varicosis, or aggravates the condition, if already present.

Skin Symptoms of Acute Appendicitis.—The basis of Livingston's test is the comparison of the slight discomfort caused by a vigorous twisting pinch of noninvolved skin with the severe pain caused by twisting involved skin within a certain triangle. A line from the umbilicus to the highest point on the right iliac crest forms the upper side; a line carried from this point to the right pubic spine forms the lower side, and a line from the right pubic spine to the umbilicus closes the triangle. Skin signs within this triangle, and maximal at its center, constitute confirmatory evidence of appendicitis. When the signs extend definitely beyond its borders on the anterior abdominal wall, or are maximal elsewhere, they are considered negative for appendicitis. Skin signs above the superior line of this triangle suggest cholecystitis, etc., while those below its inferior line suggest right renal colic, etc. In a series of seventy-five consecutive cases clinically diagnosed as acute appendicitis, the skin signs were positive in fifty-four and negative in twenty-one instances. All patients presenting positive signs had acute appendicitis; eleven of those presenting negative signs had gangrenous or perforative appendicitis. In the remaining ten negative cases, the findings were: general peritonitis of unknown origin, one case; pneumonia, two cases; acute gastritits, one case; pulmonary tuberculosis, two cases; right renal calculus, the skin signs being present on the upper and inner portion of the right thigh, one case; hemorrhagic ovarian cyst, the skin signs being present over the middle of Poupart's ligament only, one case. In none of these ten cases was acute appendicitis present.

Chemical Pathology of Pyloric Occlusion.—It is considered by Murray that the five cases presented, the experiments summarized and the literature cited make the assumption that nerve irritability is increased by a fall in the hydrogen ion concentration of the blood or by a rise in the sodium: calcium ratio highly probable. The latter may be brought about by adding dissociable sodium compounds or precipitating calcium. Whether the hydrogen ion is active because of its effect on the cation ratio is still an open question. The treatment of gastric tetany is operative. As far as is known, it is always the result of obstruction of the pylorus, due to gross pathologic changes. There are other forms of tetany that are not associated with pathologic gastric conditions, from which it must be differentiated. This can usually be done by suitable blood analyses.

Viability of Bone After Removal from Body.—The experimental evidence submitted by Haas shows that the osteoblastic cells of bone will survive an exposure period of nineteen hours in air at room temperature. There is sufficient active retained vitality in the exposed cells to form callus, and, in some instances, union of a fractured bone after its transplantation into a muscle of the same animal, independent of any other source of osseous elements. The demonstration of the survival of the cells of bone after removal from the host adds uncontroverted evidence to prove that the osteoblastic cells of a bone graft play an independent active rôle in the processes of regeneration.

Boston Medical and Surgical Journal

189: 125-160 (July 26) 1923

Function of Municipal Hospital. F. W. Peabody, Boston.—p. 125.
Municipal Hospitals from Trustee's Viewpoint. H. S. Rowen, Boston.—p. 129.
Some Newer Developments in Hospitals. C. A. Coolidge, Boston.—p. 131.
*Analysis of One Hundred and Eighty Cases of Pneumonia with Necropsies. Anatomic Complications and Bacterial Causes. H. M. Feinblatt, Brooklyn.—p. 136.
Effect of Blood Sugar Level on Suprarenal Secretion and Sympathetic Activity. W. B. Cannon and S. W. Bliss, Boston.—p. 141.
Case of Filariasis Apparently Contracted in Boston. G. C. Shattuck, Boston.—p. 142.
Case of Cambric Needle in Stomach Wall. J. W. Lane, Boston.—p. 144.

Anatomic Complications of Pneumonia.—Feinblatt summarizes the anatomic complications and the bacteriologic causes of infection in 139 cases of lobar pneumonia and forty-one cases of bronchopneumonia which came to necropsy at Base Hospital No. 101, St. Nazaire, France, during 1918. In reference to lobar pneumonia, the principal anatomic complications were pleural empyema (38.1 per cent.), purulent pericarditis (17.2 per cent.), toxic nephrosis (10.7 per cent.), fibrinous pleurisy (9.3 per cent.), and cardiac dilatation (8.6 per cent.). The pneumococcus alone was the organism responsible for the infection in 9.7 per cent. of the cases; with the streptococcus, it accounted for 2.3 per cent. In reference to bronchopneumonia, the principal anatomic complications were pleural empyema (9.7 per cent.), cardiac dilatation (9.7 per cent.), toxic nephrosis (7.3 per cent.), and empyema of the cranial sinuses (7.3 per cent.). The streptococcus alone was the organism responsible for the infection in 34.7 per cent. of the cases; the pneumococcus, in 21.7 per cent.; the bacillus of tuberculosis, in 13 per cent.

Journal of General Physiology, Baltimore

5: 709-879 (July 20) 1923

Exosmosis in Relation to Injury and Permeability. W. J. V. Osterhout, Cambridge, Mass.—p. 709.
Penetration of Dyes as Influenced by Hydrogen Ion Concentration. M. Irwin, Cambridge, Mass.—p. 727.
Comparative Studies on Respiration. XXVII. The Mechanism of Oxidation in Relation to Chloroform Anesthesia. G. B. Ray, Cambridge, Mass.—p. 741.
Purification and Precipitation of Casein. J. H. Northrop, New York. —p. 749.
Inactivation of Trypsin. IV. Adsorption of Trypsin by Charcoal. J. H. Northrop, New York.—p. 751.
Structural Units of Starch Determined by Roentgen Ray Crystal Structure Method. O. L. Sponsler, Los Angeles.—p. 757.
*Effect of Gestation on Rate of Decline of Milk Secretion with Advance of Period of Lactation. S. Brody, A. C. Ragsdale and C. W. Turner, Columbia, Mo.—p. 777.
Studies in Protoplasm Poisoning. I. Phenols. L. P. Shackell, Chicago. —p. 783.
Relation Between Electrical Conductivity of External Medium and Rate of Cell Division in Sea Urchin Eggs. R. S. Lillie and W. Cattell, Cleveland.—p. 807.
Dissection of Chromosomes in Pollen Mother Cells of Tradescantia Virginica. L. R. Chambers and H. C. Sands, New York.—p. 815.
Mechanism of Entrance of Sperm into Starfish Egg. R. Chambers, New York.—p. 821.
Theory of Regeneration Based on Mass Action. J. Loeb, New York.— p. 831.
Theory of Geotropism Based on Mass Action. J. Loeb, New York.— p. 853.

Effect of Gestation on Milk Secretion.—Data are presented by Brody, Ragsdale and Turner showing that the course of decline of milk secretion with the advance of the period of lactation in farrow cows follows the course of decline of a monomolecular chemical reaction; that is, each month's milk production is a constant percentage of the production of the preceding month (94.77 per cent. in the case of the cow under consideration), from which it is inferred that milk secretion is limited by a chemical reaction initiated at parturition, and declining with the decrease of the concentration of the limiting substance as it is transformed into milk. Data are also presented showing that the decline in milk secretion due to pregnancy is related to the increase in weight of gestating animals, from which it is inferred that growth of the fetus is, in part, at least responsible for the decline in the milk flow due to the demand of the fetus for nutrients to support its life processes.

Journal of Laboratory and Clinical Medicine, St. Louis

8: 631-698 (July) 1923

*Normal Urine Sugar Curve in Normal Persons, Borderline Diabetics and Severe Diabetics Under Insulin Treatment. I. H. Page, Indianapolis.—p. 631.
Significance of Negative Results in Blood Cultures. H. B. Kipnis, Chicago.—p. 651.
*Toxicity of Cocain as Influenced by Rate of Absorption and Presence of Epinephrin. E. L. Ross, Chicago.—p. 656.
*Method for Isolation of Leukocytes. P. Szilard, Budapest, Hungary.— p. 661.
Clinical and Laboratory Procedures in Pediatrics. A. Levinson, Chicago.—p. 664.
Effect of Buffer Salts on Blood Coagulation. B. Jablons, New York.— p. 679.
*Familial Hypertension: Report of Case. J. Rosenbloom, Pittsburgh.— p. 681.
Portable Irrigation Apparatus for Treatment of Wounds with Liquid Antiseptics. B. Douglas, New Haven, Conn.—p. 684.
Simple Air Interrupter. R. F. Hacking, Richmond, Va.—p. 687.
Standard Wassermann Reaction. R. Ottenburg and I. Wisler, New York.—p. 690.
Kottmann Reaction for Thyroid Activity. Carbon Dioxid in Tested Serum. S. Morse and C. M. Fitch, Columbus, Ohio.—p. 692.
Simple Method for Obtaining Guinea-Pigs' Blood for Complement. B. S. Levine, Waukesha, Wis.

Determining Hourly Urine Sugar Curve.—The hourly urine sugar curve has been determined by Page in normal persons, borderline diabetics, cases of severe diabetes under insulin treatment, renal diabetes, borderline glycosuria under insulin treatment and hyperthyroid cases. A standard technic is described for the determination of the hourly sugar curve. Page believes that the curve will demonstrate cases of mildly pathologic sugar metabolism that would be overlooked by the ordinary tests for such conditions.

Factors Affecting Toxicity of Cocain.—Ross found that the minimum fatal dose of cocain for cats varies with the rate of administration. As the rate of introduction of cocain increased, the minimal lethal dose of cocain first decreased and then gradually increased up to the end of the series. The minimal lethal dose of cocain hydrochlorid for chloretoned cats under these conditions is 0.0128 gm. cocain per kilogram of body weight. Epinephrin markedly increases the toxicity of cocain.

Method for Isolation of Leukocytes.—The essential point of Szilard's method is the destruction of the red blood corpuscles and the thrombocytes in a manner which will leave the white cells unimpaired. The following solutions are required: (1) 2.5 per cent. solution of acetic acid; (2) 2 per cent. solution of tartaric acid; (3) 2 per cent. solution of potassium hydroxid, and (4) Locke's solution. The blood is defibrinated, hemolyzed, alkalinized, washed in Locke's solution, and the white cells are stained. The detailed technic is given.

Familial Hypertension.—The family tree given by Rosenbloom suggests strongly that heredity produced in this group either a congenital aplasia of the arterial system, or a susceptibility to some endogenous toxic substance whose effect showed itself between the ages of 40 and 45. Both parents died at 45 from cerebral hemorrhage. One daughter, aged 47, died from cerebral hemorrhage. Two daughters, aged 35 and 33, respectively, are well, as yet. Four daughters, aged 40, 44, 46 and 49, respectively, have hypertension. Three sons, aged 42, 45 and 47, respectively, died. All had hypertension.

Journal of Urology, Baltimore

10: 1-97 (July) 1923

*Complete Urinary Obstruction Due to Hydatid Cyst. C. L. Deming, New Haven, Conn.—p. 1.
Hydronephrosis: Report of Six Cases. W. C. Quinby, Boston.—p. 45.
*Absorption from Urinary Tract. J. A. H. Magoun, Jr., Rochester, Minn.—p. 67.
Case of Tuberculosis of Adenomatous Prostate. J. D. Barney, Boston. —p. 81.
Differentiation Between Tuberculous and Nontuberculous Inflammation of Epididymis. A. R. Stevens, New York.—p. 85.
Tunnelled Sounds and Modification of Maisonneuve Urethrotome. B. H. Caples, New York.—p. 93.

Complete Urinary Obstruction Due to Hydatid Cyst.—A case of multiple echinococcus infection, with cysts in the liver, diaphragm and pelvis, and general fibropurulent peritonitis, is reported by Deming, and 47 cases found in literature are reviewed briefly. Of the 48 cases with complete urinary obstruction due to hydatid cyst, 7 were not treated; 25 of the 41 patients treated recovered; 14 died; 1 patient developed incontinence and 1 improved. Of those operated on, 60.9 per cent. were cured and 34.1 per cent. died; 5 per cent. developed fistula or some other chronic condition. Error in diagnosis is responsible for at least 50 per cent. of the mortality, while secondary infection produced by suprapubic or rectal puncture is responsible for 40 per cent. of the deaths.

Absorption from Urinary Tract.—Experiments made by Magoun showed that certain dyes and bacteria can be absorbed from the normal kidney, ureters and urethra. A small amount of dye can be absorbed from the normal and acutely inflamed bladder. Bacteria could not be recovered in the blood stream or various organs after injection into either the normal or acutely inflamed bladder. In considering the relative absorbability, the kidney would seem to have the greatest absorptive power, with the urethra second and the ureter third. It would appear that, both experimentally and clinically, bacteria may pass from the pelvis of the kidney into the blood. In certain clinical cases the kidney, once infected, may act as a focus for a secondary bacteremia.

Military Surgeon, Washington, D. C.

53: 1-88 (July) 1923

Newer Epidemiology. F. H. Garrison.—p. 1.
Use of Yerkes-Bridges Point Scale in Intelligence Tests. A. T. Cooper. —p. 15.
Supply Functions of Medical Officer. N. L. McDiarmid.—p. 19.
Two Calculating Charts. C. B. Wood.—p. 39.
Use of Steam Jet for Delousing Railway Coaches. L. H. Dunn, Ovid, N. Y.—p. 42.
Examination of Patient. T. E. Scott.—p. 45.
Efficient State Military Medical Department. J. Frank.—p. 58.

Northwest Medicine, Seattle

6: 189-224 (June) 1923

Appraisal of Endocrinology. R. G. Hoskins, Columbus, Ohio.—p. 189. (To be conc'd.)
Prodromal Symptoms of Headache Due to Constipation. E. C. Fishbaugh, Los Angeles.—p. 195.
Institutional Treatment of Tuberculosis. P. Schonwald, Seattle.—p. 198.
Basal Conditions in Estimation and Interpretation of Basal Metabolic Rate. B. Holcomb, Portland, Ore.—p. 203.
Use of Insulin in Diabetes Mellitus. L. J. Palmer, Seattle.—p. 207.
Indicanemia an Early and Very Dependable Symptom of Renal Insufficiency. G. Baar, Vienna, Austria.—p. 210.
Protheses After Removal of Auricle for Carcinoma. R. A. Fenton and I. M. Lupton, Portland, Ore.—p. 212.

Philippine Island Medical Association Journal, Manila

3: 117-168 (May-June) 1923

Manual Extraction of Placenta. Its Morbidity and Mortality and Its Effect on Placenta Acreta. H. Acosta-Sison.—p. 117.
Methods of Diagnosis and Treatment of Empyema of Maxillary Sinus. F. Nicolas.—p. 121.
*Gallbladder Perforation in Typhoid Fever: Report of Case. A. B. M. Sison.—p. 125.
Coordinated Effort in Sanitation. C. N. Leach.—p. 127.
Cooperation Necessary Between Medical Association and Government in Philippines on Legislation Pertaining to Medical and Public Health Matters. J. C. Nanagas.—p. 131.
Spinal Percussion in Diagnosis of Certain Intrathoracic Diseases. W. J. B. Burke.—p. 135.

Gallbladder Perforation in Typhoid.—In trying to offer an explanation for the production of this complication, Sison suggests the possibility of the typhoid bacilli having multiplied in the gallbladder in such overwhelming manner that they rendered the bile so thick as to cause stagnation first, and, later, obstruction of the biliary passages, thereby starting local traumatism and injury. Then, with the general lowering of resistance of the patient on account of the general infection, an ascending inflammatory process, starting in the duodenum, may have taken place. Then the secondary invaders, namely, *B. coli* and other pyogenic organisms, came to help in this destructive enterprise, and a locus minoris resistentiae was established in the gallbladder wall which subsequently became the site of the perforation. The previous history and habits of the patient do not help at all in establishing the contributory factors for his complication, because they are entirely negative.

Surgery, Gynecology and Obstetrics, Chicago

37: 1-126 (July) 1923

*False Diverticula of Jejunum. F. Helvestine, Jr., University, Va.—p. 1.
*Diverticulum of Duodenum: Report of Case. N. J. MacLean, Winnipeg, Man.—p. 6.
Postoperative Ventral Hernia. J. C. Masson, Rochester, Minn.—p. 14.
Lung Compression by Heavy Liquid Paraffin in Treatment of Lung Tuberculosis, Bronchiectasis and Lung Abscess. F. W. McGuire, Buffalo.—p. 20.
*Rare Malformation of Vulva. F. Ronchese, Venice, Italy.—p. 22.
Endotheliomata of Uterus: Report of Case. D. P. Murphy, Rutherfordton, N. C.—p. 24.
Syphilis of Uterus and Adnexa. B. Portis, Chicago.—p. 37.
Atrophy of Liver with Nodular Hyperplasia. E. H. Pool and F. W. Bancroft, New York.—p. 44.
*Aberrant Gastric Mucosa. Report of Two Cases. An Umbilical Polyp and Meckel's Diverticulum. E. Stone, Boston.—p. 51.
*Placental Iron and Its Relationship to Icterus Neonatorum. A. C. Williamson, Pittsburgh.—p. 57.
Tumors of Breast. C. E. Black, Jacksonville, Ill.—p. 63.
Stricture of Bulbous Region. G. D. Lombardo, Mexico City, Mexico.—p. 69.
Analysis of Two Thousand Four Hundred and Sixty-Eight Herniotomies. J. P. Hoguet, New York.—p. 71.
*Ether Lavage; Its Logical Use Locally as an Antiaggressin. G. de Tarnowsky, Chicago.—p. 76.
Near Normal Restoration of Limb Afflicted with Disabling Consequences of Old Pott's Fracture. F. Reder, St. Louis.—p. 82.
Spot-Light in Surgery. J. G. R. Manwaring, Flint, Mich.—p. 86.
Quilting Remaining Lobe as an Emergency Procedure During Thyroidectomy for Exophthalmic Goiter. H. G. Sloan, Cleveland.—p. 88.

False Diverticula of Jejunum.—Helvestine describes two cases of false diverticula of the jejunum, and considers the etiologic factors involved. A consideration of these cases, together with those described in the literature, discloses three factors operating conjointly in the formation of acquired diverticula: (1) traction by the mesenteric vessels, or traction following adhesions; (2) degeneration of the intestinal musculature and (3) intra-abdominal pressure. Acquired diverticula develop first as true diverticula but later lose their muscular coat and become false diverticula.

Diverticulum of Duodenum.—Maclean reports a case in which the diverticulum was imbedded in the head of the pancreas causing chronic hypertrophic pancreatitis with symptoms simulating those of severe biliary colic. He performed a transduodenal diverticulectomy. The diverticulum was freed by blunt dissection, inverted into the lumen of the duodenum, ligated, and removed.

Rudimentary Pseudofeminine Hermaphroditism.—Ronchese describes this anomaly as an apparently rudimentary pseudofeminine hermaphroditism. The case is considered interesting only from the morphologic side, as an anomaly of the labia and vagina (of the lower portion) caused by incomplete development, and simulating a rudimentary feminine pseudohermaphroditism, was associated with an abnormal meatus.

Aberrant Gastric Mucosa.—The two cases recorded by Stone increase the fatal number in the literature to forty-four. He says that umbilical polypi bearing cells which could have developed from the splanchnopleura are remnants of the vitelline ducts. The mucous membrane on the surface of these tumors may be the result of a process of evagination, central necrosis and subsequent fibrosis of a tubular element. The original cells lining the vitelline duct have the power of differentiating into any type of cell that the foregut is capable normally of developing. The actual factors producing the abnormal stimulation, or lack of stimulation, for the obliteration of the vitelline duct are unknown.

Placental Iron and Icterus Neonatorum.—All new-born infants, according to Williamson, have bilirubinemia corresponding to the iron content of the placenta. There is a definite relationship between icterus neonatorum and placental iron content. Jaundice of the new-born may thus be considered as purely rynamic or hemolytic in origin. The nonicteric infants, all of whom, nevertheless, have a certain degree of bilirubinemia, are without jaundice because their placental iron content is below the level necessary for the appearance of jaundice.

Ether Lavage of Peritoneal Cavity.—DeTarnowsky believes that ether lavage is a local and general adjuvant to nature's combative and reparative forces, i. e., it is an antiaggression. Whenever, from any pelvic or abdominal source of infection, free or localized pus is found, the organ or organs involved are first of all treated according to indications. Pus is wiped or preferably suctioned without breaking down protective barriers if any exist and the surgeon begins to close the peritoneum. While doing this, 1 ounce of ether is poured into the pelvic or peritoneal cavity, without attempting to wash or otherwise disturb the normal relation of any of the abdominopelvic organs. No swabbing out is done, but the peritoneum is closed as rapidly as possible in order to minimize the loss of ether through evaporation. The anesthetic is not interrupted. Drainage, exclusively of the cigaret variety, should be instituted only when it has been impossible to remove all macroscopically necrotic tissue or when a fistula is either present and cannot be closed, or is probably going to occur.

Texas State Journal of Medicine, Forth Worth

19: 157-210 (July) 1923

Importance of Vital Statistics in Health Work. W. T. Davidson, Dallas.—p. 169.
State Sanitary Code: Its Scope and Methods of Enforcement. O. Dowling, New Orleans.—p. 170.
Importance of Disease Prevention. A. H. Flickwir, Houston.—p. 172.
What Public Should Know About Public Health. N. D. Buie, Marlin.—p. 174.
*Malta Fever in Southwest. J. W. Tappan, El Paso.—p. 176.
Eradication of Malarial Fever from Texas. A. Woldert, Tyler.—p. 178.
*Epidemiology and Prevention of Dengue. M. D. Levy, Houston.—p. 182.
Relation of Purification of Municipal Water Supplies to Public Health. L. O. Bernhagen, Beaumont.—p. 184.
Present Status of Texas Drinking Water Supplies. V. M. Ehlers, Austin.—p. 187.
Stock Poisoning Plants of Range. C. D. Marsh, Washington, D. C.—p. 188.

Malta Fever in Southwest.—According to Tappan, malta fever is endemic in parts of the Southwestern states and Mexico, hence goat's milk furnished to any community should be produced under competent supervision—especially where conditions exist which are favorable to the spread of malta fever. The necessity for routine serologic examination of all goat herds, whether furnishing milk to communities or being used for other purposes, should be considered.

Epidemiology of Dengue.—In 1918, and again in 1919-1920, Cleland, Bradley and McDonald, working in Australia, by a series of carefully controlled experiments, both on human beings and the lower animals, proved that *Stegomyia colopus*, now known as *Aedes aegypti*, was the mosquito transmitting the infection of the Australian epidemic of dengue. Reports from other parts of the world have thrown considerable doubt on *Culex quinquefasciatus* as a vector of the disease, and have strengthened the belief that *Aedes aegypti* should have this added to his score. That Texas was plagued during the past summer by innumerable hordes of *Stegomyia*, Levy says, is common knowledge, and the association of dengue with the presence of these mosquitoes is hardly one of coincidence. *Aedes aegypti* was undoubtedly the most prevalent and most likely vector.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

28: 33-64 (July) 1923

Mackenzie Davidson Memorial Lecture. A. W. George.—p. 33.
Treatment of Menorrhagia by Radium. G. Blacker.—p. 47.
Unusual Calcareous Deposits in Soft Tissues of Hands. J. R. Logan.—p. 55.
Radiography of Knee Joint. E. Scott.—p. 57.
Discrepancy in Values of Secondary Voltage Given by Spectrometer and Equivalent Spark-Gap. W. E. Schall.—p. 59.

British Journal of Ophthalmology, London

7: 353-400 (Aug.) 1923

Embryology of Congenital Crescents. I. C. Mann.—p. 359.
Prophylaxis Against Blennorrhea Neonatorum in Denmark. G. Norrie.—p. 374.

British Medical Journal, London

2: 91-134 (July 21) 1923

Study of Nature as Shedding Light on Structure and Functions of Man. Antler of Deer and Its Relation to Growth of Bone. W. Macewen.—p. 91.
*Normal and Morbid Conditions of Suprarenals in 100 Hospital and Asylum Cases: with Special Reference to Dementia Praecox. F. W. Mott and I. E. Hutton.—p. 95.
*Nature of So-Called Rheumatoid Arthritis and Osteo-Arthritis: Summary of Investigation into Pathologic Changes, with Plea for Scientific Classification. A. G. T. Fisher.—p. 102.
Case of Fever Due to Bacillus Paratyphosus C. E. Wordley.—p. 105.
Differential Diagnosis of Smallpox and Chickenpox. W. McC. Wanklyn.—p. 106.

2: 135-164 (July 28) 1923

Environment and Health. C. P. Childe.—p. 135.

Blood Pressure in Dementia Praecox.—In their blood pressure studies in 143 cases Mott and Hutton found that in 10 of the cases of katatonic dementia praecox, and in 4 of the 27 cases of hebephrenic dementia praecox the blood pressure was under 100; whereas in 12 cases of epilepsy, in 15 cases of general paralysis, and in 9 of the 10 cases of congenital imbecility there was not a single case in which the blood pressure was under 100; moreover, in 5 of the 10 cases of katatonia, and 2 of the 4 cases of hebephrenia, the blood pressure was very low, under 90. In not one of the cases of general paralysis was it under 120. The Goetsch test was made in fifty dementia praecox cases. Two cases only gave a normal reaction; these had a systolic blood pressure of 122 and 128, respectively. One was a katatonic and the other a simple dementia praecox case with congenital defect. Eighteen cases gave a moderate reaction; in 13 of these the blood pressure was 120 or under (minimum 104); in 5 it was over 120 (maximum 130). Thirty cases reacted only faintly; in 25 the blood pressure was 120 or under (minimum 98); in 5 it was over 120 (maximum 136). The test was repeated in cases with a high blood pressure which gave a faint reaction, and the same result was obtained. In several cases it was found that a faint reaction might be intensified by administration of thyroid extract, but without material alteration in the blood pressure.

Classification of Chronic Arthritis.—The suggested new nomenclature given by Fisher is as follows: chronic arthritis (A, monarticular; B, polyarticular); (1) synovial type (O. T., rheumatoid arthritis). The disease commences and remains more marked in the synovial membrane. The cartilage and bone may be invaded secondarily. Every gradation may be seen between the chronic types and the more acute forms which lead to ankylosis. (2) Chondro-osseous Type (O. T., osteo-arthritis). The disease commences and remains more marked in the articular end, the synovial membrane being involved later. (3) Mixed type. The disease commences simultaneously in synovial membrane and articular end of bone and the changes advance pari passu.

Journal of Tropical Medicine and Hygiene, London

26: 239-250 (July 16) 1923

*Two Cases of Rat Bite Fever. Rapid Cure by Intravenous Injection of Neo-Arsphenamin. E. C. Spaar.—p. 239.
*Case of Infection with Dientameba Fragilis, Jepps and Dobell. A. Robertson.—p. 243.
Intestinal Parasites in Sudan. V. S. Hodson.—p. 244.

Neo-Arsphenamin in Rat Bite Fever.—The noteworthy features of one of Spaar's cases were the rapid cure after only one injection of 0.45 gm. neo-arsphenamin, the pains on only the left side of the body, and the presence of nodular swellings in the skin. There was no rigor or chill before either of the paroxysms of fever, no pains had been felt in the joints and no rash was ever seen. Only before the first bout of fever was the bitten finger painful. There was no increase of the tendon reflexes, and no stiffness about the joints of the bitten finger. Profuse sweating accompanied defervescence on each occasion. The other patient received four injections of 0.2 gm. neo-arsphenamin before a cure was effected.

Infection with Dientameba Fragilis.—Robertson reports the case of a young woman who was admitted to hospital as a case of suspected entamebic dysentery. Her history revealed that she had been subject to bowel trouble in one form or another for the greater part of her life. During childhood and adolescence, which were spent in South America, she suffered from chronic constipation, and this condition persisted until she went to Egypt in 1916. She remained in Egypt from 1916 until 1919, and in the course of her stay there had several diarrheic attacks, which, however, were not associated with infection by any protozoal organism. At the end of her stay in Egypt she went to the Punjab, where she resided up to the time of her return to London early in 1922. While in India she had a severe attack of dysentery, and *Entameba histolytica* was in the stools. Since then she has suffered from recurrent attacks of diarrhea accompanied by pain and tenderness along the line of the large intestine which was frequently much distended. The stools were examined as a routine measure. In the sixth stool of the series *Dientameba fragilis*, Jepps and Dobell, 1917, was found, and thereafter no difficulty was experienced in demonstrating it in subsequent specimens.

Lancet, London

2: 105-154 (July 21) 1923

Bacteriologic, Toxicologic, Hemotologic Considerations Bearing on Psychoses. E. Goodall.—p. 105.
*Bronchomoniliasis. T. Joekes and R. H. Simpson.—p. 108.
Mental Tests for Delinquents, and Mental Conflict as Cause of Delinquency. M. H. Smith and G. W. Pailthorpe.—p. 112.
*Interrelationship of Blood Fat and Blood Sugar. T. H. Oliver and A. Haworth.—p. 114.
Tuberculosis Treated with Spahlinger's Vaccine. E. H. Colbeck and S. R. Gloyne.—p. 116.
*Acute Bacillus Coli Infection of Gastro-Intestinal Tract in New-Born Baby, Contracted from Its Mother. R. C. Jewesbury and L. S. Dudgeon.—p. 118.
Case of Quintuple Pregnancy. S. R. Foster and W. Carson.—p. 120.

Bronchomoniliasis.—According to Joekes and Simpson bronchomoniliasis is of more frequent occurrence than has hitherto been suspected. The clinical picture presents no distinctive feature. The long duration of the signs of pulmonary consolidation is notable, as is the persistence of the fungus in the sputum after the completion of convalescence—a feature indicative of the chronicity of the infection, and, perhaps, of the possibility of relapse. Six cases are reported. Two cases presented an acute tonsillitis. Cultures made from the exudate yielded a plentiful growth of *Monilia pinoyi*. The diagnosis of bronchomoniliasis depends primarily on the repeated demonstration of the fungus in the sputum. It is essential that specimens should be collected into sterile vessels and washed repeatedly before cultivation. The patient should gargle with sterile sodium chlorid solution or with a dilute solution of potassium permanganate before expectorating. In cases of true infection a profuse growth occurs from cultures on Sabouraud's medium. In other cases experience has shown that, even when the preliminary washing of the patient's mouth is neglected, it is exceptional to obtain more than a very scanty growth, and that commonly none at all appears. In those cases in which the lesion is purely local those methods of investigation which aim at the detection of the organism in the circulation, or which depend on the recognition of specific general reactions are hardly applicable. There is, however, evidence to suggest that dissemination does occur and that the use of these methods for diagnostic purposes is worthy of trial.

Interrelationship of Blood Fat and Blood Sugar.—Evidence is presented by Oliver and Haworth to show that the blood sugar has a relation to the blood fat, other than that of a mere oxidizing agent. Fat properly absorbed into the tissues appears to increase the storage of carbohydrate; if not so absorbed, or if mobilized by calcium, the storage is interfered with. Possibly improper storage of the fat may account for the tendency of a high fat diet to produce glycosuria in some cases of diabetes. It is noticeable that practically all conditions which lead to a hyperglycemia lead to a lipemia as well; this may be attributed to diminished oxidation. The authors have been able to produce a distinct rise of blood fat in addition to a hyperglycemia by the injection of epinephrin (from 0.48 to 0.56 per cent.). In this case, at least, it is difficult to understand why the liberation of a large amount of oxidizing material should be accompanied by an increase of the substance to be oxidized. They suggest that a more probable explanation is that both were stored and liberated together, an explanation which recent work on the effect of insulin in diminishing lipemia does much to confirm.

Acute Colon Bacillus Infection in New-Born Baby Contracted from Mother.—The mother in the case cited by Jewesbury and Dudgeon had suffered from an infection of the urinary tract due to the colon bacillus, which had caused acute symptoms with high temperature, and the usual associated clinical phenomena, on two occasions during the antenatal period. The urine contained a large amount of pus and masses of bacilli and the lochia also were similarly infected. In the opinion of the authors the baby was infected at birth by swallowing the urine or lochia in which the organism was present in abundance. This view is supported by the fact that the illness commenced about three days after birth, and the condition of the child at birth was perfectly satisfactory. The illness commenced and continued with gastro-intestinal symptoms and associated clinical phenomena. The child passed thick mucus by the bowel for some weeks and also vomited mucus. The causative organism was present in the intestinal mucus for many weeks, and eighteen weeks from the onset of the illness it was present in the vomited material during a gastro-intestinal upset. At this period the urine was found to show a bacilluria due to the same organism. The illness was so severe that it nearly cost the life of the child, and improvement only occurred after many weeks of most careful nursing and treatment. Repeated examination failed to disclose bacilli in the mother's milk.

2: 155-210 (July 28) 1923

Environment and Health. C. P. Childe.—p. 155.
Primary and Secondary Resistance to Induction of Cancer. J. A. Murray.—p. 159.
*Immediate Prognosis in Nephritis. O. L. V. De Wesselow.—p. 163.
Insulin. J. J. R. MacLeod.—p. 198.
Typhus Fever Epidemic Among Greek Refugees. P. Hehir.—p. 209.
*Secondary Anemia in Infancy. H. M. M. Mackay.—p. 165.

Prognosis in Nephritis.—With the increasing application of chemical methods to the study of the disease, the accuracy of prognosis in nephritis has made a considerable advance. The bulk of modern work has centered round the question of the retention of the nitrogenous waste products in the blood, and has more especially concentrated on the urea content of the blood, on account of the ease and accuracy with which this substance can be estimated. There can be no doubt, however, says De Wesslow, that an estimation of the urea content of the blood in cases of severe azotemic nephritis does not necessarily settle the question of the immediate prognosis. A blood urea content as high as 300, or even, in rare instances, 400 mg. per hundred c.c., is not incompatible with recovery in an acute case, and even in chronic types of nephritis, in which the capacity for recovery is of necessity less, a blood urea content of from 100 to 200 mg. does not necessarily imply speedy death. A confident prognosis can, therefore, scarcely be ventured on from an estimation of the blood urea alone, and several estimations at intervals of some days may be necessary before an opinion on the immediate outlook can be given. A plea is entered for the value of a determination of the plasma content in inorganic phosphorus (phosphate) in estimating the probable outcome of a case of azotemic nephritis. Phosphate retention is associated with certain definite chemical changes in the blood, with are apparently of importance in the symptomatology of uremia. The retention of the nitrogenous waste products is a useful guide to the degree of renal damage present, but in itself is apparently harmless; phosphatic retention, on the other hand, appears to involve certain deleterious results. Though retention of phosphates is undoubtedly associated with impairment of nitrogenous excretion, and though, when a series of cases is averaged, it is found that the rise in the plasma phosphate closely corresponds to the degree of urea retention, in individual cases marked differences in the degree of retention of the two bodies occur. Thus, there may be a high blood urea with a relatively low plasma phosphate content, and conversely. The cause of these differences in the degree of retention of the two bodies is uncertain; the available evidence would appear to suggest that they are the result not so much of variations in excretion as of variations in the diet, and in the demand for phosphorus and nitrogen for anabolic purposes.

Secondary Anemia in Infancy.—There is a general consensus of opinion that too prolonged and too exclusive a milk dietary produces anemia in infants and young children. This, according to MacKay, is probably due, in part at least, to iron starvation, on account of the low iron content of milk. Some writers, however, have held that it is directly connected with a toxic effect resulting from excessive milk consumption. Premature infants are known to be particularly liable to this form of anemia. In a group of thirty-six artificially-fed infants receiving milk or milk and carbohydrate diets, with or without cod liver oil, the majority developed anemia. It was usually noted toward the end of the first year of life, but sometimes appeared as early as the seventh month. Additions of vegetables to the diet, at the age of from 6 or 7 months, did not prevent anemia. The infants were in well lighted and well ventilated wards, and were much out of doors in summer, but very little in winter. Treatment by the administration of inorganic iron salts by mouth brought about improvement in the majority of cases treated, but not in all, possibly because treatment was not continued for a sufficient length of time. No improvement was noted in the hemoglobin content of the blood in any case within three to four weeks from the beginning of treatment, and improvement might be delayed for six weeks with, thereafter, rapid progress. It is suggested that many cases of anemia in infants, particularly those occurring in artificially fed infants at an early age, are probably associated with iron starvation, more especially as it has been demonstrated experimentally that the iron retention of an infant on cow's or goat's milk is much lower than that of an infant on human milk.

Annales de l'Institut Pasteur, Paris

37: 547-626 (June) 1923

*Experimental Syphilis in Monkeys. M. Nicolle.—p. 547.
*Pentavalent Arsenic in Therapeutics. E. Fourneau et al.—p. 551.
*Origin of Endemic Plague. D. Zabolotny.—p. 618.

Syphilis in Monkeys.—Nicolle describes his hitherto unpublished experimental research in 1890. The findings have been confirmed by others since.

Relation Between Therapeutic Action and Constitution of Derivatives of Phenylarsinic Acid.—This article is an exhaustive study of pentavalent arsenic and its derivatives in treatment of experimental infections with trypanosomes and spirilla, with efforts to enhance the action by modifying the molecular construction.

Origin of Endemic Plague.—Zabolotny states that every year since 1898 there have been cases of plague in southeastern Russia, with a total of 1,931 to the close of 1914. The Institute of Experimental Medicine at Petrograd has been investigating eighty-one endemic foci during the last three years, and has found that infection of the skin transmits the bubonic form of plague, while droplet infection is responsible for the pneumonic. The plague bacillus survives for six months in winter in human cadavers and animal carcasses. In summer it survives only a month, on account of the putrefaction. Wild rodents are the reservoirs of infection, but camels become infected and can start an epidemic in human beings. The geographic distribution and parasitology of wild rodents are extremely important for the study of endemic plague.

Annales des Maladies Vénériennes, Paris

18: 417-496 (June) 1923

*Latent Syphilitic Encephalitis. Cestan and Riser.—p. 417.
The Previous Treatment in 100 Cases of Syphilis. Leredde and Loiselet—p. 427.

Latent Syphilitic Encephalitis.—Cestan and Riser report the case of a man without mental symptoms and with only the Argyll Robertson sign and slight anomalies in the tendon reflexes to suggest general paralysis, aside from findings characteristic of syphilis in the cerebrospinal fluid. Necropsy after intercurrent pneumonia revealed typical lesions of general paralysis in meninges and brain. The practical conclusion is that prognosis should be guarded in cases of syphilitic meningitis five or ten years after contamination, as there may be a latent encephalitis. Treatment should be vigorous and persevering, as the encephalitis may develop at any moment.

Annales de Médecine, Paris

13: 495-610 (June) 1923

*Primary Alkaline Lithiasis. A. Gosset and W. Mestrezat.—p. 495.
*Exacerbations in Pulmonary Tuberculosis. R. Burnand.—p. 526.
*Secondary Epitheliomatous Endocarditis. E. Rist and J. Rolland.—p. 538.
*Diverticulitis. R. Bensaude, A. Cain and P. Hillemand.—p. 547. Conc'n.
*The Double Electrocardiogram. R. Lutembacher.—p. 575.
*Primary Heart Failure in Exophthalmic Goiter. G. Bickel.—p. 593.

Tendency to Production of Alkaline Calculi.—Gosset and Mestrezat protest against the general assumption that alkaline calculi are secondary to local infection. In some families there seems to be a tendency to an alkaline dyscrasia, the body fluids giving alkaline reactions and depositing calculi, a primary phosphate lithiasis. In a case described in detail, the large pelvic calculus was homogeneous, and composed exclusively of phosphate and calcium carbonate. The woman's mother had voided similar alkaline calculi, and her son's urine at times was turbid with phosphates and ammonium urate. A systematic effort was made to transform this alkaline dyscrasia, and charts are given of the various drugs tested on patients of this category and on the normal. They found that sodium sulphate cleared up the urine, promoting elimination of the phosphates. They gave 5 gm. in a glass of water, before breakfast, for five days, twice a month. The second month, 1 gm. of boric acid (in two doses) was given, instead of the sodium sulphate, for a single five day period. They cannot explain the mechanism of the remarkable benefit from sodium sulphate, a neutral salt. The urea content of the blood dropped from 1.5 to 0.62 in less than six weeks.

Exacerbations of Pulmonary Tuberculosis.—Burnand discusses the exacerbations in the course due to congestion, to the progress of the disease, to pleurisy, to intercurrent disease, and especially to miliary phases. He calls the latter the *poussée granulique*, and comments on its grave prognosis when the fever keeps up.

Epitheliomatous Endocarditis.—In the course of general glandular metastasis, four years after removal of the cancerous uterus, endocarditis developed in the right heart, with fatal thrombosis. The vegetations of the endocarditis contained cancer cells, an actual "neoplastic endocarditis." Rist and Rolland have been unable to find any case on record analogous to this. The case is interesting further because the recurring hemoptysis—the first symptom from the metastasis—had been ascribed to latent tuberculosis, but necropsy revealed cancer emboli in the lungs.

Diverticulitis.—This long study of the diverticula of the large intestine is based on twelve cases of diverticulitis. There is no certain cure, medical or surgical; resection is not always practicable. Rest, heliotherapy or the ultraviolet rays should be applied as adjuvants when practicable. A bibliography is appended.

The Electrocardiogram.—Lutembacher explains that the electric variation accompanying the impulse forks after passing through the bundle of His, so that instead of the electrocardiogram being single, as before, it is then a picture of two electric effects. It should be called the electrocardiobigram. The tracing affords no information as to the contraction of the ventricle, because the tracing is the sum of two opposing effects which partially annul each other.

Sudden Death in Exophthalmic Goiter.—Bickel reports primary arrest of the heart action in two women with exophthalmic goiter during a paroxysm of intense hyperthyroidism, with severe precordial pain spreading to the left arm, diarrhea, and rapid changes in the type of the arrhythmia. The next morning the patient was quiet and said she felt better, but suddenly the heart stopped beating. Cyanosis followed and respiration gradually stopped. Necropsy revealed nothing to explain the sudden fatality. Bickel ascribes it to an excessive discharge of the toxic secretion from the thyroid, sensitizing and upsetting the balance in the central as well as in the sympathetic and parasympathetic nervous system. He notes further that digitalis had been administered in both cases; one woman had taken 0.1 gm. of digitalis leaves for three days, the other, 0.08 gm. for one day. The cases show that fibrillation of thyroid origin must be considered. Etiologic treatment is the more necessary, as it has sometimes succeeded in arresting this persistent form of arrhythmia.

Archives de Médecine des Enfants, Paris

26: 393-456 (July) 1923

Antiserums and Vaccines in Treatment of Pneumonia in Children. M. D'Oelsnitz and L. Colle.—p. 393. Cont'd.
Activation by Manganese of Assimilation. J. Camescasse.—p. 406.
*Congenital Dystrophy of Fibro-Elastic Tissue. J. M. Macera.—p. 412.
Banti's Disease in Boy Aged 10. M. de Meuron.—p. 416.
*Diabetes in Children. M. Lassalle.—p. 423.
The Hygienic Factors in Rickets. J. Comby.—p. 428.

Congenital Dystrophy of Fibro-Elastic Tissue.—The infant had inguinal and umbilical hernia and also bilateral hernia of lung tissue. The case was summarized when published elsewhere.

Diabetes in Children.—Lassalle thinks that diabetes in infants is comparatively common, but when symptoms from it appear, we label them with some other name. He declares that there would be many surprises if, instead of feeding starch, we tested the urine for sugar. In a case described, the young breast-fed infant vomited twice after each feeding; the liver was large and the skin extremely dry. At the age of 1 year, with good general condition and appetite, the infant was constantly losing weight. The urine contained 28.5 gm. of sugar and 5 gm. of nitrogen, with traces of acetone, diacetic and oxybutyric acids. He put the infant on a strict diabetic diet, and she increased 350 gm. in weight before the end of the week, and the sugar disappeared. The child is now 4 years old, and seems well and strong, but she has had to be kept constantly on a diabetic diet. The intake of carbohydrates was cautiously increased to a certain proportion, but any amount beyond this brought the sugar back every time. No drugs have been given, nothing but small doses of glycogen occasionally. In another case, a boy, aged 6, in a gouty family, presented symptoms suggesting congestion of the liver at first, but unmistakable diabetic coma speedily followed. The child was very thin, the skin dry and pimply. The diabetes was probably of several years' standing but had not been recognized. In this and several other cases described, the loss of weight with good appetite, and the dryness of the skin were almost the only signs of disturbance. There was no polydypsia or polyuria. The family history may give the clue. In a group of four diabetic infants from poor families, syphilis was probable, and all had grave gastro-enteritis. One died in convulsions. The fate of the others is not known.

Bulletin de l'Académie de Médecine, Paris

89: 679-705 (June 26) 1923

Associated Micro-Organisms in Pulmonary Tuberculosis. M. Letulle and P. Halbron.—p. 690.
*Experimental Intracardiac Injections. K. Djenab and A. Mouchet.—p. 697.
Obstruction of Common Bile Duct by Ascarides. Le Roy des Barres.—p. 701.

Intracardiac Injections.—Puncture of the ventricle or the mere touch of the needle caused the blood pressure to decline. This decline occurred in rabbits even after the vagi and depressors had been severed. The size of the needle seemed immaterial.

90: 1-34 (July 3) 1923

Latent Appendicitis Without Pain. C. P. Caplesco.—p. 29.
*Reflexes in the Respiratory System. E. De Somer.—p. 32.

Reflexes in Respiratory Apparatus.—De Somer describes a reflex between the trachea and larynx, between the nose and larynx, and between the lung and larynx, which he has discovered in dogs under certain conditions.

Bulletins de la Société Médicale des Hôpitaux, Paris

47: 1009-1049 (June 29) 1923

Insulin in Treatment of Diabetic Coma. Sézary, et al.—p. 1010, p. 1033 and p. 1036.
Necessity for Heliotherapy in Paris Hospitals. P. F. Armand-Delille.—p. 1015.
*Recurring Persistent Hiccup. Le Blaye and Forget-Urion.—p. 1018.
Sedimentation of Erythrocytes in Acute Infections. T. Mironesco.—p. 1022.
Erythromelalgia in Two Syphilitics. E. May and P. Hillemand.—p. 1024.
*Subacute Venous Septicemia. Raynaud, Lacroix and Boutin.—p. 1030.
Aneurysm of Arch of Aorta. H. Grenet and Peignaux.—p. 1042.
*Radial Paralysis from Serum Sickness. J. A. Sicard and Cantaloube.—p. 1046.

Recurring Persistent Hiccup.—The man had two attacks of persistent hiccup in two years; five or six days after the second attack, his daughter developed severe epidemic encephalitis.

Subacute Venous Septicemia.—The septicemia in the man had developed by five small successive foci of phlebitis, with hemoptysis, and recovery followed the use of an autogenous vaccine.

Radial Paralysis After Serum Sickness.—Diphtheria antitoxin had been used in one of the three cases reported, and antitetanic serum in the others. The intense serum sickness had evidently induced some local congestion at the points where the nerve passing through some narrow passage could be compressed. Sicard coins the term "neurodocitic" to express this origin for the nervous affection, from the Greek term for "containing."

Gynécologie et Obstétrique, Paris

7: 449-527 (June) 1923

*Mechanism of Placental Separation. F. Commandeur and L. Chapuis.—p. 449.
*Elderly Primiparas. R. Remmelts.—p. 476.
*The Theories on Menstruation. Jean-Robert Henry.—p. 483.
*The Cicatrix After Cesarean Section. J. L. Audebert.—p. 487.
*Menorrhagia in Girls. E. Douay.—p. 501.

Mechanism of Separation of Placenta.—Theories of the histologic mechanism of detachment of the placenta and membranes in the course of delivery are discussed, with eighteen illustrations.

Elderly Primiparas.—Remmelts states that of the 5,915 primiparas with normal pelvis delivered at the Amsterdam maternity since 1892, for those who were over 24 years old, the duration of labor averaged from nineteen to thirty hours. The average under this age was only sixteen or seventeen hours and a fraction. A similar regular increase in the number of forceps extractions and of cases of albuminuria and of eclampsia, after the age of 24, is even more clearly manifest in his charts.

Theories of Menstruation.—Henry examined the ovaries removed from regularly menstruating women, at different phases of the menses, and found the conditions in the ovaries extremely variable. Recent corpora lutea of different ages or no developing corpus luteum were found in different women.

The Cicatrix After Cesarean Section.—Audebert concludes from four personally observed cases and thirty-four from the records, that muscular regeneration with dependable tissues is common, even when there had been suppuration in the cicatrix. In only 14 per cent. of the total thirty-eight was the cicatrix fibrous. But this occurred in some cases when everything had seemed favorable for physiologic regeneration. All that the clinician can say is that in 73 per cent. in this series the muscular regeneration was perfect. The records to date show an average of rupture in a subsequent pregnancy in about 6 per cent.

Menorrhagia in Young Girls.—Douay outlines hygienic and medical measures for cases of excessive menstrual hemorrhage not long after puberty. When all measures, including organotherapy fail, roentgen rays applied from without may relieve. A single sitting generally suffices, three hypogastric applications of 8 H units at each field, or the dose can be fractioned. As there is liable to be transient congestion, he makes the application after a menstrual period. Menstruation may be totally arrested for several months, and then may return apparently normal. The girl may bear healthy children later, but it is not fair to ascribe eventual sterility to this treatment, as, in the circumstances in which it is applied, it is the last resource before hysterectomy.

Journal de Chirurgie, Paris

21: 673-804 (June) 1923

*Access to Lower Esophagus. R. Grégoire.—p. 673.
*Abscess in the Spleen. C. Lenormant and J. Sénèque.—p. 685.

Access to Lower Esophagus and Fundus of Stomach.—The special feature of Grégoire's technic is that both the pleura and the peritoneum are left intact. The incision is in the left side of the back, near the spine, running from the seventh nearly to the twelfth rib, and then curving forward. This flap being lifted up and the diaphragm incised and turned back, exposes the entire cardia, fundus and esophagus. Three cases are described, with illustrations.

Abscess in the Spleen.—In the 27 cases of suppuration in the spleen since 1907 compiled by Lenormant and Sénèque, all recovered of the 11 evacuated by way of the thorax, but one died in the 10 reached through the abdomen. The one case with retroperitoneal access terminated in recovery. Splenectomy was applied to 4 patients, with 3 deaths, all in cases of already diffuse peritonitis.

Journal d'Urologie Médicale et Chirurgicale, Paris

15: 417-508 (June) 1923

*Structure of Chimpanzee's Testes. Retterer and S. Voronoff.—p. 417.
Steinach Operation. K. Sand.—p. 431.
*Pregnancy Pyelonephritis. J. Martin.—p. 445.
Thrombosis of Renal Vein; Nephrectomy; Recovery. G. Marion.—p. 455.
Correction of Urethroperineal Fistula. M. Jungano.—p. 459.

Structure of Testes of a Chimpanzee.—Retterer and Voronoff implanted the testes of the monkey into two men, and here describe the structure of scraps retained for examination. Although the animal was 5 or 6 years old, necropsy not long after showed that the period corresponding to puberty had not been reached.

Pregnancy Pyelonephritis.—Martin reports a personal case and reviews 10 cases in which the pregnancy was interrupted, with immediate excellent results in 7, and 10 cases in which nephrostomy was applied. Abortion followed in 3 cases; it might have been better to have emptied the uterus at once. In 4 of the 10 cases the pregnancy proceeded to term. In 3 cases conditions compelled nephrectomy not long after; the kidney disease had probably preceded the pregnancy. He relied on nephrotomy in his own case, and the woman recovered. Convalescence was disturbed by intermittent hemorrhage from the wound, but recovery followed.

Médecine, Paris

4: 653-728 (June) 1923

*Electroradiology and Physiotherapy in 1922. A. Zimmern.—p. 653.
Campaign Against Cancer in France. J. Bergonié.—p. 668.
*Hemorrhagic Metritis and Radiotherapy. R. Proust.—p. 670.
*Treatment of Facial Neuralgia. J. A. Barré.—p. 676.
Roentgen Investigation of Spine with Pains in Lumbar-Sacral Region. A. Léri and N. Péron.—p. 680.
Thorium Treatment of Chronic Rheumatism. M. P. Weil.—p. 687.
*Treatment of Facial Paralysis. G. Bourguignon.—p. 692.
The Erythema Dose in Deep Radiotherapy. I. Solomon.—p. 698.
Lesions on Limbs from Sports. A. Mouchet.—p. 700.
Heliotherapy and Meteorology. A. Rosselet.—p. 705.
*Physical Measures in Treatment of Phlebitis. P. Quiserne.—p. 709.
*Vichy Waters in Cases of Chronic High Blood Pressure. Sérégé.—p. 715.
*Mineral Waters in Anaphylactic Sensitization. A. Mougeot.—p. 721.
*Supplement. Basal Metabolism. A. Blanchetière.—pp. 1-26.

Electroradiology and Physiotherapy in 1922.—Zimmern regards the creation of a cancer commission in the ministry of hygiene as great progress. Another advance is Solomon's R unit in place of the H unit in radiology. The R unit is based on the ionization produced by a given amount of radium element. He says that the doctrine of a settled massive "castration dose" or "cancer dose" has proved untenable, as individual susceptibility varies so widely. The French school spreads the cancer dose over seven days, never longer, for fear of sensitizing the normal tissues and immunizing the cancer cells. He reviews the reports of successful radiotherapy in cancer of the larynx, in scleroderma, in syringomyelia, etc., but warns against trusting too much to it for cancer of the tongue, breast, submucous uterine fibromas and polyps. The ovary is most susceptible as the menopause approaches, and myomas, during their waves of rapid development. The roentgen rays may shorten coagulation time by 25 to 50 per cent.—important in treatment of hemorrhagic conditions. He mentions the intensiometer, a gage which allows constant oversight of the intensity of the roentgen rays.

Radiotherapy in Hemorrhagic Metritis.—Proust remarks that the treatment of hemorrhagic metritis entered on a new era with roentgenotherapy and radium therapy. He gives 4 millicuries at a single sitting for young virgins, placing the tube in the uterus after complete dilatation and exploratory curettage. At the menopause, the invading angiosclerosis with the metritis gives radium its best results. During the reproductive period, the danger of sterilizing the woman must be kept in mind.

Ionization Treatment of Neuralgia.—Barré ionizes aconitin in the treatment of facial and other neuralgias, giving from ten to eighty (twenty to forty-five minutes) applications every day or second day, with a 15 to 20 ma. current. In fifteen cases of facial neuralgia in which this treatment has been applied since 1917, nine were much improved or cured. In the others, the pain was not true facial neuralgia. In some the pain returned in a few months, and the patients requested repetition of the treatment. The positive electrode is moistened with a solution of aconitin nitrate, 0.25 mg. to 125 c.c. of water.

Treatment of Facial Paralysis with Ionization of Potassium Iodid.—Bourguignon states that recovery was complete in a month in all cases in which the nerve was still excitable. In seven cases, electric tests were negative, but all recovered between the tenth and fifteenth sitting. He uses the soft parts of the eye and ear for the passage of the current, with the positive electrode high at the back of the neck.

Treatment of Phlebitis.—Quiserne outlines physical measures which hasten restoration of normal conditions after phlebitis.

Spa Treatment of High Blood Pressure.—Sérégé lists the indications with hypertension for a course of treatment at Vichy.

Action of Mineral Waters on Anaphylactic Sensitization.—Mougeot reports experiments with guinea-pigs sensitized against horse serum. The waters of certain mineral springs seemed to protect the animals against anaphylactic shock.

Basal Metabolism.—Blanchetière analyzes the physiologic and pathologic variations of basal metabolism, with an extensive bibliography.

Nourrisson, Paris

11: 209-288 (July) 1923

*Prophylaxis of Inherited Syphilis. V. Hutinel.—p. 209.
*Essential Stridor in Infants. A. B. Marfan and Turquety.—p. 224.
The Infant Ward at Saint-Louis Hospital. Renault et al.—p. 229.
*Milk from Scurvy Standpoint. E. Rousseau.—p. 237.
*Oxygen in Pneumonia in Infants. L. Ribadeau-Dumas et al.—p. 243.
Present Status of Eczema in Infants. A. B. Marfan.—p. 258.
Suppuration in Cervical Glands and Abscesses Around the Pharynx in Infant. G. Blechmann and G. Lory.—p. 273.

Prophylaxis and Management of Inherited Syphilis.—Hutinel refers in particular to infants without proper homes. He urges more dispensaries, open at convenient hours, for the pregnant; convalescent homes after delivery; and small district centers for the suspected infants, with treatment all along the line, even for older children developing suspicious lesions.

Essential Expiratory Stridor in Infant.—Necropsy at the age of 11 months failed to reveal anything to explain the permanent, loud expiratory stridor.

Milk from Scurvy Standpoint.—Rousseau recalls that the vitamin C is the most sensitive of all to the action of oxygen, heat and cold. All substances containing vitamin C, even lemon prepared in a vacuum, lose it on standing. Marfan declares that all condensed milk cans should be dated, and Rousseau's research indicates that nothing of the kind should be used for infant feeding that has been made longer than two weeks.

Continuous Oxygen Treatment in Pneumonia in Infants.—Necropsy findings show that lack of oxygen is only one of the many elements in the clinical picture. Oxygen does not directly combat intoxication, or check the progress of the lesions. But in case of inflammatory edema it may tide the patients past the critical hour, and give a chance for edema to be resorbed. The differential diagnosis is so difficult, that it may be wise to try the oxygen in case of doubt. Ribadeau-Dumas and his co-workers use a box like an incubator for the oxygen chamber for the infant, leaving it in the box for alternate hours. Twenty infants were given this treatment, being placed in the box whenever cyanosis became apparent. The change for the better in the complexion, spirits and appetite was so pronounced that the mothers clamored for it, but the effect, after all, was only symptomatic, except when it proved actually life-saving in the edema cases.

Paris Médical

13: 525-548 (June 16) 1923

Gynecology in 1923. L. Houdard.—p. 525.
Indications for Curetting the Uterus. P. Guéniot.—p. 531.
Obstetrics in 1923. L. Cleisz.—p. 534.
Syphilis of the Ovum, of the Fetus and of the Membranes and Placenta. Lévy-Solal.—p. 537.
*Treatment of Vomiting of Pregnancy. C. L. Urriola.—p. 544.

13: 549-564 (June 23) 1923

Carbon Dioxid Snow in Treatment of Angiomas. Lortat-Jacob and P. Legrain.—p. 549.
Perforation of Gastric Ulcer. Five Cases. A. Guillemin.—p. 554.
Trauma and Efforts at Abortion as Factor in Malformations. A. Feil. p. 559.

13: 565-580 (June 30) 1923

The Stigmata of Tardy Inherited Syphilis. B. Barker Beeson.—p. 565.
Psychopathic Day or Night Pollakiuria. Chavigny.—p. 566.
Signs of Perforation of Gastric or Duodenal Ulcer. J. Braine.—p. 568.
Syphilitic Anergy. M. Lelong.—p. 575.
Bismuth in Treatment of Syphilis. A. Galliot.—p. 577.
Strangulation of a Lipoma in Front of a Femoral Hernia. G. Moutier. —p. 579.

Treatment of Uncontrollable Vomiting of Pregnancy.—Urriola writes from Panama to report success by the administration of serum obtained from the umbilical cord before the separation of the placenta. He gives the details of eight cases in which the previously intractable vomiting subsided after one, two or three injections of 5 or 6 c.c. of this serum.

Presse Médicale, Paris

31: 605-612 (July 11) 1923

The Ratio Between Nucleus and Plasm. A. Policard.—p. 605.
*Blocking the Mesenteric Plexuses. M. Roussiel.—p. 606.

Blocking the Mesenteric Plexuses.—Roussiel explains how the mesenteric plexuses, the inferior and superior, the lumbar aortic, the renal, and the solar plexus can all be blocked by a single injection, injecting the anesthetic close to the trunk of the superior mesenteric artery at the point where the artery leaves the duodenum to pass between the layers of the mesentery. Test injection of a stain shows all the abdominal sympathetic plexuses colored, the fluid spreading through the subperitoneal cellular tissue, following the course of the superior and inferior mesenteric arteries, the aorta and the celiac axis. The anesthesia was ideal in the one case reported. The ileus was grave, of eight days' duration, and Roussiel does not wait for further confirmation to call attention to this single injection method.

31: 613-624 (July 14) 1923

*Fatal Case of Asthma. A. Lemierre, M. Léon-Kindberg and J. Lévesque.—p. 613.
*Present Status of Lymphogranuloma. M. Nathan.—p. 616.

Fatal Case of Asthma.—The mucomembranous spasmodic bronchitis in the case described was a form of asthma. The man, aged 58, had been seized with intense dyspnea in the midst of apparent health, and for six weeks the dyspnea kept recurring, with paroxysms of coughing in which he expelled castlike formations resembling cooked vermicelli. After a pause of a month the dyspnea returned, and proved fatal the third week. Necropsy showed the bronchi plugged with these castlike formations, containing numerous Charcot-Leyden crystals and eosinophil granules. Comparison with similar cases on record, the sudden onset, the evolution by successive attacks, the absence of manifestations suggesting infection, and other features confirm the asthma nature of the syndrome.

31: 625-636 (July 18) 1923

*Irradiation of the Spleen in Pulmonary Tuberculosis. I. I. Manoukhine.—p. 625. Reply. Trémolières et al.—p. 637.
Ileus from Pericolitis. P. Rochet and Mallet-Guy.—p. 627.

31: 637-648 (July 21) 1923

Insulin in Diabetes. L. Blum and H. Schwab.—p. 637.
Sterility and the Roentgen Rays. J. Belot.—p. 642.
Recent Research on Asthma of Anaphylactic Origin. P. Pagniez.—p. 643.

Irradiation of the Spleen in Treatment of Pulmonary Tuberculosis.—Manoukhine discusses the variations in the leukocyte count during and following this indirect roentgenotherapy in pulmonary tuberculosis.

Schweizerische medizinische Wochenschrift, Basel

53: 613-636 (June 28) 1923

Dilatation of Esophagus of Spastic Origin. H. Starck.—p. 613.
*Blunders in Diagnosis of Cancer in Bone Marrow. E. Hanhart.—p. 619.
*Diphtheria of Esophagus. W. H. Gonin.—p. 625.
*Central Corneal Ulcer. J. Strebel.—p. 626.

Blunders in Diagnosis of Cancer of the Bone Marrow.—Hanhart states that in 30 cases of cancer metastasis in the bone marrow in the Zurich hospitals, the clinical picture had been that of paraplegia dolorosa in 2 cases; spontaneous fracture in 8; neuralgia in 14; and in 6 the lesion had run an almost latent course. In 2 cases the primary cancer was never found. In 19 of the 24 manifest cases, the diagnosis had been incorrect, the cases having been labeled sciatica (8), spinal syphilis (3) and tabes, brain tumor, meningitis, coxitis, arthritis or multiple myeloma, one case each. The most instructive symptom is the exceptional painfulness. Bilateral pains suggesting symmetrical sciatica, herpes, or brachial neuralgia are very suspicious of metastasis of unsuspected cancer. In half of his cases the blood picture was normal, and sometimes even the roentgen-ray findings were negative. Metastasis occurred in the bone marrow five, nine and nineteen years after a small mammary cancer had been removed, in three of his cases, and in one case on record the interval was twenty-three years. The variability in the symptoms from the bone metastasis, the long remissions for months or years, the rapid consolidation after the spontaneous fracture, are all characteristic. There may be unsuspected extensive metastasis in the bones at the time the primary cancer is removed, as in some typical cases described.

Diphtheria of the Esophagus.—Necropsy revealed the pharynx, esophagus and part of the stomach of the boy, aged 11, nearly filled with the false membranes of diphtheria. Stupka has compiled nine cases in which cicatricial stenosis followed diphtheria of the esophagus, an indirect consequence of the disease.

Treatment of Perforated Corneal Ulcer.—Strebel has always found that a centrally perforated corneal ulcer healed smoothly and promptly under a collargol-atropin salve, without requiring cauterization or a plastic operation. In two of three cases in the last five years, the defect had healed over by the second day. In one of the cases the corneal ulcer was secondary to acne of the face. In such cases the corneal ulcer will not heal until the acne is cured.

Chirurgia degli Organi di Movimento, Bologna

7: 225-412 (June) 1923

*Autografts Drawn Through Bone. A. Bertocchi and C. F. Bianchetti.—p. 225.
*Cinematized Amputation Stumps. Delfor Del Valle, G. Bosch Arana, and F. Wildermuth.—p. 244.
*Metal Screws for Patella. R. Sacco.—p. 257.
*Embryology of Articulations. G. Faldino.—p. 288.
*Influence of Metal on Bone Production. L. G. Gazzotti.—p. 311.
*Fracture of Humerus. M. Bufalini.—p. 329.
Evolution of Bone Implants. F. Satta.—p. 345.
Anatomic and Functional Changes in Muscle Shut Off From Blood Supply. F. Marinelli.—p. 367.
Case of Achondroplasia with Defective Ossification of Skull, Clavicles and Fingers. Montanari.—p. 379.
Giant Cell Tumors in Tendon Sheaths. L. Durante.—p. 392.
Feet with Only Two Toes. R. Minervini.—p. 403.

Tendon and Fascia Autografts Drawn Through Channel in Bone or Joint.—Bertocchi and Bianchetti report that in eight rabbits a strip of fascia or tendon was drawn through a passage bored through the shaft of the femur, and in ten through passages bored through the femur and tibia, to allow crossing of the autografts like the natural crucial ligaments. The results were surprisingly good; the joint functioned well, and the tendon never displayed any tendency to ossification, notwithstanding this intimate contact with the bone. The autografts seem to grow to the periosteum, especially tendon tissue. Only a few foci of necrosis were found in any of the autografts. The Achilles tendon was the one generally used.

Further Triumphs in Field of Cinematized Artificial Arms.—Bosch Arana and Del Valle remark that the motor force and excursions of the cinematized stump are greater, the broader the area of muscle involved in the new motor. They describe an artificial hand adapted to a stump cinematized by their method, with illustrations. The fingers are under volitional control both when the arm is flexed and extended. One of their patients after amputation of both forearms is now able to feed and wait on himself, and has resumed his usual mode of life.

Ultimate Outcome of Screw Treatment of Fractures.—Sacco's nineteen cases were all transverse fractures of the patella or olecranon, and these patients—out of a total of fifty-three cases of fracture of the patella and eight of the olecranon—were reexamined from five to seven years later. The outcome was found excellent in all; including one case in which Putti's narrow metal band was used instead of wire or screws for *cerclage* of the fractured patella. The work issues from the Rizzoli Institute, and is profusely illustrated. The verdict is extremely favorable for this screw method of treating these transverse fractures. The metal had to be removed later in only 19 per cent. of the total; the bone does not seem to suffer from the presence of the one or two long, narrow, Lambotte screws. After being driven in they are tightened with a screw driver till the head fits against the bone. When one screw is used for the patella, a nut may be screwed on the tip.

Development of Joints.—In his experiments Faldino implanted in the rabbit eye part of the leg from a rabbit embryo about 2 weeks old. This is his fourth publication on the morphogenesis of joints.

Behavior of Bone in Contact with Metal.—Gazzotti buried small cylinders of various metals in the tibia or femur of dogs. The less the change in the metal, the greater the proliferation of bone. Iron and copper rusted and tarnished, but nickel and tin persisted practically unmodified. The physical qualities, easy manipulation and inexpensiveness turn the scale, he says, in favor of a coating of tin for the metal devices applied directly to the bone.

Fracture of Surgical Neck of Humerus.—Bufalini comments on the drawbacks of the common methods of treating these fractures, and extols the superiority of his cast method. The arm is held flexed at the elbow at a right angle to the trunk, in abduction and outward rotation.

Policlinico, Rome

30: 793-823 (June 18) 1923

*Hydatid Cyst in the Lung. C. Antonucci.—p. 798.

Hydatid Cyst of the Lung.—Antonucci suggests reduction of the cyst without drainage, after suturing it to cause approximation of the opposing surfaces of the cyst cavity. Then the lung should be compressed at once with an artificial pneumothorax.

30: 825-855 (June 25) 1923

*The Cerebrospinal Fluid in Rabbits. F. Bonfiglio.—p. 825.
*The Wassermann Reaction in the Cerebrospinal Fluid. P. Fornara.—p. 830. Begun p. 793.

Cerebrospinal Fluid in Normal Rabbits.—Bonfiglio refers to recent research on this fluid in syphilitic rabbits, saying that the conclusions that have been deduced therefrom are invalid, as there are no normal standards to compare them with. His own research has shown that the findings ascribed to the syphilis are normal characteristics of the fluid in some rabbits (seven out of nineteen).

The Wassermann Reaction in the Cerebrospinal Fluid.—Fornara's extensive review of international literature and his personal experience have convinced him that a nonspecific Wassermann reaction in the cerebrospinal fluid is due to qualitative and quantitative changes in the globulin content. In three cases of tuberculous meningitis and one case of paraplegia from compression in Pott's disease, the Wassermann reaction in the spinal puncture fluid was pronounced, although nothing at the time or later suggested possible syphilis.

30: 857-887 (July 2) 1923

*The Urine-Hemolysis Index. L. Scalas.—p. 857.
*Degeneration of the Corpus Callosum. P. Mariconda.—p. 860.
Hydrocyanic Acid in Disinfestation of Ground Before Planting. M. Gioseffi.—p. 862.

Hemolytic Power of the Urine in Liver Disease.—Scalas dilutes urine until the action of the natural antihemolysins is annulled. The amount of distilled water required for this forms what he calls the urohemolytic coefficient. In the normal, this index is a constant 1:6; with nephritis it is nearer 6:1. Scalas in chronic liver disease found it decidedly abnormal. He describes the technic and detailed findings in nineteen cases. He agrees with Amati that the antihemolysin is a lipoid which seems to protect the blood corpuscles. It acts independently of the chlorids in the urine, resists boiling, and gives the reaction for cholesterin.

Degeneration of the Corpus Callosum.—Mariconda analyzes two cases of what he calls Marchiafava's disease. The men, aged 43 and 60, had died two or three days after they had fallen in a comatose condition while in ordinary health. The older man had had similar transient attacks before. Necropsy disclosed alcoholic degeneration of the corpus callosum. This was evidently the primary lesion.

Rivista di Clinica Pediatrica, Florence

21: 385-448 (July) 1923

*Origin of Bilirubin. V. Zamorani.—p. 385.
*Oxyuriasis. G. Artusi.—p. 405.
*Culture Mediums for Diphtheria Bacilli. T. Nigro.—p. 425.

Origin of Bilirubin.—Zamorani injected by the vein hemolyzed blood from one dog into another dog with a bile fistula. The bile thereafter showed extreme dissociation of its elements. The facts observed suggest that physicochemical conditions determine the composition of the bile, depending on the material for it available at the moment. He recalls that bile begins to form in the fetus by the third month, and at birth even the umbilical cord blood shows high bilirubin content. This hyperbilirubinemia persists for a few days after birth, so that jaundice in the new-born must be regarded as simply an exaggeration of normal phenomena. It is not hemolytic jaundice, because there is no preceding destruction of blood corpuscles, but the exaggerated production of bile, before the organs have adapted themselves to extra-uterine life, readily explains icterus neonatorum.

Oxyuriasis.—Artusi presents evidence that the oxyuris ova can be developed in the human intestine without passing through the stomach. By killing off the young systematically, as they emerge from the ova, the helminthiasis will be conquered in time. The vermifuge must be taken regularly for two months at least, aided by a cold, profuse enema every night, containing lime water or aluminum acetate. This should be preceded with a cleansing enema containing sodium bicarbonate, to dissolve the mucus which protects the helminths.

Differentiation of Diphtheria Bacilli.—Nigro reports comparative bacteriologic tests with various culture mediums in sixty cases of suspected diphtheria. He found that on Pergola's serum-egg yolk medium the diphtheria bacilli grew luxuriantly while other bacteria were inhibited. This is a mixture of 50 c.c. of normal blood serum (beef, horse, etc.) with one egg yolk and 0.02 gm. of potassium tellurite, with 50 c.c. of an 0.8 per cent. solution of sodium chlorid, or 50 c.c. of a 1.5 or 1.7 per cent. solution of agar.

Deutsche Zeitschrift für Chirurgie, Leipzig

179: 289-426 (May) 1923

*War Wounds of the Skull. W. Sudhoff.—p. 289.
*Congenital Stenosis of the Pylorus in Adults. L. Heidenhain and G. B. Gruber.—p. 330.
Action on Blood Pressure of Procain with Epinephrin. O. Wiemann.—p. 388.
Enterocystoma in Cecum Wall. G. Lotheissen.—p. 394.
Aseptic End-to-End Anastomosis of Large Intestine. F. C. Lee.—p. 402.
*Snapping Knee. E. Wild.—p. 408.
Volvulus After Spastic Ileus. H. Steindl.—p. 413.
Isolated Stab Wound of Gallbladder. H. May.—p. 422.

War Wounds of the Skull.—Sudhoff reviews the experiences at Leipzig in 133 operations on the skull in eighty-eight wounded soldiers. Pedunculated bone-periosteum flaps healed solidly over one very large defect, though the skin sloughed. There was very little if any improvement in the cases of paralysis; traumatic epilepsy—which was present in 22 per cent.—was influenced more favorably.

Congenital Conditions as Factors in Gastric Disturbances in Adults.—Heidenhain gives details of seven cases in which years of stomach disturbances seem to be the result of congenital stenosis of the pylorus which had apparently corrected itself in infancy, spontaneously or under medical measures alone. The resulting disturbances in adults cannot be distinguished from gastric or duodenal ulcer. The hypertrophic-spastic stenosis of the pylorus in infants, the congenital stenosis of the pylorus in adults, and gastric ulcer form a group linked by a constitutional neurotic element. The cases cited teach the importance of resecting the pyloric ring in every case of unmistakable stenosis of the pylorus. Gastro-enterostomy alone is not enough, and shutting off the pylorus in addition seems to entail some chronic irritating influence which causes excessive peristalsis and pains from spastic contracture. Gruber presents the confirmatory findings at the operation in some of these cases, and in several cadavers.

Snapping Knee.—Wild remarks that removal of the semilunar cartilage involved has always cured the anomaly. In his case, the cartilage had been torn. The anomaly generally follows trauma, but it may develop from disease or exostosis.

Jahrbuch für Kinderheilkunde, Berlin

102: 129-256 (June) 1923

Tuberculosis in Schoolchildren. J. Peiser.—p. 129.
*Rickets and Tetany. P. György.—p. 145.
*Sugar Content of Cerebrospinal Fluid. B. Steiner.—p. 173.
*Circulation During Exercise. K. Benjamin.—p. 203.
*Prophylaxis of "Children's Diseases." F. von Torday.—p. 213.
*Requirements of Weakly Infants. J. Schoedel.—p. 227.

Rickets and Tetany.—György's research has apparently demonstrated that the tendency is to acidosis in rickets, and to alkalosis in tetany. The phosphates are scanty in the blood in rickets, while they abound in tetany. The calcium content is low in rickets and very low in tetany, while the blood potassium is normal in rickets and reaches a high figure in tetany. The sugar content in the blood after injection of epinephrin runs up high in rickets, but in tetany it drops below normal. Tetany might even be called "the negative of rickets," but the two are not antagonistic as they may coexist, and when this occurs it is impossible to cure the tetany without curing the rickets first. He thinks the unknown primary cause—probably of endocrine origin—induces a two-phase reaction, the pendulum swinging from the acidosis to the alkalosis extremes. The "spring hormone crisis" upsets the metabolism and may start the pendulum.

Sugar Content of Cerebrospinal Fluid.—Steiner gives case histories and charts which sustain his assertion that if the sugar content of the cerebrospinal fluid is normal or soon returns to normal, tuberculous meningitis can be confidently excluded. A drop in the sugar content of the lumbar puncture fluid may be the first appreciable manifestation of tuberculous meningitis. Symptoms suggesting meningitis, accompanying a brain abscess, typhoid or other infectious disease, can be differentiated from tuberculous meningitis by the normal sugar findings. On the other hand, the sugar content is always abnormally high with poliomyelitis, tetanus and brain tumor. In one typical case of tuberculous meningitis, from 0.043 per cent. the sugar dropped to zero, in nine days. In a case of brain abscess it increased from 0.055 to 0.08 per cent. in thirteen days, and in two cases of poliomyelitis the figures were 0.0845 and 0.0615 per cent.

Nervous Regulation of the Circulation During Exercise.—This is Benjamin's third article on growth pallor. He explains here the mechanism of the benefit from exercise.

Prophylaxis of Acute Infectious Diseases in Childhood.—Von Torday remarks that measles and diphtheria seem to be now under our control. In 2,000 preventive injections of measles convalescents' serum, it failed to protect in less than 3 per cent., and even here the technic may have been at fault. Professor Bokay of Budapest is now making arrangements to supply convalescents' serum regularly to institutions threatened with measles. But scarlet fever prophylaxis is less promising. Torday on five occasions injected a total of 20 contacts with scarlet fever convalescents' serum. and none developed the disease, but 7 developed it among 92 in an institution, and 3 in Papp's 35 cases in families. The protection proved effectual in 49 other contacts injected and isolated at once. The whole question of scarlet fever is still unsolved. Di Christina's vaccine made from scarlatinal scales, and Tahakashi's subcutaneous injection of blood from scarlet fever children have not found imitators. In conclusion, he mentions that he injected 116 children who had been exposed to measles from two to six days before with 20 c.c. of blood from adults or older children who presumably had had measles at some time. Only 12 developed measles, and it was very slight or rudimentary. He endorses Rietschel's recommendation of this as a valuable aid in prophylaxis for infants and young children in the home, whether or not the effect is to be interpreted as a specific or merely a protein reaction. His final word is that neither active nor passive immunization has proved of any avail against whooping cough.

Requirements of Thriving Substandard Infants.—Schoedel estimates the amount of milk and the intervals between feedings on which 57 infants born below weight were brought up to standard. The child becomes fatigued sucking before it has obtained its quantum, so light feedings may be necessary at first; this helps to improve lactation. When only pumped breast milk is used, there must be eight or ten feedings at first. If the child does not voluntarily take enough, the supplementary amount can be given by tube. His tables confirm anew the superior advantages of the mother's milk for these infants. They should be getting 120 to 150 calories per kilogram. Five weighing from 1,350 to 2,290 gm. gained an average of 12 to 23 gm. daily with intake of 130 to 175 gm. at the end of the second week; 140 to 190, third week; 145 to 210, fourth week, and 150 to 250 gm. sixth to eighth week. Those that thrived on pumped breast milk required 95 to 150 gm. the first week; 140 to 240, second week; 160 to 240 third week; 165 to 235, fourth week, and in the sixth to the eighth week, 165 to 225 gm. per kilogram. The infants were not put to the breast of the wetnurse until after at least two Wassermann tests at weekly intervals. They then took more milk than the above estimated amounts, showing that these amounts had not exceeded the demand.

Monatsschrift für Kinderheilkunde, Leipzig

26: 209-320 (June) 1923

*Sleep in Childhood. H. Aron.—p. 209.
*Repeated Recurrence of Keratomalacia. R. Gralka.—p. 217.
Relations Between Infections of Upper Air Passages and Pyelitis. H. F. Helmholz and F. Millikin.—p. 228.
*Importance of Vitamins for Growth of Bacteria. B. Leichtentritt and M. Zielaskowski.—p. 232.
*Brain Manifestations in Beriberi in Infants. S. Miura.—p. 243.
*Infant Feeding in Dyspepsia. L. Moll.—p. 250.
Diphtheria Mortality and Weather Conditions. Ochsenius.—p. 266.
*Chlorin Metabolism in Exudative Diathesis. H. Opitz.—p. 288.
*Chlorids in Blood of Infants in Relation to Gastric Juice Secretion. W. Schober.—p. 297.
Influenza Osteomyelitis in Infants. H. Zweig.—p. 308.

Sleep in Children.—Aron says that when a child is sleepy in the morning, it is not getting sleep enough. Wakefulness till late in the evening is generally a sign that the child is doing too much brain work or is having too much excitement. Increasing the amount of sleep often has the same effect on the undernourished as increasing the amount of nourishment, as the calories are not used up so much during sleep.

Prevalence of Keratomalacia.—Gralka states that, in 1922, softening of the cornea was encountered in 16 boy and 14 girl infants at the Breslau children's clinic. Nearly all the cases were between March and May, and many of the infants were breast fed in whole or in part. Evidently there was a lack of the fat soluble accessory factor in the breast milk, the mother's food during the pregnancy and lactation having been almost exclusively carbohydrate. In 22 of the 30 cases one or more infections had preceded the keratomalacia. All died but 11; 4 of these were left with good vision in both eyes, 4 in one eye; leukoma developed later in 3 in this group. Treatment was with breast milk, butter-flour mixture and cod liver oil. In most of the cases with a favorable termination, an abrupt increase in weight followed the change to this diet.

Accessory Food Factors as Influencing Growth of Bacteria.—Among the results of the research described was the discovery that the growth of bacteria was hastened and increased by addition of a little lemon juice to the culture medium. This aids in hastening the differential diagnosis of typhoid, colon bacilli and other bacteria.

The Brain in Beriberi in Infants.—Miura reports two cases in which necropsy showed the unmistakable lesions of beriberi with serofibrinous meningitis, while the symptoms had been those of intoxication from breast milk, superposed on those from the beriberi. Probably the diagnosis of "intoxication from breast milk," has often been made in the past when beriberi or meningitis was really responsible for the symptoms.

Vegetable Milk in Infant Feeding.—Moll witnessed good results in acute dyspeptic diarrhea from a temporary change to a mixture of equal parts of a boiled emulsion of sweet almonds, and the whey from 1 liter milk containing 4 per cent. calcium lactate, boiled.

Chlorin in Infant Organism.—Opitz found in children with the exudative diathesis that the chlorid content of the blood fluctuated irregularly within an abnormally wide range. Schober discusses the fluctuations of the chlorid content of the serum and the blood as they correspond to the phases of production of gastric juice.

Zeitschrift für Urologie, Leipzig

17: 193-256, 1923

*Pathology of the Prostate. G. Praetorius.—p. 193.
*Stenosis of Meatus. S. Freylich.—p. 207.

Pathology of the Prostate and Prostatic Urethra.—Praetorius ascribes to loss of elasticity, in the walls of the urethra, the retentions for which the prostate is generally incriminated. The enlarged prostate interferes with the elasticity of the urethra walls, and sets up a vicious circle. If the lumen of the urethra can be stretched to normal, or be enlarged by cutting or cauterization, or by straightening bends, there is no longer any retention. Based on this assumption, he removes only part of the prostate, and has found this as effectual as total enucleation. He removes one lateral lobe and the middle lobe, but leaves the other lobe intact, and has had no recurrence of retention in the cases thus treated during more than six years.

Pathology of the Meatus.—Freylich discusses strictures, inflammatory swelling, congenital stenosis and neoplasms as causes of narrow external orifice of the male urethra. He cites fifteen instances; the stenosis is congenital in the majority, and is usually accompanied by other malformations. Progressive dilatation generally accomplishes the purpose in the acquired cases, but not with the congenital form; many warn of the possibility of injury from attempts at mechanical dilatation. He cites ten urologists who have published fatalities after it. Burckhardt groups these cases as a rapidly progressive severe form of septicemia. This is scarcely to be feared with meatomy, however, and this should be preferred when practicable. Freylich advises severing the inferior meatus commissure with a delicate curved knife introduced into the meatus. The mucosa is sutured to the skin on each side, thus rendering a retention catheter unnecessary. As a too wide meatus interferes with the functioning of the urinary apparatus, it is best to gage the incision exactly.

17: 385-448, 1923, and Supplement

*Exstrophy of the Bladder. F. Lotsch.—p. 385.
The Calices in Hydronephrosis. H. Haebler.—p. 397.
*The Cystoscope. O. Ringleb.—p. 406.
*Operative Treatment of Hypertrophied Prostate. Wossidlo.—p. 415.
Endothelioma of the Bladder. M. Okazaki.—p. 422.
*The Use of the Urinal. Thilenius.—p. 425.
Epithelioma of Uriniferous Tubuli. Armbruster.—p. 433.
*Supplement: Postgraduate Course on Kidney and Bladder Disease.—pp. 1-74.

Correction of Exstrophy of the Bladder.—Lotsch remarks that the main efforts in this line have been directed toward reconstruction of the receptacle of the bladder, but the danger of stagnation of urine, especially in the large receptacles of the newer methods, is graver than the danger from bacterial invasion. Even before the operation, there is stagnation of urine with exstrophy of the bladder. This damages not only the lining of the receptacle but the kidneys. Five cases are described, with one young man clinically cured and continent to date, eighteen months since the Maydl-Berglund-Müller operations. Lotsch extols the original Maydl method as superior to all others. The main point is to avoid conditions liable to entail a fistula, hence intraperitoneal access is safer. His three patients that died from late peritonitis were an infant and two boys, aged 6; Maydl's caution not to operate before the age of 10 should be heeded.

Improved Cystoscope Technic.—Ringleb remarks that with darkfield illumination Nitze's ideal has been realized, in showing with the cystoscope even a small admixture of pus in the urine issuing from the ureter. He describes how to produce the darkfield by a special way of holding the cystoscope. Another improvement is the use of colored screens for the light, on the same principle as Vogt's light in which the red rays are filtered out. The details of the retina show marvelously under this "red-free light."

Hypertrophy of the Prostate.—Wossidlo analyzes his experiences with 117 operations on the prostate. There was total incontinence afterward in 3 of the 10 surviving after perineal prostatectomy (12 cases). Two are still living and feel in good health, and are continent, of the 3 treated with Voelcker's parasacral method. This seems the best technic for cancer of the prostate. In 2 cases of "prostatism" with a little residual urine and periodical retention, vasectomy seemed to cure completely in one, and in the other the residual urine dropped from 50 to 10 c.c. In 4 other cases with hypertrophy, hard or soft, no benefit was apparent.

The Urinal Question.—The mouthpiece of Thilenius' vulcanized rubber urinal is fitted with rubber sponge tissue to make it cling to the skin. The receptacle for the urine is fastened to the leg during the day, and at night the tube discharges into a vessel. In cases of cerebral hemorrhage, even one night of maceration from urine may start a bed sore, and a circular air cushion, the center serving to collect and convey away the urine, is useful for either sex. He expatiates on the importance of copious drinking in the early stages of hypertrophy of the prostate, and with a good urinal this can be done, and proves very beneficial, especially when a mild suitable mineral water is used.

Postgraduate Course on Disease of Urinary Apparatus.—This supplement contains thirteen lectures by various urologists from the 1922 course at Wildung. About every aspect is represented. Some of the lectures have been published elsewhere and reviewed in these columns. Schlayer gives a table of the various forms of the three main groups of kidney disease (inflammatory, noninflammatory and vascular), listing under fourteen headings the findings to be expected in each of the total twenty forms. Voelcker says that those long accustomed to the catheter are less liable to inflammatory complications from an operation than with a virgin bladder. Sometimes permanently draining the bladder through the anterior wall will answer every purpose. This does not have the disadvantages of a retention catheter in the urethra, if the catheter fits too tight for any seepage. Urine is voided by merely removing the glass stopper.

Zentralblatt für Chirurgie, Leipzig

50: 985-1016 (June 23) 1923

Operative Treatment of Hallux Valgus. I. Wymer.—p. 986.
*Vaccinotherapy in Cystitis. A. Baer.—p. 987.
Operative Procedure in Rachitic Curvatures. O. Orth.—p. 989.
Indications and Mode of Action of Periarterial Sympathectomy. E. Makai.—p. 991.
Operation on Rectal Fistula. L. Kirchmayr.—p. 993.
Idiopathic Cyst in Common Bile Duct. L. Adam.—p. 997.
*Choledochoduodenostomy for Drainage. A. Jurasz.—p. 1000.

Vaccine Therapy in Cystitis.—Baer recounts the results in cystitis and pyelocystitis, associated with a partially paralyzed state of the bladder, following injuries or disease that temporarily affected the spinal cord. There were also some cases of postoperative cystitis following prostatectomy by the Freyer method. The latter cases are often of a very stubborn type, in which all forms of therapy prove ineffective. Also in Baer's cases the customary treatment with internal bladder disinfectants and bladder lavage brought little improvement. He therefore gave up all internal and local treatment and applied exclusively autogenous vaccine therapy. In the majority of cases there was a mixed infection of *Bacillus coli* with staphylococci or with diplococci. In the preparation of the vaccines, cultures were taken from every case, and after rinsing them in physiologic sodium chlorid solution, they were killed at a temperature of 65 C. and were made stable by adding 1 per cent phenol solution. Four solutions of varying content were prepared, ranging from 5 to 25 million killed bacilli per cubic centimeter. The injections were made according to the degree of inflammation of the bladder, at various intervals, usually every two or three days; the course of treatment covered about five weeks. Soon after the first injection, substantial improvement was noted; the urine became clearer; the pain during micturition decreased, and the number of bacteria in the urine diminished. The general health also improved greatly. There were no unpleasant secondary effects. Only rarely was a transient elevated temperature noted (38.5 C.). No impairment of kidney function was observed. In a few especially refractory cases, after an interval of six weeks, another course of treatment was given, which then was entirely successful.

Choledochoduodenostomy for Drainage of the Lower Biliary Passages.—Jurasz points out that the results of gallstone surgery are not always entirely satisfactory, since, not infrequently, patients are operated on too late, when the disease has already involved the lower biliary passages, and the operator, making an incorrect estimate of the condition, is content to do a simple cholecystectomy. Likewise, in the presence of calculi, inflammation and stasis in the common bile duct, drainage of the hepatic duct must be admitted, in many cases, to be insufficient to effect a lasting cure. Jurasz recommends, when the lower biliary passages are involved, a method which has not the disadvantages of Kehr's drainage of the hepatic duct and which guarantees a lasting cure: namely, anastomosis between the choledochus and the duodenum. He uses this method routinely in all cases in which he formerly would have employed drainage of the hepatic duct. He describes his technic in detail. He has used the method in thirty-five cases, one of which resulted fatally, eight days after the operation, from cardiac weakness. The results have been otherwise excellent; in not a single case have the symptoms reappeared, nor has a secondary operation ever been necessary.

Zentralblatt für Gynäkologie, Leipzig

47: 897-944 (June 9) 1923

*Serodiagnosis of Syphilis. Handorn and Georgi.—p. 898.
*Effect of Typhus on Genital Functions. Weissenberg.—p. 904.
Diagnosis of Recent Extravasation of Blood After Rupture of Extra-Uterine Pregnancy. Piskacek.—p. 920.
Isolated Spastic Paralysis in the New-Born. Stroehm.—p. 922.
Operative Treatment of Sterility in Women. Steinbüchel.—p. 929.
Soft Parts in Narrow Pelvis as Hindrance to Delivery. Frommer.—p. 932.

Serodiagnosis of Syphilis in Pregnancy, Childbirth and Puerperium.—Handorn and Georgi refer to the appearance in recent years of several articles in which the reliability of the Wassermann test during pregnancy has been strongly questioned, because frequently a positive reaction has been obtained in the case of women who clinically and in their past history gave no evidence of syphilis. It was assumed that the serum of the pregnant in itself was capable of bringing about a positive Wassermann reaction, as is the case in malaria, occasionally also in scarlet fever, and in certain stages of highly febrile affections. The writers feel that the serodiagnosis of syphilis is of exceedingly great importance in obstetrics and that the question of the reliability of the Wassermann test cannot be taken too seriously. Not only the well-being of the mother but also of the child depend in great measure on the early recognition of syphilis during pregnancy. By means of an antisyphilitic treatment begun at the proper time and carried through in the light of modern knowledge, it is possible to affect the health of the child, so that in a large percentage of cases such children are born in a healthy condition. Also during the puerperium, syphilis in the mother, when diagnosed, should receive energetic treatment. It is an established fact that, during arsphenamin treatment applied to the mother, arsphenamin is brought to the child in the mother's milk. They examined in their series 154 clinically healthy women, in part, at intervals during pregnancy, but also during childbirth and the puerperium. Of 78 healthy women whose blood (from the brachial vein) was examined, only two gave a positive Wassermann reaction (the same two women gave also a positive Sachs-Georgi reaction). Of 158 women examined during the puerperium, only two gave a positive reaction. Handorn and Georgi argue, therefore, that the serodiagnostic test of syphilis with blood from the brachial vein is entirely reliable in pregnancy, childbirth and the puerperium.

Effect of Typhus and Relapsing Fever on Menstruation, Pregnancy, Childbirth and Lactation.—Weissenberg has investigated 336 cases, most of which he observed personally in Ukraine. He concludes that typhus and recurrent fever cause no gynecologic affections and leave especially the endometrium unattacked, for which reason menstruation during the illness, as well as afterward, follows a normal course for the most part; uterine hemorrhages, at least, seldom appear, though more frequently with recurrent fever than with typhus. After recovery, in about a third of the women amenorrhea occurs for a short time. The fever process seems to have a cleansing effect on the organs of reproduction, and, as a consequence, conception soon occurs. The temperature of the patient and the violence of the case are in no wise connected with the course of menstruation, pregnancy and childbirth.

Journal of Biochemistry, Tokio

1:333-515 (July) 1922. English and German Edition

*Carbohydrate Metabolism on Protein-Fat Diet. N. Kageura.—p. 333 and p. 389.
Nitrogenous Elements of Fruit of Sechium Edule. K. Yoshimura.—p. 347.
*Chemistry of Tubercle Bacilli. R. Koganei.—p. 353.
The Prolamin of Grain, Coix Lacryma L. G. Hattori and S. Komatsu.—p. 365.
*Alimentary Hyperglycemia. K. Sakaguchi et al.—p. 371.
Bactericidal Action of Colloidal Silver. M. Kusunoki.—p. 381.
Effect of Presence of Electrolytes on Turbidity Point of Albumin Solution. S. Kakiuchi and S. Koganei.—p. 405.
Solubility of Globulin in Neutral Salt Solution. K. Kodama.—p. 419.
Protective Colloids of Milk. T. Tadokoro and S. Sato.—p. 433.
Influence of Vitamin B on Digestive Function. S. Tsukiye and T. Okada.—p. 445.
Research on Glycolysis. C. Aibara.—p. 457.
*External Temperature and the Blood Sugar. M. Taya.—p. 479.

Influence of Protein and Fat on Carbohydrate Metabolism.—The power of assimilating carbohydrates was reduced, Kageura announces, in twelve persons and in a number of dogs on a diet of predominantly protein and fat. Addition of proportional amounts of carbohydrates reduced this deleterious action of the protein and fat.

Chemistry of Tubercle Bacilli.—Koganei denies that fatty substances are responsible for the acid-fast staining property of tubercle bacilli. He ascribes this to kephalin alone.

Alimentary Hyperglycemia.—In Japan in the healthy, on an ordinary diet, the sugar content of the blood often runs up to 0.15 per cent. after eating, and sometimes much higher. Glycosuria may occur likewise, but this is rare.

Influence of External Temperature on Sugar Content of the Blood.—The research was done mainly on rabbits. The season does not seem to influence the sugar content of the blood, but heating increases it. The maximum is reached in from two to four hours, and then it declines to normal or below for a few hours.

Hospitalstidende, Copenhagen

66: 441-456 (June 20) 1923

*Tricuspid Stenosis. A. Oigaard.—p. 441.
*Theories on the Light-Bath Therapy. P. Schultzer.—p. 447.

Stenosis of the Tricuspid Valve.—Oigaard, in 1915, diagnosed the disease of a woman, aged 30, as tricuspid stenosis, from cyanosis with red, scale-covered spots, emaciation, dyspnea, dry skin, short systolic and long diastolic murmurs, arrhythmic pulse with a rate of 48, blood pressure 120, and ascites. He prescribed salt-poor diet, two hours rest at noon, and digitalis. The heart symptoms disappeared, the pulse became regular, at 56, and she resumed teaching in four months, but developed cardiac cirrhosis, two months later, with ascites so pronounced that paracentesis yielded 12 liters, twice a month, for which a resultless operation, under anesthesia, was performed the following year. She yielded 1,000 liters, in sixty tappings, and died, in 1922, from acute bronchitis with fever and acute inflammation of the middle ear. Necropsy showed enormously enlarged, pale and dry heart, with pericardial adhesions, and brown lungs. He found only ten or twelve cases of pure tricuspid stenosis, confirmed by necropsy, in the literature, and only 100 with mitral complications.

Theories on Light-Bath Therapeutics.—Schultzer says that the old theory of the chemical importance of the short-wave rays in light-bath therapeutics is questioned at the Finsen Institute, and he considers "chemical rays" a misleading term for the violet and ultraviolet rays since they do not always on absorption produce chemical changes. Besides, living protoplasm is injured by irradiation with this light. The carbohydrate synthesis in green leaves is a photochemical reaction caused by the visible rays in the yellow field of the spectrum, by light as such. The visible rays, because of their great penetrative power, reach the tissues directly and the blood is heated through absorption. Reyn sees a more rapid effect when the light-bath is dosed to produce strong erythema with subsequent scaling.

66: 473-488 (July 4) 1923

*Central Fixation and Optic Nystagmus. G. V. T. Borries and A. A. Meisling.—p. 473.

Optic Nystagmus and Central Fixation.—Borries and Meisling say that there is peripheral as well as central fixation and the definition which limits the holding of the sight impression to the fovea is misleading. The production of optic nystagmus is not connected with scotoma of any particular part of the field of vision. As the nystagmus can be produced when all power of sight is lost, and from any part of the field of vision, it must be considered one of the fundamental functions of the eye.

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THE SECTION ON LARYNGOLOGY, OTOLOGY AND RHINOLOGY OF THE AMERICAN MEDICAL ASSOCIATION

A RETROSPECT AND A PROSPECT *

WILLIAM B. CHAMBERLIN, M.D.
CLEVELAND

The delivering of an address by a retiring chairman, or president, is an ancient, if not an honorable, custom. Coincident with the origin of this custom, however, there arose another custom, well fitted to neutralize, or mitigate, any too baneful effects which the delivering of such an address might have. So it became also customary for the members of a society to remain away, until the address should have been given, or until such time as the real business of the meeting should have been under way. For the convenience of such discriminating members, the address, as you have no doubt noticed, is always placed first on the program. The latter custom originated, no doubt, later than the first, and was the natural reaction of the oppressed listeners to this last opportunity of a retiring president to inflict himself on his audience. Since "brevity," then, "is the soul of wit and tediousness the limbs and outward flourishes, I will be brief," though I shall make no attempt to be witty.

The glories of otolaryngology have been sung. Its future has been proclaimed. Recommendations for postgraduate teaching have been the themes of at least two of my predecessors. This subject has also been most ably presented in the reports of your committee on postgraduate instruction. My talk, then, will be in the nature of a potpourri, a rehearsal of several matters which it would seem might well be brought before the section at this time. If some there be who may incline to look on such a digression, not as a potpourri, but as a corned beef hash, their discrimination will cause no resentment, and I can only apologize for my inability to bring before you some epoch making discovery. My theme, then, will be "The Section on Laryngology, Otology and Rhinology of the American Medical Association: A Retrospect and a Prospect."

As I look on the names engraved on this gavel, names distinguished not alone in the narrower confines of our specialty, but which have added luster to the whole field of medicine, I realize too well my own shortcomings, and appreciate most fully your forbearance in having chosen me your chairman. "Some are born great, some achieve greatness and some have greatness thrust upon them"; still others become secretaries and, as it were, in association with, or in the shadow of greatness, are permitted to fill their small, though useful, part.

As secretary of the Section on Laryngology, Otology and Rhinology of the American Medical Association, it has been my privilege to serve you for four years, a longer period of service than has ever fallen to the lot of such an officer of this section. With such a continuous service it has been possible to put into practice certain policies, tending, it was hoped, to elevate the quality and character of the programs, and by so doing the standing of our specialty throughout the United States.

During the last four years there has not appeared on our program a single paper on the technic of the submucous resection of the nasal septum or the method of removing tonsils, whether under local or general anesthesia. During this period, no new contribution has been made. Such papers, it was felt, must therefore soon resolve themselves into a presentation of the fundamental differences between tweedle dee and tweedle dum, and prolong the discussion, as well as the meeting, beyond the endurance of human nature. While such drastic action has no doubt inflicted a real hardship on the profession of Gopher Prairie and kindred medical centers, it has had behind it the purpose of elevating our specialty above the level of the tonsilleur and the submucous resectionist.

Our sympathies, however, still go out to the special specialist in a western metropolis, who, after weighing an income of $75,000 a year in his home town, against a probable income of $150,000 from the removal of tonsils and the submucous resection of the septum in an eastern city, at last magnanimously decided to remain where he was at a personal loss of $75,000 a year. Surely, self sacrifice has ever been the distinguishing characteristic of our profession. So, though an effort has been made to extend our specialty beyond the narrow confines of the tonsil and the septum, there has been an attempt, on the other hand, to look on this section as an open forum, before which new ideas could be presented and the author given ample opportunity to defend his ideas against just and friendly criticism. This year we are to discuss in open meeting the effects of the roentgen-ray treatment of the tonsils.

Your Committee on Postgraduate Instruction has been most active and, in conjunction with similar committees from other special societies, has rendered a most notable and meritorious service. Through its influence, not only have steps been taken to provide adequate postgraduate instruction in this country, but this committee has formulated requirements which should be regarded as the minimum for those desiring to enter our specialty.

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* Chairman's address, read before the Section on Laryngology, Otology and Rhinology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

The Committee on Lye Legislation, under the able leadership of Dr. Chevalier Jackson, is rendering a service no less noteworthy. Already, largely through Dr. Jackson's personal and individual efforts, legislation has been passed in the state of Pennsylvania specifying how each can of caustic alkali, or cleansing powder, shall be labeled, and imposing a fine of $100 for each can sold within the state which does not bear such a label. In addition, any individual injured or poisoned from the contents of such improperly labeled cans may now sue the manufacturer for personal damage. This, like the pure food law, so long prevented by selfish and vested interests, is a triumph for persistent effort and the culmination of more than twelve years of almost ceaseless effort on Dr. Jackson's part. This is but another evidence of the altruistic spirit which distinguishes and glorifies medicine. It should receive the most heartfelt commendation and expression of appreciation, not only from the medical profession, but also from the public, for which this effort has been made and which, in the last analysis, is its beneficiary.

Under the leadership of Dr. H. Marshall Taylor, a law, similar to the Pennsylvania law, has been enacted in the state of Florida. These are opening wedges. They should be the forerunners of similar legislation in every state in the Union.

The Committee on the Education of the Deaf Child, under the chairmanship of Dr. Charles W. Richardson, has had before it, first of all, the insistence on oral instruction *exclusively* for the deaf, and, secondly, the codifying and tabulating of laws in states where such laws exist, in the hope that ultimately laws of similar scope and requirements may be enacted in all the states.

Any review of the activities of the section for the last four years would be incomplete without reference to the work of the Committee on Local Anesthesia. In this your secretary performed so inconspicuous a part that it can be referred to without egotism. For this report the section is indebted to Dr. Emil Mayer of New York, ably assisted by Dr. Ross Hall Skillern of Philadelphia and Dr. Robert Sonnenschein of Chicago. The compilation of the report involved an amount of work which no one unacquainted with the activities of the committee can appreciate. It resulted in the formation of a commission, representing the entire American Medical Association. Of this larger body Dr. Mayer is also chairman.

The work of the Committee on Necrology has been a labor of love. For this record of the achievements of our former members we are indebted to our chairman, Dr. Emil Mayer.

Such is the record of our section during the preceding four years. What for its future? In this connection there are two subjects which I wish to bring before you for consideration.

As one views the progress which medicine has made within the last fifty, the last twenty-five, yes, within the last ten, or the last five years, the wonderful development of specialization is amply justified. This justification, however, is more apparent to the profession than to the laity. The latter are only too prone to hark back to the day of the family practitioner who attended them from the cradle to the grave and to look on modern specialization as an ultrarefinement, in most instances unnecessary. This attitude is due largely to ignorance on the part of the laity as to what modern medicine really means, and to a lack of appreciation of the inability of any mere mortal, at the present time, to make himself proficient in anything more than a very limited field. Is not this attitude on the part of the laity due to the failure of the profession to inform the public, their clients, as to what medicine has accomplished and is accomplishing? In this connection the recent articles, in the lay press, of Dr. Morris Fishbein, of the editorial staff of The Journal, on diabetes would seem to be a move in the right direction. Is there not ample justification for some correct information, in an attempt to stem the tide of *misinformation* with which the public is constantly deluged?

So, at the risk of unpopularity, I shall venture to be ultraprogressive and to suggest even further specialization, or, as it were, special specialization. I trust that the reason may be self evident when I refer to the fields of plastic surgery of the face and bronchoscopy. Samuel Johnson, when discoursing on the True Art of Friendship, relates how "it was once confessed to him by a painter that no professor of his art ever loved another." He adds that "this declaration is so far justified by the knowledge of life as to damp the hopes of warm and constant friendship between men whom their studies have made competitors, and whom every favorer and every censurer are hourly inciting against each other. The utmost expectation that experience can warrant us is that they should forbear *open* hostilities and *secret* machinations, and when the whole fraternity is attacked, be able to unite against a common foe. Some, however, though few, may perhaps be found in whom emulation has not been able to overpower generosity, who are distinguished from lower beings by nobler motives than love of fame, and can preserve the sacred flame of friendship from the gusts of pride and the rubbish of interest." These observations might be equally applicable to the medical profession.

With the limited amount of material in the fields of plastic surgery or bronchoscopy, it is manifestly impossible for any one to become proficient, if the opportunity for doing this work is divided among a large group of men. The public is thereby the loser and the sufferer. In each community, therefore, cannot two or three individuals be decided on who, as a result of training, proficiency or opportunity, are especially qualified and to whom such cases shall be referred? The work of either of these fields demands special training and ability. In bronchoscopy there is required, in addition, an expensive armamentarium, as well as special hospital facilities. In communities where there is located a well organized medical school, such an arrangement could easily be put into effect. In other communities its accomplishment might be more difficult.

For the last twelve years there has been in existence the American Board for Ophthalmic Examinations. Its work has been most satisfactory, and has had a decided influence in elevating the standards of that specialty. It has been suggested that such a board be established for the specialty of otolaryngology. In the language of one of the members of this board, "it is more important to have rigid requirements for otolaryngologists than for ophthalmologists. The reason for this is patent. Novices will attempt all sorts of operations on the nose, throat and ear, when they would not think of performing an operation on the eye, even though they might fit glasses and attempt to treat all the commoner eye diseases. Many men with no training of any kind whatsoever feel perfectly free to attempt tonsil and adenoid operations, and practically all of them multilate the turbinates to relieve obstructed breathing, no matter from what cause. They may steer clear of mastoid work, but even there they oftentimes plunge in."

This board is made up of three members each from the American Ophthalmological Society, the American Academy of Ophthalmology and Otolaryngology, and the Section on Ophthalmology of the American Medical Association. Their term of office is three years, so that each year the terms of three examiners expire. Certificates from this board are now required before a candidate is considered for membership in the American Ophthalmological Society or the American Academy. Men of good record, who have practiced the specialty for fifteen years, are given a certificate on their record. Younger men are given an examination which is oral, written and practical. This board has conducted to date twelve examinations and given certificates to 450 individuals. With the splendid record of the American Ophthalmological Board as an example, it might seem advisable that a committee from this section be appointed to confer with similar committees from the American Laryngological, the American Otological and the American Laryngological, Rhinological and Otological Society, relative to the formation of a similar board.

I cannot close this address without repeating to you a quotation which has but recently come again to my notice. It is from Robert Louis Stevenson's dedication to Underwoods, and reads:

> There are men and classes of men that stand above the common herd: the soldier, the sailor, and the shepherd not infrequently; the artist rarely; rarelier still, the clergyman; the physician almost as a rule. He is the flower (such as it is) of our civilization; and when that stage of man is done with, and only remembered to be marveled at in history, he will be thought to have shared as little as any in the defects of the period, and most notably exhibited in the virtues of the race. Generosity he has, such as is possible to those who practice an art, never to those who drive a trade; discretion, tested by a hundred secrets; tact, tried in a thousand embarrassments; and what are more important, Heraclean cheerfulness and courage. So it is that he brings air and cheer into the sickroom, and often enough, though not so often as he wishes, brings healing.

I wish again to express my appreciation of the honor which you have conferred on me. The record of our specialty in the past has been a record of achievement; achievement because of the effort of painstaking, unselish men to make themselves better physicians and by so doing to help more efficiently the public whom they serve. May the years to come bear not only for our pecialty, but for this section, as well, a record of still greater achievement.

Treatment of Tumor of Colon.—The fact that the surgeon s now able to operate upon patients with tumors in the colon efore serious obstruction has occurred has entirely altered he type of operation that is performed, and greatly improved he results. It will be generally agreed that to attempt to esect or anastomose the large bowel in a patient suffering rom any degree of obstruction is wrong, and that the proper reatment is first of all to relieve the obstruction and only o attempt to resect or anastomose the bowel after all obstruction has been relieved. Further, most surgeons now agree hat cases of obstruction in the large bowel are best treated y draining the cecum.—J. P. Lockhart-Mummery: *Proc. Roy. oc. Med.* **16**:70 (Aug.) 1923.

DEVELOPMENT OF GASTRO-ENTEROLOGY AND PROCTOLOGY IN THE UNITED STATES

A BRIEF HISTORICAL SKETCH *

J. RAWSON PENNINGTON, M.D.
CHICAGO

I start with gastro-enterology, though, as will be seen presently, proctology was the first to attract specialists. Indeed, one of its own disciples—Einhorn [1] in his latest edition—remarks, after the foundation was laid by Beaumont, there was a state of quiescence for nearly half a century until Küssmaul (July 22, 1867) applied the stomach tube and pump in the treatment of dilatation of the stomach. So the history of gastro-enterology will greatly resemble the packets of blank paper which the political parties get out during presidential campaigns, containing the alleged records of their opponents.

There is little to chronicle, I find, in the eighteenth century, though one of the earliest medical publications in this country (1745) was by Thomas Cadwallader: "An Essay on the West Indian Dry-Gripes," which modest effusion of forty-two pages had the honor of being printed by the immortal Benjamin Franklin. A few years later, an anonymous author published a work at Boston with the flippant title of "A Treatise Proving that Most of the Diseases Incident to the Fair Sex are Owing to Flatulencies Unseasonably Vented."

Toward the end of the eighteenth century, the far-famed Benjamin Rush dominated American medicine; of the rival British schools headed by Cullen and Brown, respectively, he adhered to the latter. The following extract gives some idea of the notions on etiology prevailing at that time:

> All ordinary fevers being located in the blood vessels, it follows, of course, that all those local affections we call . . . inflammations of the liver, stomach, bowels . . . are symptoms only of an original and primary disease in the sanguiniferous system.

As a corollary, a "Defense of Bleeding as a Remedy for Certain Diseases" occupies about eighty-six pages of his "Collected Works," and he would seem to have preceded the French clinician Broussais as the "prince of bleeders."

In the beginning of the last century, the American profession depended largely on works imported from Europe until these began to be republished here. The earliest two works on our branch that I can find in the Index Catalogue of the Surgeon General's Library, as reprinted, are Johnson's "Essay on Morbid Sensibility of the Stomach and Bowels," Philadelphia (1827); and, eleven years later, from the same city, Abercrombie's "Pathological and Practical Researches on Diseases of the Stomach."

To get some idea of the amount of knowledge available on gastro-enterology, I consulted four works on practice, embracing the middle third of the last century, and began with one by the Philadelphia obstetrician Dewees.[2] As the title page carries the information: Comprising Most of the Diseases Not Treated of in the "Diseases of Females" and "Diseases of Children," we expect the seventeen chapters to include a miscellaneous lot of information, nor are we disappointed. In addition to diseases of the eyes, urticaria, gonorrhea, cystitis and what not, we find accounts of intestinal diarrhea, dysentery, enteritis and colic. There is not a single gastric affection to be found, with the exception of hematemesis.

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* Chairman's address, read before the Section on Gastro-Enterology and Proctology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

[1] Einhorn, Max: Diseases of the Stomach, Ed. 6, New York, 1920.

[2] Dewees, W. P.: A Practice of Physic, Ed. 2, Philadelphia, 1833.

The next one, Eberle's[3] "Practice" enjoyed great popularity in its day, as shown by the fact that the edition I searched is the fourth. Of 1,159 pages, not 10 per cent. are devoted to gastro-enterology. There are ten pages on gastritis and eighty-six on chronic diseases of the alimentary canal, comprising indigestion, diarrhea, colic, ileus, constipation, intestinal worms, hemorrhoids and jaundice.

Another popular work of the time was Wood's "Practice," and the fifth edition has 1,792 pages, 150 of which are allotted to inflammation of the stomach, "irritation" of the stomach, indigestion, intestinal diseases, worms in the alimentary canal, lead colic and stricture of the rectum.

While over a quarter century had elapsed since the French pathologist Cruveilhier differentiated gastric ulcer from cancer and gastritis, the account of simple ulcer has been added as a footnote under chronic inflammation, yet covering nearly four pages of fine type. Nevertheless, it is a very creditable production, as shown by the following excerpt:

> Prognosis.—This is generally favourable when the patient can be placed under proper influences. There is nothing malignant in the character of the ulcers. Two sources of danger, however, exist, which the utmost care cannot always avert; hemorrhage, namely, and perforation from accidental causes; and even when cicatrization has taken place, there is liability to return of the ulceration, and, as before stated, even greater liability in such a case, than originally, to the two dangers referred to. Another source of inconvenience and of ultimate danger in cases in which the ulcer is seated at the pylorus is the contraction attendant on cicatrization. This may cause stricture of the pylorus, with consequent distension of the stomach, and various digestive disorders, which only great caution in the regulation of the diet can obviate.

Professor Wood adds:

> During more than twenty years in which I have been physician to the Pennsylvania Hospital, I have not met with a fatal case of simple ulcer of the stomach.

The prognosis for gastric cancer was gloomy, indeed:

> Treatment: . . . must be entirely palliative. All that can be expected is to protract life and alleviate suffering. For this purpose nothing is so important as to regulate the diet properly. . . .

With the first edition of Flint's[4] classic "Treatise on the Principles and Practice of Medicine," we begin to be on solid ground. Of the 867 pages, about one quarter is taken up with inflammatory and structural affections of the alimentary canal and stomach, functional affections, with diseases affecting "the solid or collatitious viscera of the abdomen." (He still includes conditions no longer thought as coming within the province of the internist, e. g., strangulated hernia, volvulus and intussusception.)

With later editions, and later works by other authors, the increasing amount of attention given to gastro-enteric diseases is shown by the large amount of space given to their consideration.

In 1829, Cruveilhier for the first time clearly differentiated ulcer of the stomach from ordinary gastritis and cancer, and not long afterward Rawson[5] reported a case of perforation. This was in a man, aged 36, and at the necropsy, a perforation, seven-eighths inch long, was discovered on the anterior surface of the organ.

As regards typhoid fever, it seems probable that W. W. Gerhard[6] of Philadelphia had distinguished it from typhus before the French clinician Louis, but was too late in publishing his findings. In this connection, Nathan Smith, in his famous "Practical Essay" of 1824, treated this disease by milk diet, plenty of water, keeping the patient in cool, well ventilated rooms, and, when the temperature was very high, drenching the patient with cold water—the whole treatment very similar to that of our own time.

A long time after Smith, yet deserving of honorable mention, is Woodward's account of his experience with the "Chief Camp Diseases of the U. S. Army as Observed During the Present War."

So far as anatomy and physiology are concerned, there seems little worthy of reference, with the exception of the extraordinary work of Beaumont. Neill[7] of Philadelphia made some investigations on the structure of the gastric mucosa; and Austin Flint, Jr.,[8] as well as J. C. Dalton, made some observations on the cholesterin function of the liver.

Since the discovery of the roentgen ray, the well known investigations of Cannon, Case and many others have revolutionized our knowledge of gastro-intestinal functions, but I have time only for this bare mention.

I now come to William Beaumont, "pioneer physiologist" of the United States. It was on June 6, 1822, consequently just over a century ago, when, stationed at Fort Mackinac, he was called to attend Alexis St. Martin, a youth of 19, who had received a load of duck shot in the left side, at a distance of only 2 or 3 feet from the muzzle. The stomach was lacerated by a spicule of the sixth rib, and part of the contents had escaped into the clothing when first seen. After a tedious convalescence, the patient was able to be up and about.

It seems that for some time the possibilities for investigation did not occur to Beaumont; finally, in 1825, he notes in his journal:

> This case affords an excellent opportunity for experimenting upon the gastric fluids and process of digestion. It would give no pain, nor cause the least uneasiness to extract a gill of fluid every two or three days, for it frequently flows out spontaneously in considerable quantities. Various kinds of digestible substances might be introduced into the stomach, and then easily examined during the whole process of digestion. I may, therefore, be able hereafter to give some interesting experiments on these subjects.

Just about the time at which he was preparing to start his investigations, the patient absconded, but in about four years was induced to return, and was supported by Beaumont, together with his family (he having married in the meantime). Two series of observations now began, lasting altogether—roughly speaking—about eighteen months. The result of these, to quote the inscription on the monument erected at Fort Mackinac in 1900, "brought fame to himself and honor to American medicine. By the irony of fate, the ingrate

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[3] Eberle, John: A Treatise on the Practice of Medicine, Ed. 4, Philadelphia, 1838.

[4] Flint, Austin: A Treatise on the Principles and Practice of Medicine, Philadelphia, 1866.

[5] Rawson, L.: Am. J. M. Sc., August, 1830.

[6] Gerhard, W. W.: Am. J. M. Sc. **19**: 289, 1837.

[7] Neill, John: Am. J. M. Sc., January, 1851.

[8] Flint, Austin, Jr.: Am. J. M. Sc., October, 1862.

St. Martin survived his surgeon and benefactor by twenty-eight years.

In the appendix of his life of Beaumont, Myer [9] has compiled a dozen or so previous cases of gastric fistula, only one or two having been examined as to the physiology of digestion, and that very crudely, though Spallanzani had made animal experiments, as did Young, the latter, so Friedenwald [10] tells us, being a student from Maryland, who submitted a thesis to the University of Pennsylvania on "An Experimental Inquiry Into the Principles of Nutrition and the Digestive Process," using frogs on which to conduct his experiments.

APPENDICITIS

Before proceeding with the next section, I must make some notice of appendicitis, the "American disease," as our continental brethren sneeringly termed it years ago.

Away back in 1759, Mestivier, an almost legendary name, cut down on an abscess in the right groin. Necropsy showed the appendix perforated by a pin. In the next ninety years, similar perityphlitic abscesses were occasionally operated on, until, April 17, 1848, Hancock of England did not wait for fluctuation, but opened the purulent focus on the fifteenth day, with recovery. As a consequence, he advised early evacuation, stating that death often ensues before fluctuation is perceptible. But, as is often the case, this sage advice went unheeded, apparently, for nearly two decades, when Parker of New York (1866) repeated the early operation, with equal success.

So far, we have been dealing with evacuation of abscesses of appendicular origin. Probably the first operation on the appendix itself was that done by Symonds of London, Aug. 24, 1883. A calculus in the appendix having been diagnosed by Mahomed the internist, it was extracted by the surgeon, and the incision closed by Lembert sutures, with recovery. A few other cases, those in which the appendix was not removed, are recorded in this country as well.

Finally, Krönlein [11] of Switzerland, Feb. 15, 1884, was apparently the first to remove the appendix for acute inflammation; he was followed by Weir of New York, in 1886, and a few others, all of whom, however, were unsuccessful. On the contrary, Hall,[12] also of New York, removed the appendix, which was found in the hernial sac of a youth of 17. . Not long after, Sands and Morton,[13] of New York and Philadelphia, respectively, profiting, no doubt, by Fitz's famous paper, in which the term "appendicitis" was coined, made a successful preoperative diagnosis of acute appendicitis and intervened also successfully.

PROCTOLOGY

In 1811, and long before the reprints of the European works on gastric affections, there was published at Philadelphia, the medical center of the country, a little book by Thomas Copeland: "Observations on Some of the Principal Diseases of the Rectum."

The care of affections of the rectum in the United States long fell to the lot of the general surgeons, such as Physick, who recognized what he called "preternatural pouches"; these are the same as the "encysted" or sacculated rectum of the anatomist Horner, and the sacculitis of today. But early in the last century, George Bushe had acquired sufficient experience to enable him to write an exceedingly creditable treatise on the diseases and malformations of the rectum and anus, illustrated by a volume of plates. Bushe was an Irish graduate who was recommended by William Lawrence of London for the chair of anatomy in Rutgers College, New Jersey. He arrived in New York in 1828, but did not survive long.

Bushe's "Atlas" is noteworthy in that it was illustrated by Dr. Westmacott, who later on obtained greater fame by the pictures for the first edition of Gray's "Anatomy," much of the success of which was due to the illustrations with the names of the structures on them, a great and laudable novelty. I am fortunate enough to possess two copies, one with plain plates, the other colored by hand, and have installed them in the Scientific Exhibit.

William Bodenhamer seems from an early date to have specialized in proctology, first in Louisville, then in New Orleans, and, for years before his death, in New York. Beginning with his classic account of congenital malformations of the rectum and anus in 1860, in addition to three other books, he was the author of a host of articles published in journals. He died several years ago at the ripe age of 97. In the past, Bodenhamer was looked down on because long ago he advertised in the daily papers, but I believe this was not unusual seventy-odd years ago, and much can be forgiven him for his books and articles, alike characterized by untiring industry, profound erudition and sound judgment based on an enormous experience.

While engaged in the preparation of my forthcoming book on "Diseases and Injuries of the Rectum, Anus and Pelvic Colon," I was decidedly surprised—and that agreeably—to find that the first American case of megacolon was placed on record (1867) by a former fellow citizen of Chicago, Dr. William Lewitt,[14] at that time demonstrator of anatomy in Rush Medical College. It was published as "Enlargement of the Colon." The patient, a man of 21, had had no bowel movements for three weeks; the abdomen was enormously distended and so tense that no viscera could be distinguished. There was a history of a previous attack, lasting a fortnight, at about the age of 12; since that time there had been a similar attack about once in a week or ten days. Prior to being seen by Lewitt, he was under the care of a "spiritual doctor," who affirmed that he was suffering from "windy dropsy." When seen by our author, flatus could be passed only by standing on the head and hands; enemas had no effect, nor had laxatives. Death occurred during a sudden attack of abdominal pain some six days after being first seen. Necropsy revealed several perforations in the colon, with gas and soft feces in the abdomen. The pelvic colon contained more than a pailful of soft feces.

Another early case from a nearby town, reported by Harrington [15] in 1878, nearly a decade prior to Hirschsprung, concerned a man, aged 51, who for the past ten years had been affected with "bilious colic." Death here was even speedier, occurring in about sixty-six hours. At necropsy, the pelvic colon was immensely distended, reaching to the ensiform cartilage. While it contained no feces, the capacity was about a gallon, and the walls were thickened.

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[9] Myer, J. S.: Life and Letters of Dr. William Beaumont, St. Louis, 1912.

[10] Friedenwald, Julius: Tr. Am. Gastro-Enterological A., 1909.

[11] Krönlein, R. U.: Arch. f. klin. Chir. **23**: 514, 1886.

[12] Hall, R. J.: New York M. J., June 12, 1886.

[13] Morton, T. G.: Tr. Coll. Physicians, Philadelphia, 1887.

[14] Lewitt, William: Chicago M. J., August, 1867.

[15] Harrington, H. L.: Chicago M. J. & Exam., April, 1878.

It seems to me that "megacolon" is a much more fitting appellation for the condition than Hirschsprung's disease, for as far back as the late seventeenth century Ruysch, the Dutch anatomist, described an "enormous extension of the colon" in a 5-year-old girl, which is probably a case of megacolon. And as is well known, it was encountered by Parry[16] (1829) in an adult, and by Billard[17] in the same year in a child, besides being figured by von Ammon[18] in his Atlas.

After some desultory efforts, the American Proctologic Society was organized in 1899, having been preceded two years by the American Gastro-Enterological Association. The former has since held yearly meetings, and published an annual volume of transactions. The present membership numbers thirty-four active, and twelve associate, and seven honorary members.

In 1916, the Section on Gastro-Enterology and Proctology was organized in the American Medical Association, and the first session of the section was held at the New York session of the parent body in 1917.

31 North State Street.

PRESENT-DAY PROBLEMS IN REGARD TO GALLBLADDER INFECTIONS

A STATISTICAL INQUIRY [*]

WALTER C. ALVAREZ, M.D.; KARL F. MEYER, A.B., D.V.M.; G. Y. RUSK, M.D.; F. B. TAYLOR, M.D., and JESSIE EASTON, A.B., M.A.

SAN FRANCISCO

Speaking broadly, cholecystitis is a disease which begins in youth but is first recognized and properly treated in old age. As we shall see later, in a group of men and women coming to operation at an average age of 44 years, the duration of symptoms averaged nineteen years, an interval during which there were many courses of treatment, most of them directed against such vague disorders as "nervous indigestion," "flatulent dyspepsia," and "intestinal autointoxication." Now, we might say with Naunyn[1] that the "process of gallstone formation does not give rise to any symptoms," and that those which appear are "merely the manifestation of chronic dyspepsia;" or we may more logically assume that the symptoms observed do represent the earlier stages of cholecystitis. If that be the case, surely the sensible thing to do is to analyze very carefully the early histories of the persons who now undoubtedly have gallstones so that we can learn to recognize the disease in its incipience, and not have to wait until the appearance of colic and jaundice make the diagnosis plain even to a lay observer.

That we may visualize the problem more clearly, let us think for a moment of the cohort of men and women who are going to have their gallbladders removed in 1942, i. e., nineteen years hence If history repeats itself, they must be entering our offices now with their first attacks of more or less masked cholecystitis. One reason why we are not likely to think of that disease is that some of these patients are under 10; some are in high school, and many are in their twenties.

What chance is there of diagnosing their troubles now? We believe that it can be done in many cases if we will only use the information already at hand. The great importance of the subject will be seen when we remember that every tenth old woman coming to necropsy has gallstones, and that there must be many more with cholecystitis without stones. The existence of such a group has begun to be recognized in the last three years; and more and more acalculous gallbladders are being removed.

This paper summarizes the results of a study instituted about three years ago by one of us (W. C. A.) in an effort to map a course between the Scylla of lazy or cowardly waiting and the Charybdis of needless operating. It has always seemed to him that no man can speak confidently about a series of borderline gallbladder cases unless he has, in every instance, taken a very careful history; has made a complete physical examination; has supervised or done the roentgen-ray and laboratory work; has seen the operation; has consulted closely with the bacteriologist and the pathologist, and has corresponded afterward with the patient to see what results have been secured. Unhappily, even then, doubts will often remain as to the correctness of a diagnosis.

In all, sixty case records have been abstracted and their details charted for the study. We have serious doubts about the correctness of the diagnosis in two cases. Nineteen, or 33 per cent, of the remaining quite definite cases of cholecystitis were marked by the presence of stones. The men and women with stones averaged 49 years of age, and those without, 41 years. There were nineteen men and forty-one women. Seventeen of the women had no children.

THE HISTORY

The first and most important factor in the diagnosis of early cholecystitis is a most careful and complete history. One must get an idea of the severity of the trouble not only during the weeks preceding the first consultation but also in the past. Forty-eight out of the group here studied were more or less incapacitated for work, and many were ready to accept operation or anything which would end their sufferings.

Pain was a common symptom, complained of by 95 per cent. of the sufferers. In many it was typical, beginning to the right of the epigastrium and radiating into the right scapular region. In five, the pain radiated mainly into the left part of the back; in seven it was between the shoulder blades, and in five it was in the right side of the neck.

It is always helpful to find out whether or not the patient is wakened out of his sleep by pain, distress or bloating. That is a fairly sure sign that the trouble is not due to nervousness or to psychic impressions. Fifty-five per cent. mentioned this nocturnal distress.

Very helpful and characteristic also are the patients' statements to the effect that, although they have fine appetites and are hungry, they are afraid to eat. It is valuable because it is quite pathognomonic of cholecystitis, and because it testifies eloquently to the reality and severity of the suffering which is so dreaded. However, if one questions these people further, he will generally get the admission that it really does not make

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[16] Collected Works of C. H. Parry, London, 1825.

[17] Billard, C. M.: Traité des maladies des enfants nouveau-nés, Paris, 1837.

[18] Von Ammon, F. A.: Die angeborenen chirurgischen Krankheiten der Menschen, Berlin, 1842.

[*] Read before the Section on Gastro-Enterology and Proctology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

* From the George Williams Hooper Foundation for Medical Research, the Department of Medicine, and the Department of Pathology, University of California Medical School.

[1] Naunyn: A Treatise on Cholelithiasis, translated by Garrod, London, 1896, p. 55.

much difference when or what they eat. If they are due for an attack, they will get it even if they are living on tea and toast.

Only one out of five had ever had anything like colic. Tenderness to the touch or soreness in the right side on jolting, jarring or reaching was often present, either as a constant symptom or as a transient one after acute exacerbations. It was complained of in 72 per cent. of the cases. Patients who drive in from the country in an automobile should always be asked how they stood the trip.

Very important also is the reverse peristalsis syndrome which one of us has described elsewhere.[2] It is unwise to make the diagnosis of cholecystitis on a history of right-sided pain if most of the symptoms of this syndrome are wanting. Vomiting was a more or less prominent symptom in half of the cases. It may come only with sèvere attacks or with sick headaches. Regurgitation was noted in twenty-one cases. Acid regurgitation, "heartburn" or "acid stomach" was often a prominent symptom, and was noted thirty-six times. The carrying about of soda by a person should always, in our opinion, suggest to the physician that something is radically wrong in the abdomen. Nausea is not infrequent, and sometimes is the main source of annoyance. It was complained of thirty-two times. Belching is one of the earliest and most constant symptoms throughout the long course of the disease. Forty suffered with it. Thirty-nine complained of bloating, which was sometimes so severe that they would have to rush to their rooms and disrobe.

Some of the symptoms just enumerated are grouped by the patient under the term biliousness. With the attacks of biliousness there is often severe and prostrating headache, and this is not infrequently the reason for the patient's seeking a physician.

Some of these persons get sallow with their "bilious spells," or they are sallow most of the time. In some cases the sallow tint may be hereditary and associated with a peculiar hair color, but in many instances we should probably attach to it a greater significance than we now do. In this series it was mentioned sixteen times..

Actual jaundice is not a very common symptom even in stone carriers; and those who report a high incidence of it in their practices are probably confessing their diagnostic ineptitude; i. e., they wait too long and diagnose only the oldest cases. It had been present at some time in 27 per cent. of our stone cases, and in 19 per cent. of those with acalculous cholecystitis. Only extensive statistics based on long life histories will enable us to say what correlation there is between "catarrhal jaundice" in youth and cholecystitis in later life. In several of our cases the early jaundice probably did mark the beginning of the chronic disease.

A history of clay colored stools can be obtained in only a few cases, and then it is of doubtful value.

"Dopiness" is a not infrequent symptom (17 per cent.), and often leads to the diagnosis of "autointoxication." It is sometimes associated with dizziness (noted in 33 per cent. of the series) that is often severe enough to bring the patient to the physician. Several of our patients were referred for Bárány tests, and the otologist found a "toxic disturbance of the labyrinth." A surprisingly large number of our patients were more or less deaf.

One of the surprises from these statistics is the great frequency with which constipation was encountered; i. e., in 60 per cent. of the cases. Some may say that we have here one of the causes of cholecystitis, but it seems more probable that it is the result of the marked tendency to spasm in the digestive tract which the roentgen ray so often shows us in these cases. It is suggestive also that in several instances the constipation disappeared after the cholecystectomy. Gallbladder disease will have to be thought of as a possible cause when severe constipation with digestive upsets appears in strongly built young men and women.

Attacks of diarrhea were mentioned by a few of the patients (8 per cent.). It may be due in some instances to the achlorhydria which is so common with cholecystitis.

Hemorrhoids were encountered in at least one third of the patients; their presence, therefore, may have some diagnostic value.

Attacks of fever and chills are encountered mainly in the older patients with stones and phlegmonous cholecystitis. Some of the histories in this series show, however, that when fever is present in the earlier stages, the diagnosis between gallbladder disease and a smoldering pulmonary tuberculosis with digestive upsets and a right-sided pleurisy is very difficult or impossible.

A history of typhoid fever was obtained in only seven of our cases. This infection seems to damage the gallbladder to such an extent that other saprophytic organisms, such as the streptococci of the mouth, can get into it and maintain a more or less continuous residence. A history of other infections, such as sinusitis, peritonitis and appendicitis, is much more frequently obtained and is probably very significant from an etiologic standpoint. More than half of these persons had had appendicitis; five had had peritonitis; seven had had repeated attacks of sinusitis; three had had pneumonia; eight had bad teeth. In all, thirty-three out of the sixty gave a history of acute or chronic infections.

A history of pelvic disease, tumors, pus tubes, abortions or retroversion was obtained from 60 per cent. of the women, and many had been operated on. One out of five had, or had had, fibroids of the uterus. These fibroids seem to take the place of multiple pregnancies in predisposing many women to cholecystitis.

Arthritis was complained of more or less in seventeen cases (28 per cent.), and its presence may therefore be suggestive diagnostically.

Four women out of the series had had the right kidney stitched up, with more or less temporary relief. The diagnosis between pain due to cholecystitis and that due to a floating kidney is very difficult because the two conditions so commonly exist side by side. In several cases there seemed to be some relation between the cholecystitis and a right-sided pyelitis.

The family history is of interest because heredity seems often to be a factor in the etiology. It is hard to say much about it, however, because the disease is so common that we must expect to find a good many relatives afflicted with it.

A history of nervousness, nervous breakdowns, and marked depression was obtained in half of our cases. The fact that a number of these persons were cured or greatly helped by the operation should make us wonder how many of our "neurasthenics" and *bêtes noires,* with their attacks of mucous colitis and their dietary phobias, have cholecystitis. It must not make us forget, however, how dangerous it is to promise anything to these people, even when seriously diseased organs are found and removed.

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[2] Alvarez, W. C.: The Syndrome of Mild Reverse Peristalsis, J. A. M. A. **69**: 2018 (Dec. 15) 1917.

THE EXAMINATION

The most important finding is that of a tender liver edge. This was observed in forty cases. It is hard to say why it was absent in some of the patients with stones and fairly acute symptoms. The gallbladder could be palpated only in the severest cases in which a mucocele had developed following closure of the cystic duct. Fourteen had more or less heart trouble. Some of it was associated with hypertension, but a good deal of it was due probably to the infection arising in the biliary tract. In one case, that of a powerfully built young man with *Streptococcus viridans* in the gallbladder wall, the myocarditis cleared up very rapidly after the operation. Pelvic disease must always be looked for, as, when found, it greatly increases the probability that cholecystitis is present.

LABORATORY TESTS

In our opinion, the Meltzer-Lyon diagnostic test has been quite discredited and is not worth spending time on. As will be noted later, the bile was sterile in 71 per cent. of the cases; and it was generally so normal in appearance that its examination would not have helped us toward a diagnosis.

ROENTGEN-RAY EXAMINATION

There would seem to be no reason why a normal or a moderately thickened gallbladder should show on a plate, no matter how well it is taken. Stereoscopic plates were taken with the Bucky Potter diaphragm in forty of our cases. A fairly definite shadow appeared in seventeen, and a somewhat suspicious one in six. In a number of these, this shadow probably did not originate in the gallbladder because that organ was not found to be thickened or visibly diseased at operation. Furthermore, the thickest gallbladder found at operation did not appear clearly on the plates. This shows that one cannot attach great importance to such shadows, even when they appear quite distinctly beside that of the kidney.

In three out of the nineteen cases with "stones," the concretions were so small and mudlike that they could not be expected to show on a plate. In four other cases, stones were not looked for. That leaves twelve cases in which plates were taken and carefully studied. Stone shadows were definite in six, or in 50 per cent., and they were strongly suspected in three of the remaining six cases. To keep us humble, however, the surgeons were unable to find stones in three cases in which the plates showed quite typical shadows. Fortunately, no harm was done, as two of the women had very definite cholecystitis, and the other one was cured of her symptoms by an appendectomy and a uterine suspension.

George and Burnham[3] are finding it very helpful to look for indentations of the barium filled duodenum by the distended gallbladder. It is hard to see why this should generally mean disease in the organ, but they report a large degree of correlation between this finding and that at operation. It must be confessed that the more the senior writer sees at operation of the normal appearing but definitely diseased gallbladder, the more hopeless he feels as to the roentgenologist's ability ever to help us much in diagnosing early cholecystitis, unless he does it by observing changes in the activity of the neighboring stomach and bowel.

To our surprise, we find that gastric stasis is unusual in cholecystitis, and, when present, it suggests some complication such as ulcer or appendicitis. The stomach was empty in six hours in forty-three, or 78 per cent., of the fifty-five cases in which we could see no such complication. Some of the six hour residues observed seemed to be due to the peculiar antral spasm which was seen in nearly a third of the cases. Cardiospasm and regurgitation of material up the esophagus were also seen in just a third of the cases. In one case it was so severe as to stop all swallowing, and after five days the patient was driven to operation. Puckerings of the stomach and duodenum, suggesting adhesions, were found in 17 per cent., but were not always confirmed at operation. Similarly, adhesions were noted sometimes at operation when the roentgen ray showed no sign of them. It was surprising to find marked ileac stasis in 62 per cent. of the cases.

The spasmodic contractions seen here and there in the tract with the roentgen ray may be due to a spread of nervous stimuli, or perhaps to an actual infection of the muscle layers in the stomach and bowel. They may persist, disappear and return, or develop de novo after the removal of the gallbladder.

The roentgen ray is often very helpful, not because it shows the diseased gallbladder, but because it rules out other diseases of the digestive tract.

In a few cases the large size of the liver shadow prepared us for the finding of marked inflammatory changes in that organ, and warned us against giving too hopeful a prognosis.

THE FINDINGS AT OPERATION

Gross disease of the gallbladder, definite adhesions to it, and stones were found in 64 per cent. of the cases. In the others, the gallbladder had to be removed, mainly or entirely, on the strength of the history. In most cases, however, certain suspicious signs were present. Enlarged glands on the cystic duct were found in more than 60 per cent. A few were removed and found to contain pathogenic organisms. More or less marked signs of cirrhosis of the liver or of perihepatitis were found in a great many of the cases. White patches and lines radiating out from the gallbladder notch are sometimes very striking, and are due probably to repeated attacks of local inflammation, not severe enough to produce lasting adhesions of the bowel to the liver and gallbladder. Pancreatic enlargement and hardening, or pancreatic cancer, was found in only a few. Duodenal ulceration brought the patient to the table in three cases, and was a complication in a fourth. We believe now that the failure to remove a badly diseased but harmless looking gallbladder may account for many of the poor results obtained after gastro-enterostomies in these cases.

In every case a cholecystectomy was done, as we feel that a drainage operation is seldom justified, either theoretically or pragmatically.

CULTURES OF THE GALLBLADDER AND BILE

The types of bacteria found are listed in the accompanying table.

Pieces of the wall were ground with sterile sand, and the triturates were inoculated into Avery tubes and streaked on blood agar plates.

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[3] Burnham, M. P.: Am. J. Roentgenol. **10**: 105 (Feb.) 1923.

It will be seen that the wall is much more often infected than the bile. The difference would probably have been even more striking if the bile had been removed before the gallbladder was seized by the surgeon and crushed here and there by hemostats. The percentage of infected gallbladders is higher among those with stones than in those without. It is also highest in those cases presenting the severest and most acute symptoms. Only one woman had bacteria in the bile and not in the wall. It was hard to understand sometimes why markedly diseased gallbladders were sterile. Possibly, however, if the patients had been operated on during a period of exacerbation, bacteria would have been found in profusion.

The infection of the wall and not of the bile agrees with the finding of the pathologists that the mucous membrane is generally normal in appearance, and that most of the accumulations of lymphocytes are in the muscle or in the subserosa. It agrees also with the view of Meyer [4] and others that the infection generally arrives by way of the blood stream. It is not inconsistent, however, with Graham and Peterman's [5] idea that it often comes by way of the lymphatics from foci of disease elsewhere in the abdomen.

PATHOLOGIC REPORTS

Thirty-seven of the more questionable gallbladders were sectioned. More or less marked histologic changes were found in seventeen; a mild cholecystitis was diagnosed in nineteen, and a negative report was returned in one.

Fortunately, in that case a fine result was obtained, as the result probably of the removal of the appendix and two old pus tubes.

The striking thing in these reports is the fact that a gallbladder can remain almost unchanged after forty years of infection and stone formation. Many a time during the earlier stages of this study, if the senior writer had not found stones and had not cured his patients, he would have been inclined, after receiving Dr. Rusk's report, to blame himself for having removed a normal gallbladder. For instance, Mrs. B., aged 44, had suffered from early childhood with attacks of abdominal pain, jaundice and other typical symptoms. Life for years had been almost unbearable. A thin walled, normal appearing gallbladder was removed. It contained five stones, and here and there were a few strawberry-seed markings on the mucosa. The wall contained *Staphylococcus albus*. The after-result was excellent. Dr. Rusk reported: "The epithelium shows no change. In a few areas there is slight hyalinization but no fibrosis of the subepithelial tissue; a few small focal accumulations of lymphocytes and occasional plasma cells are seen. There is no fibrosis or hypertrophy of the muscularis. The serosa is negative." Many other such cases might be cited to show again how hopeless it is to diagnose even the oldest lesions by roentgenographing the gallbladder, by palpating it, or even by looking at it. If the histologist cannot show changes in the organ, the rest of us will have to depend on the history and on the signs in the upper abdomen suggestive of repeated inflammation there.

RESULTS

The mortality was low (1.7 per cent.). Only one woman died as a result of the operation, and she had a complete volvulus of the bowel, made possible by a peculiar mesentery which had a very limited attachment to the spine. One died within a year from carcinoma of the pancreas; another in about a year from a carcinoma of the hepatic flexure which could not be removed at the time of operation for the gallstones. One man died in about a year from a far advanced cirrhosis of the liver, which was recognized before his cholecystectomy was done. He was not an alcoholic, and the cirrhosis was due apparently to forty years of cholecystitis.

Seventeen are perfectly well or remarkably improved; eighteen are much better; eleven report some improvement, and three are apparently no better. We do not know much about the after-history of four, and three have been operated on too recently for us to know how they will do.

It will be seen, then, that forty-six, or 77 per cent., had reason to be more or less grateful for the operation. Twenty-nine of these still have occasional attacks of flatulence or pain and soreness, especially when they are tired and run down, or when they have respiratory infections. A few still have some gastric stasis and perhaps would have been better off if they had had a gastro-enterostomy or a pyloroplasty done in addition to the cholecystectomy. In one very successful case the surgeon did a pyloroplasty, and in another the patient had to have a gastro-enterostomy a few months after the cholecystectomy.

Bacteria Found in Forty-One Gallbladders from Which Cultures Were Taken

	Wall	Bile
Streptococcus salivarius	3	1
Streptococcus viridans	1	.
Streptococcus unidentified	5	1
Staphylococcus albus	4	1
Staphylococcus aureus	2	.
Staphylococcus hemolyticus	2	2
Bacillus coli	5	3
Gram-negative bacillus	2	2
Gram-positive diplococcus	2	.
Diplococcus	1	1
Diphtheroid bacillus	1	1
Growth in	26	12
No growth in	15	29

The wall was infected in 63 per cent.

The bile was infected in 29 per cent.

In eleven calculous cases: The wall was infected in 82 per cent. The bile was infected in 36 per cent.

In thirty acalculous cases: The wall was infected in 57 per cent. The bile was infected in 27 per cent.

In several instances, more than one organism was obtained from a gallbladder.

In judging of the results, it must be remembered that many of these people are past 55, and severely handicapped by hypertension, myocarditis, menopausal disturbances and other things that must interfere with their return to perfect health.

The more neurotic patients, as one would expect, are still neurotic and occasionally suffer from nervous upsets. We have seen nothing that would suggest that the patient is ever handicapped by the loss of his gallbladder.

COMMENT

If, as seems most probable, cholelithiasis represents a terminal stage of cholecystitis, we should encounter many more acalculous than calculous cases, and that is the writer's experience in the study here reported. Just as we now take pride in diagnosing pulmonary tuberculosis before there is any cough or sputum, we must soon take pride in diagnosing cholecystitis before there are stones, jaundice or typical colic.

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[4] Meyer: J. Infect. Dis. **28**: 456, 1921.

[5] Peterman, M. G.: Surg., Gynec. & Obst. **36**: 522 (April) 1923.

Furthermore, we must recognize that gallbladder disease is a very common gastro-intestinal trouble, more important than duodenal ulcer and chronic appendicitis put together. Fortunately, we can already, with the knowledge at our disposal, make the diagnosis with a fair degree of certainty in many early cases. Often it is well to have the patient return at intervals for observation, especially during the more acute stages of the disease, when the physician may be able to settle the few doubts remaining in his mind by finding liver tenderness, fever or an icteric tint.

There is probably no medical treatment which can be counted on to quiet an inflamed gallbladder, either temporarily or permanently. Diets, medicines and Lyon treatments may seem at times to work miracles; but we have seen many, just as marvelous, appear over night before there was time for any medication. Often the only way in which the physician can convince these people of the need for operation is to refuse to treat them medically. It raises their respect to find that he will not accept money for that which he feels will probably be useless; and they are left with no doubts about the strength of his convictions.

Another difficulty about medical cures is that we never can say when the remissions which are so characteristic of the disease have become permanent. One woman in this series went for twenty years without symptoms from her stones, and then developed such severe trouble that she had to be operated on. Another patient with gallstone colic and jaundice went ten years before he had a return of symptoms.

The big question in the treatment of early cholecystitis is: What chance has the patient of clearing up his infection and keeping it clear? We know that large numbers of people with these infections are forced to operation in later life—but how many of them are? How many clear out the gallbladder just as they clear out their antrums and sinuses after an acute nasal cold; and how many are there who will develop the encysted, shriveled up and apparently harmless gallbladders? Until we can answer these questions, we must wait and watch a number of young people with undoubted cholecystitis to see what they can do for themselves, even though we know that they run the dangers of some day developing cirrhosis of the liver, pancreatitis, myocarditis, arthritis, carcinoma, empyema of the gallbladder, and all the serious complications of cholelithiasis. Most of the younger people will refuse operation any way, no matter how hard we urge it on them, because their troubles are still quite bearable.

Throughout much of this paper we have had to emphasize the fact, abundantly demonstrated, that if the patient is to be cured, the surgeon must often remove a normal appearing gallbladder. Not infrequently, as in the case to be described, the quite pardonable reluctance of the operator to do such a thing leads to much more or less unnecessary surgery.

Mrs. D. began at the age of 12 to have spells of nausea, vomiting, dopiness, epigastric pain and severe headache. A diagnosis of appendicitis was made. At the age of 19, the right kidney was fixed and there was a temporary respite. At the age of 24, during a protracted spell of abdominal pain, fever and stupor, an apparently normal appendix was removed at the senior writer's request. The gallbladder was examined and was thought to be normal. Severe and typical gallbladder colic shortly afterward appeared, often prostrating her for days. At the age of 27, she was opened again for a cholecystectomy, but as the surgeon could not bring himself to remove so normal appearing a gallbladder, he took out instead a cystic ovary. A year later she again had to be opened for gallbladder colic, but again only some pelvic work was done. She had such severe colic ten days later that the surgeon went in immediately and this time, as a compromise, drained the gallbladder. Good health was hers at last for the first time since youth, but after three months the attacks began to come back. When the patient was 30, another surgeon removed the gallbladder, and she has since, for two years, enjoyed excellent health.

In another case in this series the gallbladder looked so normal that even with our convictions on the subject, we might have gone back on our diagnosis if the patient, an intelligent young physician, had not given instructions that the organ was to be removed anyway. This gallbladder proved to be heavily infected with two strains of *Streptococcus viridans;* and the improvement in the patient's health has been most gratifying.

Although we must emphasize these things, we cannot help dreading some of the results which may follow from such teaching. We would insist that early cholecystectomies can be done confidently only when the patient has been studied carefully and extensively. No single test or finding should be relied on in making the diagnosis. Finally, to remain within reasonable bounds, the physician must consult daily with the pathologist, and must follow up his cases to see whether his results justify the decisions made at the operating table.

It must be remembered also that many people have some pain, distress or flatulence after technically successful operations. The senior writer has screened a number of these people and has found a good deal of the same gastric and intestinal spasm that was present before the operation. When we remember that the gallbladder disease is but a part of an infection spreading up through the liver, through the bile ducts, down into the pancreas and probably often into the duodenal wall, the surprising thing is not that some remain uncured, but that so many recover so promptly after removal of the gallbladder alone. It would seem that that part of the biliary tract is the least able to clear itself of infection; and, once removed, the rest of the tissues can put themselves in order. Many of the flare-ups in these people occur after or during colds, when, as Meyer has shown, the liver is engaged in its function of culling circulating bacteria out of the blood and excreting them into the bile.

When at times the senior writer wonders if he is losing his mental balance and diagnosing cholecystitis too often, he derives comfort from the fact that in twelve of the cases in this series, the gallbladder disease was discovered, more or less unexpectedly, at operations for pelvic disease, appendicitis or duodenal ulcer. Certainly, there would seem to be little need for drawing back so long as so many cases are still going undiagnosed. Incidentally, these cases illustrate the great need for a thorough exploration of the abdominal cavity when it is open. The clinician should be there to insist on such a study even when his diagnosis of ulcer, appendicitis or pelvic disease has, at the first glance, been fully confirmed. Fourteen of these men and women had had appendectomies, often with a McBurney incision too small to admit the hand for an exploration. To be sure, a number had been explored, but as the work had been done several years ago we cannot blame the surgeon for having passed the gallbladder by as normal.

SUMMARY

Cholecystitis is a disease which begins in youth, and is first recognized and properly treated in middle or old age. The average duration of symptoms in a series of sixty cases in which operation was performed was 19 years. Presumably, then, those who will be operated on in 1942 are just now entering our offices with their first more or less vague symptoms.

At operation, the gallbladders were often found to be thin-walled and normal in appearance; hence, in order to relieve the patient, the organ had to be removed on the strength of a good history, suggestive physical and roentgen-ray findings, and the presence of large glands on the cystic duct, adhesions in this region and patches of perihepatitis.

Remarkably few histologic changes were found in some gallbladders which contained stones and which had given symptoms for forty years.

Living bacteria were obtained from 82 per cent. of the calculous, and from 57 per cent. of the acalculous, gallbladders.

The infection was found most commonly in the wall, and the histologic changes were generally in the muscle and subserosa. The bile was often sterile (71 per cent.), and normal in appearance.

Surgeons who become enthusiastic over the results of early cholecystectomies will have to check up constantly on their work in order to avoid the danger of removing normal gallbladders.

There are difficulties in deciding for or against operation in the early cases. Unfortunately, there is no medical treatment that will deal with the disease which is located, not in the bile, but deep in the wall of the gallbladder.

The results of removal are generally satisfactory, but many patients have to stay on a cellulose-poor diet, and others develop some of their old symptoms when fatigued or when recovering from colds.

ABSTRACT OF DISCUSSION

DR. **ROLAND CUMMINGS**, Los Angeles: The crux of this subject is "diagnosis." I think we will all agree on the treatment, once we make the diagnosis. Dr. Alvarez has told us how to make a better diagnosis by obtaining a more careful history and by making more careful observations. Unfortunately, the bacteriologic and pathologic study of the gallbladder requires more skill than is within the reach of the average physician. I also think it possible for this paper to do infinite harm. Should the physician permit himself to call the surgeon and have gallbladders removed because the history and physical findings are suggestive of gallbladder disease, he will frequently find that he has become involved in a world of trouble. If, on the other hand, a patient is observed carefully until a diagnosis of gallbladder disease is made beyond a reasonable doubt, surgery will then be the treatment of choice.

DR. **WILLIAM CARPENTER MACCARTHY**, Rochester, Minn.: I want to compliment Dr. Alvarez on his careful study of cases of cholecystitis. However, I feel that after he has seen more cases and studied the associated pathologic conditions, he will not be quite so emphatic on some points. I was led to believe that diagnosis of cholecystitis was a comparatively easy thing—perhaps I was mistaken in the interpretation of his remarks—but the clinical diagnosing of cholecystitis in its early stage is very difficult, and it might be easily confused with appendicitis, duodenitis or duodenal ulcer, gastric ulcer or hepatitis, or many other things. So far as the gross diagnosis from the operation is concerned, that is also frequently very difficult. In a series of 5,000 gallbladders which I studied several years ago, 1.7 per cent. were perfectly normal. The surgeon not infrequently takes out a gallbladder which looks normal but is not normal, but I think he is to be congratulated on the fact that he does not take out more normal gallbladders. I do not believe in removing gallbladders on a history. As to the statement about chronic poisoning from the gallbladder, I would challenge anybody to prove that any toxic condition comes from a pathologic condition in the gallbladder. I do not say that it does not occur, but I should like to see somebody prove it. I want to emphasize what Dr. Alvarez said about diagnosis from the bile. It is absolutely true that even in a pathologic gallbladder the bile frequently does not show abnormality. We cannot distinguish it from normal bile. In that respect I certainly want to agree with Dr. Alvarez. Bacteria do not always occur in the bile when they are present in the gallbladder wall. Achlorhydria, I was perhaps correctly or incorrectly led to believe, is common in cholecystitis. I want to direct attention to this possibility. I believe that achlorhydria is one of the predisposing factors of cholecystitis rather than a secondary thing. We make a great mistake in studying disease from an organic standpoint. We should study the system. Rarely is the disease confined to one organ. The stomach, liver, duodenum, gallbladder and pancreas must be considered as parts of one system. When one of them is diseased, the chances are that all of them are diseased.

DR. **MAX THOREK**, Chicago: Many studies have been made on the effect of cholecystectomy on the biliary tract. In complete removals we find an enlargement of the common duct. That is significant in itself, and that compensatory enlargement suggests that the gallbladder has definite physiologic functions. Therefore, the removal of any organ that has a definite and clear-cut physiologic function should never be attempted, unless there is a definite and absolute pathologic condition indicating that the organ should be removed for reasons that give definite subjective and objective clinical manifestations. I understood Dr. Alvarez to say that he had only 3 per cent. of mistakes on his roentgen-ray findngs in the biliary tract. I wish I could say as much of my results. I frequently find a great many reports of absolutely positive shadows in the gallbladder indicating calculus and find at the operation that I am dealing with an ulcer of the duodenum or pylorus. I wish to make a plea for more conservatism in biliary surgery. I believe that cholecystotomy is getting back to its well merited place. It was significant to me in reading Hans Kehr's work that when he was suffering from biliary trouble he went to Carlsbad to cure himself. So, as far as my patients are concerned, I believe in being conservative; and, although mortality statistics show only a slight increase by cholecystectomy, that slight increase is not justified.

DR. **SEALE HARRIS**, Birmingham, Ala.: Dr. Alvarez brought out a most important point, that the gallbladder is sometimes a focus of infection for other organs. Sometime ago I had a case that brought out this fact quite strikingly. A man came to me with definite symptoms of gallstones. He had arterial hypertension, a systolic pressure of 180, and considerable albumin with casts in his urine. He had been advised that he should not be operated on on account of the kidney condition. I insisted that an operation be performed. The gallstones and gallbladder were removed. The urine cleared up, and the tension was lowered considerably. In this case, the gallbladder was the source of infection for the kidneys. I am of the opinion that the source of infection in gallbladder disease begins in many cases in infancy from ileocolitis, and then from gastro-intestinal disturbances in later years from an improper diet. I think that the same physiologic factors that are present in gallbladder infection are also present in the pancreatitis preceding diabetes. In the treatment of gallbladder disease, in the precalculus stage, the diet is of great importance, and, if carried out properly, the gallbladder infection will subside. I do not think that in the early years of infection the gallbladder should be removed. Among the etiologic factors of gallbladder disease is the present-day diet of white bread, polished rice, lean meats and the excessive use of sugar, a diet containing too much carbohydrates and fats and protein, and too little of vitamins and mineral substances. An improper diet will prepare the way for intestinal infection, and this infection is carried from the intestine into the gallbladder. By giving the proper diet in early years of gallbladder infection I believe the disease will subside without the formation of stones and without operation.

Dr. A. J. Ochsner, Chicago: My personal experience in gallstone surgery reaches back to a time when practically none of these cases came to our hospitals with a diagnosis of gallstones; almost all of them had a diagnosis of intestinal or gastric disturbance, and very few of them, if any, had a diagnosis of gallstones. In Chicago, we drank contaminated water until about twenty-five years ago, and quite a large proportion of the adult population had typhoid at some time. In the last twenty-five years, typhoid infection has been decreased enormously, until at present we have practically no cases in Chicago. Twenty-five years ago, I would have gallstone cases referred to me by other gallstone patients very much more often than by other physicians, because the patient who had gallstones before would know that a friend who had the same symptoms had gallstones.

Dr. F. B. Taylor, San Francisco: Dr. Alvarez had to leave, and he gave a few notes to me that may answer some questions. Dr. Alvarez did not mean to infer that the diagnosis of gallbladder disease was easy in any sense of the word. He favors the most complete sort of examination, and the use of every possible means for diagnosis that can be made, and the recognition as early as possible of the sorts of gallbladders that are apt to keep progressing and to require operation later on. To show that he is not particularly overweening in his views about the diagnosis of gallbladder disease, twelve patients recently were subjected to laparotomy for abdominal disease. Gallbladder trouble was not suspected. In six of these cases, disease of the gallbladder was found. He does not subscribe to that sort of teaching which is apt to lead to ruthless or unjustified removal of the gallbladder. I can say this, too: That for many months and years he has observed cholecystitis in patients before he will permit operation, even if the patients are rather anxious for it. But when, for example, a patient has been treated medically for years without success and is then definitely relieved by removal of the gallbladder, it becomes important to save those years of discomfort for the next patient, if possible.

THERAPEUTIC VALUE OF TRANSUTERINE GAS INFLATION [*]

REUBEN PETERSON, M.D.
AND
ROLAND S. CRON, M.D.
ANN ARBOR, MICH.

The injection of carbon dioxid gas under pressure through the uterus to determine the patency of the fallopian tubes has been employed rather extensively in the gynecologic clinic of the University of Michigan for the last three years. During this period the Rubin test, with some modifications, has been used, since it was thought to be the best method of controlling the flow of gas, regulating its pressure and estimating the amount of gas passed through the uterus and fallopian tubes into the peritoneal cavity.

Not only was the Rubin technic employed to determine the patency of the tubes, but it was the method of choice for the introduction of sufficient gas into the peritoneal cavity to allow the taking of satisfactory roentgenograms whereby pathologic changes in the pelvis could be carefully studied. If, under suitable pressure and after repeated attempts, the gas failed to pass by the transuterine route, usually films for study and diagnosis were obtained after pneumoperitoneum had been produced by the transperitoneal method.

A number of patients examined for sterility by the Rubin test in whom the gas had been forced through the tubes reported that pregnancy had followed without change of other conditions present during the time they had been desirous of children. This led us to send follow-up letters to all women in whom gas had been successfully forced through the tubes, omitting, naturally, those cases in which our investigations had shown that the husbands were the cause of the sterility.

Table 1.—*Pregnancies in Thirteen Cases*

Relative Sterility (Four)		Absolute Sterility (Nine)	
Years Since Last Conception	Number of Cases	Years Since Marriage	Number of Cases
5	1	1	1
6	1	2	2
7	1	2½	2
8	1	3	1
		4	2
		7	1

Answers were received from thirty-six of the forty-seven women written to. All of these women were married and desirous of children; in fact, the chief complaint on applying to the clinic was that they were unable to bear children at that particular time.

Thirty of these women had never been pregnant and were therefore considered absolutely or primarily sterile. The remaining six had conceived some time earlier in their married lives and were therefore relatively or secondarily sterile. Three had given birth to full-term children, while the other three had aborted when either two or three months pregnant.

At varying intervals following the Rubin test, thirteen, or slightly more than one third of these thirty-six women, became pregnant. Conception occurred in four who had previously conceived in their early marital lives. Two had had abortions, while the other two were delivered of full-term infants. The remaining nine had never conceived. Since four of the six women who were relatively sterile became pregnant after the passage of gas through the tubes, while only nine of the thirty who were absolutely sterile conceived after the gas inflation, it follows that something more than the mere passage of the gas and the mechanical opening of the tubes must be considered in trying to ascertain the reason for the relatively higher percentage of pregnancies in those women who had previously conceived.

The pregnancies in ten of these women went to full term, while three resulted in spontaneous abortion at the third month. One of these abortions occurred in a patient who had been relatively sterile for seven years.

One of the questions found necessary to consider was the length of time after marriage in the primarily sterile women, and the interval since the last pregnancy in the secondarily sterile women, before they consulted us for the relief of their barrenness. The twenty-three who did not become pregnant had not conceived for from one to eighteen years. Four had been sterile from one to two years, while twenty had not brought forth offspring from three to eighteen years. The largest number, six, had been living a normal sexual life for three years without conception. It is interesting to note that of the thirteen women who became pregnant after the gas inflation, five successfully conceived during the first or second years of marriage.

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[*] From the Department of Obstetrics and Gynecology, University of Michigan Medical School.

[*] Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

The other eight had not been fruitful from three to eight years before reporting to the clinic. This is well illustrated by Table 1.

It is generally accepted that the most fruitful period is the first five years of marital life. Thus, we see that, after the passage of the gas, more than one half of these women conceived during a similar period.

Naturally, sterility groups must be studied as to the age at which the individual women apply for diagnosis and treatment, since after a certain age conception is less likely to occur. Under any form of treatment, the chances of conception in women of 40 would be much less than in women of 25.

The same treatment, transuterine gas inflation, was applied in the thirty-six cases. The ages of the group in which conception occurred varied from 21 to 38 years, an average of $26\frac{11}{12}$ years. The average of the twenty-four women who did not become pregnant after the passage of the gas was $29\frac{3}{4}$ years, the ages varying from 20 to 40 years. Hence we may conclude that, of a given group of sterile women in whom gas is forced through the tubes, the younger the woman the greater will be her chance of conceiving.

We realize that a certain proportion of the women subjected to the gas test might have conceived had such a test not been made; for a woman exposed to pregnancy for one or two years is not necessarily sterile if conception does not take place during these periods. We are setting forth the facts as we found them in a given number of women who came to the clinic complaining of sterility. Pregnancy followed the routine investigation of the cause of the complaint for which they sought relief. Certainly, past experience would not lead us to expect that any such number of pregnancies would have followed mere bimanual examination and advice to report at a later date. All but three of this group of thirteen became pregnant within six months after the inflation. Five had only one normal menstrual period, and then in due time gave birth to infants. In general, we can say that the shorter the period of sterility the more quickly pregnancy supervened. This is shown by Table 2.

TABLE 2.—*Arrangement According to Time of Conception*

Duration of Sterility	Time of Conception Following Inflation
1 year	1 month
1½ years	1 month
3 years	1 month
4 years	1 month
5 years	1 month
7 years	2 months
1½ years	3 months
2 years	4 months
2 years	5 months
1 year	6 months
4 years	10 months
7 years	1 year
8 years	1⅓ years

It should be added that none of the patients becoming pregnant were operated on after the inflation, no treatment was instituted, and no advice was given other than to wait for developments.

On investigating the possible cause for the barrenness in both the pregnant and nonpregnant women, we discovered that, proportionate to the number in each group, there were more women with normal generative organs in the group who became pregnant. The preponderant lesion in both groups was a unilateral or bilateral salpingo-oophoritis. This can best be illustrated by Table 3.

In both the group of women who became pregnant following the gas inflation and in those who were not so fortunate, there were pelvic lesions which are commonly supposed to be factors in preventing conception. However, the fact that, without any treatment, certain women with such pelvic lesions conceived after examination by gas inflation would lead to the consideration of the possibility of the mere passage of the gas through the tube or tubes being a factor in the results.

As has been mentioned, the Rubin apparatus and technic, with certain modifications set forth elsewhere, have been used from the very beginning in the clinic.

TABLE 3.—*Abnormalities*

Pregnancy Cases		Nonpregnancy Cases	
Salpingo-oophoritis, bilateral or unilateral	5	Salpingo-oophoritis, bilateral or unilateral	8
Normal pelvis	3	Normal pelvis	5
Normal pelvis except for erosion and endocervicitis	2	Normal pelvis except for erosion and endocervicitis	4
Normal pelvis except for bilateral laceration	1	Salpingo-oophoritis with diseased cervix	3
Normal pelvis except for excessive and markedly acid vaginal and cervical secretion	1	Acute anteflexion	1
Complete retrodisplacement with relaxed outlet and bilateral laceration	1	Infantile uterus	1
		Complete retrodisplacement	1
Total	13	Total	23

Carbon dioxid gas under pressure, with its outflow regulated by reducing and needle valves, has been employed in all of the sterility cases used in this report. It has been found by experience that the rate of flow of gas through the inverted siphon flow meter must not exceed four pulsations a minute, and that it is better to begin the inflation with the rate of two pulsations a minute. This is because the permeability of the tubes to the gas is judged by manometer readings when more than two pulsations a minute are employed; that is, when the apparatus is so set that more than 60 c.c. of gas is being forced under pressure through the cannula each minute, the manometer reading may rise rapidly to 200 mm. of mercury, the danger point. When the connection is broken, the gas ceases to flow and the manometer reading returns to zero. It is judged that the tubes are closed when, in reality, there is another explanation. The sudden rise of the manometer is due to a volume of gas being forced into the uterine cavity more rapidly than the lumina of the tubes can care for it, and as a result the back pressure registered on the manometer is in excess of what it actually is in the tubes. Therefore, it is most important that an apparatus such as that designed by Rubin be utilized for regulating and measuring the amount of gas escaping from the carbon dioxid tank. It is interesting to note that one of our earliest sterility patients who afterward became pregnant, was thought to have nonpatent tubes because, with four pulsations a minute, the spring manometer registered a pressure of 200 mm. of mercury during repeated attempts to pass the gas. Accordingly, the use of the hand syringe, such as the ear-bulb and Luer syringe, is unsatisfactory, since, with both, the amount and rate of flow cannot be accurately judged. It has also been our experience that the spring manometer is not as accurate and, on the whole, not as satisfactory as the mercury instrument.

Recently, various writers have advocated the substitution of oxygen or air for carbon dioxid. During our experimental days with pneumoperitoneum of the pelvic cavity, both were used in the clinic but were early abandoned, and carbon dioxid alone has now been in use for two and one-half years.

The criteria on which the patency of the tubes is based are four: (1) a manometer reading below 200 mm. of mercury; (2) the sound of the gas passing through the tubes, detected by auscultation over the symphysis; (3) pain in the upper abdomen when the patient is in the sitting posture, and (4) roentgenography or fluoroscopy.

During the transuterine inflation, patients occasionally complain of more or less distress in the lower abdomen. This is especially true of those women with chronic inflammation about the appendages. It has commonly been our observation that the discomfort or pain is in proportion to the amount of pelvic inflammation. The more serious and extensive the lesion, the more distressing is the introduction of the gas. As yet, it has not been possible to associate the location or type of pain with any particular kind of pathologic change.

There is still another type of pain after gas inflation, when the patient is placed in the sitting or Fowler's position, which is pathognomonic of the patency of the tubes. It is the result of the establishment of a subphrenic pneumoperitoneum and is located most commonly in the right shoulder, occasionally in the left and frequently in both shoulders as well as the upper abdomen. In character, it resembles the pain caused by the passage of gallstones, but disappears as soon as the patient resumes the recumbent position. In arriving at a diagnosis of the patency or nonpatency of the tubes, this symptom is always sought for.

It has not been necessary to use the fluoroscope to determine the presence of gas in the pelvic cavity. We do, however, take stereoscopic roentgenographic films of the pelvic organs whenever there is a doubt about their condition. Roentgenograms were made of the uterus, tubes and ovaries in nine of the pregnancy and fifteen of the nonpregnancy cases, the gas being introduced through the tubes. This was merely an added proof that the oviducts were permeable, besides furnishing us with a picture of the pelvic organs.

The question is often asked, What will happen if, by mistake, a transuterine inflation is done in the presence of a normal intra-uterine pregnancy? Will the inflation terminate the pregnancy? In two women from six to eight weeks' pregnant, as a result of mistaken diagnosis, the Rubin test was carried out. In neither of them was there any bleeding or uterine contractions following the passage of the gas. Both were eventually delivered of normal, full-term children. The gas was undoubtedly forced around the decidua and out through the tube or tubes without damaging the uterine contents seriously enough to bring on an abortion. Other observers have had a similar experience.

In order to determine the way the gas passed through the tubes, the latter were observed in quite a few patients through the median laparotomy incision, after the flow of gas was started through the uterus with the ordinary transuterine technic. It may be well to state that all this work was carried out under the strictest asepsis. The field of operation was prepared with 5 per cent. picric acid. When the experiment was combined with an abdominal section, the wound edges were well protected by gauze, and the intestines as well as the other abdominal organs carefully packed off. No inflation was done in the presence of a purulent vaginal or uterine discharge, and never when there was any suspicion of an acute inflammation of the pelvic organs. In other words, every precaution was taken not to allow our scientific zeal to increase the chances of sepsis for our patients.

With the Keyes-Ultzmann cannula in the cervix and the abdomen open, the gas test was done on both obstructed and unobstructed tubes according to the prescribed technic. That gas was issuing from the tubes was determined by filling the posterior culdesac with physiologic sodium chlorid solution and then watching for bubbles to appear at the fimbriated extremities. It was found that in unobstructed tubes a bubble or bubbles arose during the first attempt, usually at a low pressure. In the case of obstructed tubes, the findings were quite different. In these, the gas, depending on the type and location of the obstruction, either did not pass at all or only at a high pressure, and frequently only after repeated attempts.

The fallopian tubes may be divided for the present purposes into two portions: the isthmus or narrow portion of the tube, which begins just outside the uterus and runs through that organ, and the larger portion or ampulla, which ends with the ostium abdominale surrounded by the fimbriae. Under normal conditions, it is extremely difficult to pass the finest bougie or straw bristle through the isthmic portion of the tube into the uterus. The same difficulty is noted when the Curtis method of determining the patency of the tube is employed. When air is injected with a Luer syringe through the infundibulum, the tube distends down to the beginning of the isthmic portion. A hasty conclusion might be reached that the tube at this point is impermeable; but that such is not the case is shown by the passage of the gas through the isthmic portion when the distended ampullar portion of the tube is milked toward the uterus. With the abdomen open, one is in a position to judge whether gas passes through the tubes or not, since a single bubble of gas issuing from either fimbriated extremity is easily detected.

Under low pressure, when the gas was introduced slowly through uteri and tubes without an inflammatory history, it was our experience to find that the gas passed readily, as demonstrated by the continuous stream of bubbles issuing through each fimbriated extremity. The manometer readings when the gas passed under these circumstances were low, usually not going above 80 mm. of mercury.

When there was a distinct history of uterine and tubal inflammation, even though the tubes were not closed at their extremities or macroscopically enlarged, a number of cases were observed through the abdominal incision in which the pressure had to be raised to 200 mm. or over before the resistance at the isthmic portion of the tube could be overcome. That the obstruction to the flow of gas must have been at this portion of the tube is shown by the fact that the fimbriated extremity was open and allowed the passage of an ordinary surgical probe down to the beginning of the isthmic portion of the tube. To ordinary pressures, namely, from 150 to 200 mm. of mercury, these tubes were impermeable to gases. When, however, the pressure was reasonably elevated, the apparent obstruction was overcome and the gas appeared at one or the other fimbriated extremity.

This apparent closure may be due to various conditions present in that portion of the tube. It may be the result of an accumulation of mucus resulting in a plugging of the lumen of the tube; but this can hardly be the case, since no such plug has ever been seen during the microscopic examination of thousands of tubes. Kinking of the tube at this point has been suggested as a possible cause of the lack of patency to the carbon dioxid; but, since the tube is practically straight in this region, it cannot be considered a satisfactory explanation.

In the ampullar portion of the tube, the tortuosity of the oviduct may possibly prevent the ready passage of the gas. Hypertrophy of the mucosa, with polyp formation acting as a ball valve, has been suggested as the reason for the gas passing through the same tube at varying pressures. This is a comparatively rare finding in microscopic preparations but is within the range of possibility. The most logical explanation of isthmic obstruction is that it is the result of chronic infection. The infection causes an inflammation of the submucosa and muscularis resulting in fibrous tissue proliferation, with a resultant narrowing of the lumen of the tube. This has actually been observed in serial sections of microscopic preparations. The narrowing at times is so marked that the lumen is reduced from one-fifth to one-twentieth its normal size. The lumen of the tube is narrowed by atrophic changes due to the menopause. Such atrophic tubes are quite analogous, so far as the passage of gas is concerned, to tubes whose lumina are narrowed by inflammatory changes.

This was strikingly shown in one experiment on a rather large uterus which had to be removed vaginally from a woman past the menopause, for the cure of an extensive prolapse. A probe was passed without difficulty down to the isthmic portion of the tubes, demonstrating that there existed in the ampullar portion of the tubes no obstruction to the passage of the gas. The latter could not be forced through the tubes at the ordinary pressure, 200 mm. of mercury. Bubbles of gas did appear at one fimbriated extremity, however, when the pressure was raised to 300 mm. of mercury. Microscopic examination of the isthmic portions of the tubes showed the usual narrowing of the lumina but no closure of any portion, although serial sections were made.

In fact, it may be stated that neither Drs. Warthin nor Weller of the University of Michigan Pathological Laboratory has ever seen, in many thousands of tubal microscopic sections, a complete closure of a tube except at the fimbriated extremity when the atresia is due to a different mechanism.

Since we have failed to demonstrate closure of the isthmic portion of the tubes, it would be better to refer to impermeability in these regions as an obstruction rather than an atresia. The difficulty, of course, lies in our inability with present procedures to determine, by the manometer readings, whether we are dealing with an obstruction due to narrowing of the isthmic portion of the tube due to inflammation or to some other cause, or whether the gas fails to pass on account of closed fimbriated extremities.

Probably the most common cause of complete tubal obstruction arises from occlusion of the fimbriated extremities of the tubes, the result of inflammation, usually of gonorrheal origin. These sealed, club-shaped ends of the tubes absolutely prevent the ova from finding their way to the uterine cavity, although the lumen of the tube may not be so obstructed as to bar the upward passage of the spermatozoa.

In a certain proportion of cases, the ostium abdominale of the infundibulum is not closed by the inflammatory process, but is shut off by adhesions surrounding the structures. It has been our good fortune in some of our experiments, when the gas pressure was raised to 200 mm. of mercury or above this point, to observe the process whereby the tubes became once more patent. The gas is expelled either by a separation of the adhesions or by rupture of the infundibulum. It is interesting to note that this does not always occur during the first attempt, but only after repeated elevations to a maximum pressure, and occasionally at a pressure lower than the maximum used in the particular case. When rupture occurs, it takes place at the weakest point in the tube. That point we have found to be about 1 cm. from the closed fimbriae. The opening is small, but enlarges with the continual escape of gas. In more than one case, gas escaped through one or both fimbriated extremities when adhesions were released and the tubes lifted to a higher level.

We are willing to advance the premise that in many cases the narrowed lumen of the isthmus is occasionally dilated sufficiently in obstructed oviducts to permit the upward progress of the spermatozoa; and in other tubes we feel that occasionally the fimbriae of mildly adherent tubes are separated or new openings established so that ova may gain access to an otherwise closed ampulla. With that possibility in view, would it not be advisable, when necessary, to raise the pressure in the uterus and tubes higher than our previously accepted danger point of 200 mm. of mercury?

The only possible danger to the patient from the use of gas inflation is the introduction into the peritoneal cavity of infected blood or septic material from the uterus or tubes. This can actually occur, since we have seen blood which had collected in the uterine cavity following a curettage or injury to the endometrium forced through the tubes at pressures ranging from 60 to 200 mm. of mercury. If, however, the indications and contraindications for this method of diagnosis and therapy as laid down in previous communications are observed, no such complications will arise. The fear that gas may be forced through the tubal wall into the vessels of the broad ligament would seem unfounded, as shown by clinical experience and by our experiments. While we have never used gas pressure above 250 mm. in our tests, the pressure has been raised to 300 mm. of mercury with the abdomen open. In every instance the rupture occurred, not into the broad ligament, but through the thinner infundibular wall. When rupture of the tube does follow the forcing of the gas through the tubes, we have never observed any appreciable hemorrhage as a result. Either adhesions separate, or rupture occurs in the most avascular area.

Roentgenograms of the pelvic organs have occasionally shown the uterus distended with gas. The uteri in these cases were somewhat atonic, and so in the presence of a spastic internal os it has been possible to introduce from 10 to 20 c.c. without forcing the gas through the oviducts. Also, we have seen the gas introduced at the time of the inflation remain in the uterus and be expelled in moderate amounts through a resected uterine cornu. In view of these findings and others, we feel that we have proved both clinically and experimentally that it is most essential to use for diagnosis and treatment of tubal sterility an apparatus that will accurately measure the amount and register the pressure at which gas is being forced through the uterus and tubes, and that an ear-bulb or Luer syringe is less efficient than the apparatus designed by Rubin.

We desire to mention results obtained in a comparatively small group of women who complained of painful menstruation in addition to their sterility. Twenty-four such women answered questionnaires relative to their relief from this symptom following gas inflation. Of these, twelve were immediately improved or cured and have remained so since the inflation. In eight, the relief has been permanent, after from eight to eighteen months. Three women reported that their periods were even more painful after the inflation, but it is interesting to note that two of the latter became pregnant.

No explanation is offered as to why these patients were relieved. Possibly it is due to a stretching of the uterine cavity; but this is hardly probable, since the relief is of much longer duration than is secured by the usual method of uterine dilation. In those women with adhesions about the appendages, the benefit derived from the inflation may follow a stretching of the adhesions. This, however, does not explain the method of relief in those women with apparently normal pelvic organs. It has been suggested that a tubal dilation occurs and that the enlarged lumen permits the expulsion of the increased tubal secretions incident to menstruation. Perhaps further observation may furnish the clue to the correct explanation.

The cases of relief from dysmenorrhea have been too few to warrant the drawing of any conclusions; but the relief has been so marked following the gas inflation that we are using it deliberately for the relief of this symptom alone. From hundreds of cases of transuterine gas inflation we are convinced that the method is without danger, if certain precautions are taken in the selection of cases. It is a far simpler procedure than uterine dilation or the insertion of a uterine stem. In fact, we are using it constantly in the office as well as in the clinic, and hope to report our results at a later date.

ABSTRACT OF DISCUSSION

Dr. J. W. Sherrick, Oakland, Calif.: I have utilized the Rubin technic of transuterine inflation to determine the patency of the fallopian tubes in several hundred cases, partly as a means of diagnosing the condition of the tubes in sterility cases and partly to aid in the diagnosis of questionable pathologic changes in the pelvis. I have been enthusiastic about this procedure as a therapeutic measure in overcoming mild obstruction of the tubes in sterile women; but, contrary to expectations the results have not been nearly so striking as those reported by the authors. My associate, Dr. Loomis, has recently analyzed 150 consecutive cases of sterilty, but in only two cases which proved treatable, and the women became pregnant, could we feel reasonably certain that conception occurred as a direct result of the passing of carbon dioxid gas through the tubes. The high percentage of successes in the series presented is very gratifying, and would lead one to the opinion that this method is either much more useful as a therapeutic measure than has seemed the case in our series, or else the authors have been unusually fortunate. I feel certain that if they could have followed up all their cases and could have instituted necessary procedures to correct other pathologic conditions present, their percentage of fertility would have been materially raised. In our series, of the women who were adequately treated, 52 per cent. have become pregnant, but in these cases every resource of treatment was utilized. It would seem that, as a therapeutic measure, this procedure offers a higher percentage of results in the relatively sterile cases, as shown by the four positive results out of six cases so treated. The time interval at which our patients became pregnant after treatment averages four and nine-tenths months, which corresponds closely with the series just shown. Likewise the age limits of our patients is practically the same, being about 28 and 29 years. A study of the pathology shows that many of these lesions are treatable and offer a favorable prognosis for a successful pregnancy. In our series there were fifteen women with salpingo-oophoritis. In five a successful inflation was accomplished, but none of these women became pregnant; three could not be inflated successfully, owing to the extent of the pathologic changes, and two became pregnant as a result of abdominal section. The eroded and infected cervix, the acutely anteflexed uterus with its concomitant thick tenacious cervical mucous plug, and the retrodisplacement are all amenable to treatment with a fair prognosis of success in a certain percentage. The explanation offered as to the failure of gas to pass seems absolutely correct; namely, closure of the fimbriated extremity or an inflammatory lesion with fibrosis of the uterine wall about the interstitial portion of the tube.

Dr. Roland S. Cron, Ann Arbor, Mich.: I was greatly interested in Dr. Sherrick's data in regard to the other treatment that might be used in addition to transuterine gas inflation. The point we wished to bring out was the value of this method of treatment or diagnosis. None of these women were treated for their sterility. They came to the clinic for diagnosis, and in the course of the examination, transuterine gas inflation was used. It is interesting that nothing more was done than the method of diagnosis, and that pregnancy supervened; in other words, it seemed to us distinct proof that the gas inflation was the factor that brought about the later conception.

RETRODISPLACEMENT OF THE UTERUS FOLLOWING CHILDBIRTH

A STUDY OF THE DEVELOPMENT OF ITS SYMPTOMS *

FRANK W. LYNCH, M.D.
SAN FRANCISCO

A year ago, Stacy [1] reported the finding of congenital uterine retropositions without other pelvic disorders in 20.2 per cent. of 1,000 virgin adult women. About the same time, I [2] reported retrodisplacement during the year after labor in 41.4 per cent. of 1,230 women. The two series were studied together with normal controls. For purposes of discussion, I may state that uterine retrodisplacement results from some trauma of labor in more than 20 per cent. of cases, since some, at least, of the congenital cases are likely to be sterile.

Aside from a larger proportion of menstrual disturbances than that seen in the normal controls, there were no symptoms in Stacy's series. Pelvic symptoms apparently intimately related to the displacement brought 20 per cent. of my series back to the clinic.

Hoping to come closer to facts, I have continued the study, and now present data obtained from a series of 459 displacements after parturition. All displacements were of the second or third degree. I have classed as pelvic symptoms bearing down sensations, or a feeling of pressure in the pelvis, sacral backache not dependent on sacro-iliac luxations, marked dysmenorrhea, and the metrorrhagias and menorrhagias, and urinary disturbances which disappeared immediately following the correction of the displacement. The cases were followed from six weeks after the patient's discharge from the hospital to various periods up to seven and one half years. One fourth the number, or 115 cases, have been followed three or more years.

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* From the Department of Obstetrics and Gynecology, University of California Medical School.

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[1] Stacy, L. J.: Anteposition and Retroposition of the Uterus: Incidence and Symptoms, J. A. M. A. **79**: 793 (Sept. 2) 1922.

[2] Lynch, F. W.: Retroversions of the Uterus Following Delivery, Am. J. Obst. & Gynec. **4**: 362 (Oct.) 1922.

SYMPTOMS IN FOUR HUNDRED AND FIFTY-NINE RETRODISPLACEMENTS

Much to my surprise I found that more than one half (236 cases, or 51.3 per cent.) of the 459 cases presented pelvic symptoms at some period during the follow up. This contrasts with the former series of 505 cases, 32 per cent. of which presented pelvic symptoms when the patients first returned to the clinic after labor. The control cases presented 10.3 per cent. symptoms. The marked difference between the two percentages suggested other points for investigation. I found that in approximately two thirds (68 per cent.) of the whole series, the only apparent pathologic change was the retrodisplacement, while in the remaining third (32 per cent.), there was, in addition, some type of vaginal relaxation, such as some combination of cystocele, rectocele and cervical lacerations, or prolapsed and enlarged ovaries. I shall term the two divisions "retrodisplacements only" and "retrodisplacements plus." Forty-two per cent. of the 310 retrodisplacements only cases presented symptoms at some time in their follow up. In the 149 cases of retrodisplacements plus, the symptoms reached the high point of 71.5 per cent. This difference at least shows that one who would investigate the meaning of retrodisplacements must study only uncomplicated cases, since the associated pathologic conditions in parous women account for many symptoms and are responsible for a considerable number of operations. Thus, 11.5 per cent. (fifteen cases) of the 130 retrodisplacements only with symptoms came to operation, while 22.1 per cent. (thirty-three cases) of the retrodisplacements plus with symptoms were treated in the same manner.

TABLE 1.—*Follow Up of Four Hundred and Fifty-Nine Retrodisplacements*

Years	Number of Cases
Less than 1	178
From 1 to 2	100
2 to 3	66
3 to 4	38
4 to 5	24
5 to 6	22
6 to 7	20
7 to 7½	11

ONE HUNDRED AND THIRTY RETRODISPLACEMENTS ONLY WITH SYMPTOMS

It seems logical to limit our study to the group of retrodisplacements only with symptoms, if we would know the sequelae of retroflexions and versions after delivery. Little can be learned by a study of retrodisplacements only without symptoms, since the cases of this group do not long remain under observation. I have followed the 130 retrodisplacements only with symptoms to show the time of the development of the symptoms.

Admitting that the 60 per cent. of symptoms during the first four months are due chiefly to subinvolution, there still remain many cases for careful consideration. Thirty-nine of the women of this series had other pregnancies which were the basis for some of the late symptoms. In the great majority of the remainder, the symptoms seemed intimately associated with the displacement.

Of the 130 retrodisplacements only with symptoms, 100 were followed for from one to more than seven years. Seventy-four of the 130 had been cured by means of a pessary. There were forty-six in whom treatment with a pessary had failed. Fifteen of the latter were lost to view after from two to four years of intermittent treatment. The remaining thirty-one include fifteen cases in which operation was performed, and sixteen others that are still under observation.

The degree and character of the symptoms in the cases in which treatment with a pessary failed merit discussion. Quite naturally, the symptoms were fairly slight in most of the women who abandoned the treatment. There were three of the fifteen patients, however, who had rather compelling symptoms and who were offered but refused operation. One of these was known to have a congenital displacement without symptoms until after labor. Her mother and her married, but nulliparous, sister also had retroflexions.

The sixteen remaining patients who were not cured by a pessary are still under observation. Four patients have only slight symptoms. Eight have symptoms which are gradually increasing. Four have considerable complaint and are planning for operation. It is worthy of comment that we have had under observation for more than three and a half years eleven of the twelve patients with marked symptoms, or with symptoms that are gradually increasing, in all of whom symptoms were late in developing.

During the treatment of the 130 cases of retropositions only with symptoms, I made several observations worthy of discussion. Chief of these was the fact that the symptoms which had been relieved when the uterus was in place tended to recur with the return of the third degree of retroposition. In thirty-four cases, the symptoms returned after the removal of the pessary and the recurrence of the malposition. The symptoms came back within a week or two in twenty-two cases, within the second month in five cases, and during the third month in seven cases, usually after straining or lifting. The seven cases up to that time had been regarded as having been cured by the pessary. We should carefully distinguish between this group and the series in which the uterus prolapses over the pessary, since symptoms in the latter series may develop purely from the pressure of the pessary.

TABLE 2.—*Development of Symptoms in One Hundred and Thirty Retrodisplacements Following Parturition*

	Number of Cases	Per Cent.
From 6 to 8 weeks	35	60
8 to 12 weeks	30	
12 to 16 weeks	13	
4 to 5 months	8	16
5 to 6 months	6	
6 to 7 months	7	
7 to 8 months	4	9.3
8 to 9 months	4	
9 to 10 months	4	
10 to 11 months	4	6
11 to 12 months	4	
1 to 2 years	4	8.5
2 to 3 years	2	
3 to 4 years	2	
4 to 5 years	2	
5 and more years	1	

During the review of the series of 459 cases, I have found a considerable group in which the uterus is sometimes anteposed but more often is in retroposition (hypermobile uteri). When retroposed for a long period, they frequently present symptoms which disappear when the uterus is put in a forward position. These cases probably constitute the simplest type of retroposition. They must result from a very slight fascial injury to the uterine parametrial supports during labor, just enough to permit an appreciable sagging. A displacement occurs during greatly increased abdominal tension. The uterus in those cases has not yet lost its power to return to the upright position.

CONGENITAL RETROPOSITIONS

Much interest centers in the behavior of the congenital retropositions which Polak[3] and Stacy have shown to be present in 20 per cent. of unmarried normal women. Most of them are recognized by their behavior when a pessary has been applied. It is usually difficult to bring this type of uterus forward and hold it in anteposition. Gas anesthesia is often necessary. Moreover, the malpositions usually recur promptly. My assistants recognize the group by the shape of the cervix and uterus, and the shortness of the posterior fornix, and scoff at the chances of an anatomic cure by use of the pessary. I myself feel that at least three fourths of all the congenital retropositions fall after labor into the group of retrodisplacements without symptoms. A smaller proportion suffer, during labor, fascial injury to the fascial structures of the parametrium. Some of these may later progress into the group of retropositions only presenting symptoms. I have had several of this type of cases.

PREGNANCIES

There were 128 of the 459 retroposition cases in which the patients had one or more subsequent pregnancies. Sixty-one per cent. of these (seventy-eight cases) were among the 236 cases of the group with symptoms, and only 39 per cent. (fifty cases) in the nearly equally large group (223 cases) that presented no symptoms. Pregnancy occurred in eighty cases while the uterus was known to be in the forward position, and in twenty-seven cases while it was retroposed. The uterine position was not known at the time of pregnancy, but had usually been posterior in the other twenty-one cases. There were seventy-nine woman who subsequently became pregnant among the 310 in the group with retropositions only. Thirty-nine of these were noted in the 130 retrodisplacements with symptoms, and only forty in the larger group of 180 retrodisplacements without symptoms. These points suggest a lessened degree of fertility in the retropositions without symptoms and in the persistent retropositions. I feel that this may be due to the large number of congenital retropositions in these two classifications.

CAUSE OF SYMPTOMS

While there was usually no readily demonstrable pathologic change other than the retroposition to account for the symptoms in the group of retropositions only with symptoms, I found definite changes in the pelves of 100 patients who came to operation for uterine posterior displacement. All the multiparas, with one exception, had enlarged uteri; all, with one exception, had marked varicosities of the broad ligaments, and nearly all had cystic or prolapsed ovaries. There were twenty-six nulliparas in the series who had retroposed uteri without pelvic inflammation. The pelvis was normal, except for the retroposition, in four cases, the symptoms being due to an appendix condition. In all of the others, the uterine cavity admitted a sound for more than 3 inches, and there were varicosities in the broad ligaments, prolapsed and grossly altered ovaries, or several of these factors in combination.

CONCLUSIONS

1. Retroposition following labor may be merely a persistence of a congenital position.

2. In at least an equally large percentage of cases, it is a sequel to an anterior uterine position, and results probably from some injury to the fascia in the cardinal ligaments of the parametrium.

3. There may result, as a consequence of such injury, persistent and definite symptoms.

4. The symptoms may develop as late as several years after labor.

5. There is a closely allied pathologic condition which probably accounts for the symptoms.

6. Pregnancy is more common in the group of acquired retroposition.

ABSTRACT OF DISCUSSION

Dr. Hiram N. Vineberg, New York: The value of this paper consists in drawing attention to the fact that these retrodisplacements occur much later after delivery than we have been heretofore led to believe. We have all thought that when the patient was examined six weeks, or twelve weeks at the latest, after delivery and no displacement was found, she could be discharged. Dr. Lynch has shown us that in a great many of these cases the retrodisplacement may occur three, four or six months and even a year later. The great value of recognizing these cases early is, as Dr. Lynch has shown, that pessaries alone will cure 70 per cent. The reason that a great many of these patients go for a long time without consulting a physician, and coming only at a time when pessary treatment is no longer of avail, is the fact that the displacement does not cause symptoms until there is congestion and hyperemia and chronic metritis. That is an unfortunate condition when it occurs, for operation then will not always relieve the patient from her symptoms because a great many symptoms are chiefly due to the enlarged and fibrotic uterus. I was a little bit surprised to hear that there were so many cases of pregnancy occurring in congenital retrodisplacement, for in my experience congenital retrodisplacement means an arrest of development of all the pelvic organs. There will be a uterus which is small, and when one opens the abdomen in these cases one will find that it is very difficult to bring the uterus up to the abdominal wall because the broad ligaments are very much shortened. In these congenital cases, as a rule, there are very few symptoms and they are best left alone. Operation usually is unsuccessful.

Dr. Albert H. Goldspohn, Chicago: Dr. Vineberg said that the displacement can be cured by the pessary. That I regard as true only if the pessary is used very early before involution of the uterus is complete. The round ligaments will involute with the uterus if they relax early and slacken. If the patient is advised to lie in the Sims position on either side, very soon, or within a few days after labor, the heavy uterus will fall into anteversion of its own weight. The patient is examined after she gets up, and a large pessary is introduced to hold the uterus forward. The patient will require frequent examinations. It will be necessary for her to get into the knee-chest posture for a few minutes morning and evening until involution is complete. So if, with this care on the part of the patient and the physician, the uterus never gets into retroversion after labor, and if this care is kept up for a year, those patients will usually be cured of retroversion.

Dr. Frank W. Lynch, San Francisco: While there are 20 per cent. of women with congenital retropositions without symptoms, not all of them that are married become pregnant. Many of them are sterile. Our work suggests that if all of them become pregnant, 25 per cent. will develop symptoms. It also suggests that one fifth of women who never have retroposed uteri before pregnancy develop retroposition with symptoms as a consequence of labor. Dr. Goldspohn's remarks show that any one who intends to be an intelligent obstetrician must follow a case for at least a year after delivery. I am perfectly certain that, when a physician follows all cases for a year after labor, he will recognize that we can do more for the health of women by intelligent care in the follow-up period than in the antenatal period. In our series, which has been running for seven years, we have obtained about 70 per cent. of what we call pessary cures. We term as pessary cures cases of retroposition that were corrected and held in place by a pessary for the greater part of a year and which did not again present a retrodisplacement after the removal of the pessary during a follow-up period of several months. We are perfectly aware that the uterus of many of these patients might have righted spontaneously, or might have remained upright after simple replacement. Yet it is not wise to take chances. We believe that the cause of retrodisplacement is a laceration of the base of the broad ligaments which permits of some spreading. Subinvolution favors retrodisplacements. The forward position of the uterus is far more favorable for good involution. We feel perfectly confident that the round ligaments are not strong enough to maintain a subinvoluted uterus in a forward position.

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[3] Polak, J. O.: Acquired Retrodisplacements of Uterus, New York M. J. **111**: 89 (Jan. 17) 1920.

THE MIDWIFE PROBLEM IN THE UNITED STATES *

ANNA E. RUDE, M.D.
Director, Maternal and Infant Hygiene, U. S. Children's Bureau
WASHINGTON, D. C.

American medical literature for more than the last decade has intermittently directed attention to the inadequacy of our laws governing midwives, which contain neither uniform provisions nor required standards. With the exception of the activities in a few cities, this situation has been allowed to drift along without regard for consequences.

The part played by faulty obstetric practice as a causative factor in high infant mortality at birth and during early infancy has for a number of years been emphasized constantly in all the efforts to reduce infant mortality. Largely as a result of this emphasis, the midwife situation has been brought to our attention in the light of a problem of national responsibility.

Statutory recognition of the midwife has existed in some states for many years, but recently the active interest in child hygiene has caused legislative bodies to pass many new regulations or to amend old ones, so that the laws are constantly changing.

Briefly summarized, existing legislation defines the position of the midwife in most states through the medical practice act, other statutes, or state board of health regulations, which in general cover: (1) Regulation of practice; (2) registration; (3) licensing and examining; (4) educational standards, and (5) penalties for violation.

Massachusetts is the one state in which the midwife has no legal status. Formerly she was required by law to report births which she attended, although by so doing she was liable to prosecution, as she was barred from practice under the medical practice laws of the state. This law was revised in 1920 and all reference to the midwife omitted. Lack of recognition, however, probably means that she exists, though ignored, in any locality having a foreign-born population.

Specific prohibitions in the medical practice acts or regulations of the state boards of health, although varying in definition and detail in the individual states, attempt to forbid vaginal examinations and operative procedures, and to require the summoning of a physician in all abnormal cases.

As a means of acquainting the midwife with existing legal regulations, and of affording opportunity for supervision of her work, thirty-six states require registration with either the state board of health, the local registrar or the local health officer. In seventeen states, only those midwives who have been duly licensed, after an examination, are allowed to register.

Examination, license or registration fees are customary. In some states, reexamination and new licenses are provided for at stated intervals.

Educational requirements are as yet unstandardized, and only ten states have any adequate regulation in regard to them in existing laws. Three states require the equivalent of a high school education, and two states a common school education in addition to training in midwifery in order to qualify for a license. While several states require applicants to read and write in English, others allow the use of an interpreter. Foreign midwifery diplomas are very generally recognized.

Penalties for violation of legislation concerning midwives are as varied as the regulations themselves. In general, the penalties cover either revocation of license, fine, imprisonment, or all of these.

In spite of the existence in most states of some form of law or rules and regulations, with the administrative authority lodged in state or local boards of health, it is generally recognized that, with the exception of an exceedingly few of the larger urban localities, no successful control or supervision of the midwife has been effected. Failure to enforce laws has in many instances been due not only to a lack of recognition of the gravity and enormity of the problem, but also to the lack of funds with which to operate successfully.

Provisions of the existing legislation, such as that barring from practice all non-English speaking applicants, no matter how acceptable their other qualifications may be, would indicate that much of this legislation has been framed with the definite aim of eliminating the midwife.

Efforts in a few of the larger cities show convincingly that supervision and educational standards tend definitely toward elimination of the most undesirable midwives and not toward encouragement of the practice of the midwife. In New York City, for example, where the Bellevue School for Midwives has been in operation since 1907 and where graduation from this school or its foreign equivalent is required for license to practice, and where violations of regulations are penalized by constant supervision or revocation of license, the number of midwives was reduced in ten years from about 3,000 to 1,600. During 1922, however, New York City still had 1,539 registered midwives.

The city of Richmond, Va., as late as 1921, adopted regulations governing the practice of midwives, as wholly inadequately trained midwives attended from twelve to fifteen hundred births in that city. An initial course of instruction, consisting of lectures and demonstrations, was prepared by the health officer. More than eighty midwives attended daily this course; but, as the result of the examination which followed the

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

Table 1.—*Summary of Laws and Regulations Governing Midwives in the United States, in Force, March, 1923*

State and Date of Enactment*	Examined and Licensed by State	Educational or Other Requirements	Registration	Laws and Regulations Governing Practice	Penalties for Violation of Requirements of Practice	Report Births	Report Ophthalmia and Use Prophylactic
Alabama........ Laws 1919	No; by county board	Knowledge of midwifery; freedom from communicable disease; moral character	Local	....	....	Yes	Yes †
Arizona......... R. S. 1913 and St. Bd. of Health Rules	Permit only	Endorsement of physician of district	Local	Shall not give drugs, give injection into birth canal or make internal examinations; shall secure physician for abnormal cases	(Permit valid so long as law and rules obeyed)	Yes	Report and advise use of prophylactic
Arkansas........ St. Bd. of Health Rules 1913	....	....	Local	....	....	Yes	Report and advise use of prophylactic
California....... Medical Practice Act 1917	Yes	Four years' high school, specified professional training and examination	Local	Shall not give drugs, use instruments, make internal examination or give injection into birth canal; shall attend normal cases only; must have specified equipment	Revocation of license; $100-$600 or 60-180 days, or both	Yes	Report; use of prophylactic optional †
Colorado........ Medical Practice Act 1917	Yes	Examination in such subjects as board deems necessary	Local	Shall not give drugs or anesthetics, use instruments or practice medicine in any other form	Revocation of license; $50-$300 or 10-30 days, or both	Yes	Yes
Connecticut...... General Stat. 1893	Yes	Graduation from school of midwifery; certificate of character and examination	State and local; annual	‡............	....	Yes	Yes †
Delaware........ Rev. Code 1915	....	....	Local	....	....	Yes	Yes †
Florida.......... Laws 1915	....	....	Local	....	....	Yes	Report only
Georgia.......... Code 1915	....	....	Local	....	....	Yes	Yes
Idaho............ Laws 1911	....	....	Local	....	....	Yes	Yes †
Illinois........... Medical Practice Act 1917§	Yes	Graduation from graded school and from school of midwifery, and examination	Local	Shall not give drugs or attend abnormal cases	Revocation of license; not over $100 or 6 months or both	Yes	Report only;† may advise or use with consent of parent
Indiana.......... Medical Practice Act 1897	Yes	High school, 4 years, or equivalent; diploma from obstetric school, and examination	Local	....	From $25 to $200 or revocation of license	Yes	Report and use in suspected cases
Iowa............ Laws 1897	Yes	....	Local	....	....	Yes	Yes
Kansas.......... Gen. Stat. 1915	....	....	Local	....	....	Yes	Report and use with limitations†
Kentucky........ St. Bd. of Health Rules 1915	Permit only, given by county health officer	Attendance at annual course of instruction; understanding of essentials of hygiene; freedom from communicable disease	Local, annual	Shall not give drugs, use instruments, give injection into birth canal; make internal examination or attend abnormal cases; shall observe other specified sanitary rules	(Permit valid so long as law and rules obeyed)	Yes	Yes †
Louisiana........ Act 1918	Yes	Such examination as required by state board of medical examiners	Local	....	....	Yes	Yes †
Maine...........	....	....	......	....	....	Yes	Report; use prophylactic unless parents object
Maryland........ Code of 1910	Yes	Ability to read and write; certificate of physician showing attendance at 5 cases; 3 certificates as to character	Local	Shall not give drugs, use instruments, make internal examinations or attend abnormal cases	From $5 to $10; revocation of license for third offense	Yes	Report only
Massachusetts...	....	....	......	....	....	....	....
Michigan........	....	....	......	....	....	Yes	Yes
Minnesota....... Gen. Stat. 1913	Yes	Diploma from school of midwifery or examination	No	....	Revocation of license	Yes	Report and use prophylactic unless parents object †
Mississippi....... St. Bd. of Health Rules 1912	Permit given by county health officer	Attendance at class instruction; investigation as to character, cleanliness, etc.	Local	Shall not give drugs, use instruments, give injection into birth canal or attend abnormal cases; must have specified equipment	From $5 to $100 or 60 days, or both	Yes	Yes †
Missouri......... Rev. Stat. 1909	Yes	Examination in obstetrics	Local	Shall engage in no other branch of medical practice	From $10 to $50 or 10 days to 2 mos. or both	Yes	Yes
Montana......... Rev. Code 1921	....	....	Local	....	....	Yes	Report; use of prophylactic optional †
Nebraska........	....	....	......	....	....	Yes	
Nevada.......... Rev. Laws 1912	....	....	Local	....	....	Yes	Yes
New Hampshire.. St. Bd. of Health Rules 1916	....	....	Local	Shall not give drugs or use instruments; local health boards must have physician or nurse visit all cases attended by midwives	....	Yes	Yes †
New Jersey....... Laws 1910	Yes	Common school; certificate or diploma from school of midwifery or maternity hospital having 1,800 hours' instruction, and examination	Local	Shall not give drugs; shall secure physician in all abnormal cases of mother or infant	$200 or 100 days if fine not paid; revocation of license	Yes	Report;† use of prophylactic optional
New Mexico...... St. Bd. Public Welfare Rules 1921	Permit and examination annually	Attendance at series of 10 classes of instruction, signing of midwife's pledge and freedom from communicable disease	Local	Shall not give drugs, give injection into birth canal, use instruments or make internal examination; shall call physician in all abnormal cases, and have specified equipment	Certificate may be annulled	Yes	Yes
New York........ General Laws 1922 ‖	Examine and license annually	Ability to read and write (waived for foreigners); either diploma from school of midwifery or other satisfactory evidence	Local	Shall not give drugs, use instruments, remove adherent placenta, perform version or treat disease; shall attend normal cases only	License revoked	Yes	Yes
North Carolina.. Statutes 1919	Permit only	Must not be addicted to drugs or habitual drunkenness	State	Disinfection of hands of practitioners required	From $5 to $10	Yes	Yes †

Table 1.—*Summary of Laws and Regulations Governing Midwives in the United States, in Force, March, 1923—(Continued)*

State and Date of Enactment*	Examined and Licensed by State	Educational or Other Requirements	Registration	Laws and Regulations Governing Practice	Penalties for Violation of Requirements of Practice	Report Births	Report Ophthalmia and Use Prophylactic
North Dakota... Laws 1907	....	....	Local	....	....	Yes	Report; use prophylactic in suspected cases
Ohio............. Medical Practice Act 1910	Yes	High school or equivalent, diploma from school of midwifery or license of foreign country, and examination	Local	Shall not perform version, treat breech or face presentation or other abnormal conditions, or use instruments	Refusal, suspension or revocation of license for unprofessional conduct	Yes	Yes
Oklahoma....... Laws 1917	....	....	Local	....	....	Yes	Yes †
Oregon.......... Laws 1915	....	....	Local	....	....	Yes	Yes
Pennsylvania.... Laws 1913 and Dept. of Health Rules	Yes	Graduation from approved school of midwifery; or other satisfactory evidence, and examination in English language only	Local	Shall not prescribe drugs or perform operations other than tying cord; shall notify inspector of all abnormal cases, also of delayed labor; other sanitary requirements	From $10 to $50 or 10 to 50 days, or both; license may be revoked or suspended	Yes	Yes
Rhode Island.... Laws 1918	Licensed only	....	......	State board of health makes rules and regulations	Not over $100 or 6 mo., or both; license may be revoked	Yes	Yes †
South Carolina.. St. Bd. of Health Rules 1920	Permit only	Completion of course of 10 lessons. given by state board of health; signing of midwife pledge	Local	Shall not give drugs, give injection into birth canal or make internal examinations; shall secure physician for abnormal cases and obey rules of personal hygiene	Permit may be revoked	Yes	Report; use of prophylactic advised
South Dakota...	....	....	......	....	....	Yes	Report only †
Tennessee........	....	....	Local	....	....	Yes	Yes
Texas............	....	....	......	....	....	Yes	Shall use prophylactic †
Utah.............	....	....	Local	....	....	Yes	Report; advise use of prophylactic †
Vermont.........	....	....	......	....	....	Yes	Yes †
Virginia.......... Laws 1918 St. Bd. of Health Rules	Permit only	....	Local	Shall not give drugs, give injection into birth canal (except when ordered by doctor); make internal examination or attend abnormal cases; shall obey other sanitary rules	Revocation of permit	Yes	Yes †
Washington..... Act of 1917	Yes	Common school education, diploma from school of midwifery, application endorsed by physician, and examination	Local	Shall not prescribe medicine or drugs; shall call physician in abnormal cases; shall report puerperal contagion or infectious disease to health officer	Revocation of license; $80-$200 or 10 days to 6 mo., or both	Yes	Yes
West Virginia....	....	....	......	....	....	Yes	Yes †
Wisconsin........ Statutes 1919	Yes	Diploma from college of midwifery, evidence of good moral and professional character, and examination	Local	Shall not administer drugs, use instruments or any artificial means, remove adherent placenta, or undertake any other form of medical practice	Revocation of license; $25-$100 or not over 6 mo., or both	Yes	Yes †
Wyoming........	....	....	......	....	....	Yes	Yes

* Date refers to passage of act without reference to subsequent amendments.
† Gratuitious distribution of a prophylactic is made by the state health authorities.
‡ Bill defining practice before present general assembly.
§ This law declared unconstitutional by the Illinois Supreme Court.
¶ New York City and Rochester have special laws.

completion of the course, only forty-seven permits were granted.

When Alabama's amended state law regulating midwife practice became effective in January, 1920, the city of Birmingham instituted classes for the midwives then licensed in the city. After a discouraging year of weekly classes, giving instruction in prenatal, maternity and infant care, it was decided to eliminate the midwife as far as possible from the city. The few who continued to practice contrary to instructions were prosecuted. Simultaneously, efforts were made to enlist the interest and cooperation of physicians in communities where midwives were extensively employed. The physicians agreed on a minimum charge for delivery, while prenatal and postnatal care was provided through volunteer medical service in a community clinic and by a visiting nurse service.

The extension and adaptation of this plan to include the more isolated districts of the surrounding county have been contemplated for some time, but as yet have not been satisfactorily worked out because of the difficulty in securing medical service.

The experience of these few cities, as well as that of others which might be given, serves to demonstrate to the satisfaction of an element of the medical profession—the highly specialized urban practitioner—a method of desirable and effective elimination. We have long heard that the one sure way to eliminate the midwife was to educate her. Sufficient emphasis, however, seems not to have been placed on the fact that elimination has been effective in its results only so far as medical and nursing facilities have been substituted for the untrained midwife. It is to be noted that, in all of these eliminative urban demonstrations, such public institutions as visiting nursing service, prenatal and maternity consultative service, or even actual confinement and postnatal medical and nursing care have been initiated. Obviously, such services exert no unimportant influence in raising the standard of practice among the licensed midwives of these communities, with the result that those remaining under supervision are generally admitted to be an asset in public health work. In New York City in 1917, nearly 2,000 women were brought to the prenatal clinics by midwives.

STATE PROGRAMS

The intense interest in maternal and infant hygiene during recent years has caused new attention to be paid in practically every state to the midwife problem, which consequently assumes a national aspect.

Within the past year, or, more definitely, since the initiation of activities made possible by the funds provided by the enactment of the federal Maternity and Infancy Act, thirty-one states have simultaneously undertaken to attack the long neglected problem of midwife practice. Two reasons for finally facing the problem suggest themselves, namely, (1) a public opinion already expressed in the statutory regulations of a large majority of the states, and (2) the fact that the subject is innocuous and scarcely likely to engender opposition from the medical fraternity.

For purposes of information, comparison and evaluation, the federal Children's Bureau has recently sent out a questionnaire in order to determine just what activities relating to the midwife have developed under the various state programs for the promotion of the welfare of maternity and infancy. According to the reports received, thirteen states have already begun or are planning to begin initial state-wide surveys, while six states are making only county or community surveys. Ten states acknowledge that they know very little about midwives; others claim that the problem is a negligible one; eight states—Maine, Michigan, Nebraska, South Dakota, Texas, Vermont, West Virginia and Wyoming—do not register, examine or license midwives, although the majority of these states do require reporting of births.

Table 2.—*Numbers of Midwives Authorized to Practice, Percentage of Births Attended, and Maternal and Infant Mortality Rates for the States for Which Such Data Are Obtainable*

State	Midwives			Mortality Rates per Thousand Live Births in Birth Registration Area Bureau Census 1921	
	Authorized to Practice	Others Estimated	Percentage of Births Attended	Maternal	Infant
Alabama	1,862	*	32	...	..
Arizona	45	*	12	...	..
Arkansas	181†	*	17	...	..
California	104	*	8	6.8	66
Colorado	15	25	*	...	..
Connecticut	123	*	16	5.3	73
Delaware	200	*	16	6.3	98
Florida	*	2,000	38	...	..
Georgia	1,800	*	*	...	..
Idaho	100	*	*	...	..
Illinois	1,115	*	*	...	..
Indiana	254‡	*	5	6.9	71
Iowa	40	*	0.1	...	..
Kansas	*	*	*	6.4	63
Kentucky	2,500	*	18	6.3	62
Louisiana	230	1,808	47	...	..
Maine	**	65	*	7.4	88
Maryland	339	346	22	6.7	94
Massachusetts	**	117§	*	6.5	76
Michigan	**	1,162	7	6.9	79
Minnesota	145	*	*	5.7	59
Mississippi	3,218	991	48	9.5	68
Missouri	803¶	*	*	...	..
Montana	334	*	3	...	..
Nebraska	**	20	2	6.6	59
Nevada	*	*	*	...	..
New Hampshire	7	None	*	6.2	87
New Jersey	415	262	27	5.9	74
New Mexico	**	*	*	...	..
New York	1,976	*	11#	6.3	75
North Carolina	2,500	4,000	35	7.3	75
North Dakota	*	*	*	...	..
Ohio	*	*	*	7.2	75
Oklahoma	None	*	*	...	..
Oregon	16	*	*	7.4	51
Pennsylvania	*	1,500	*	6.8	88
Rhode Island	47	*	*	7.1	93
South Carolina	996	3,715	*	9.8	96
South Dakota	**	133	3	...	..
Tennessee	815	1,000	12	...	..
Texas	**	300	*	...	..
Utah	*	350	*	7.3	73
Vermont	**	None	*	7.3	78
Virginia	6,036	*	35	7.0	79
Washington	50	*	4	7.8	55
West Virginia	**	*	*	...	..
Wisconsin	361	*	10	5.8	72
Wyoming	*	*	*	...	..
Total	26,627‖	17,794‖			

* Information not supplied.
** Do not examine, license or register.
† In six counties only.
‡ Number licensed since 1897.
§ In a surveyed district only.
¶ Number registered since 1887.
# Does not include New York City.
‖ Includes only numbers reported.

The midwife problem in the United States is a peculiarly conglomerate one because of the many nationalities and races of which our cosmopolitan population is composed, each with its special traditions and customs.

Contrast the Southern states, having thousands of totally untrained and illiterate "grannies" (Mississippi, 4,000; North Carolina, 6,500; Virginia, 6,000), with New Hampshire, having only seven registered midwives. Incidentally, there are ninety towns in New Hampshire without a resident physician, and a recently enacted law provides an annual appropriation of $1,000 per town as part of a physician's salary in the hope of inducing young physicians to settle in rural communities.

New York State, exclusive of New York City, reports that the total number of licensed midwives is diminishing annually, and at present there are twenty-two counties of the state with no licensed midwives. The 428 midwives who were permitted to practice in the state in 1922 represented twenty-three nationalities—the Polish, Italian, German, native born American and Slavic predominating. Groups of these nationalities or others will undoubtedly be found in all the densely populated industrial and mining states. Colorado reports fifteen registered midwives as representing six foreign nationalities. In the Pacific states, the large number of Japanese midwives adds another phase to the situation; while the Southwest, where among the Spanish-Americans practically every married woman in rural areas is a potential midwife, presents its distinctive problems.

Parallel with this diversity in nationality runs a comparable divergence in numbers practicing. The 1920 occupational report of the Bureau of the Census reported 4,773 midwives practicing in the United States. Recent inquiry into this subject brings the report that the total number of midwives authorized to practice in thirty states is 26,627, although, with few exceptions, the number registered is admittedly not the total number practicing. The estimated total from the same states is about 45,000. Even this number is undoubtedly an underestimate. The percentage of births attended by midwives varies from 48 in Mississippi to 2 in Nebraska. In one state (North Carolina) the percentage of negro births attended by midwives was 73.5, in 1921.

Michigan's recently completed survey shows that there were 96,035 births reported in 1921, and that 6,632 birth certificates were returned by 1,162 midwives. One birth in every eleven and one-half occurred without the attendance of a physician.

Virginia reported 69,116 births in 1921, one third of which were attended by the 6,036 registered midwives. Among this number were 1,418 white midwives.

Confronted with such concrete facts as these, the state health authorities are somewhat perplexed in their effort to find practical means of handling the midwife situation. However, eighteen progressive health departments have already decided that trained, licensed and supervised midwives should be provided at least for rural communities. In ten states the number of midwives is sufficiently large to warrant the employment of a supervisor of midwives. In many of the states, provision has been made for some type of instruction of midwives, either through printed matter in the form of letters giving simple rules and regulations, or bulletins, or by class or individual instruction. Class instruction is given by a physician, usually a health officer, by public health nurses, and in one state by a registered midwife. Class meetings vary in number from one or two single meetings to regular monthly meetings or a series of meetings at shorter intervals. The instruction consists of an explanation of the laws governing the practice of midwifery, the limitations of the midwife, and elementary teaching of the technic of a normal delivery and subsequent care of mother and infant.

One state department has on its staff two women physicians who speak several languages, and who instruct midwives working in centers of foreign population.

Another state employs a well trained woman obstetrician who travels about the state in the capacity of consultant. In isolated rural communities, both physicians and midwives bring her their cases, especially those which are complicated, for consultation.

As a result of these methods of instruction, states report not only a marked improvement in the type of care which the midwife gives, but also that physicians are being called much more frequently for abnormal or complicated cases. Three states report a decided decrease in the number of registered midwives following the introduction of this instruction and supervision. One of the sparsely settled but widely extending Western states is considering the practicability of subsidizing, from church funds, well trained midwives in order to provide and insure for women on the isolated farms at least some trained service during childbirth.

PROBLEMS RELATING TO OBSTETRICS AND PEDIATRICS

The material here presented indicates the plans which have already been instituted in the effort to meet the problem of making available, outside the large urban centers, better care for mothers before, during and following childbirth.

While the developments outlined indicate only the public health aspects of the midwife problem, largely because of the fact that regulatory supervision is vested with the public health departments, definite problems of concern and interest to two special branches of medicine, namely, obstetrics and pediatrics, are also involved.

It is at once obvious that much of the success of pediatrics depends on the normality of the expectant mother and of the unborn infant, and on the conditions which provide normal birth and adequate skilled care in the first weeks after birth. Faulty technic in the care of the new-born largely determines whether his future will be one of invalidism or of health. In most instances, midwives are of the same nationality as the women they attend, and retain most of the practices, traditions and superstitions that have been transmitted for generations in these groups. Midwives are frequently consulted by mothers regarding the care of the infants for six months or more after birth. If one is familiar with some of the age-old, unclean practices of foreign midwives, one is not surprised at the frequency with which tetanus, undoubtedly due to dirty cord dressings, is found in the new-born. One marvels that any infant survives the well meaning colored midwife's routine during the interval between birth and the appearance of breast milk, when almost invariably a pacifier of raw white pork is given soon after birth for its supposed laxative effect, supplemented at frequent intervals by curious and oft-times obnoxious concoctions known as "teas."

Improved reporting of births has been credited to the midwife as soon as she comes under supervision. The fundamental importance of early and accurate birth registration is appreciated by all workers interested in preventive health measures.

Marked improvement of ophthalmia neonatorum has occurred among midwives' cases since improved legislation now makes the use of a prophylactic by physicians and midwives compulsory in twenty-nine states. Free prophylactic outfits are being distributed in twenty-four states, while the reporting of inflammatory eye conditions is compulsory in forty-five states.

The midwife's relation to the public health official is in the main that of compliance with statutes or rules or regulations of the health department, while to the obstetrician or general practitioner her responsibility is more definitely outlined. Many of the state regulations specify the conditions under which a physician must be called, such as abnormal symptoms during pregnancy, miscarriage, hemorrhage, abnormal presentation, retained placenta, convulsions, and prolapse of cord. Most of these regulations have been dictated by bitter experience, but with no specific effort to assist the midwife in her imposed responsibility of securing skilled assistance. Training and supervision have so far tended to diminish the numbers of practicing midwives, without providing adequately trained medical or nursing substitutes.

Interest in maternal and infant hygiene is now growing at an unprecedented rate, and I believe that it is safe to predict that public demand for more and better prenatal care, skilled care at confinement, whether at home or in the hospital, and adequate postnatal care of mother and infant will result in such provisions being considered essential needs in every community in the very near future.

For the last few years, in the medical schools, efforts have been directed toward the teaching of better obstetrics. All obstetricians are familiar with the average poor standard of confinement care given by the general practitioner in rural sections, often through no fault of his own. In several states an effort to raise the standard of rural obstetric care is being undertaken through extension services of state universities and their medical schools. Films are being used for teaching purposes in county medical societies, the head of the department or an assistant obstetrician serving as instructor, thus bringing postgraduate work to the rural practitioner.

In several states the maternity and infancy programs include the preparation by local club women of sterile obstetric packages for rural home confinements. The obvious value of such an undertaking is not only the definite assistance to the attending physician but also the education of the community.

My purpose in this paper has been, not so much to reiterate the legal status of the midwife in this country, as to show the trend of rapidly developing activities in this long-neglected field.

While existing legislation gives the midwife recognition but controls her ineffectually, if at all, the problem still to be solved is whether adequate provision shall be made for medical attendance at every confinement and the midwife abolished, or whether midwives shall be trained and practice under strict supervision and control. Obviously, there is no point in eliminating even the untrained midwife without making qualified substitutes available.

With almost one half of the states already undertaking the supervision and training of the midwife, perhaps one may conclude that from the point of view of the public health administrator, control at least is at present a necessity. Whether or not uniformity of regulation, training and supervision on a national scale similar to that of most foreign countries is feasible or desirable is a problem suggested for future consideration. A small group of New York obstetricians has decided that one of the greatest needs in maternity service is public health nurses with a special course in midwifery, particularly in rural areas where there are either very few physicians or none at all. Such a course is now being offered as an affiliated one with the Bellevue School for Midwifery.

The problem of the midwife in the United States is sufficiently important and complex for national concern and responsibility, and the medical profession will be looked to for its solution, since a rapidly crystallizing public demand for better medical and nursing care, as it relates to maternity and infancy, is involved.

RESULTS GAINED IN MATERNITY CASES IN WHICH ANTENATAL CARE HAS BEEN GIVEN *

FRED L. ADAIR, M.D.
AND
C. O. MALAND, M.D.
MINNEAPOLIS

It is now well recognized that maternal welfare includes both medical and social activities. It is not our purpose to go into a consideration of the latter phase, but we wish to emphasize the importance of having this sort of work closely coupled with the medical activities.

We include under medical activities those which fall within the scope of nursing as well as those which fall to the lot of physicians and surgeons. The medical men to whom women come for maternity care should not take a narrow obstetric view of their patients. We as obstetricians must be more than obstetric specialists, and must not only consider the general health and welfare of the mother but also constantly remember the life of the offspring committed to our care.

One might ask when prenatal care should begin. One could answer that it begins in the antenatal period with the prevention of disease and prematurity. It is of great importance in infancy in the prevention of the development of rachitis, which causes in later life obstetric complications.

In the study of a maternity case one should develop the history of the patient with diseases; and, of course, the facts of obstetric importance should be included. A careful physical examination should be made with special obstetric observations. Subsequently the patient should be under continuous supervision, and routine observations made of such commonplace things as weight, temperature, pulse, hemoglobin, blood pressure, urine, and certain other symptoms both subjective and objective. This has been our procedure for many years, and we shall try to express as definitely as possible the results we have been able to obtain in 2,000 cases of pregnant women who have come under our supervision for antenatal care. This series does not include patients seen in consultation, but only those who came of themselves or were referred by physicians to be under our supervision and care. As we have given special attention to this type of work, it would be only natural to expect a somewhat higher percentage of abnormal cases than the common run of obstetric practice would show.

We have included a considerable number of expectant mothers who have sought our care because of difficulties in previous pregnancies or because they had knowledge of some complicating condition. We have also incorporated a group of referred cases sent by physicians who did not wish to take the responsibility of handling the pregnancy and labor in the presence of certain complicating conditions.

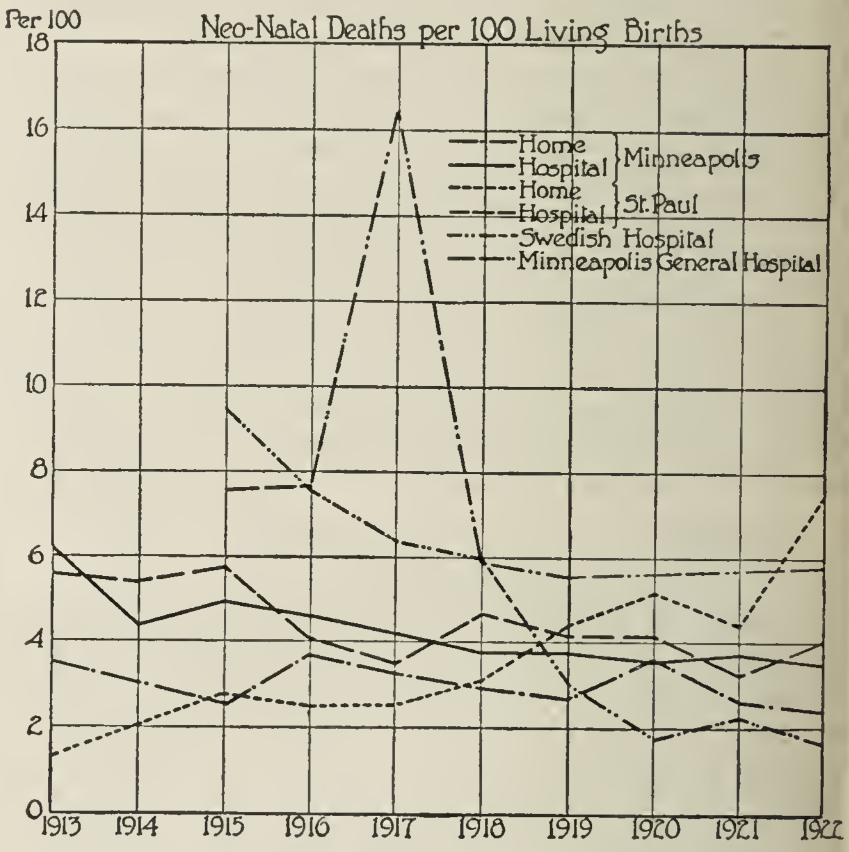

Chart 1.—Neonatal deaths per hundred living births.

In our series we have included all cases of intra-uterine pregnancy in which we have given prenatal care within a specified time. This is made up of our last 2,000 cases prior to May 1, 1923. The only cases excluded are those in which we have given no antenatal care which were seen in consultation either when the patient was in labor or after the development of some serious complication. We feel justified in excluding these cases because in this paper we are trying to reach some conclusions regarding the results that can be obtained by careful supervision of obstetric patients.

In our 2,000 private cases of intra-uterine gestation there were 902, or 45 per cent., primiparas and 1,098, or 55 per cent., multiparas.

The gestation was terminated before the period of viability in 105 pregnancies, or 5 plus per cent. In 1,895, the gestation reached the period of infant via-

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

* Because of lack of space, this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the author's reprints. A copy of the latter will be sent by the author on request.

bility. There were nine multiple pregnancies in the group, making a total of 2,009 offspring. There were two women who died undelivered, leaving a total of 2,007 fetuses and new-born. The abortions as given above account for 105 of these, which leaves 1,902 pregnancies which went to the period of infant viability. Of these, 1,834, or 91 plus per cent., resulted in living infants, and sixty-eight, or approximately 3 plus per cent., were stillborn.

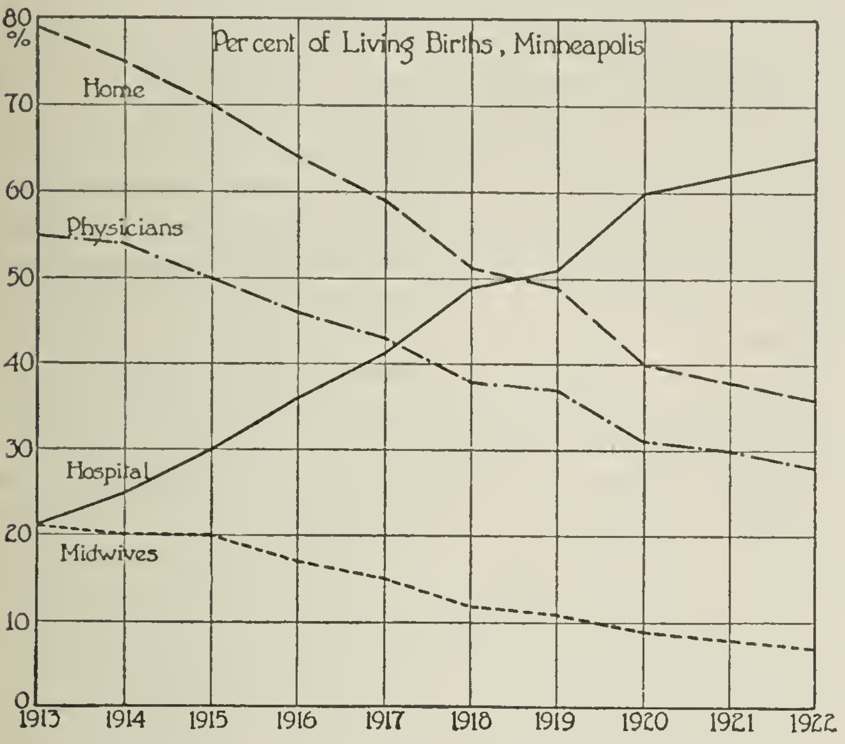

Chart 2.—Percentage of living births in Minneapolis.

There were six maternal deaths, or 0.3 per cent., and forty-two, or 2 plus per cent., of neonatal deaths.

ABORTION IN RELATION TO ANTENATAL CARE IN ITS EFFECT ON THE OFFSPRING

Threatened abortion, miscarriage, and premature labor constitute a very important phase of prenatal care. Among our cases there were seventy-four women who had symptoms and signs which led to this diagnosis and whom we were successful in carrying to a period of infant viability by the use of absolute rest in bed, with doses of morphin and atropin pushed to the physiologic limit, if necessary. Of these, twenty-nine were primiparas and forty-five multiparas. Two of these babies died neonatal deaths. The others survived. There were fifteen therapeutic abortions done in our routine cases, a percentage of 0.7. The indications for the performance of this operation will be considered under pathologic conditions in the mother, as, in our opinion, it is almost axiomatic that a therapeutic abortion could never be considered to be in the interest of the offspring. It is perhaps unnecessary to speak of this, but some physicians fail to grasp this self-evident fact.

There were three abortions which followed operations done on the genital organs. There was one case of hydatidiform mole among our routine cases, a percentage incidence of 0.05. There were also three ectopic pregnancies, an incidence of 0.15 per cent. Antenatal care could have no effect on the last two conditions so far as the welfare of the fetus is concerned.

Of the remaining eighty-nine abortions, thirty-one were incomplete and fifty-eight were complete. Of these, thirty occurred in primiparas and fifty-nine in multiparas.

We have not considered missed abortions or pathologic abortions in this discussion because at present one is at a loss to know how to benefit the offspring in these cases by antenatal care.

We should like to mention cases giving a history of habitual abortions in whom no definite cause for its occurrence could be found. We have a small series of these cases in which corpus luteum was administered hypodermically during the first trimester of pregnancy. It is difficult to know what would have occurred in these cases without its use, but a number of the patients have gone through to term and given birth to normal living infants for the first time.

PREMATURITY

Prematurity is a very serious handicap to the new-born. In our series of cases there were born alive seventy-three premature infants, which is a percentage of 3.7 of the total pregnancies and 4.0 per cent. of the living births. Of these premature infants, sixteen, or 22 per cent., died within one week after birth; the others survived the neonatal period. The sixteen deaths of premature infants made up 36 per cent. of our neonatal deaths. Of the sixteen infants, five were nonviable, which accounts for 32 per cent. of the neonatal deaths of premature infants. The causes of death among the others were toxemia, two; accidents of pregnancy and labor, six, and prematurity with cause not determined, three.

As already stated, sixteen of our forty-two neonatal deaths were in premature infants. Of the remaining twenty-six, the deaths were in babies born at term; eleven of these had some brain injury, probably due to or associated with hemorrhage resulting from trauma or hemorrhagic disease. Congenital defects caused eight deaths. The nature of these defects was: mongolism, one; cardiovascular disease, four; defect of the central nervous system, two; defect of biliary tract, two, and enlarged thymus, one. The other six infants died from: toxemia, one; infection, one; accident of labor, one, and causes not determined, three. We note that 1.4 per cent. of our living term babies died neonatal deaths, and in all living births there were 2.3 per cent. of neonatal deaths.

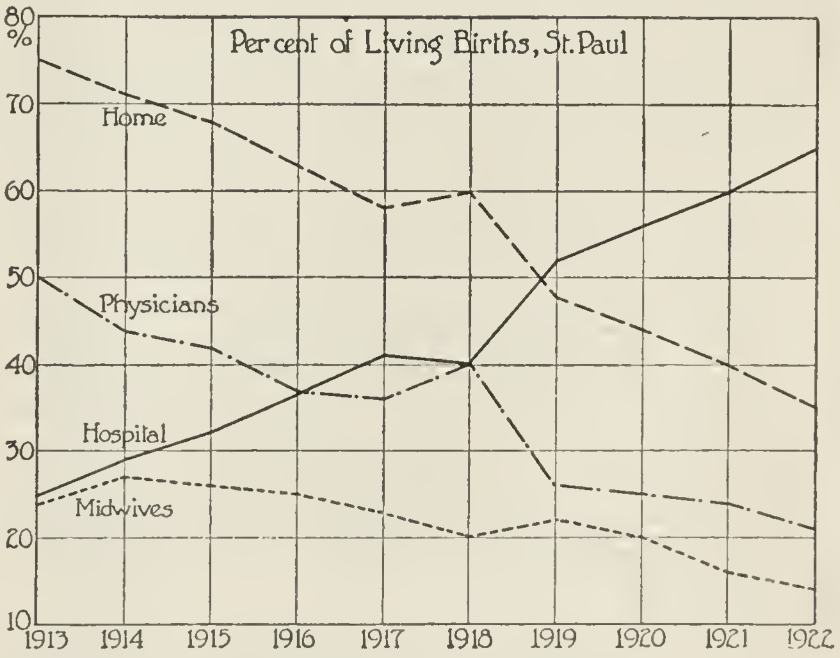

Chart 3.—Percentage of living births in St. Paul.

STILLBIRTHS

Stillbirths make up one of the great and important obstetric problems, and they might be divided into two groups:

First, those infants which die before the onset of labor and can be saved only by antenatal care. It is not to be supposed that we can save all of these. We can save some, and, as our knowledge increases, probably the lives of more can be preserved.

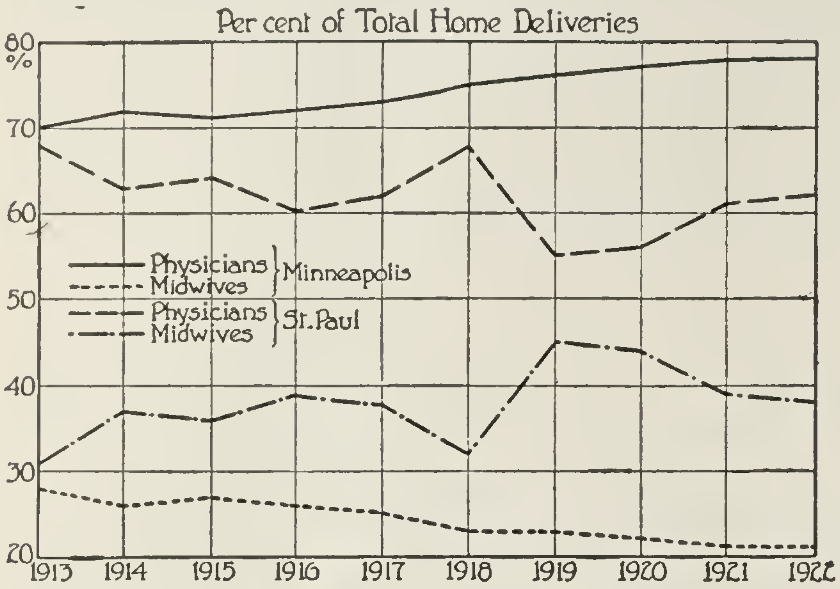

Chart 4.—Percentage of total home deliveries.

Second, those infants which lose their lives during labor. The lives of these infants are not to be saved by antenatal care so much as by better natal care. In all, we had sixty-eight stillbirths, which is a percentage of 3.7 of the total living births. Of these, thirty-seven, or 2 per cent., were born at term, and thirty-one, or 1.7 per cent., were prematurely born. Of the prematurely stillborn, twenty-five died before the commencement of labor and six died during labor. The causes of the antepartum deaths were syphilis, two; toxemia, eleven; maternal infection, two; hydrops fetalis, two; monstrosity, one; accidents of pregnancy, four, and causes not determined, three. Intrapartum deaths occurred in six instances among the premature births: toxemia, two; prolonged labor, one; second twin one, and faulty presentation, two. There were thirty-seven stillbirths at term, in which eleven infants died antepartum and twenty-six intrapartum. The antepartum deaths were caused by syphilis, one; toxemia, two; accidents of pregnancy, two, and cause not determined, six. The twenty-six intrapartum deaths were caused by dystocia, nineteen, in which forceps were used eight times; podalic version, three; breech extraction, three, and craniotomy, two; and spontaneous delivery occurred three times. Aside from the foregoing causes of death were prolapsus funis, three; monstrosity, one; cerebral hemorrhage, one; toxemia, one, and cause not determined, one.

WELFARE OF THE MOTHER

The other important problem involved, aside from the welfare of the offspring, is that of the mother. It is very vital to know what can be accomplished for her.

In the first place, good natal care can be secured only by good antenatal supervision, because by this method alone can proper and adequate preparations be made for the care of mother and child during the natal and postnatal periods.

Another important problem is the detection and eradication of abnormal conditions in the pregnant woman, with ultimate benefit to both her and the offspring. We wish to present some data, gathered from our series of private cases, bearing on this problem.

We will first consider the question of abortions. An abortion is more serious for the offspring than for the mother. Aside from the effect on the maternal impulse, the woman suffers no ill effects from the abortion except such as result from certain complications, such as hemorrhage or infection. It should be remembered that infection may cause death, morbidity and sterility of the prospective parent. The management of abortion is of great importance to the mother for her future welfare and happiness and, even though disastrous to the individual offspring, the result of the treatment should not be such as to deprive the woman of life, health or the future opportunity to bear children.

In all our cases there were 105 abortions and miscarriages, which means that about one in ten of our total pregnancies terminated in an abortion. This is much better than the usual ratio of one abortion to four pregnancies and is a definite accomplishment of antenatal care as shown, for instance, by the results of treatment of threatened abortions. Doubtless, more of the abortions could have been prevented if the patients had appreciated the importance of early symptoms and if some had been more willing to cooperate in an effort to prevent their occurrence.

In our series there was no fatality among mothers. There were no serious infections. About one third of our patients were curetted.

The incidence of pathologic abortion in this group was not high.

Nonobstetric operations on the genital organs of the pregnant woman are not frequently required. In our routine cases they did not exceed 0.5 per cent. Of patients operated on in early pregnancy, fully 50 per cent. had a termination of the pregnancy following the gynecologic operation. We feel, therefore, that gynecologic operations on the pregnant woman should be undertaken only when the interest of the prospective mother demands such interference, and that it should be done with the understanding that the fetus has not better than an even chance of survival. Therapeutic abortions are done to preserve the health or life of the prospective mother alone.

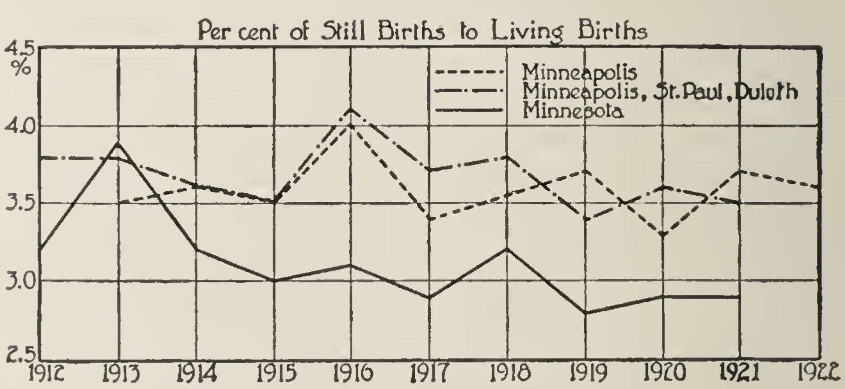

Chart 5.—Percentage of stillbirths to living births.

In our routine patients it was deemed necessary to terminate the pregnancy by therapeutic abortion in fifteen instances, or 0.7 per cent. of the cases. The reasons were: tuberculosis, five; hyperemesis gravidarum, six; cardiac disease, one; mental disease, two, and pyelitis, one. The subsequent course of the disease in these patients seemed to justify the procedure. It was not often that disease in the mother justified the early termination of pregnancy, and in those it was of a persistent and more or less chronic character.

We have encountered many serious acute infections, especially of the respiratory tract; but, owing to careful supervision of the patients, who have been kept quiet, the mortality has been low. We lost three patients from pneumonia that developed during pregnancy. Cardiac disease is relatively frequent; but, with careful attention, serious complications are rare. In one instance of a mitral stenosis with a broken compensation occurring early, it was thought best to terminate the pregnancy. In another instance with a mitral stenosis, the interruption of pregnancy was seriously considered, but abandoned. The patient died subsequently from a pulmonary edema after labor followed by pneumonia. A clinical diagnosis of cardiac disease was made in about 4.5 per cent. of our cases. This emphasizes the importance of an antenatal examination of the cardiovascular system.

Thyroid hypertrophy was commonly found, and nontoxic goiters were not uncommon. We have had no toxic goiter in our prenatal series of cases. It may be regarded as a rare occurrence.

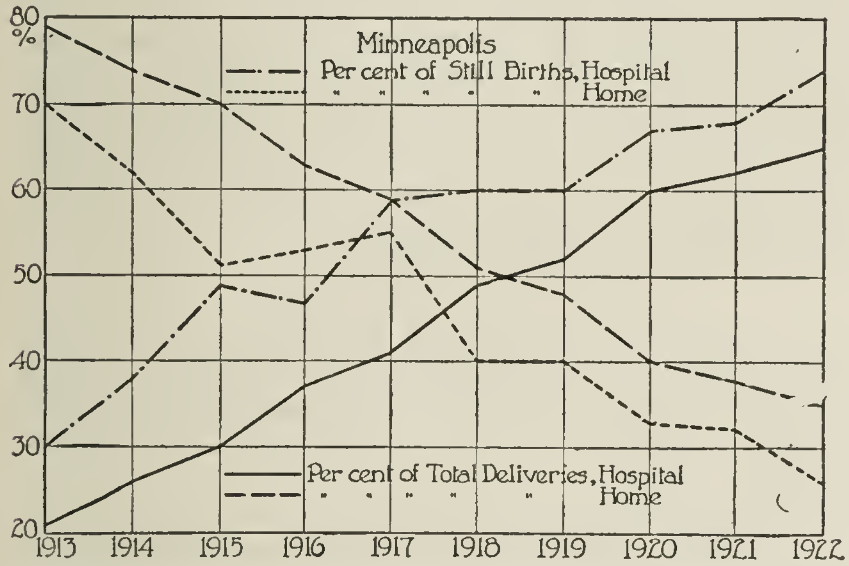

Chart 6.—Percentage of stillbirths and of total deliveries, Minneapolis.

Affections of the gallbladder and appendix which require operation are not of great frequency, but should be kept in mind.

Acute disturbance of the gastro-intestinal tract associated with diarrhea should be promptly and carefully treated, as such affections are very likely to be followed by abortions.

Diseases of the urinary tract are not infrequent. Cystitis and pyelitis are seen rather frequently, but with appropriate care usually result favorably. It is rarely necessary to terminate the pregnancy because of pyelitis.

In the type of patients encountered in this series, acute infections of the genital tract, such as gonorrhea, have been rare. The few cases which we have cared for have responded slowly to treatment, but no serious complications developed. Treatment should begin as early in the pregnancy as possible and be carefully carried out to as complete a cure as possible before the termination of pregnancy.

Syphilis is of great general importance, but in our group relatively few cases were found, which accounts for the few fetal deaths from this cause. One patient died undelivered while receiving active treatment. The patient died in a rapidly developing coma, the exact cause of which was never determined. The incidence of syphilis in our cases was not over 0.5 per cent.

Diabetes is occasionally seen, but with careful attention the patients may be carried through pregnancy with relative safety. The ultimate outlook has in the past not been particularly good. We had no fatalities in six cases.

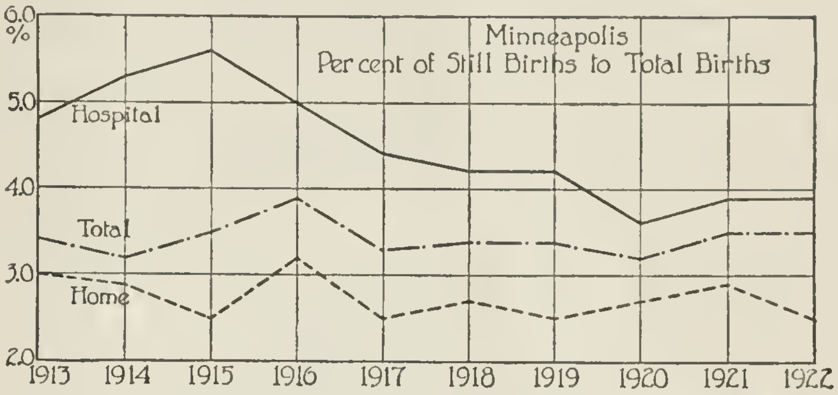

Chart 7.—Percentage of stillbirths to total births, Minneapolis.

We had many patients with some toxic symptoms, 143 in all, which is an incidence of about 6.5 per cent. Of these, there were thirty-eight with rather mild symptoms. Of the others, thirty-three had marked hyperemesis, and in six of these it seemed necessary to empty the uterus. There were no fatalities in this group. The others were delivered of viable infants with one exception. In this case, complicated with syphilis, there was a stillbirth. Most of the other cases showed varying degrees of hypertension, albuminuria and edema. The results with regard to the offspring have already been mentioned. So far as the mothers are concerned, we have had no fatalities when we have had an opportunity to give antenatal care. Convulsions occurred in eleven of the patients either antepartum, intrapartum or postpartum.

It was deemed advisable to try drug induction in a considerable number of the cases, and the bag was resorted to in seventeen of them.

Vaginal hysterotomy was done in one instance and abdominal cesarean section was done twice. Other methods of delivery were resorted to as seemed necessary in individual cases.

We feel justified in concluding that maternal, but not fetal, deaths from toxemia may be practically eliminated by adequate antenatal supervision and intervention at the proper time.

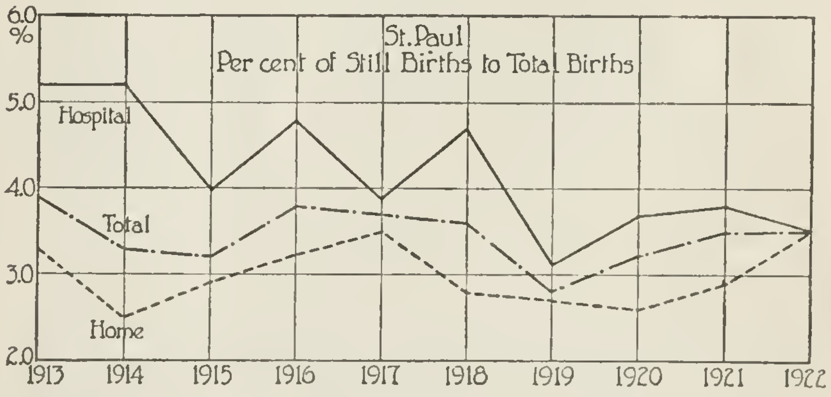

Chart 8.—Percentage of stillbirths to total births, St. Paul.

Nephritis is, of course, an important complication of pregnancy, but is of much less seriousness than toxemia because of its lesser frequency and danger. It should be differentiated from preeclampsia, which can usually be done by a careful history. The presence of many casts in the urine is suggestive of nephritis. It should be remembered that a toxemia may be superimposed on a nephritis. We had six cases of true nephritis in our series. The immediate outlook for the mother is not bad so far as life is concerned. Fetal death is not uncommon, resulting in one half of our cases.

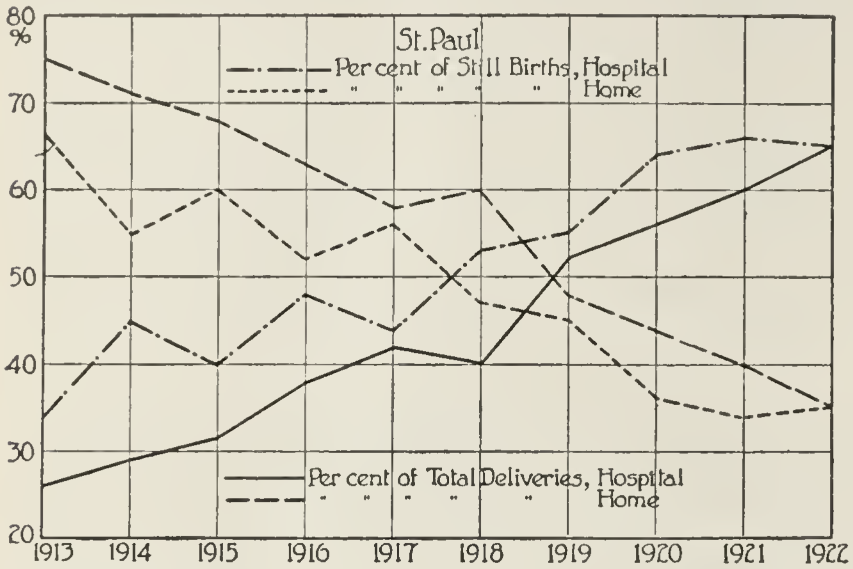

Chart 9.—Percentage of stillbirths and of total deliveries, St. Paul.

Focal infections occurred with relative frequency, usually in the mouth, accessory nasal sinuses, and pharynx. These infections were both acute and chronic, giving rise frequently to both local discomfort and remote symptoms. We have noted such definite infections in 134 instances. Oral infections were demonstrated in seventy-eight of the cases, definite tonsillar infections in thirty-three, and sinus trouble in twenty-three cases. These conditions should receive appropriate treatment even during pregnancy. Nine of these patients, or about 7 per cent., developed definite toxic symptoms of the preeclamptic type. Abortions were noted in five of these cases. The incidence of the two conditions mentioned was somewhat more frequent in this group than in the general run of cases.

The correction of malpositions is of considerable importance. This can be done in some cases during the antenatal period. In twenty-six instances we were successful in permanently converting breech presentations to cephalic positions. In this group, two forceps operations were necesary to complete the delivery. There was one intrapartum stillbirth following the induction of labor. We feel sure that we should have been unable to secure as good results for mother and child had we allowed the breech presentations to persist in these twelve primiparas and fourteen multiparas. There were a few instances in which we successfully corrected faulty cephalic positions and cross presentations.

It is, of course, of prime importance to appreciate and properly evaluate obstetric complications, and predetermine, so far as possible, the course of procedure during labor. That there is room for improvement in our series is shown by the considerable number of infant deaths due to dystocia. The recognition of small pelves and oversized babies, as well as a careful history of events in previous labors is of great assistance to us in deciding beforehand the best line to follow in the conduct of these cases. In our community, pelvic deformities are relatively uncommon and usually of a mild degree. This perhaps makes us a little less keen in looking for them, and most of those we do discover are relatively difficult to diagnose.

Malpositions of the uterus, especially retroversion, are rather frequent, and often give rise to unpleasant symptoms and may be a factor in the production of abortions. Patients should always be examined for the presence of this condition, and, in our opinion, we have relieved many mothers of symptoms and prevented a considerable number of abortions by the early recognition and appropriate pessary treatment of this condition.

Malformations of the genital tract should be kept in mind, but are of relatively infrequent occurrence.

In order to avoid being accused of important omissions, we should like to mention the necessity of proper advice to mothers regarding the mode of living, personal hygiene in general, and also the care of the genitalia and breasts.

Maternal deaths were too frequent to suit us, but the percentage was not high, about 3.3 per thousand living births. The causes of deaths in these cases were: cardiac insufficiency, one; tetanus, one; antepartum influenzal pneumonia, two; antepartum death due to acute cerebral disease in a syphilitic patient, one, and postpartum lobar pneumonia, one. One half of our maternal deaths occurred from diseases which developed antepartum, and we do not know how we could have prevented these fatalities. How the infection with tetanus developed we do not know, though the patient had a suspicious oral infection antecedent to the development of the tetanic infection. We had no deaths from toxemia or puerperal sepsis.

RESULTS AT TWO HOSPITALS

For comparative purposes we wish to enumerate briefly some of the results obtained in two of the maternity wards of hospitals in Minneapolis, viz., the Swedish Hospital and the Minneapolis General Hospital.

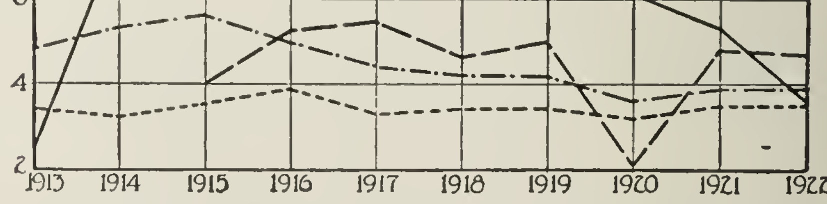

Chart 10.—Percentage of stillbirths to total births, Minneapolis.

At the Swedish Hospital, all patients are under the care of private physicians and receive a certain amount of antenatal care. We have in this series 1,512 cases of pregnancy admitted to the hospital from November, 1921, to April, 1923. There were 206 cases of abortion in this series, a percentage of 13. Therapeutic abortion was done thirteen times for tuberculosis, toxemia and mental conditions. There were 104 premature births, a percentage of about 7. Over one fourth of these premature infants were either stillborn or died neonatal deaths. There were fifty-eight stillbirths and thirty-four neonatal deaths, a percentage of 4.7 and about 3, respectively, in relation to the total living births. There were eight maternal deaths, or 6.5 per thousand living births. Of these, five were due to toxemia, and might have been prevented by better prenatal care. There were no deaths due to puerperal infection, which speaks well for the hospital technic.

In the Minneapolis General Hospital, during 1922, there were 210 abortions; and the reported births were 1,069, making a total of 1,279 cases. This makes a ratio of 1:6. Of the 210 cases, fifty-four were admittedly induced. Here is one fruitful field for antenatal care.

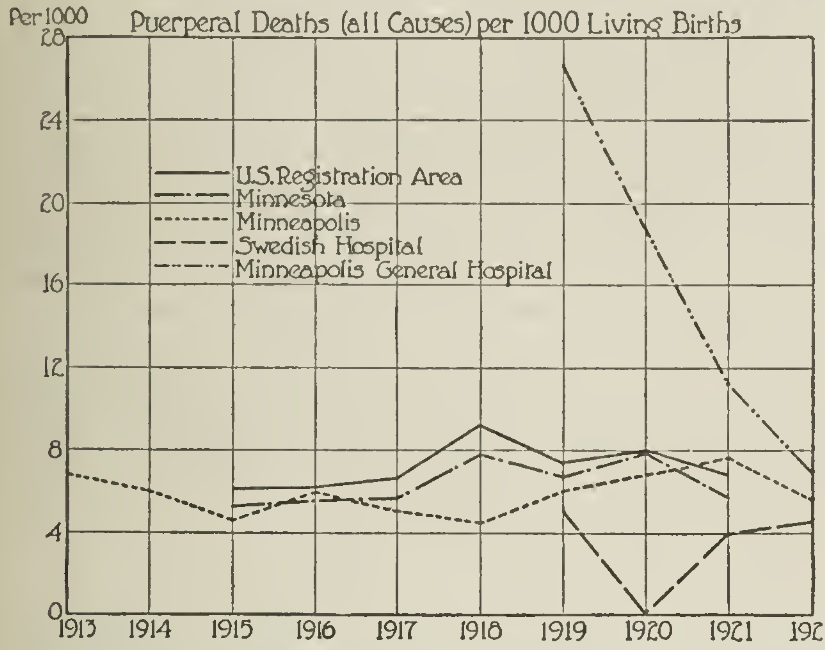

Chart 11.—Puerperal deaths (all causes) per thousand living births: comparison of statistics for registration area of Minnesota, Minneapolis, and certain Minneapolis hospitals.

In this series of 210 abortions, there were thirty which were discharged as threatened abortions. Of these all except two were subsequently followed by our prenatal clinic, with the result that thirteen patients were delivered at term and fifteen aborted. Very few of these patients, not over 4 or 5 per cent., had received antenatal care prior to the development of symptoms of abortion. There was only one maternal death in this series of 210 abortions; it took place in a woman who was removed to a private hospital where she could receive more active treatment.

During this year there were forty-three stillbirths, a percentage to living births of about 4.4. Of these, twenty-two, or about one half of the infants, were delivered at term. Of the twenty-one premature stillbirths, ten or about half, occurred before the period of viability was reached.

Twelve patients died at a result of dystocia and complications of labor; some of these infants might have been saved had the patients received prenatal care and been hospitalized earlier. Complications of pregnancy caused five of these fetal deaths. Syphilis was responsible for six of the forty-two stillbirths. Other causes of fetal death were: fetal diseases and malformations, five; toxemias, two; miscellaneous factors and undetermined, thirteen. Only twelve of the forty-three patients, or 28 per cent., had any antenatal care.

There were sixty neonatal deaths; about eight of these patients, or 13 per cent., had some prenatal care. The causes of death were: prematurity, forty-one; hemorrhagic disease, seven; congenitally weak, diseased and deformed infants, six; miscellaneous and undetermined, six. No doubt, with proper antenatal care the incidence of prematurity could be somewhat reduced.

Maternal deaths in 1922 were only two, one from toxemia and the other from puerperal psychosis with epilepsy, the ratio to living births being about 2 per thousand.

In 1921 there were six maternal deaths, due to puerperal sepsis, three; ruptured uterus, one; tuberculosis, one, and placenta praevia, one. During this year there were about 800 living births, a ratio of about 7.5 per thousand living births.

An interesting phase of our prenatal work is the dental work done on our patients by Dr. D. E. Ziskin. We try to get all of our expectant mothers to go to the dental clinic for examination. About 200 patients who have been to this clinic have been delivered. In this group of 200 cases there have been two premature stillbirths and two stillbirths at term. This is a relatively low percentage of stillbirths. Three patients showed moderate hypertension; one had marked albuminuria with a premature stillbirth.

Bad oral conditions were found in many, with abscesses of 149 teeth; pyorrhea in forty-eight cases; roots, 234 times; gingivitis in fifty-one cases; strawberry red gums in ten cases, and cavities 666 times. The following procedures were carried out: prophylaxis in 111 cases; 586 fillings; teeth extracted, 457, and alveolectomies eight times. This shows that necessary dental work can be done not only without apparent harm to the pregnant woman, but seemingly with benefit.

VITAL STATISTICS AT MINNEAPOLIS AND ST. PAUL

We have also studied the vital statistics for Minneapolis and St. Paul for the last ten years, being indebted to Dr. F. E. Harrington of the Minneapolis Department of Health for the former statistics, and to Dr. A. J. Chesley of the Minnesota State Board of Health for the information regarding the latter city. The most striking feature is the almost identical percentage increase of the hospitalization of maternity cases in the two cities. There has naturally been a proportionate

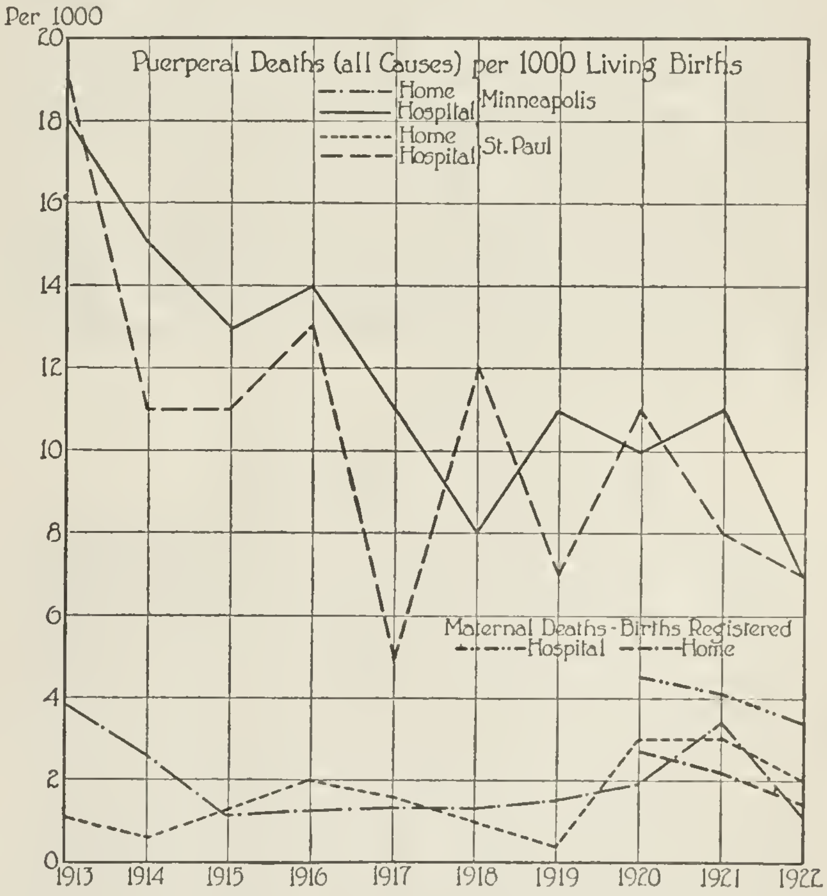

Chart 12.—Comparison of puerperal deaths (all causes) in hospitals and homes of St. Paul and Minneapolis; short curves show number of maternal deaths according to place of birth.

decrease in the percentage of home deliveries. The present relationship between hospital and home deliveries is almost the reverse of that ten years ago. Naturally, the number of deliveries by physicians and midwives in the homes has decreased. In Minneapolis, the number of deliveries by midwives has both actually and relatively decreased. The number of deliveries by physicians in the homes has decreased, but has increased in relation to the percent of deliveries by midwives. The condition is the reverse in St. Paul.

During this period, the percentage of stillbirths and puerperal deaths in the hospitals has gradually decreased, though naturally remaining somewhat higher than in the homes, because of the fact that more patients with complications enter the hospital and because puerperal deaths and stillbirths are more completely and accurately returned from institutions.

The improvement in relation to stillbirths is greater than is apparent from the vital statistics, because we are now reporting to the department of vital statistics all births subsequent to the fifth month of gestation. Formerly, only those after the seventh month were reported. This increases not only the number of premature births, but also the number of stillbirths and neonatal deaths.

OBJECTS OF ANTENATAL CARE

We believe we have brought out some of the things to be accomplished by proper prenatal care and supervision:

1. The reduction of sterility by securing proper care for mothers, and the consequent reduction of infection.
2. The lessening of the number of abortions.
3. The diminution in the number of premature deliveries.
4. The reduction of the number of stillbirths.
5. The saving of infant life during the neonatal period.
6. The saving of the health of the mothers.
7. The virtual elimination of maternal deaths from toxemia and infection by proper instruction, supervision, preparation, and treatment of mothers during the periods of gestation, parturition and the puerperium.

2500 Blaisdell Avenue South.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. RUDE, AND ADAIR AND MALAND

Dr. Hugh A. Cowing, Muncie, Ind.: Maternal mortality is too high. This is true in Indiana, where the maternal death rate has not changed in fifteen years, and where the infant mortality rate, 71 per thousand, should be lower. One-half our baby deaths are from premature births (not counting 10,094 stillbirths in the last five years), and one-half the maternal deaths are due to septicemia. How may we improve obstetric practice? Briefly, we may answer: With better facilities for bedside instruction in hospital schools, more postgraduate obstetric work, more and better hospitals for obstetric service, and greater prominence of obstetric subjects in medical societies. Obstetrics should be dignified. The public should be educated to appreciate the best in obstetric practice. A permanent personal record of every case should be kept. Strict asepsis is invaluable. Patience and wisdom are essential. Meddlesome midwifery contributes much to maternal mortality and morbidity. The obstetrician may be selected for service because of a pleasing personality or a neighborhood popularity rather than because of any special fitness for obstetrics. Sometimes he is overworked and without adequate assistance, and as a result his technic and his patient suffer. The great problem of motherhood cannot be solved by the physician alone. Maternity and infant care bring a responsibility not only to the family, but to the community and to the state. Prenatal, maternal and infant care should be adapted to the needs and conditions in the community. Dr. Schweitzer, our director of the division of infant and child hygiene, reports that the problem of the professional midwife is practically limited to the areas with foreign population. As to prenatal care, 97 per cent. of the mothers who brought children for examination at the division conferences had a physician attendant at birth. Mothers who had adequate rest before delivery had fewer complications and healthier babies. Fifty-four per cent. of the mothers had from two to nine months' prenatal supervision by a physician. Of 4,820 mothers, 86 per cent. report good recovery and 83 per cent. good health from two to five years after the birth of the child examined. Our report on obstetric care includes the mothers and babies brought to the conferences in four counties in Indiana in 1922. The report on 9,985 pregnancies indicates the need of better conditions, including better obstetrics. Stillbirths averaged one in thirty pregnancies, and miscarriages one in nine pregnancies. Our board, through our child hygiene division, is conducting a campaign of publicity and education, instructing mothers in baby health conferences, and also teaching public health nurses to become helpers and instructors, and establishing health centers where physicians and nurses give instruction in maternity and infant care, and encouraging local organizations to continue this work.

Dr. G. C. McPheeters, Fresno, Calif.: Every few years this problem of the midwife bobs up, and it is discussed more or less in a hopeless manner. A midwife, whether she is very bad or merely mediocre or whether she is passingly good, may be compared to the use of the lumbering stage coach of early days, which was used because there was no better means of transportation. Obviously, the midwife is being used because she is a makeshift and because we have in those districts no better means of maternal and postnatal care. As we provide better means, the midwife will gradually disappear, as the stage coach has disappeared from transportation in our country. The education of the medical profession, primarily, and then the education of the lay public in the appreciation of what constitutes maternal care is necessary. The education of the midwife alone will never accomplish this problem any more than the improvement of the old stage coach would improve transportation. The education must concern itself not only with the people of the present generation, but also with the education of young people in our schools and colleges. I would be in favor of this section's appointing a standing midwife committee which should classify and compile laws of the various states with regard to midwives. We might then recommend to those states that are still floundering in the sea of midwifery some standard laws to educate the profession and the public to the need of better obstetric care. I would be in favor of having a committee on sex instruction which could compile data to be furnished to those who are teaching sex subjects in our schools. The young people of our generation and of the coming generation should know what to expect in prenatal care, what to expect in the important problem of confinement, and what to expect about postnatal care. In my work in obstetrics, I have been able to control the nausea and vomiting of pregnancy in its early stages so that the vitality and strength of the mother is saved and so that the existence of severe nausea and vomiting and hyperemesis gravidarum may be prevented in many cases. I have instructed the mother so that she may preserve her figure and the contour of the body so that her health in later life is preserved. Enteroptosis is prevented. We have been able to control hyperthyroidism in some mothers, and I think I have been able to prevent the development of goiter. I have detected early hypothyroidism and prevented obesity. I have been able to teach our mothers more about the vital problem of breast feeding so that there is a higher than normal incidence of breast feeding.

Dr. Rudolph W. Holmes, Chicago: It seems to me a sad commentary on the practice of modern obstetrics that we have on one side the invaluable contribution of Drs. Adair and Maland, and a discussion of the midwife problem on the other. About twenty years ago I headed a committee of the Chicago Medical Society to investigate the midwife. We, as a committee, believed that the midwife problem was a matter of economics, and a matter of education. Legislation does not improve the status of the midwife, unless it is accompanied by careful, conscientious supervision of accredited authority. Education of the public to something better in obstetrics will eliminate the midwife. At the same time, obstetric dispensaries must be created to care for the indigent obstetric woman. During the war, at the high period of affluence of the working people, the midwife cases diminished more than 25 per cent. With the recurrence of poverty after the war, the numbers of midwife cases increased greatly. In the last twenty years, the number of midwives in Chicago diminished from 400 to about 200. This is a natural reduction. With proper supervision of the midwives' work, there is not such a problem as we have believed. The director of infant welfare of New Jersey has shown that the maternal morbidity and mortality, as well as that for the baby, is less in the hands of the midwife than in the hands of the physician. Likewise, Nicholson showed that this was true in Pennsylvania—and is true because there is adequate supervision. We believe that the increasing death rates for the obstetric woman and her child are due to two causes. During the last ten years, too many of our assumed authorities have demanded that all women must have operative deliveries; that routine cesarean sections, forceps, versions and bag therapy spell greater success than spontaneous effort on the part of the woman. Their successes may be comparable to those in which watchful expectancy was the rule, but this teaching, going out to us, the rank and file of the profession, convinces us that this is the ultrascientific course to follow. Without a development of that skill which comes from an enormous clientele, without the facilities of a modern maternity clinic and all that goes with it, we blindly follow only to be led to disaster. The promulgation of an operative furor has greatly contributed to the present high maternal and fetal mortality. The second point is that since the influenza epidemics, infections during the puerperal state have increased. We see this in the greatly increased numbers of breast abscesses and general puerperal infections, for which increase, focal infections are largely responsible.

Dr. Henry Parker Newman, San Diego, Calif.: The issue of today is for the proper handling of obstetrics. Motherhood and childbearing should be a health-giving and not health-destroying or health-impairing function. But what is it? Sixty-five per cent., and more, is the morbidity of the child-bearing woman. We see it in our gynecologic work every day. A remedy has been suggested, largely the supervision of pregnancy, prenatal and post partum, covering the period in which we restore the individual mother as well as the child to normal health. I wish we could all take this home with us and emphasize the importance and carry out the instructions that have been given us today.

Malaria and the Railroads.—The Missiouri Pacific Railroad, the U. S. Public Health Service, and the state health officers of Arkansas and Louisiana cooperated in a malaria survey of the Missouri Pacific lines south of St. Louis to ascertain the effect of malaria on the operating cost and to make proper recommendations to the railroad for economical control of the disease. It was found that, during the last twenty-three years, the number of employees treated in the Employees' Hospital Association hospitals averaged more than 1,000. Injuries and surgical cases for the same period totaled only 75 per cent. of the number of admissions for malaria, which constituted 35 per cent. of all hospital admissions for malaria, and 45 per cent. of all sickness. In addition, more than 4,000 employees received outpatient treatment for malaria each year. Employees treated in hospital averaged nine days therein. The hospital malaria rate for employees working south of St. Louis was eight times higher than among employees west of that point. In 1920, when the personnel employed by the railroad was subnormal, the cost of hospital treatment for employees having malaria was more than $25,000, which was only a part of the actual loss to the railroad.

CAUSATIVE FACTORS AND TREATMENT OF CHRONIC EMPYEMA *

CARL A. HEDBLOM, M.D.
ROCHESTER, MINN.

If all the potential causes of delayed healing could be recognized and obviated during the acute stage, there should be no chronic empyema. It must be admitted that a cause of delayed healing may be very obscure, and that, even if recognized, it may be impossible to remove it. However, in most cases the cause is recognizable, and more can be accomplished in preventing chronic empyema by the removal of the cause of delayed healing during the acute stage than can be accomplished by the later cure. Intelligent and rational treatment of the chronic condition must be based on an understanding of the underlying cause. An inquiry into the causes of delayed healing is, therefore, pertinent to the consideration of both prevention and cure.

Table 1.—*Age of Patients and Duration of Empyema*

Age of Patients		Duration of Empyema	
Less than 5 years	11	From 3 to 5 months	78
From 6 to 10 years	11	6 to 12 months	92
11 to 15 years	15	13 to 24 months	55
16 to 20 years	43	2 to 3 years	34
21 to 30 years	115	3 to 5 years	20
31 to 40 years	70	5 to 10 years	16
41 to 50 years	29	10 to 15 years	7
51 to 60 years	10	15 to 20 years	4
61 to 70 years	6	More than 20 years	3
Total	310	Total	310

This paper is based on a study of 310 cases at the Mayo Clinic during the last five years. The age incidence and the duration of the empyema are given in Table 1. It will be noted that in 231 cases (74.5 per cent.) the cavity had been present more than six months; in ninety-four more than two years, and in thirteen more than ten years. The cases fall into three well defined clinical groups, latent or undrained empyema, delayed healing following early drainage, and persistent or recurrent empyema following drainage (Table 2).

Table 2.—*Duration of Empyema by Groups*

Time	Undrained or Unrecognized	Persistently Draining	Recurrent	Total
From 3 to 6 months	37	32	6	75
6 to 12 months	15	40	20	75
1 to 2 years	8	39	23	70
2 to 5 years	9	27	24	60
5 to 10 years	1	7	7	15
10 to 20 years	..	5	10	15
Total	70	150	90	310

LATENT OR UNDRAINED EMPYEMA

Seventy patients presented themselves for treatment without having had drainage. The length of time the empyema had been present, as determined by the clinical history, was about three months in twenty-one patients, from three to six months in sixteen, from six to twelve months in fifteen, from one to two years in eight, from two to five years in nine, and from five to ten years in one. The result of cultures from aspirated pus in thirty-four of these patients was pneumococcus in thirteen, pneumococcus and streptococcus in five, streptococcus in eight, and staphylococcus in three; cultures were sterile in five. In eighteen additional patients that came with persistently draining sinuses, and in seventeen with recurrent empyema, initial drainage had been delayed for from three months to three years, making in all 105, or more than 33 per cent. in whom delayed initial drainage was a factor in the production of chronicity. To this number are added the patients having two or more separate cavities, of which only one was rocognized and drained at the primary operation. The effect of such delayed drainage was a fibrous membrane over the pleura fixing the lung in a partially collapsed condition, perforation of the pus into the bronchi or through the chest wall, or both, and septic absorption manifested by emaciation, anemia, arthritis, osteo-arthropathy, nephritis, myocarditis and, in certain extreme types, structural deformity of the thorax (Fig. 1).

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* From the Section on General and Thoracic Surgery, Mayo Clinic.

* Read before the Section on Surgery, General and Abdominal, at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

* Because of lack of space, this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the author's reprints. A copy of the latter will be sent by the author on request.

The most characteristic symptom was a chronic productive cough, which was present in all except three cases. Bronchial fistulas were present at the time of examination in 28.38 per cent. A considerable number of patients, without demonstrable fistula, raised purulent sputum in large amounts. The onset of symptoms was insidious, and in many instances the condition was diagnosed pulmonary tuberculosis. In others, if the onset of cough and sputum was abrupt, pulmonary abscess was diagnosed. Bronchiectasis, pertussis, arthritis and nephritis were among the diagnoses made. One patient was kept in bed for months because of tachycardia only.

In twenty cases exploratory aspiration was performed elsewhere, but pus was not obtained, in some instances apparently because the aspirating needle was not inserted to a depth sufficient to reach the cavity. In one such case, undrained for two years, the parietal pleura was 3 cm. in thickness. In many cases aspiration was performed in the usual area at the base, while the pus was encapsulated more anteriorly, in the paravertebral gutter, at the apex or, as in two cases, between the lung and the pericardium. Secondary unrecognized and undrained pockets were present in many cases.

DELAYED HEALING FOLLOWING EARLY DRAINAGE

The 150 patients in whom there was delayed healing following early drainage presented themselves with draining sinuses that had persisted since the first operation. The duration of drainage was from three to six months in thirty-two patients, from six to twelve months in forty, from one to two years in thirty-nine, from two to five years in twenty-seven, from five to ten years in seven, and from ten to twenty years in five.

In about half of the 150 cases, incomplete drainage was the obvious cause of delayed healing. The drainage was inefficient, owing to (1) partial healing of the drainage opening; (2) failure to secure dependent drainage; (3) inadequate draining of secondary pockets, and (4) incomplete irrigation drainage by the closed method.

Partial Healing of the Drainage Opening.—This condition represents by far the most common cause of failure to secure healing in cases of acute empyema treated by open drainage. Healing of a drainage opening in the soft tissues progresses more rapidly than obliteration of the cavity. The resulting narrow sinus fails to drain off all the pus, and chronicity results (Fig 2). If a catheter is inserted into such a sinus, several hundred cubic centimeters of pus may often be aspirated. Repeated drainage operations may finally result in healing, or the cavity may persist indefinitely. Twenty-eight patients in this series had from two to seven such operations, and repeated transient healing of the sinus with spontaneous perforation occurred in many instances. One patient kept a sinus patent for seven years by the daily use of a hairpin.

PERSISTENT OR RECURRENT EMPYEMA FOLLOWING DRAINAGE

There were ninety cases in which there was complete healing of the drainage wound with later operation or spontaneous drainage. The period of healing is indicated in Table 3. Cultures from aspirated pus in twenty-one of these cases revealed the stapyhlococcus in eight, pneumococcus and streptococcus in two, staphylococcus and pneumococcus in three, pneumococcus in three, streptococcus in three, and diphtheroid bacillus in one; the culture was sterile in one case.

In most of the cases in which drainage had lasted less than a year, the cavity was doubtless persistent rather than recurrent; in some cases the cavity enlarged considerably after the drainage opening closed. In a few cases in which the drainage had lasted longer, the evidence also pointed to a persistent cavity. In one there was a persistent cavity with abundant sputum for four years; then spontaneous perforation of the chest wall was followed by cessation of cough and sputum. In another instance the patient could elicit a splashing sound from the thorax, and there was a steadily progressive thoracic deformity for fourteen years (Fig. 3). In most of the cases in which drainage had lasted more than two years, the evidence was fairly conclusive that there was true recurrence of infection, and reaccumulation of pus.

Table 3.—*Period of Healing in Seventy-Four Cases of Recurrent Empyema*

Time	First Period, Cases	Second Period, Cases	Third Period, Cases
Less than 8 weeks	25	18	2
From 8 to 12 weeks	9	1	1
3 to 6 months	15	8	1
6 to 12 months	5	11	2
1 to 2 years	6	2	1
2 to 5 years	4	3	..
5 to 10 years	5	..	..
10 to 17 years	5	1	..
Total	74	44	7

It may be noted that these patients were apparently in good health and working during intervals of from two to seventeen years, and also that the time of onset of recurrence was fairly definitely marked. In some cases the onset was characterized by symptoms of acute infection; in others it was of insidious onset, but steadily and rapidly progressive.

In one instance the patient was observed apparently at the onset of reinfection. The symptoms were those of an acute infection characterized chiefly by pain in the back, and along the costal margin. A diagnosis of acute cholecystitis was made. The first roentgenogram revealed slight pleural thickening, such as might be expected following healed empyema. The second roentgenogram, taken three days later, revealed a shadow characteristic of encapsulated empyema. Later, cough and sputum developed, and at operation a large bronchial fistula was found.

A basis for persistent infection in the thickened pleura is also found in the abscesses and cavities that were buried in the thickened pleurae in some of these cases (Fig. 4).

In twenty of the patients in the series, the cavities were not draining at the time of examination; forty-six patients had had two drainage operations; thirty-six had had spontaneous perforation of the chest wall; seventeen, repeated perforations. One patient's cavity had healed and drained at alternate periods of three weeks for five years; the wound remained healed for four years, draining meanwhile through a bronchial fistula. A spontaneous perforation then occurred; this closed, and two rib resections for drainage were performed. During the nine months before the patient presented herself for examination, there had been repeated spontaneous perforations in the scar.

Thirty-three of the patients had had bismuth paste injected; several were poisoned. In most instances the bismuth seemed to plug the drainage opening and promote healing of the sinus, but not of the cavity. There were cough and sputum, often foul and in large amounts. Fever, pain, dyspnea, edema, arthritis, club fingers, loss of weight, and weakness were among the symptoms and signs present in these cases.

The causes of delayed healing as observed in the 310 cases considered as a whole were (1) late drainage, (2) inefficient drainage, (3) persistent infection in the pleura, (4) bronchial fistulas, (5) tuberculous pleuritis, (6) foreign bodies, (7) massive collapse of the lung, and (8) fibrosis in the lung.

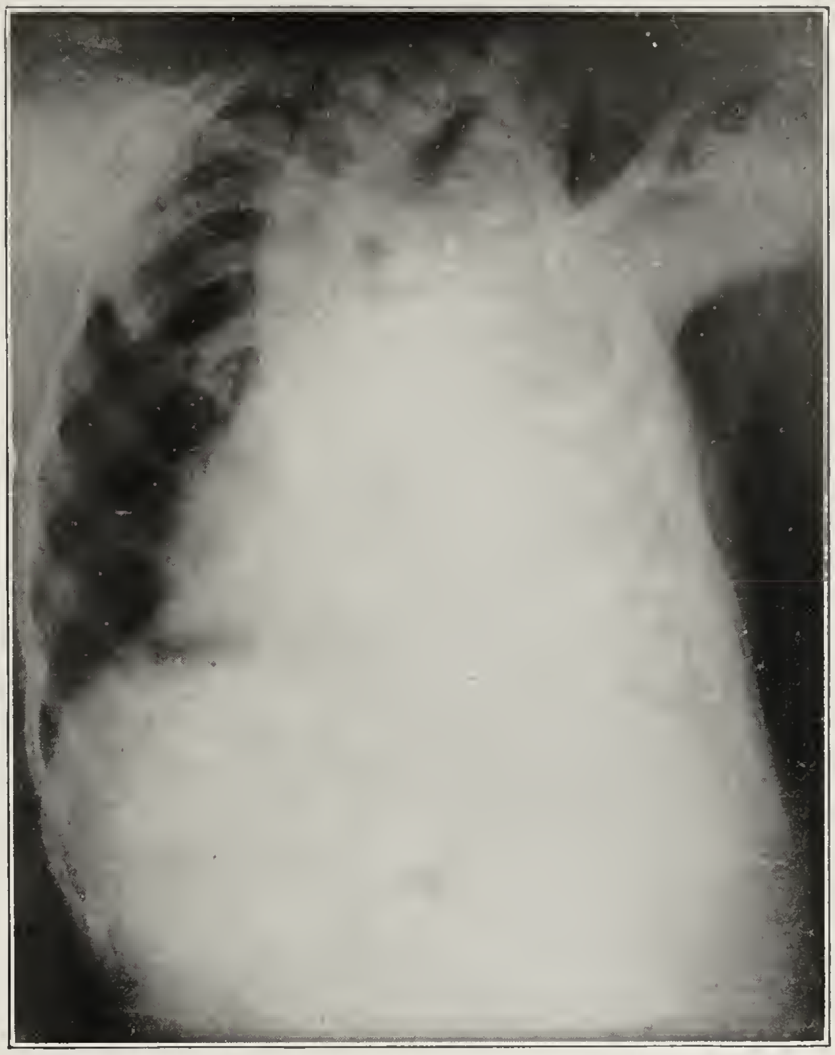

Fig. 1.—Unrecognized empyema undrained for eight years: Roentgenogram was taken in anteroposterior position.

Late Drainage.—As I have pointed out, late drainage was a factor in seventy in the first clinical group of cases of latent or undrained empyema, and in seventeen of the second group of cases, and in eighteen in the third group, so that in a total of 105 cases, late drainage may be said to have been a contributing cause to chronicity.

Inefficient Drainage.—In at least seventy-five of the 150 cases in the second clinical group, and in all of the cases in the third clinical group, in which the cavities were persistent, the drainage was inadequate in that it did not serve to keep the cavity empty of pus until it had become obliterated.

Persistent Infection in the Pleura.—This factor has been shown to play a part in many of the ninety cases in which there was persistent or recurrent infection, and doubtless in an unknown number of other cases; it will probably always be responsible for reinfection after chemical sterilization of a cavity.

Bronchial Fistula.—Such fistulas are more common as a cause of chronicity than is generally recognized. There were eighty cases (28.38 per cent.) in this series. Thirty-three (36.66 per cent.) occurred in the ninety recurrent cases (29 per cent. of the whole series), indicating that the fistulas are largely the result of lack of drainage. In seventeen, the fistula resulted from the perforation into the bronchus of an unrecognized empyema. The presence of small fistulas that would ordinarily escape notice has been demonstrated, particularly by the use of the sodium hypochlorite solution. Probably the eroding action of the fluid on superficially necrosed areas opens up terminal bronchi plugged by such material.

Bronchial fistulas are likely to become chronic, if the cavities are large, by preventing the inflating action of the increased intratracheal pressure during coughing, straining and so forth, and also by reinfecting the cavity. A sinus or cavity communicating with a bronchus may also become completely lined with epithelium by its proliferation from the mouth of the bronchus. I have seen small cavities that had persisted for years heal following simple cautery destruction of this lining endothelium.

Tuberculous Pleuritis.—Tuberculosis of the pleura is a common cause of delayed healing. A consideration of this condition is peculiarly fitting in a study of the causes of chronicity, because a great many cases are treated for years without being recognized as tuberculous, because of the frequently observed similarity to the purely pyogenic type, and because in a considerable proportion tuberculous cases fall into the nontuberculous group only because positive proof of tuberculosis is lacking. There are, furthermore, very good grounds for the belief that certain cases of nontuberculous empyema became tuberculous during the process of treatment. In a previous study I divided these cases into four groups: (1) tuberculous empyema proved by biopsy or the demonstration of the tuberculosis bacilli; (2) clinically tuberculous empyema; (3) empyema in patients having an active tuberculous focus, and (4) idiopathic empyema, or empyema in patients having a preceding idiopathic pleurisy with effusion.

There were twenty-nine (9.35 per cent.) positively proved cases of tuberculous pleurisy. Twenty-five were proved by microscopic examination of the excised pleura, two by demonstration of the tuberculosis bacilli in the exudate, and two by guinea-pig inoculation. There were eight cases with a definite clinical diagnosis of tuberculosis, sixteen of empyema with associated active tuberculous lesions, and twenty-seven of idiopathic pleurisy with effusion, in which empyema later developed.

Repeated examination of the exudate from chronic empyema sinuses, and biopsy on excised pleural tissue will undoubtedly show a larger proportion of these cases to be tuberculous. In 1922, at the Mayo Clinic, 17.7 per cent. of the total number of cases were proved to be tuberculous, as against an average of 6.9 per cent. during the four preceding years.

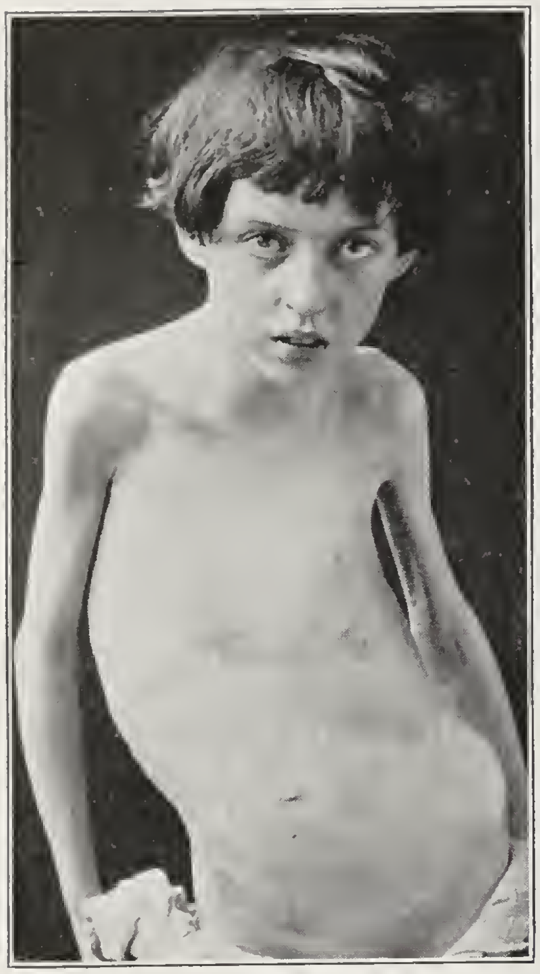

Fig. 2.—Large empyema cavity of seven years' duration incompletely drained through a narrow sinus: marked thoracic deformity.

Foreign Bodies.—Foreign bodies were present in thirty-five cases. Bismuth paste mixed with infected pus was present in fourteen. Several of the patients had symptoms of bismuth poisoning. The fragments of necrosed ribs probably represent sequestration of stumps of the ribs left denuded of periosteum, and exposed to infection at the time of operation. Ribs should be resected well back, so that the stumps are covered by soft tissues; the ribs should not be denuded of periosteum beyond the portion resected. It is worthy of note that in two of the eight cases in which segments of rubber tubing were found in the cavity, the roentgen rays failed to show them. In one case, dermoid hair balls produced a shadow interpreted as tumor. Necropsy following death from the crisis of exophthalmic goiter revealed their true nature.

Massive Collapse of the Lung.—In a considerable number of cases, fixation of the lung, in a state of massive collapse, resulted in a huge cavity extending from the dome of the pleural cavity to the diaphragm. In several cases of undrained empyema, belonging to the first group, the lung had been compressed for months by from 1,000 to 2,000 c.c. of pus. In a few instances, traumatic pneumothorax was followed by empyema, and the lung, months later, lay collapsed against the hilum. In a number of cases, operative pneumothorax for foreign bodies, and in one case for freeing adhesions to secure therapeutic collapse of a tuberculous lung, led to this condition. By far the largest number, however, were due to open drainage following repeated aspiration for a pleurisy with serous effusion. Some of these cases required most extensive operations, including resection of the first rib, clavicle and scapula, and a plastic operation with the pectoral muscles to secure obliteration of the apical cavity. It must be emphasized that open drainage of a sterile effusion should not be instituted, and drainage of a massive infected effusion during the seropurulent stage should be accomplished by the closed method.

Fibrosis of the Lung.—It may probably be assumed that this condition is present in all cases of more or less complete long standing collapse of the lung; but I have observed fairly complete expansion of the lung following decortication after partial collapse of five years' duration. In another case, however, of only six months' duration, microscopic examination revealed a partially collapsed lung so completely fibrosed that reexpansion seemed entirely out of the question. Probably the type of resolution of a preceding pneumonia plays a very definite part in the production of this condition. Fibrosis of the lung prevents spontaneous healing of empyema, and prevents expansion following irrigation treatment or decortication.

TREATMENT

In considering the treatment of empyema, it must be emphasized that there is so much variability with regard to etiology, pathologic anatomy, and the general condition of the patient that no two cases are quite alike. Any single method of treatment, therefore, whatever its merits, will not be suited to all cases, and to apply a method universally means trying to adapt the patient to the treatment, rather than the treatment to the patient.

The guiding principles of treatment should be to secure healing by means that safeguard life, and so far as possible preserve function and structure. A complete cure is not the sole criterion of any given method; the cost at which the cure was obtained must also be taken into consideration. If a patient with chronic empyema can be cured by a reexpansion of the lung, then a destructive operation is an unjustifiable secrifice

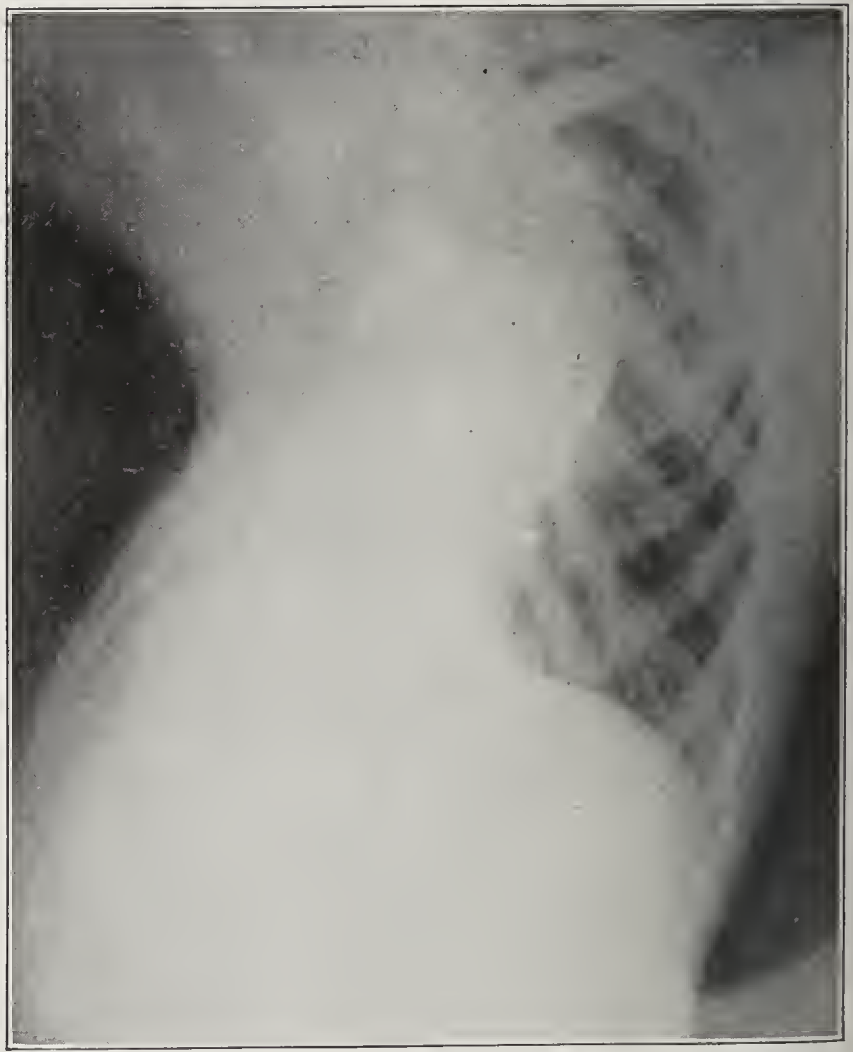

Fig. 3.—Empyema of nineteen years' duration: late primary drainage; healing of primary drainage opening after eight months; persistence of cavity unrecognized for fifteen years; progressive thoracic deformity.

of structure and function, even though the operation is adequate, and the result a cure. Conservative methods should be given the benefit of doubt in the choice of operative procedure.

The treatment in the cases reported consisted of (1) preliminary aspiration; (2) simple open drainage; (3) irrigation with antiseptic solutions or saline solution, by the closed method, and by the open method; (4) decortication; (5) plastic operation, rib resection only, and rib resection and excision of parietal pleura with or without muscle or skin plastic; and (6) extrapleural thoracoplasty.

Preliminary Aspiration.—Preliminary aspiration is used as a confirmatory diagnostic procedure, and also in questionable cases to determine by culture whether or not the pus contains pyogenic organisms. If the pus is sterile and the case falls into one of the clinical groups of presumptive tuberculous empyema, open drainage should not be instituted. Open drainage in such cases is almost certain to lead to secondary infection, and the patient will be the worse for the treatment.

Simple Open Drainage.—Simple open drainage is the first indication in cases of cellulitis of the chest wall, osteomyelitis of the ribs, and for the removal of foreign bodies in cases clearly complicated by large bronchial fistulas, as evidenced by persistent cough with large amounts of sputum, or if it is found by actual test that the patient will not tolerate irrigation by the closed method. Irrigation with sodium hypochlorite solution may then be carried out in the presence even of large bronchial fistulas.

Irrigation with Antiseptic or Saline Solution.—Irrigation, preferably with antiseptic solution, is of great advantage in all cases in which the cavity is of considerable size, for the reason that (1) the patient's general condition greatly improves, (2) the cavity is usually diminished in capacity, often from 50 to 95 per cent., or it may be completely obliterated, and (3) the cavity is rendered practically sterile, in case later operation is required (Figs. 6 and 7).

In cases of tuberculous empyema with greatly thickened visceral and parietal pleura, the treatment is of marked benefit, but the parietal pleura may be thick without thickening of the visceral pleura. The solution must therefore be used with caution in any case of tuberculosis. If the roentgenogram does not reveal thickening of either visceral or parietal pleura, sodium hypochlorite solution is contraindicated, but saline solution or one of the nonirritating dye antiseptics may be used.

Whether irrigation is done by the closed method or following rib resection seems to be of little importance. The closed method is simpler, can be instituted at once in case there is an open sinus admitting a catheter, and this method insures complete contact of the solution with all parts of the cavity without effort, as contrasted with the difficulty of keeping a number of tubes in place in different portions of an open cavity. If the cavities are large, a negative tension produced by the use of blow bottles is maintained by the closed method. If exploration for secondary pockets or foreign bodies is desirable, the opening can be sutured.

Decortication.—Decortication is the operation of choice in cases in which irrigation fails, or in which there is a residual cavity of considerable size. If the cavity is small, under 100 c.c. capacity, it is questionable whether the amount of expansion of the lungs obtained is sufficient to warrant the operation. Usually cavities suitable for decortication decrease in size by the irrigation treatment to such an extent that decortication is no longer indicated, and if the cavity persists my experience has been that decortication will, as a rule, be only a partial success.

Plastic Operation.—This type of operation is indicated in cases in which the lung cannot be made to expand by the foregoing methods. Simple rib resection (Eslander operation) is the most conservative, and following antiseptic solution sterilization, results in a large proportion of cures. The convalescence is slower, however, and the danger of recurrence greater than if the parietal pleura is sacrificed. In cases of greatly thickened pleura, and in some cases in which there have been recurrences, the parietal pleura should be excised. In tuberculous cases, plastic operation following excision of the parietal pleura has yielded a higher percentage of cures, in my experience, than skin muscle operations. In other cases a muscle plastic operation following sterilization and excision of the parietal pleura and primary closure is the operation of choice. In some cases this operation may be combined to advantage with a visceral decortication. A 2 per cent. solution of gentian violet has proved of some value as a decorticating agent; at the same time it sterilizes the field preparatory to the plastic operation.

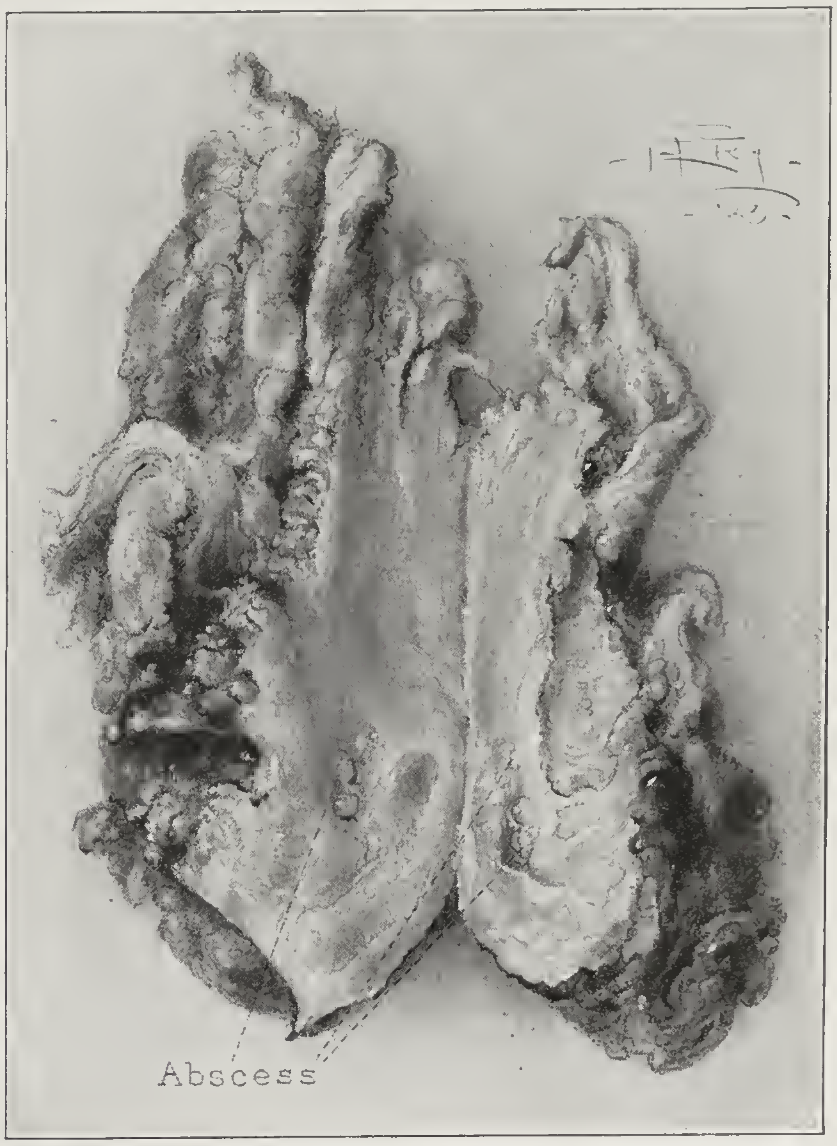

Fig. 4.—Specimen of excised pleura from patient who had had five recurrences following complete healing of drainage opening; multiple abscesses embedded in the thickened pleura.

Extrapleural Plastic Operation.—In large sterile empyema cavities which do not become obliterated following simple aspiration, and in draining sinuses with secondary infection, an extrapleural rib resection in several stages offers a method of cure if patients cannot withstand a more radical operation. Various combinations of the foregoing methods are often necessary in order to effect a cure on a conservative basis.

Local and nerve trunk anesthesia, with or without nitrous oxid and oxygen analgesia, is the anesthesia of choice.

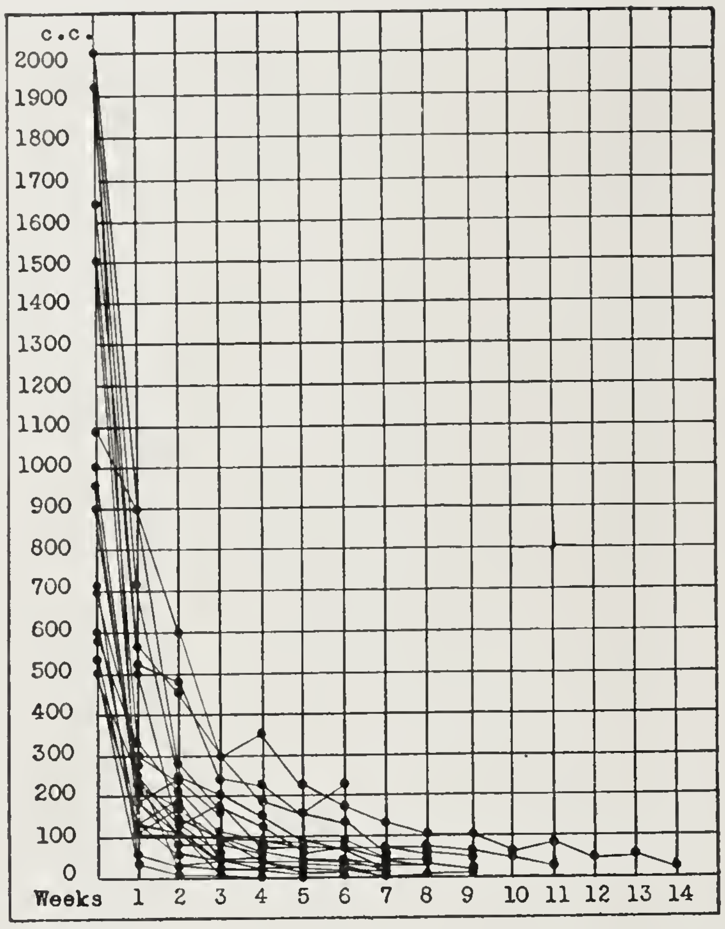

Fig. 5.—Progressive decrease in capacity of empyema cavity following irrigation with sodium hypochlorite solution; twenty-four cases, capacity of cavity from 500 to 2,000 c.c.

TREATMENT OF BRONCHIAL FISTULAS OPENING INTO EMPYEMA CAVITIES

Small fistulas, the presence of which is proved by the fact that the patient tastes the solution used for irrigation, or expectorates dye-stained solution, usually heal without special treatment. Irrigation, even with the highly irritating sodium hypochlorite solution, may still be possible, provided the cavity is not filled with the solution; but such treatment should be carried out with great caution. In many cases it was impossible to demonstrate such fistulas when open drainage was instituted. Large fistulas, as evidenced by intolerance to irrigation even with a bland solution, or by the evacuation by mouth of large amounts of pus, require open drainage. Irrigation with sodium hypochlorite solution may then be possible, and the fistulas will usually heal following chemical cauterization for the purpose of destroying the endothelial lining which is followed by granulation tissue formation. In case a plastic operation is performed for the obliteration of the empyema cavity, the bronchus may be closed by removing the thickened fibrous membrane surrounding the fistulas and suturing of the walls of the bronchus, or by a muscle or skin plastic operation.

Multiple fistulas, usually the result of perforation of a relatively small encapsulated empyema of long standing, and with extensive destruction of lung parenchyma, may be very difficult to heal. Conservative chemical cauterization is indicated in such cases, rather than an abrupt closure by a plastic operation, because of the tendency to the development of cerebral abscess.

In order to study the results from the various methods of treatment, the cases were grouped according to the method believed to have contributed most to the results, even though in many cases several different methods were used at different stages of the treatment. The principal operative procedures were aspiration and drainage in ninety-one cases, antiseptic solution treatment in ninety-nine, decortication in thirty-six, and plastic operations in eighty-four. The results of these various methods of treatment are indicated in Table 4.

Table 4.—*Summary of Results of Treatment of Three Hundred and Ten Cases*

Results	Aspiration and Drainage	Irrigation with Antiseptic Solution	Decortication	Plastic Operation	Total
Complete recovery	59	67	18	48	192
Marked improvement	7	9	8	10	34
No report	18	17	6	15	56
Too recent to classify	2	1	..	8	11
Hospital mortality	2	..	1	2	5
Deaths later from various causes	3	5	3	1	12
Results in the Eighty Cases Proved, or Suggestive of Tuberculous Pleuritis					
Complete recovery	8	9	2	14	33
Obliteration of cavity but persistent sinus	4	3	3	7	17
No report	7	7	2	6	22
Too recent to classify	..	..	..	4	4
Operative mortality	..	..	..	..	..
Died later from various causes	1	2	..	1	4

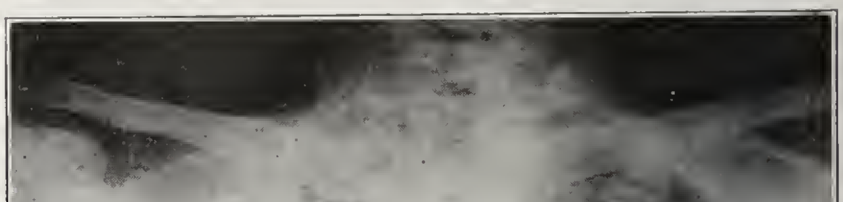

Fig. 6.—Empyema of three years' duration before treatment.

SUMMARY

In 310 consecutive cases of chronic empyema, the condition had been present more than three months in all, from six months to two years in 48 per cent., and from two years to more than twenty years in 22.6 per cent. In 22.6 per cent. the cavities were from three months' to ten years' duration, unrecognized or undrained. In 50 per cent., sinuses had persisted since the drainage operation from three months to twenty years; 27 per cent. were recurrent, the condition having remained healed from eight weeks to fifteen years. In forty-four cases there had been two prolonged periods of healing, and in seven there had been three prolonged periods. Twelve patients were entirely free from symptoms during the healed periods, which varied from eight weeks to seventeen years. Thirty-six patients with recurrences had had spontaneous perforations in the wall of the chest; thirty-three had had bismuth paste injections, and several of these had marked bismuth poisoning.

Causative factors contributing to chronicity were late drainage in 105 cases (33.8 per cent.); insufficient drainage in at least 50 per cent., and persistent infection in the pleurae in an uncertain proportion of the ninety recurrent cases, and probably in some others. Bronchial fistulas were present in 28 per cent.; more than a third were found in the cases of recurrent empyema. Tuberculous pleuritis was a cause of chronicity in thirty-seven proved cases, and in an uncertain number of forty-four cases in which there was tuberculosis elsewhere, or in which empyema had developed on an idiopathic pleural effusion. Foreign bodies were present in thirty-five cases. Massive collapse of the lung and fibrosis of the lung were at least contributory causes in many cases.

Conservative treatment, securing healing by methods which safeguard life, and so far as possible preserve function and structure, is an obligation. Treatment should be adapted to the individual case, and based on the etiology, pathologic anatomy, and the patient's general condition. Exploratory aspiration and culture of the fluid withdrawn should be the rule in all cases suspected of being tuberculous, and a sterile effusion should not be subjected to open drainage, as a secondary infection is superimposed thereby. Only in the presence of cough with sputum suggesting an impending bronchial perforation should such cases be drained, and then preferably by the closed method.

Table 5.—*Operative Mortality*

Operation	Cause of Death	Comment
Rib resection for drainage	Cerebral thrombosis, bronchiectasis, pleurobronchial fistula, and general amyloidosis	No irrigation with antiseptic solution
Rib resection for drainage	Tuberculous empyema, bronchopneumonia, inanition	No irrigation with antiseptic solution
Plastic collapse..	Brain abscess, meningitis and pyocephalus	No irrigation with antiseptic solution
Plastic collapse..	Myocardial degeneration and cardiac failure	
Decortication, and rib spreading exposure	Acute epidemic streptococcal bronchopneumonia, and bilateral parenchymatous nephritis	

Irrigation with antiseptic solution recommends itself as a routine in the treatment of chronic empyema, because of the partial or complete obliteration of the cavity that results in a considerable proportion of cases, and because even if the cavity is not diminished in size, it prepares the patient and the operative field for whatever operation may be necessary. Most small bronchial fistulas may be irrigated by the closed method, if precautions are taken with regard to the position of the patient during irrigation, and if only a small amount is instilled at one time. Tuberculous cavities, without appreciable thickening of the pleurae, should not be irrigated with sodium hypochlorite. To be effective, irrigation must be sufficiently frequent to keep the cavity washed clean of pus, about every two hours during the day, and three or four times during the night. If the cavity is persistent, and of about 100 c.c. capacity, an attempt should be made to obtain expansion of the lung by surgical or chemical decortication, provided the case is not tuberculous, or of long duration. For the obliteration of cavities of several years' duration, a plastic collapse of the chest wall is indicated if the cavities are tuberculous, if there is associated pulmonary tuberculosis, or if decortication has failed. An extrapleural collapse is the most conservative, but a resection of the parietal pleura, combined with a muscle plastic operation, and a primary skin closure, is usually more effective.

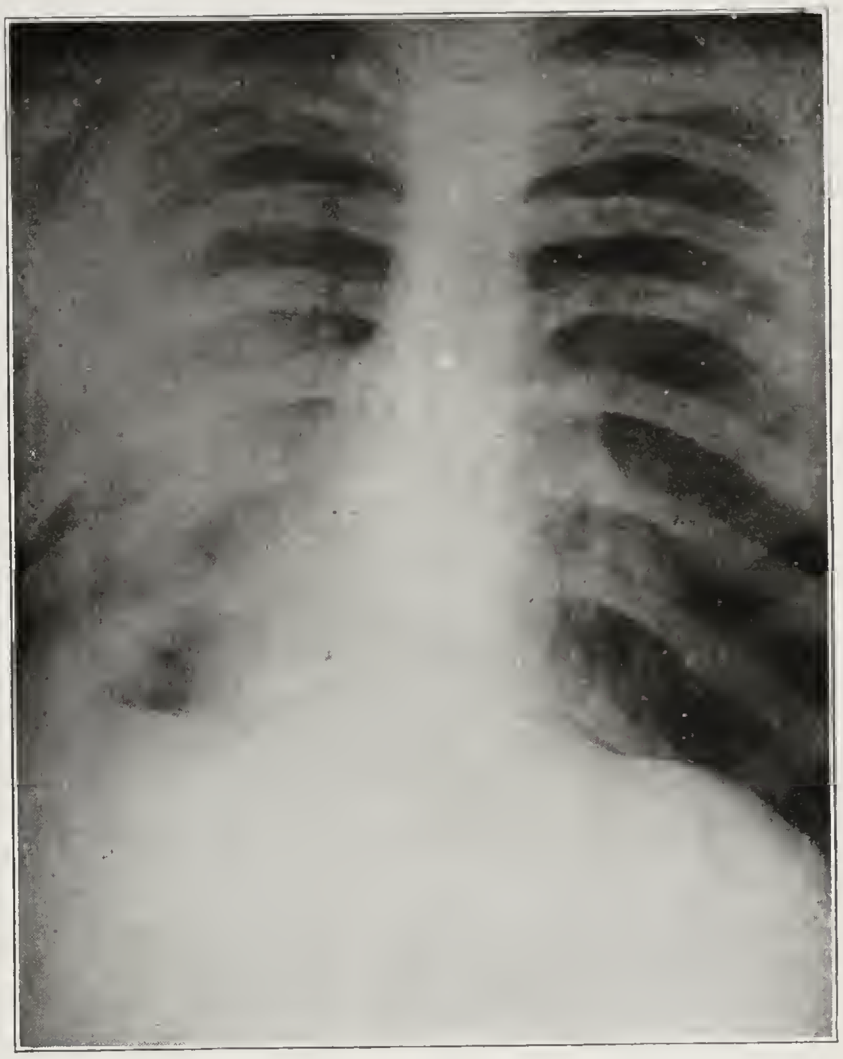

Fig. 7.—Cavity completely obliterated by use of irrigation with sodium hypochlorite solution.

Various combinations of methods of treatment were used. The principal operative procedures were drainage in ninety-one cases, irrigation with antiseptic solution in ninety-nine, decortication in thirty-six, and some type of plastic operation in eighty-four. In many cases it was necessary to perform extensive plastic operations, including resection of the first rib and clavicle, using the pectoral muscle to obliterate the apical portion of the cavity.

The results from treatment in the series, as a whole, were 226 patients completely cured, or so markedly improved that they were able to work. A late report has not been received concerning fifty-six, and reports of eleven are too recent to classify. One patient who was not operated on died from abscess of the brain. The operative mortality was five deaths, or 1.6 per cent.

THE TREATMENT OF BRONCHIAL FISTULAS *

W. L. KELLER, M.D.
WASHINGTON, D. C.

In the brief time allotted to each subject, it is impossible to summarize even superficially the important points in the treatment of bronchial fistulas, and I will therefore be compelled to omit the masterly discussions of others and confine myself to the observations based on thirty-five cases that have been transferred to my service for treatment and final disposition. These fistulas were encountered in a large series of chronic empyema cases varying in duration from two to seven years, and were all demonstrated by direct observation, as the many-stage open method of exposure was used in all cases. When I speak of chronic empyema, I refer especially to the surgical failures, many of which have had all forms of radical operations; and, regardless of these surgical measures, the empyema and bronchial fistulas persisted. In addition to the radical procedures previously mentioned, in some cases there was muscle implantation over the fistulas as well as attempts at inversion of these openings.

Of the thirty-five cases, 84.2 per cent. were due to intrapulmonary suppuration; 2.6 per cent. to extrapulmonary suppuration (subdiaphragmatic abscess), and 13.2 per cent. to external violence, such as gunshot wounds. Of the cases, 37.8 per cent. were multiple, and 62.2 per cent. were single. Of this series, 31.5 per cent. had tuberculosis as an underlying factor. Closure was effected in 36.9 per cent. by simple mobilization and sterilization; in 50 per cent. by mobilization and partial suture of the fistula, plus muscle implantation. Closure was effected in 10.5 per cent by mobilization plus muscle implantation without suture of the fistula; 2.6 per cent. were closed by inversion. Cauterization was used to close small multiple fistulas. Skin flaps were unsatisfactory, and no fistulas were completely closed by this method; 2.6 per cent. of the patients died.

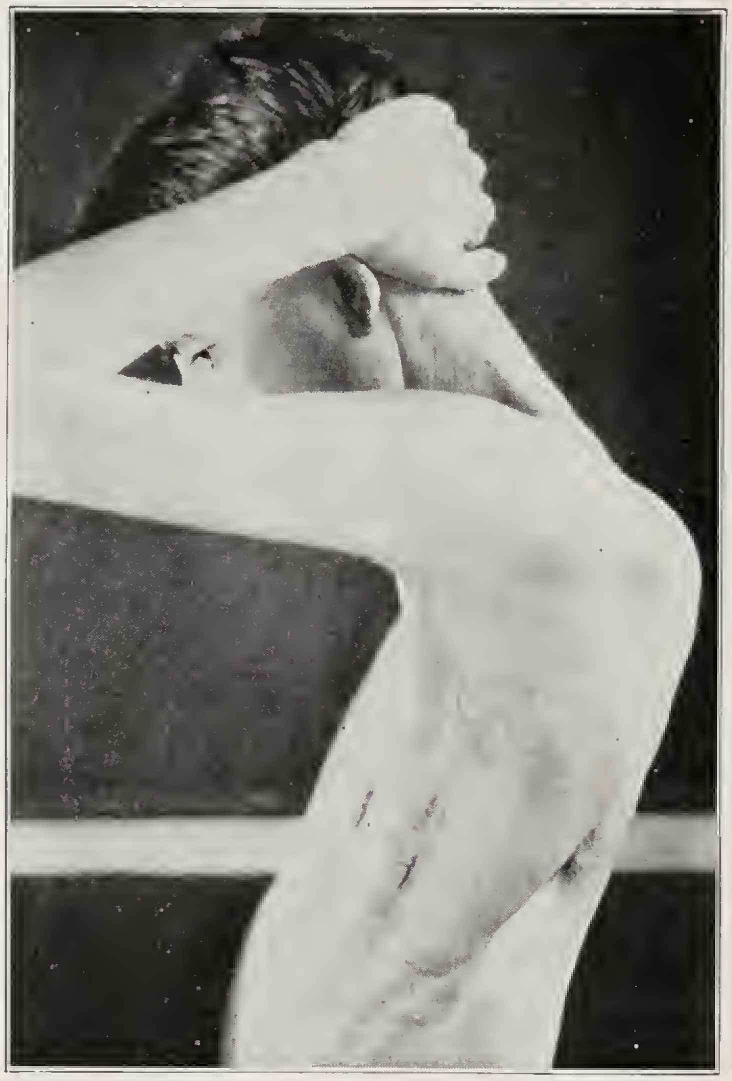
Fig. 1.—Incisions for former operations.

While these figures are interesting, they apply mostly to the type of case that is not the most difficult to handle; but in this series are included a large number that did not respond to the methods so often advocated by writers who assert that practically all cases subside when the pulmonary and pleural infections have been controlled, and that those that are not closed by these methods can be inverted by purse string suture or closed by cauterization.

In one of my first cases in this series of bronchial fistulas, I followed the methods recommended by the recognized authorities, such as inversion and purse string suture. Before taking up the other cases, I want to mention one case which resulted in a fatality that was directly due to this method, which case was reported by me as a fatality in my recent article on the first forty cases of chronic empyema treated by the open many-stage method. This patient gave a history of a gunshot wound of the chest received in action, and later complicated by influenza and empyema, which was drained. He returned to the United States and had been healed two and a half years, but suffered with almost constant hemoptysis. He had been treated for tuberculosis in a sanatorium during that time. A roentgenogram showed an unobliterated cavity at the location of the old empyema and gunshot wound. In view of a previous experience, to be mentioned later, I explored the cavity and found it practically clean; three of the largest bronchial fistulas I have ever seen opened into a depression in the cavity, probably caused by part of one lobe of the lung having been shot away. I attempted to mobilize the largest of these fistulas with a view to inversion. In doing so, I encountered such a severe hemorrhage that I had to put in several sutures to control bleeding, which endangered the patient's life. The operation was immediately stopped, and the patient returned to the recovery room. During a coughing spell, he tore one of these ligatures loose and bled into this large cavity to such a degree that when the hemorrhage was later discovered, his condition was desperate, and he failed to respond to transfusion and other methods used to save his life.

In regard to the inversion method, there is only a small percentage of bronchial fistulas that can be inverted or that are large enough to be handled in this manner, but it is probable that such technic is satisfactory in some cases of lobectomy and other conditions when the fistula is not too close to the hilum. Such a procedure, however, is not indicated in the majority of bronchial fistulas found in chronic empyema.

What I wish to emphasize particularly is the treatment of those cases which have resisted such surgical measures as sterilization of the empyema cavity, mobilization, suture, cauterization, collapse with laying of muscle over fistula, and especially those fistulas in very inaccessible locations. Our most difficult problem has been the treatment of multiple fistulas in tuberculous cases in which radical operations have been performed for empyema and the patients were still carrying hemolytic streptococcal organisms in their sinuses when admitted, and especially when there are from five to ten fistulas scattered over the surface of the lung entering

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* Read before the Section on Surgery, General and Abdominal, at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

into the formation of the cavities. In these cases I have endeavored to close the lesser fistulas first by cauterization, by mobilization and by purse string suture, which is reinforced by a muscle graft that is held under pressure. The use of this graft is based on experience gained in mobilization of the lung in cases in which persistent hemorrhage was encountered in locations not permitting the application of forceps without danger, and in cases in which it was necessary to apply a small section of muscle over the area to control bleeding, this procedure being after the method advocated by Cushing to control hemorrhage in brain cases. When the cavity was sterile, these grafts remained and were transformed into connective tissue, obliterating the fistula in a satisfactory manner; when sterilization was impossible, as is often the case, especially when the hemolytic streptococcus organism is present, the grafts were rapidly destroyed by bacterial invasion. The largest fistula is left open until all the lesser ones are occluded, and then it is closed by partial suture and muscle implant to avoid the dangers incident to immediate closure. The other method used was a pedunculated muscle flap, which was covered with skin except when it was temporarily attached over the fistula or fistulas by a few anchor sutures of silkworm gut which do not pass through any part of the pleura or living tissue. When this method is used, however, the individual fistula is not sutured; the wound is left wide open, dressed with 20 per cent. solution of protargin mild (argyrol), and gentian violet is later applied to promote healing if air escapes through the fistula temporarily. The skin-covered muscle flap, after being detached, can be applied in a similar manner to another area containing fistulas, if required (Figs. 1-6).

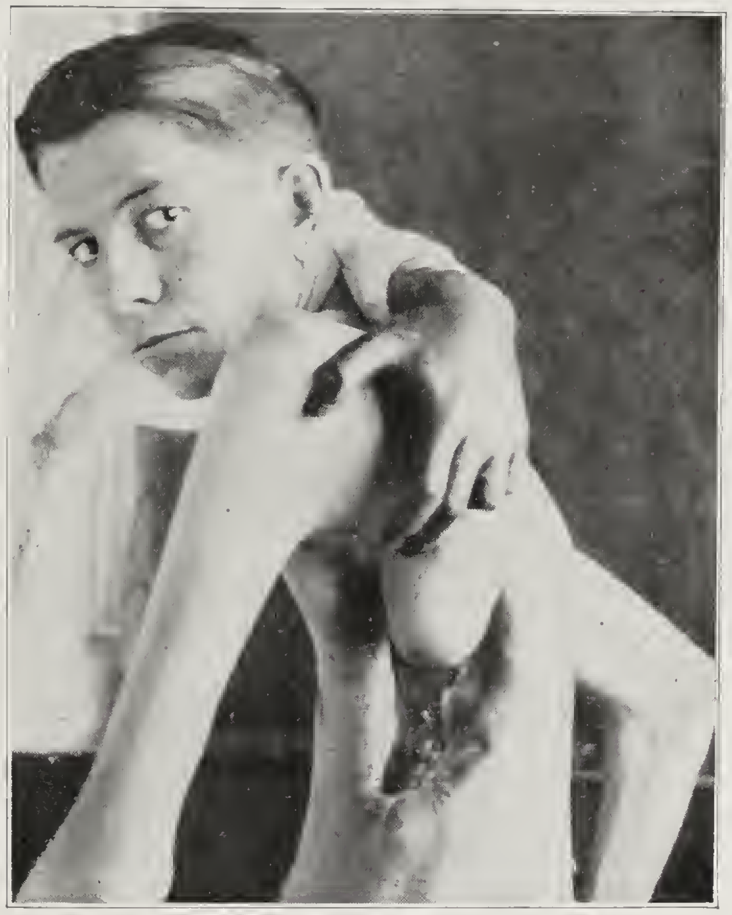

Fig. 2.—Removal of ribs bridging cavity; fistulas exposed.

When surgical solution of chlorinated soda (Dakin's solution) is not tolerated even when given with the patient in a sitting position, a 20 per cent. solution of protargin mild is substituted.

REPORT OF CASES

Case 1.—E. B. D., aged 26, while in action, at Chateau Thierry, France, July 29, 1918, received multiple gunshot wounds (shrapnel) penetrating the left chest and abdomen. Empyema developed as a complication of the chest injury. August 8, thoracotomy was performed to establish drainage of the left pleural cavity. After the initial operation, he underwent multiple thoracotomies and thoracoplasties, with resection of portions of the fifth to the tenth rib, inclusive, in conjunction with decortication of pleura and attempts to close multiple fistulas.

The patient was admitted to the empyema service, Sept. 12, 1922, in a highly septic and anemic condition, considerably underweight, with a discharging sinus at the postaxillary line of the left chest, and showing marked deformity in the contour of the left lateral chest wall due to previous operations with extensive rib resection.

A roentgenogram revealed a large cavity and thickening of pleura in the lateral part of the left chest, with considerable regeneration of the previously resected rib structure.

September 29, the first operation in the fractional method of procedure in the treatment of empyema was performed. Following this, another portion of the cavity was opened up, and as the patient's general condition permitted, further surgery was done until the entire cavity was laid wide open. Two large bronchial fistulas situated along the spinal gutter, multiple small ones, and a collapsed lung tied down by adhesions were noted. Pathologic examination of the excised thickened pleura showed a tuberculous pleuritis. The cavity was constantly irrigated with surgical solution of chlorinated soda (Dakin's solution), but the hemolytic streptococcus persisted in the cavity for a long time. Complete mobilization or decortication was not attempted, as the patient was tuberculous.

March 19, 1923, the margins of the fistulas were freshened by removal of the visceral pleura around them; mattress sutures were placed in the pleura, across the tract, and a muscle graft was inserted beneath, and the sutures were tied. This method was not successful in closing the fistulas, probably because of the persistent infection; therefore the Dakin treatment was continued.

May 10, a muscle implant was made over the fistulas and ten days later detached from its origin, one-half inch of muscle being left attached to the lung surface over the fistulas. There was a leakage of air around the implant for several days, as the fistulas were not sutured; however, at the end of three weeks the fistulas were completely closed by granulation. The empyema cavity, muscle and skin were sutured, a small area being left at the lower aspect to fill in by granulation.

The patient is still in the hospital, awaiting granulation of a small area in the lower aspect of the wound, and he should be ready to return home in another month. The empyema and the fistulas are closed.

Case 2.—G. F., aged 18, developed influenza followed by pneumonia in September, 1919. Following his convalescence, several months later, he noticed a loss of weight, anorexia and general malaise. He had had a second attack of pneumonia involving the bases of both lungs, the condition following this being diagnosed as lung abscess and later as an unresolved pneumonia, which diagnosis was again changed to empyema of the left chest. Aspiration was performed several times, and he received multiple thoracotomies and thoracoplasties, with resection of portions of the fifth to the ninth rib, inclusive, and excision of the thickened parietal pleura and attempts to close the multiple bronchial fistulas, without results.

The patient was received at this hospital and admitted to the empyema service, May 25, 1922, as an ambulatory case with marked anemia and loss of weight; he was extremely septic. Examination of the chest revealed marked disturbance of the contour of the left chest wall, owing to previous operations. In the seventh interspace of the postaxillary line there remained a small area unhealed, showing two bronchial fistulas and destruction of the lung tissue in the lower lobe of the left lung.

The patient had a persisent cough, with profuse expectoration, purulent in nature, having an extremely disagreeable odor. Culture from the cavity and the specimen of sputum taken at another hospital and also at the Walter Reed Hospital proved that the empyema was of an unusual character and that the orgnism responsible for the condition was *Spirochaeta pertenuis*, or the organism of yaws. The Wassermann examination was negative, and culture from the cavity for mixed infection showed only an occasional staphylococcus colony.

May 26, the first operation was performed in the fractional method of procedure in the treatment of the empyema, and following this operation another portion of the cavity was opened up, a fraction at a time, as the patient's general condition warranted further surgery, until the entire cavity was laid wide open. There were noted seven bronchial fistulas, marked thickening of the parietal and remnants of the visceral pleura, with extensive destruction of the left lung, due to sloughing, leaving only the larger bronchi and degenerated lung tissue attached to the pericardium. There was some osteomyelitis of the previously resected rib stumps. The opened cavity was irrigated with surgical solution of chlorinated soda, protargin mild, weak solutions of tincture of iodin, potassium permanganate and all other recognized antiseptic and germicidal solutions without material change in the character of the infection. Every known method of closure of bronchial fistulas was tried on this patient without success. One fistula was treated at a time. The failure was in great part due to the persistent copious discharge.

The size of the fistulas was finally reduced by cauterization and the local application of gentian violet. Further rib resection at the upper aspect of the cavity was instituted at this time to mobilize the upper aspect of the lung around the five smaller fistulas, and permit their closure. A large muscle implant was placed over the upper five fistulas; the muscle and skin were closed, and constant pressure was applied by means of strapping the chest tightly over this area with adhesive plaster and a scultetus bandage. The attempt was successful; the five upper fistulas were closed and the muscle and skin healed by first intention, leaving the lower aspect of the cavity open, with two large bronchial fistulas patent.

These two fistulas were surrounded by a mass of scar tissue which was adherent to the pericardium and made mobilization out of the question; however, two attempts were tried at mobilization which resulted in such disordered heart action that the parts were immediately resutured. The upper of the two fistulas remaining was closed by a plastic flap, including the mammary gland, pectoral fascia and some of the pectoralis major muscle, this being only tissue available in this area. The flap was of sufficient size to extend over the lower fistula, but no attempt was made to close it, owing to the very free discharge and the presence of the spirillum, regardless of six months' treatment with arsphenamin and all forms of local reagents.

The lower and last fistula has finally closed by granulation, but there is no certainty as to the result being permanent, for the patient continues to expectorate large amounts of mucopurulent material; however, the upper five fistulas have been closed six months, and the cavity is completely obliterated.

All the fistulas are closed at present. The empyema cavity is obliterated. A small area of the skin is healing by granulation. The patient is still in the hospital.

Case 3.—J. C., aged 27, developed influenza and pneumonia in September, 1918, complicated with empyema of the left pleural cavity. He had four radical operations prior to his admission to the empyema service, with a resection of portions of the fourth to the ninth rib, inclusive; decortication of the visceral and parietal pleurae, and a closure of the soft tissues over this area. Following these surgical procedures, his wound would repeatedly heal and break down, there being at the same time a persistent hemoptysis, which was particularly noticed about every third day. The patient was allowed to drift along with little or no treatment for over a year except the institution of drainage as indicated.

On his admission to the service, Feb. 10, 1921, he was anemic, poorly nourished and extremely toxic, having a sinus discharging pus, in the midaxillary line of the left chest, surrounded by a mass of scar tissue. There was marked deformity in the contour of the left lateral chest, with collapse of the chest wall due to previous extensive rib resection.

February 18, the area was laid wide open and a cavity of 150 c.c. capacity exposed, revealing a large bronchial fistula, a collapsed lung, and a rigid diaphragm, which had ascended, encroaching on the fibrous remains of the lung and thereby making further mobilization impossible. After the cavity had been sterilized, the fistula proper was reduced in size by a partial purse string suture; and a flap of degenerated muscle, principally scar tissue, was then sutured loosely over the site of the fistula, the cavity being left wide open. Following this operation there was a slight leakage of air through the fistula around the implant for six or seven days, but at

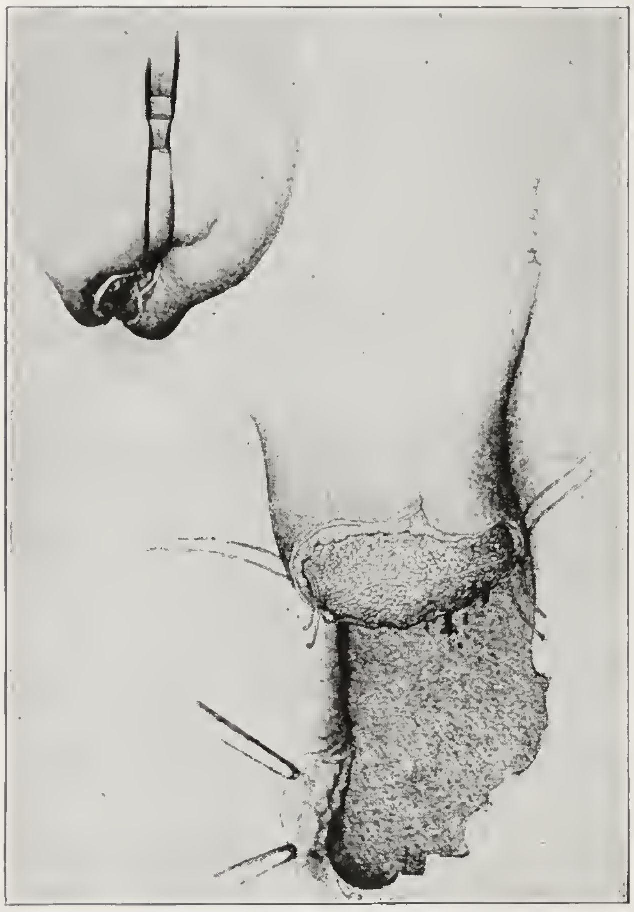

Fig. 3.—Decortication of area containing fistulas; muscle exposed and mattress sutures in place to fix muscle over fistula.

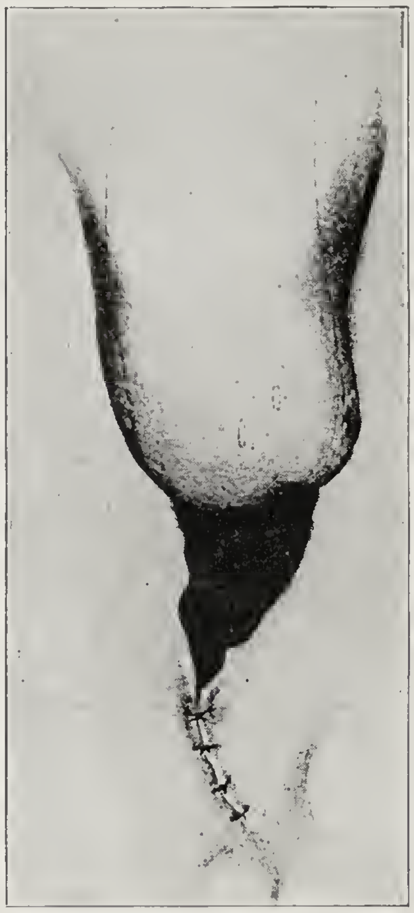

Fig. 4.—Muscle flap in place.

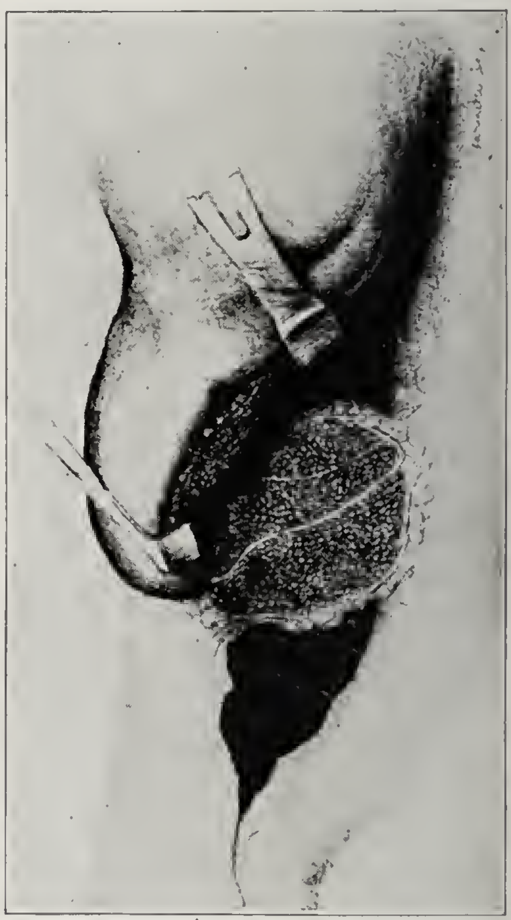

Fig. 5.—Muscle implant over fistulas divided; implant in position.

the expiration of two weeks the fistula was entirely obliterated. Then active irrigation with surgical solution of chlorinated soda was instituted, and after seven consecutive sterile cultures had been obtained, taken at daily intervals, the remaining cavity was closed with rubber tissue drainage.

This patient has been healed nearly two years, and there has been no recurrence of the fistula, empyema or hemoptysis.

Case 4.—J. L., aged 33, developed an abdominal condition in December, 1921. He had received three operations prior to his admission to this hospital; two for gallbladder conditions and the third for a supposed liver abscess. On his admission to the service, Sept. 18, 1922, he was anemic, poorly nourished and extremely toxic, having two large sinuses discharging pus from the region of the gallbladder. The patient was taken to the dressing room. Surgical solution of chlorinated soda was introduced into the sinuses there, and immediately symptoms of gassing showed that he had a pulmonary condition. The tracts were later injected with bismuth and roentgenograms were taken, which showed the communications and the injected bronchi of the right lung.

One of the fistulas made its entrance through the diaphragmatic sulci of the anterior lateral aspect, while the other, which was posterior, entered through the vertebral sulci, communicating with a large subdiaphragmatic cavity of hour glass shape.

September 28, portions of the eighth, ninth and tenth ribs were resected, and thickened pleura and scar tissue along the course of the sinus tract were excised. The lung around the anterior fistula was mobilized, the posterior sinus tract was followed, throughout its course, the diaphragm being split close to its attachment. The lower lobe of the lung was immobilized at this point. The anterior fistula closed by granulation. The posterior sinus tract was left wide open, and irrigation with surgical solution of chlorinated soda was instituted. This area was left open, receiving constant irrigation, while the patient's general condition improved from day to day. During his interval he gained over 50 pounds (23 kg.). The patient received another operation in which the sinus tract was enlarged and another attempt was made to mobilize the posterior bronchial fistula, which was unsuccessful, the fistula remaining patent.

Feb. 6, 1923, the area was exposed by freeing the superficial muscle bodies. The margin of the fistula was excised, with partial ligation by mattress sutures; a large, free, muscle graft, cut from the superficial musculature, was passed beneath the sutures and fixed by mattress sutures tied again over them. This graft was maintained in this position by constant pressure for two weeks. There was some superficial sloughing of the muscle, but the fistula was closed completely and the remaining aspect of the wound was allowed to close, healing by granulation. The area has remained closed for five months, and there have been no symptoms to indicate a patent fistula.

Case 5.—J. R., aged 28, developed influenza in 1918. Convalescence was uneventful, without apparent complications. The patient remained in comparatively good health until May, 1921, when he was taken acutely ill, having chills, fever, night sweats, loss of appetite, loss of weight, persistent cough, and copious expectoration. He was seen by a number of physicians and treated for tuberculous pneumonia. Later, aspiration was performed several times, and following the aspiration he received multiple thoracotomies with resection of part of three ribs, in the midclavicular line, right chest.

He was admitted to the empyema service, Jan. 17, 1923, showing the characteristic changes seen in chronic empyema. There was marked clubbing of the fingers, with edema of the feet and ankles, and extensive decay of the teeth. He was anemic, septic and considerably underweight. There was elevation of temperature in the evening, with an occasional night sweat. Roentgenograms showed marked thickening of the pleura, right apex, from the first to the fifth rib, anterior aspect, and a cavity in this area partially filled with fluid.

Physical examination of the chest revealed some disturbance in the contour of the right, upper, anterior chest wall, due to previous operations. In the center of this area over the first interspace, anterior, right chest, there was a deep, narrow sinus, which extended to the posterior chest wall, passing over the receded apex of the lung. Injection of this sinus with surgical solution of chlorinated soda caused gassing of the patient, revealing the presence of pulmonary communications.

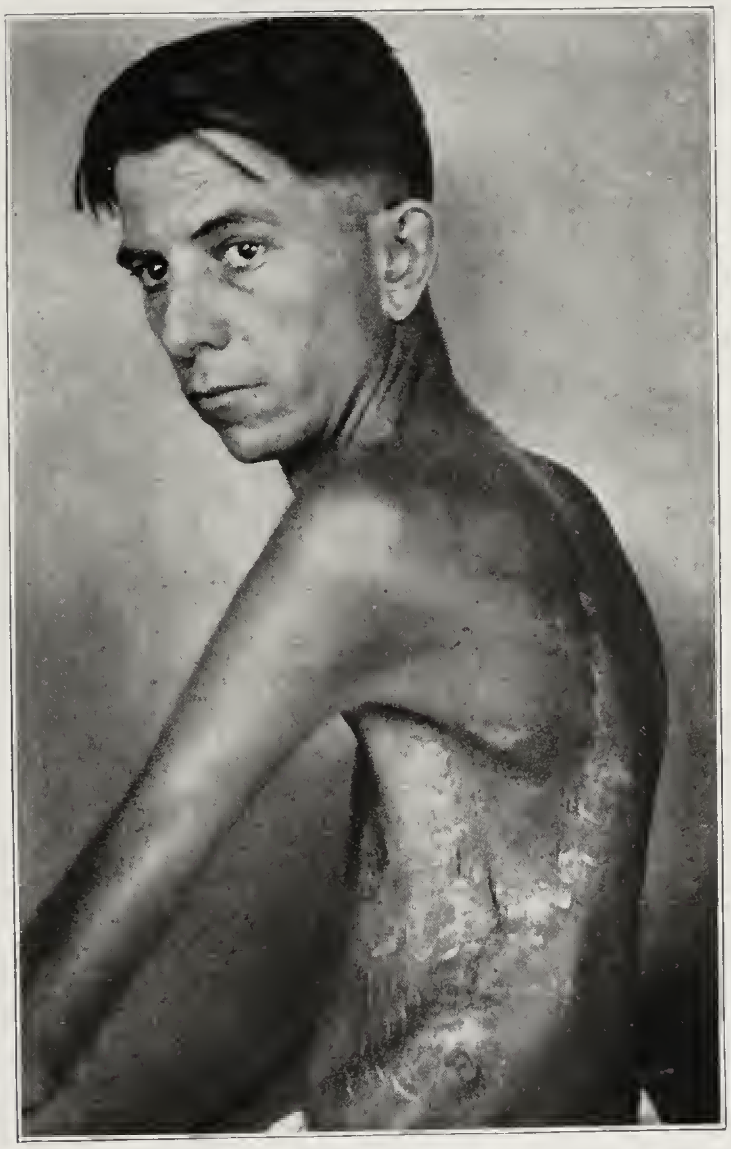
Fig. 6.—Final result.

Jan. 29, 1923, a portion of the previously resected second and third ribs, in the outer clavicular line, was resected, and sequestrums were removed from beneath the first rib; the thickened parietal pleura was excised; inspection of the cavity revealed two large bronchial fistulas. The area was left wide open for the treatment of intrapulmonary infection. It was noted at this operation that there was considerable osteomyelitis of the previously resected ribs, and in addition there was extensive involvement of the third, fourth and fifth ribs, in the posterior scapular line; and as the greater part of the cavity was in the posterior aspect of the chest, it was deemed advisable to resect portions of the third, fourth, fifth and sixth ribs, in the posterior scapular line of the right chest, with the excision of the mass of thickened pleura and scar tissue compressing the apex of the lung, and in this manner mobilize the fistula. The operation was performed February 28. Owing to the fibrosed condition of the lung, mobilization of the fistulas was unsuccessful, and they remained patent following the second operation. The patient was put on active treatment with surgical solution of chlorinated soda, and with the through and through drainage, gassing by the solution did not occur if given while the patient was in the upright position. The resistant infection due to hemolytic streptococcus was controlled.

May 1, the anterior fistula was partially mobilized and closed by mattress sutures plus a pedunculated muscle flap. There was a leakage of air around the muscle implant for several days following this operation, but at the expiration of ten days the anterior fistula was entirely obliterated.

May 31, the margin of the posterior fistula was excised, and the surrounding area was curetted. A large muscle graft, 2 inches in length by 1 inch in thickness, was cut from the pectoralis major and placed over the fistula, and pressure was applied by means of dental compound and a silk marine sponge. Constant pressure was kept over the graft ten days. At the expiration of this time, the dental compound was removed and the silk marine sponge reapplied with a protargin mild dressing. The entire graft took; and, while there was some leakage of air for several days around the graft, the fistula was completely closed at the end of ten days.

This patient is still in the hospital. The anterior approach to the empyema cavity is healed as the result of the muscle implant over the anterior fistula, and of the large muscle graft placed in the anterior opening. The posterior approach is left wide open to be closed by granulation or a plastic operation at a later date.

Case 6.—F. L., aged 24, while in action in the Argonne Forest, France, Sept. 29, 1918, received a wound by a machine gun bullet in the right chest, with a compound comminuted fracture of the sixth and seventh ribs, and a missile penetrating the right lung.

He was taken prisoner and developed empyema as a complication of his chest wound, both conditions being treated in German hospitals, while he was a prisoner of war, and when he was released the chest wound was healed. He returned to the United States, and was discharged from the service, March 11, 1919. He continued to expectorate a copious amount of mucopurulent material, streaked with blood; he had five severe hemorrhages and a persistent cough. He made a continuous pilgrimage from one hospital to another for three years. His condition was classified as tuberculosis, chronic bronchitis and psychoneurosis.

He was admitted to the empyema service, June 10, 1922, extremely nervous, considerably underweight, and having a persistent cough with a copious mucopurulent expectoration. Roentgen-ray examination revealed a greatly dilated bronchus with spicules of bone in its lumen, and also marked regeneration of the previously resected rib structure.

June 15, a portion of the previously resected sixth, seventh and eighth ribs, in the posterior scapular line of the right chest, was resected; the thickened parietal pleura was excised, and the visceral pleura decorticated. The entire area was left wide open to permit the bronchus to open at the point of least resistance, and on the fourth day after this operation the bronchus opened spontaneously, and six large spicules of bone were removed.

Following the removal of the sequestrums from the dilated bronchus, the entire area was left wide open to allow ample time to control the intrabronchial infection by irrigations with physiologic sodium chlorid solution and by packing the entire area and the opening into the bronchus with gauze saturated with 20 per cent. solution of protargin mild.

September 7, the margin of the fistula was excised, followed by a partial closure by suture with a muscle implantation over the suture line. The upper and lower aspects of the cavity, muscle and skin were closed with silkworm-gut suture, but that portion of the cavity around the fistula was left wide open and packed with a 20 per cent. protargin mild gauze dressing. Following this operation, air escaped through the fistula around the implant for several days, but the communication was completely closed by granulation within three weeks. The remaining aspect of the cavity around the site of the closed fistula was allowed to heal by granulation. The fistula has been closed over eighteen months; all of the symptoms have subsided, and there has been no evidence of a recurrence of the fistula.

PNEUMECTOMY WITH THE CAUTERY

A SAFER SUBSTITUTE FOR THE ORDINARY LOBECTOMY IN CASES OF CHRONIC SUPPURATION OF THE LUNG *

EVARTS A. GRAHAM, M.D.
ST. LOUIS

Chronic suppuration of the lung constitutes one of the most difficult conditions which occur in the whole realm of medicine to treat satisfactorily. An acute suppurative infection of the lung often becomes chronic, even when an abscess has been drained which has apparently been single. A lung from such a case will often show multiple abscesses, with one or more abscesses which do not connect with the main drainage track; indeed, it may contain so many abscesses that it gives the appearance of being "honeycombed" with pus. In most cases some of the bronchi will be dilated and their walls will be thickened. Their lumina will contain granulation tissue which bleeds easily. Fibrosis of the lung will be a more or less characteristic feature.

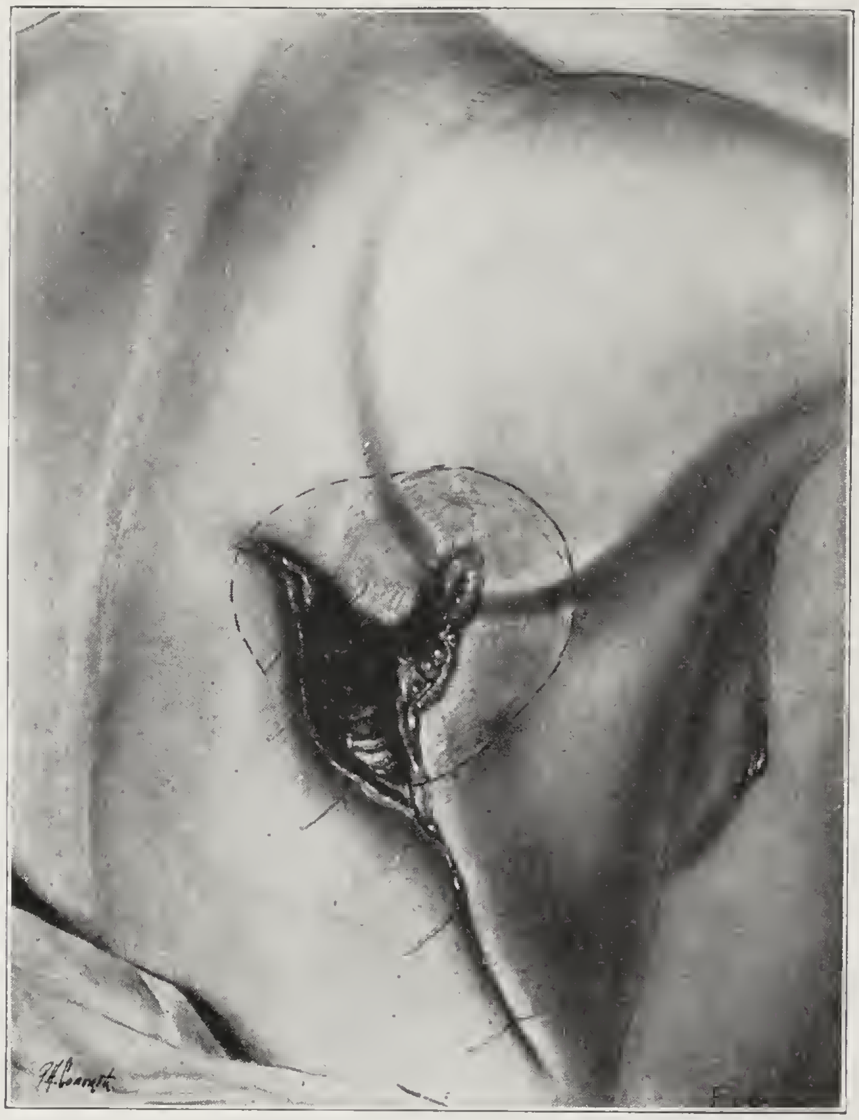

Fig. 1.—Appearance of wound, twelfth day after operation, after removal of most of the middle and part of the lower lobe for chronic pulmonary suppuration. Several bronchial fistulas are observed at the depth of the wound. The dotted line indicates the extent of removal with the cautery.

The various methods of artificial compression of the lung, such as pneumothorax and multiple rib resection, will usually not suffice to give relief. Additional drainage also will usually be of no avail because there is nothing which can be satisfactorily reached to give drainage. Theoretically, the only procedure which can be expected to give complete relief is the removal of the diseased tissue for the same reasons that chronically inflamed gallbladders and appendixes are removed.

The operation of lobectomy, however, is a very formidable procedure. In a recent article in which I reviewed the literature, I[1] showed that of forty-eight cases of lobectomy for bronchiectasis there were only eight complete successes (17 per cent.); and there was an actual operative mortality of 52 per cent. The principal danger associated with the operation is the infection which inevitably occurs. In order to take out the portion of lung which is diseased, it is necessary, first, to free all the adhesions present. This mobilization of the lung results in the exposure not

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* From the Department of Surgery, Washington University Medical School.

* Read before the Section on Surgery, General and Abdominal, at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

[1] Graham, E. A.: The Surgical Treatment of Bronchiectasis, Arch. Surg. **6**: 321 (Jan.) 1923.

only of a large raw surface in the pleural cavity but usually also of the pericardium as well. It seemed to me that any procedure which would permit the removal of all the diseased tissue without the preliminary separation of adhesions to mobilize the lung would not only eliminate the chief danger of the usual operation, but also be just as effective from the standpoint of final results.

The operation amounts really to a lobectomy performed by the actual cautery. In the three cases in which I have performed it there has been no mortality and there has been no serious reaction to it. It may be performed in any number of desired stages, and all but the first stage may be accomplished without anesthesia of any kind. At the first stage, the field is exposed by turning up a flap of skin and muscle and removing portions of several ribs. The affected portion of the lung is then in view, covered by pleura, to which it is usually densely adherent. The first stage may then be terminated, if necessary. At a later stage, no anesthetic is required; or, if the patient is apprehensive, a little nitrous oxid and oxygen may be given. With a large soldering iron heated to a red heat, an excavation is then made into the lung tissue. If an old drainage track exists, it is well to begin the cauterization by plunging the hot iron into the sinus and to work out from that. New abscesses are sometimes found in this way, lying close to but not communicating with the main drainage track. The operation is not completed until all the diseased tissue has been removed by the cautery, but it may be performed in as many stages as desired. When the roentgen ray has indicated that only one lobe is involved, that is all the tissue that is removed; but when more than one lobe is involved, more tissue is cauterized. In one case I have removed nearly all of one lung. I can see no reason why bilateral chronic suppuration could not be handled in this way.

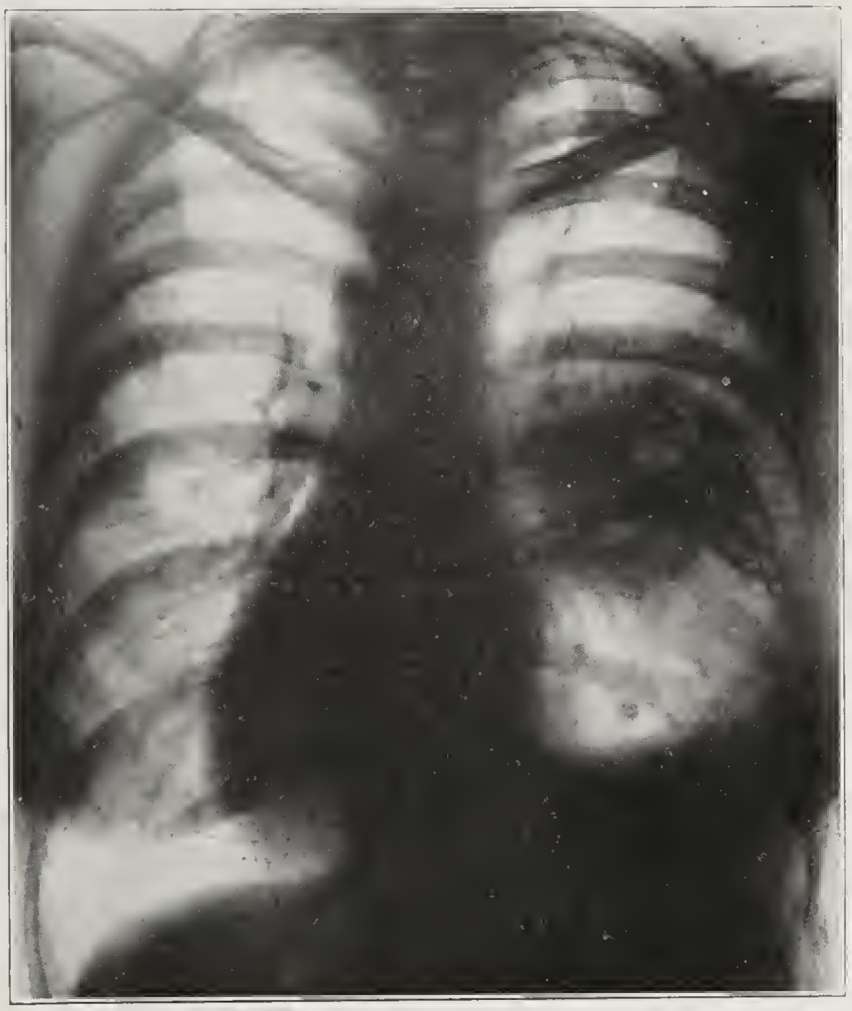

Fig. 2.—Appearance in same case before cauterization, showing the drainage tube leading up to the hilum.

When the operation is completed there is no specimen to exhibit, because the diseased portion has all been removed as charred fragments; and a large cavity is left, lined by an eschar, which sloughs away in about ten days.

One might suppose that, after the separation of the eschar, serious hemorrhage might occur from the large vessels. As yet, however, in three cases I have not encountered this complication. Theoretically, also, any hemorrhage which may occur should be easily controlled by packing because of the low blood pressure in the pulmonary artery, which amounts to only about 15 or 20 mm. of mercury, about one sixth of the systemic blood pressure.[2] In one case, a profuse hemorrhage occurred for a moment while one of the large branches of the pulmonary artery was being burned through at the hilum, because the artery was torn by a sudden cough of the patient as the cautery was burning its way through it. A little pressure with gauze for a few minutes, however, controlled the hemorrhage perfectly and there seemed to be no more difficulty in controlling it than in the case of hemorrhage from any large vein.

Perhaps the most remarkable feature of the operation is the absence of any severe postoperative reaction. The contrast with the stormy postoperative course following the ordinary lobectomy is most striking. In my cases the patients have not missed their ordinary meals even on the same days that the cauterization was performed, the postoperative temperature was not elevated more than 1 or 2 degrees Fahrenheit, there was no prostration, and the patients looked and acted as if they had not been subjected to any operative procedure. The cavity and the bronchial fistulas gradually obliterate themselves. The expectoration ceases almost immediately. The patients gain weight rapidly and their attitude of hopelessness changes to one of optimism. As an important aid in hastening the cleaning up of the cavity and the healing of the lung, we have employed heliotherapy, as advocated by Rollier[3] in cases of tuberculosis. Both Dr. Singer and I believe that it is of great value. The treatment is begun gradually by exposure of a small part of the body to the direct sunlight and is gradually increased until the wound itself is freely exposed to the direct action of the sunlight for a period of an hour or two a day. The combination of the sunlight and the ventilation is of great help in cleaning the wound of the anaerobic organisms of putrefaction which are likely to be present.

In the three cases in which the operation has been performed, one patient is entirely well except for a small, rapidly healing bronchial fistula, having gained about 20 pounds (9 kg.) and being now free of sputum and cough. Another patient was discharged healed with no cough or sputum; about six weeks after discharge she reported that she had an acute sore throat with fever and that her wound broke open again, and it has been impossible to learn anything more of her condition at present. The third patient has had nearly all of her right lung removed. The sputum has diminished in amount from more than 500 c.c. a day to about 20 c.c., her appetite has returned, and she is gaining in weight, although her wound is not yet healed.

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[2] Starling, E. H.: Human Physiology, Philadelphia, Lea and Febiger, 1912, p. 1053. Howell, W. H.: Text-Book of Physiology, Philadelphia, W. B. Saunders Company, 1920, p. 522. Macleod, J. J. R.: Physiology and Biochemistry in Modern Medicine, St. Louis, C. V. Mosby Company, 1919, p. 254.

[3] Rollier, A.: Heliotherapy, Oxford Medical Publications, 1923.

A modest series of three cases is perhaps not very convincing as to the value of the procedure. Yet when one considers the very serious and almost hopeless condition of the patients and the marked improvement which has followed this relatively simple operation, I believe that a certain amount of optimism is justifiable in thinking that the pitiable sufferers from chronic lung abscess may be offered the possibility of hope of relief from their troubles by a relatively safe surgical procedure. There will doubtless be some mortalities in a larger series of cases, but any operation which will accomplish the removal of the diseased tissue at a risk less than the frightful one of the ordinary lobectomy should be a boon to the victims of an otherwise nearly hopeless condition.

It is possible that the operation may be applied in cases of acute lung abscess as well as to those of chronic suppuration. At present, however, I am so confident that relatively conservative measures will often be effective in acute lung abscess that I hesitate to use a method which implies an extensive removal of lung tissue in such cases.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. HEDBLOM, KELLER AND GRAHAM

Dr. Leo Eloesser, San Francisco: To the collection of causes of chronicity mentioned by Dr. Hedblom I might add the pleural calcifications occurring in old people, whose empyema cavities are occasionally filled with loose, chalky concretions. Occasionally, too, the primary cause of empyema may be ordinary sepsis, streptococcic or staphylococcic, but these empyemas may become chronic through a secondary infection with tuberculosis; that is, a previously latent focus may break through into the pleura and infect the empyema cavity with tuberculosis secondarily. We have been struck by the presence of gas in certain acute closed empyemas without bronchial fistulas—usually fulminatingly virulent ones. We have been at a loss to explain it. We have thought that possibly the gas was produced by gas-producing streptococci. We can only hail Dr. Graham's operation with delight. Anything that reduces the danger of operation for bronchiectasis is worth having. There has always been a question in my mind as to drainage in empyema, whether we should drain and how long we should drain. It seemed to me that the method of Hippocrates of incising the thorax, letting the pus flow out and dispensing into a drainage tube altogether might be worthy of consideration. Dr. Graham's patient, whose lung he burned away with a thermocautery, will probably retain a bronchial fistula. I should like to ask him whether he intends to close that in the future or whether he intends to leave the patient with this open communication.

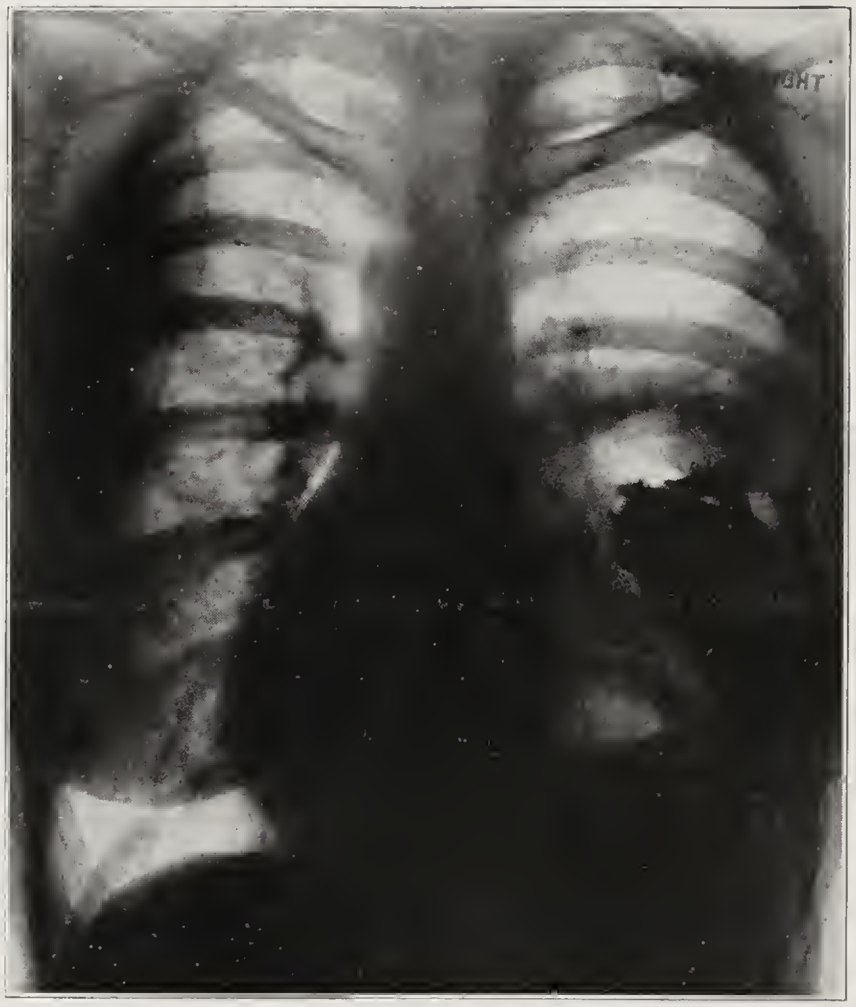


Fig. 3.—Same case, twelfth day after cauterization. A small rubber bag was placed in the cavity and then filled with barium sulphate to show the extent of removal of tissue. Actually, the amount of lung removed was greater than indicated in the roentgenogram, both because of some postoperative obliteration of the cavity and also because the bag did not entirely fill it.

Dr. Carl A. Hedblom, Rochester, Minn.: I have not observed gas in any case of chronic empyema except in association with a bronchial fistula. In some cases of acute empyema I have noted the presence of an air bubble, and the question might arise as to whether it was due to the presence of gas-forming bacilli or to a bronchial fistula. Multiple abscesses of the lung and suppurative pneumonitis in which there is a widespread infection of the parenchyma of the lung are conditions that tax one's resources to the utmost. Lobectomy is almost prohibitive in those cases because of the high mortality, and compression of the lung by extrapleural thoracoplasty does not yield as good results as it does in bronchiectasis. In the latter condition the results have been most gratifying, but in these cases of diffuse suppuration in the parenchyma, the methods Dr. Graham describes may prove of great service, provided hemorrhage does not prove to be too frequent or serious a complication.

Dr. Evarts A. Graham, St. Louis: In regard to the question which Dr. Eloesser asked me about the closure of the bronchial fistula in the case in which nearly all the lung has been removed, I can only say that the case is not yet terminated. My practice is to be very slow in closing bronchial fistulas. I think there is too much tinkering done with them. I think that every bronchial fistula should be allowed months or years to give it a chance to close spontaneously. At best, a bronchial fistula is usually a safety valve for the lung. Serious complications sometimes ensue after premature closure, such as abscess of the brain. Another reason for not closing a bronchial fistula early is that many times, as Dr. Keller mentioned, they have opened spontaneously. The conditions behind a bronchial fistula are not at all similar to those behind a fecal fistula. The situation is entirely different.

Gas Masks.—The Department of the Interior has announced the development of a "universal gas mask" and of a "fireman's canister." With these gas masks, almost any type of gas or vapor may be met without much risk. The mask developed during the war gave protection against poisonous gases, vapors, and smokes encountered on the field of battle. After the war, when masks were advocated for use in the industries, the Bureau of Mines pointed out that army masks give no protection against ammonia gas or carbon monoxid. To combine in one canister the absorbents for all noxious gases is difficult because the absorbents for certain gases are most efficient when moist, whereas an absorbent for carbon monoxid must be perfectly dry. The "universal" gas mask contains granular absorbents, consisting of activated charcoal, for removing organic vapors; a filter of cotton wool for removing smokes, dusts and mists; caustic soda fused on pumice stone for removing acid gases; another cotton-wool filter; fused calcium chlorid for extracting water vapor that inhibits action of the next absorbent; "hopcalite," a mixture of oxids of manganese and copper with sometimes silver and cobalt that destroys carbon monoxid; and silica gel for absorbing ammonia. The complete mask and harness weigh about 8½ pounds, and the "fireman's canister" about 5½ pounds.

Clinical Notes, Suggestions, and New Instruments

MODIFICATION OF THE BOWLES STETHOSCOPE

J. Birney Guthrie, M.D., New Orleans

I have used a stethoscope of the Bowles diaphragm type for nearly twenty years. In this time there have been foot pieces of various shapes offered by the makers of the instrument. Most of us are familiar with the instrument, which consists essentially of a hard rubber diaphragm held in a flat metal case which serves as a tambour for the stethoscope. This tambour is connected by a single flexible rubber tube to a metal Y-shaped connecting tube from which two flexible rubber tubes form a connection with the two tubular ends of the binaural ear piece (Fig. 1). There are three types of foot pieces in common use, the large circular, the small circular and the flatiron type. The latter type has been the one that I have preferred, chiefly because of its fitting with ease into the supraclavicular spaces in the auscultation of the apexes of the lungs. In addition to this, the flatiron terminal piece offers the advantage possessed by the other types in the way of localizing the points of maximum intensity of sounds as they are studied. In a large chest smoothly covered, there is some advantage as well as some saving of time in using the larger circular foot piece. When the chest is small and the surface uneven, the smaller circular type would perhaps be best. The flatiron type, in total area represented by the area of the hard rubber diaphragm, falls between the other two. One great advantage possessed by the large foot piece is that it collects and transmits a larger number of impulses, and thus makes audible some sounds which might otherwise be missed. It must be remembered that no intensification of sound is possible in any stethoscope without an electric amplifying device. The stethoscope produces no sound when properly used, and is merely a collecting device. It would seem that no argument would be necessary to determine that, within limits, the larger diaphragm would collect more impulses and transmit them as pressure waves to the stethoscope's binaural system. An actual comparison of the two proves this point.

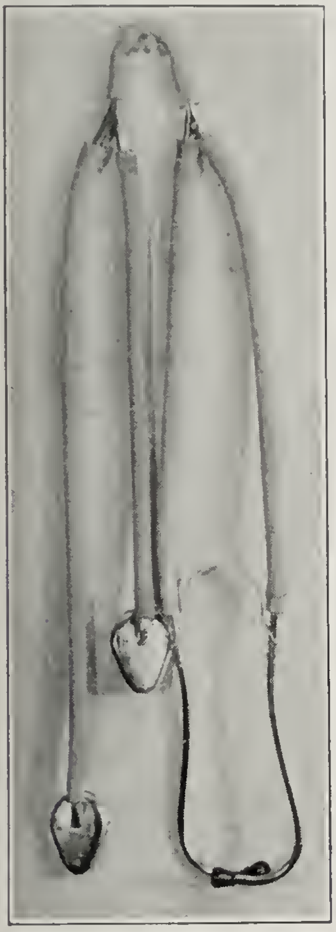


Fig. 1. — Modification of Bowles stethoscope.

The desirability of using as large a diaphragm as possible in some cases suggested to me the use of a double Y, one pointing upward and the other downward, with two foot pieces attached to the lower limbs of the lower Y. This was readily done by combining the binaural ear piece of one stethoscope with the proximal connecting tubes leading to the usual Y connecting tube. The lower limb of this is connected with another inverted Y, and this connects with the two foot pieces, by means of two flexible tubes. Another flexible connection of rubber tubing joins the stems of the two Y's, and the instrument is ready for use.

Figure 1 illustrates the stethoscope as described. All of the longer tubes are 12 inches in length, excepting one which is 2 inches longer, or 14 inches. The difference in length is to avoid breaking the diaphragms as the foot pieces strike together while the instrument is in use and when the metal covers of the foot pieces are removed.

Figure 2 shows the means of embracing the apex of the lung in an effort to get all the apical sounds possible.

Figure 3 shows how a rather large area of the lung can be auscultated by simultaneous use of the two foot pieces "in open order." This is an aid to speed in going over a chest. In the examination of the chest of a child, one foot piece may be placed in front of the chest and one posteriorly.

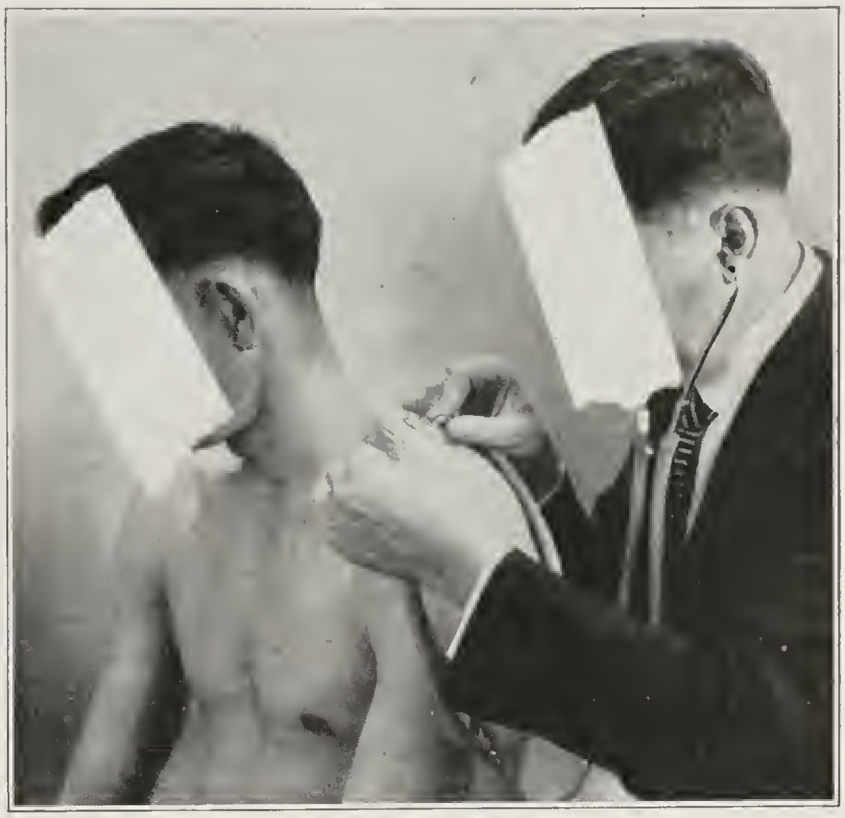


Fig. 2.—Means of embracing apex of lung in an effort to get all the apical sounds possible.

Figure 4 shows the method of use for studying the combined sounds of the heart at two clinical areas. The device has seemed particularly advantageous. To localize, one or the other of the foot pieces is raised off the chest, and the instrument has become for the moment the old familiar instrument. The simultaneous study of the sounds from the second right parasternal interspace and those at the third left costal cartilage seems of great value in listening for aortic diastolic heart murmurs.

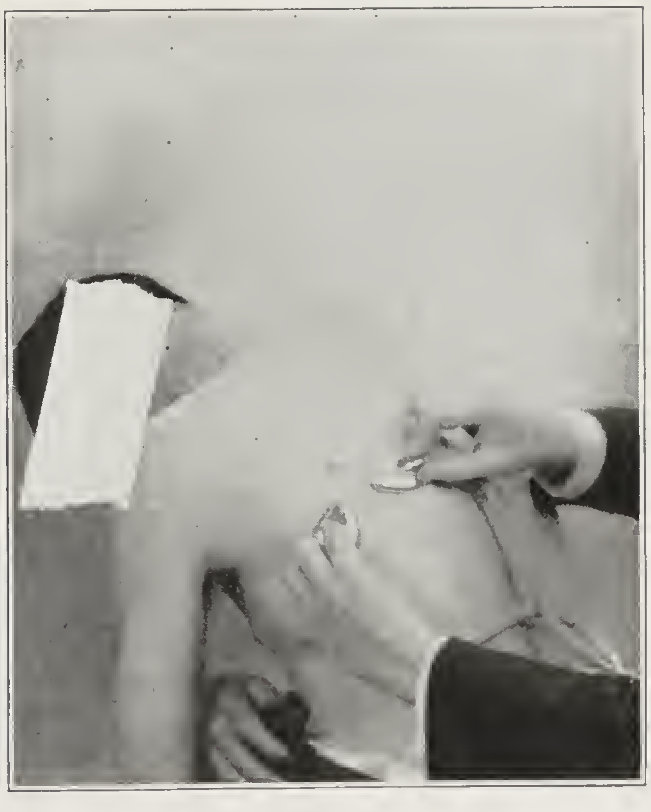


Fig. 3.—Auscultation of large area of lung by simultaneous use of two foot pieces in "open order."

Other applications of the double foot piece will suggest themselves. Some will probably prefer the two foot pieces of the small circular type. The stethoscope as illustrated has been in use by me constantly during the last six months, and the device seems valuable. I have very recently seen a stethoscope designed for localizing and for comparison of the sounds of the fetal heart which is of the same practical construction excepting that there is no flexible connection of rubber between the two Y's. There is substituted a single four-way conjoining tube of metal, and the foot pieces are of the small circular type. I am convinced that the flexible connection is best because the instrument will fold up more easily. I prefer the flatiron type of foot piece because it can be better adapted to the apexes of the lungs. The combined area of the latter is also greater than that of the small circular type, and hence collects a greater volume of sound.

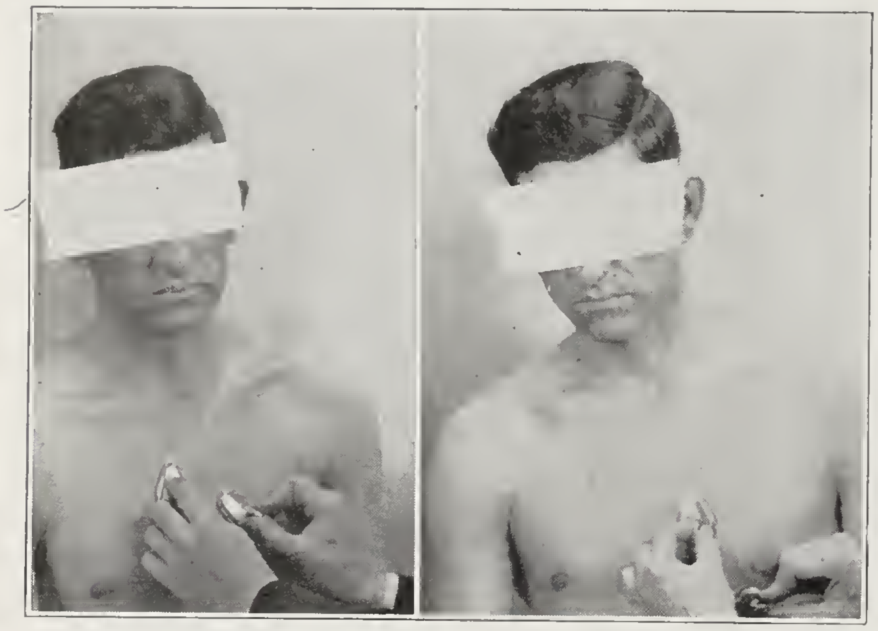


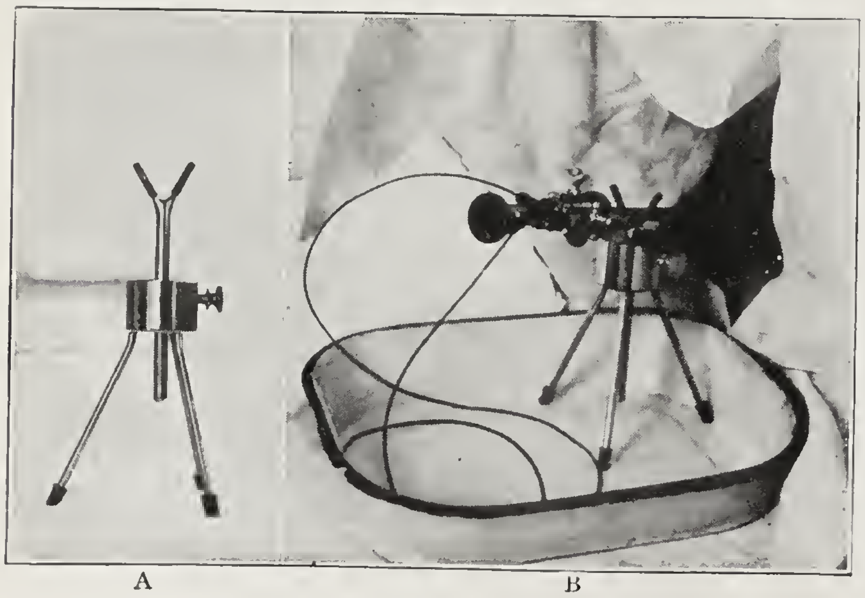
Fig. 4.—Method of use for studying combined sounds of heart at two clinical areas.

1206 Maison Blanche.

A CYSTOSCOPE HOLDER

Charles A. Hill, M.D., Pittsburgh

Cystoscopy in the female, especially when the irrigation of the kidneys, the dilation of ureteral constrictions, injections in pyelography, or the study of urine specimens is undertaken, necessitates a technic that requires the services of a trained assistant or nurse, and this fact limits the use of the cystoscope to one who is surrounded by such assistants.



A B

A, cystoscope holder: *B*, method of use.

There can be no doubt that many an enthusiast in this work is forced to disregard his desires, owing to the fact that cystoscopy and treatment of the female kidney and ureteral tract cannot be properly and successfully carried out without competent assistance.

With the technic that I employ, and with a trained assistant nurse, it is often found necessary for the assistant to hold the cystoscope under such conditions as during the changing of catheters, in irrigations, in pyelography when the cystoscope is not removed that the catheter may be reintroduced to drain the pelvis of the kidney, in changing gloves, and in examining urine before withdrawal of the catheter. This duty of the assistant seemed to be a lack of efficiency, and the thought occurred that an instrument to take the place of the assistant in these instances would be of decided advantage.

I, therefore, devised the instrument here illustrated, which seems to fulfil this purpose. The Surgical Equipment Corporation of Pittsburgh has constructed the instrument according to my design. It is made of metal, in tripod arrangement, with an adjustable upright forked rest for the cystoscope, which allows enough play to accommodate the difference in the size of the patient. The height of the instrument is 5 inches, with a 4 inch spread of the legs. It is all metal, nickle plated, and weighs about 1 pound.

I fully believe that this instrument will tend to increase the number of investigators in cystoscopy of the female, especially those who have been influenced by the inconveniences experienced when dependent on oneself in trying to adopt a satisfactory technic.

Jenkins Arcade.

GIANT MUCOCELE OF THE FRONTAL SINUS

Charles E. Dowman, M.D., Atlanta, Ga.
Assistant Professor of Surgery, in Charge of Neurologic Surgery, Emory University Medical School

This case of giant mucocele of the frontal sinus is reported because (1) the condition is sufficiently rare to justify the addition of another case to the literature on this subject; (2) the secondary effect, through pressure on the orbital structures causing definite disturbance of vision and the possibility of further pressure effects on the cranial contents, calls for operative relief, and (3) the technical difficulties in bringing about a cure, on account of the necessity of obliterating a cavity of such great dimensions, present an interesting surgical problem.

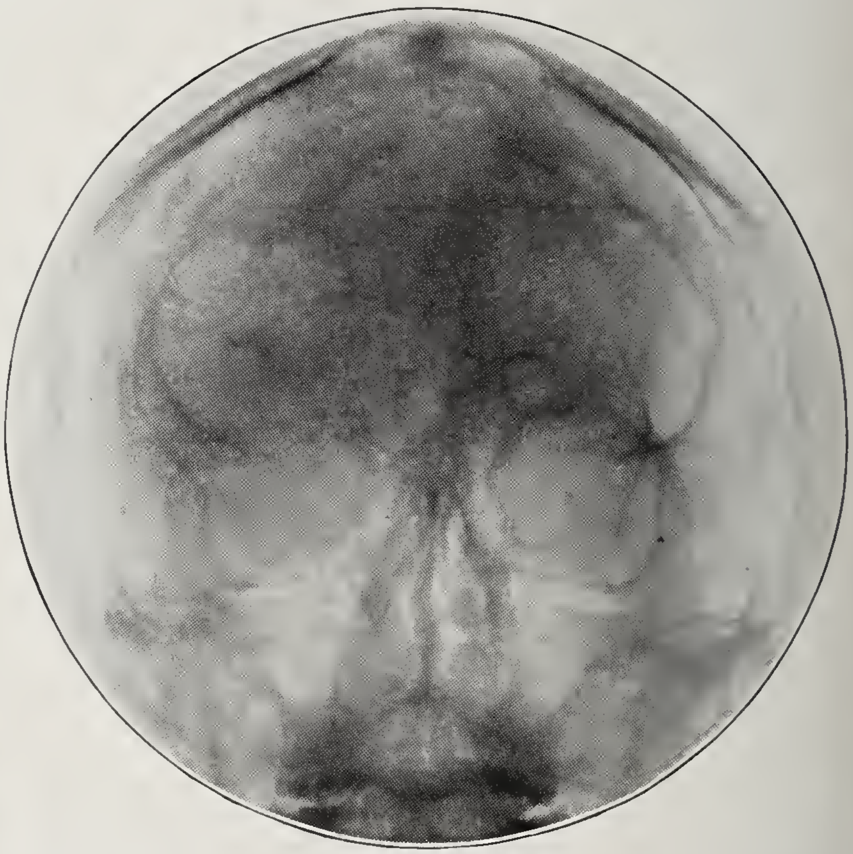


Fig. 1.—Anteroposterior view of tumor, showing extension downward and impingement on orbital structure.

Such an accumulation of nonpurulent mucoid material is probably brought about by some chronic irritation of the mucosa of an exceptionally developed sinus and the obliteration of the infundibular canal. The continued increase of the mucoid material gradually causes the absorption of the bony walls of the sinus, with definite pressure effects on neighboring structures.[1]

REPORT OF CASE

P. S. E., an unmarried man, aged 25, first noticed a prominence of the right frontal region when 10 years of age. This remained practically stationary until 1910, when it began to increase rather rapidly in size, and continued to do so up until July, 1920, when I first saw him. In April, 1920, he began to have dimness of vision in the right eye. There was no history of trauma, sinus infection or other significant illnesses.

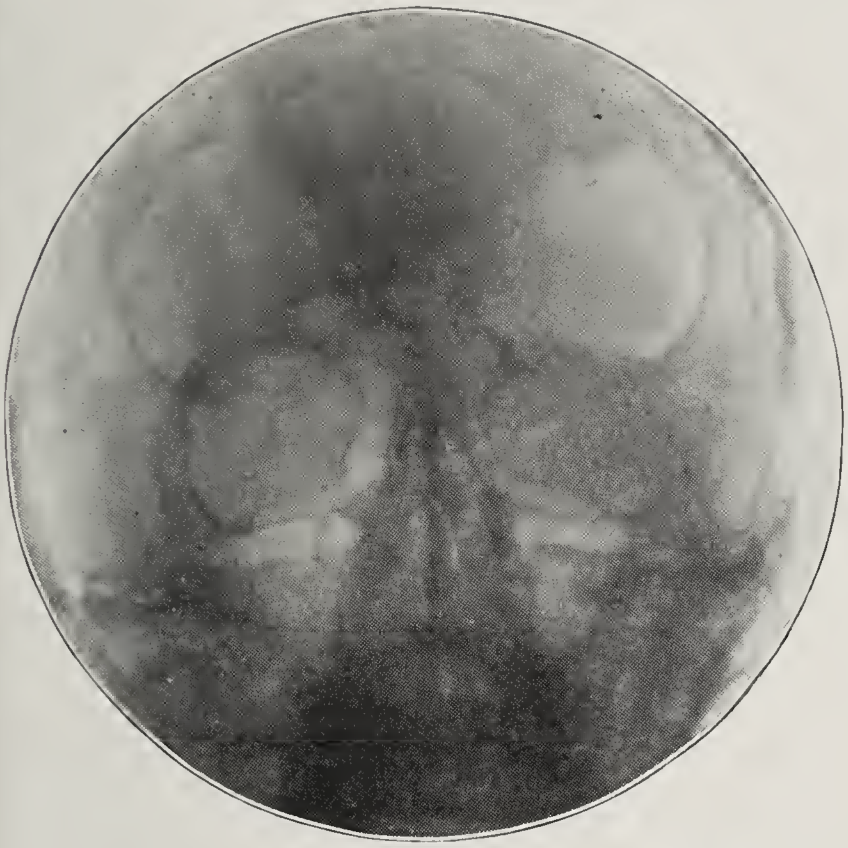


Fig. 2.—Postero-anterior view one year after operation.

The examination revealed nothing of importance so far as the general condition was concerned. The blood was negative to the Wassermann test. In the region of the right frontal bone, including the supra-orbital ridge, there was a marked enlargement measuring 7 cm. transversely and 5 cm. vertically. Above, it gradually "faded off" into the remaining frontal bone. The plane of the right eye was fully 1.5 cm. in front of that of the left eye. The surface of the tumor was of bony hardness. The overlying skin was freely movable. The neurologic examination gave normal findings except for diminished vision of the right eye, engorgement of the right retinal veins, a displacement forward of the right eyeball, which seemed to be due to the pressure exerted from above by the tumor, absent bone conduction to watch-tick on the left, and air conduction to watch-tick for a distance of 2 cm., on the left.

Roentgen-ray examination of the skull, lateral view, showed the presence of a tumor 12 by 7 cm. in the right frontal region, evidently replacing the right frontal sinus. The shadow showed a decreased density, with numerous bony trabeculae. The anteroposterior view showed the tumor to be principally in the right frontal bone, but extending across the median line for a distance of 3 cm. It measured transversely 11 cm., and the greatest vertical measurement was 7 cm. The supra-orbital plate on the right side seemed to be absent, and the tumor seemed to encroach definitely on the orbital fossa (Fig. 1).

My preoperative impression was that the tumor was probably a mucoid cyst of the right frontal sinus. The right eye had already begun to be affected by pressure, and if the tumor was allowed further development, there might possibly result serious pressure on the frontal lobe of the brain.

Sept. 24, 1920, under local anesthesia with a 1 per cent. procain-epinephrin solution infiltration, an incision was made in the line of the right eyebrow, and from the outer angle of this, a second incision extended upward for a distance of 3.5 cm. By means of chisel, the underlying bone, which was very thin, was opened and a bone flap effected and broken back. When the bone was first opened with the chisel, thick, bluish, mucoid material spurted up in pulsations to a height of 3 cm., thereby revealing the pressure within the cyst. The bone flap was broken back, the cyst was thoroughly evacuated, and as far as was possible the thin lining membrane was removed. There was no posterior bony wall of the cyst, this being composed of the pulsating dura. Likewise, the supra-orbital plate was absent, the inferior wall of the cyst being composed of the soft, intra-orbital structures. No communication with the nasal cavity could be demonstrated. The cavity was now filled with 3 per cent. dichloramin-T in oil, the bone flap replaced, and the incision closed with interrupted fine catgut subcutaneous, and interrupted fine silk, sutures.

The patient left the hospital one week after the operation in excellent condition, the wound having healed by first intention. Oct. 14, 1920, he returned for observation. There was a purulent discharge from the outer angle of the wound, and considerable edema of the right frontal region. Three days before there had occurred suddenly a purulent discharge from the nose. He was admitted to the hospital, and the outer angle of the wound was opened and the cyst cavity packed with iodoform gauze. The following day the gauze was removed, and 5 per cent. dichloramin-T was instilled into the cavity. This was done daily until all infection had subsided.

Oct. 30, 1920, under 1 per cent. procain-epinephrin infiltration anesthesia, an incision was made in the line of the wound of the first operation, with a slight extension of the incision to the left and upward. The flap of scalp was then dissected from the bone, and all of the anterior bony wall, including the supra-orbital ridge and the right lateral bony wall of the cyst, was removed. The scalp flap was then replaced and sutured, with the exception of the extreme outer angle, through which a small iodoform gauze wick was inserted.

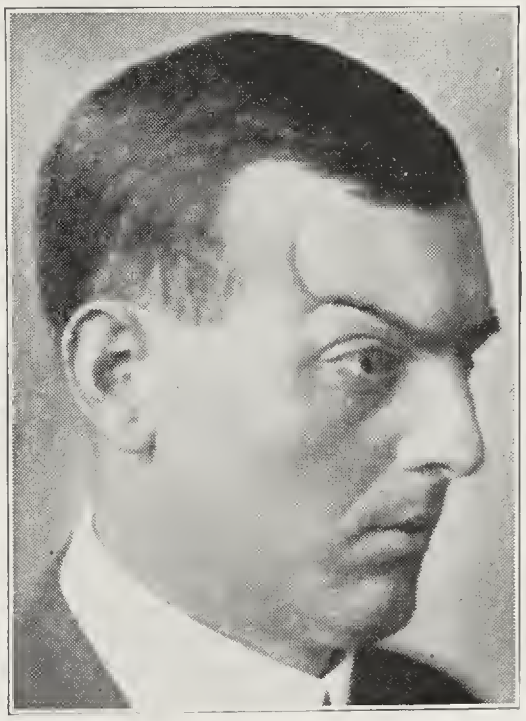


Fig. 3.—Appearance of patient one year after operation.

The iodoform gauze wick was removed two days after the operation, and daily instillations into the cavity of 5 per cent. dichloramin-T were instituted. Nov. 15, 1920, the patient was discharged. The wound was perfectly healed and all discharge had ceased. One year later the patient was examined. The sight in the right eye had returned to normal. There was very little deformity, and there was no discharge from the nose or from the area drained at operation (Figs. 2 and 3).

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[1] A review of the various theories regarding the pathogenesis is given by Gauge, A.: Giant Mucoceles of the Frontal Sinus, with Orbital Extension, Arch. d'opth. **39**: 193 (April) 1922.

SUMMARY

In a case of giant mucocele, on account of the increased tension in the affected sinus, there had occurred absorption of the superior plate of the orbit and posterior bony wall of the enlarged sinus. The pressure on the orbital structures had caused a unilateral exophthalmos, with diminished vision in the affected eye. A cure was effected by removing the secreting mucosa and obliterating that part of the osseous shell preventing depressibility of the overlying integument. The result was fair from a cosmetic standpoint, and excellent as far as restoration of sight was concerned.

78 Forrest Avenue.

COMPLETE DOUBLE URETHRA IN A FEMALE

Walter T. Dannreuther, M.D., New York
Associate Professor of Gynecology, New York Post-Graduate Medical School and Hospital

Urethral anomalies in the female are rare, and very few cases of double urethra have been recorded in medical literature. Urogenital malformations are usually congenital, and are the result of imperfect, incomplete or abnormal development, but the etiologic factors concerned in their production are uncertain. Heredity, malnutrition and syphilis are possible but doubtful causes.

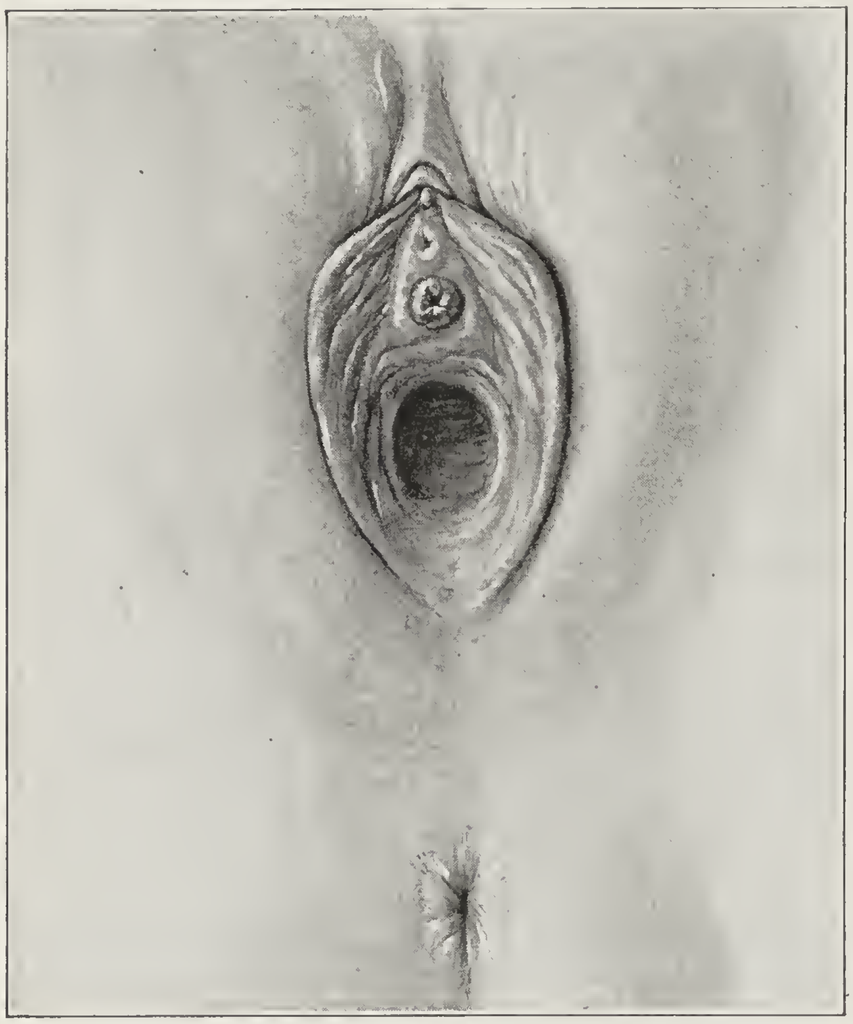


Fig. 1.—Typical caruncle, seen on vestibule, below normal external urinary meatus.

Mrs. K. H., aged 50, came under my observation recently. Her father and two brothers had died of tuberculosis, and her mother, of "liver abscess." The patient menstruated at 11, married at 16, and passed the menopause at 42. She lived a normal marital life, but never became pregnant. Continuous good health had been interrupted only by the ordinary diseases of childhood and the annoyances of constipation. The details of her previous history are irrelevant.

The patient complained of increased diurnal frequency of urination, nocturia, and a burning sensation on voiding. These symptoms had been present for about six months. At no time during the patient's life had she suffered from enuresis or incontinence.

General physical examination disclosed nothing of interest, except for a systolic murmur at the cardiac apex and a moderate degree of arterial hypertension. Aside from the malformation about to be described, the external genitalia and pelvic organs were all normal. When the labia were separated, a small red excrescence was discerned on the vestibule, just below the normal external urinary meatus (Fig. 1). It presented the appearance of a caruncle, and was exquisitely sensitive. A probe, pushed through a tiny slit in its center, encountered little resistance, and traversed a path upward, backward and to the right (Fig. 2). When a cystoscope was introduced into the bladder, the probe was seen to emerge from a small aperture in the vesical wall, a little to the right and above the right ureteral orifice (Fig. 3). A ureteral catheter inserted through the anomalous channel withdrew urine from the bladder. Subsequent inspection through a small Kelly endoscope disclosed a mucous membrane lining. Removal of the caruncle uncovered a very small vestibular opening, and promptly relieved the patient's symptoms. Further urologic exploration demonstrated a normal kidney and ureter on each side.

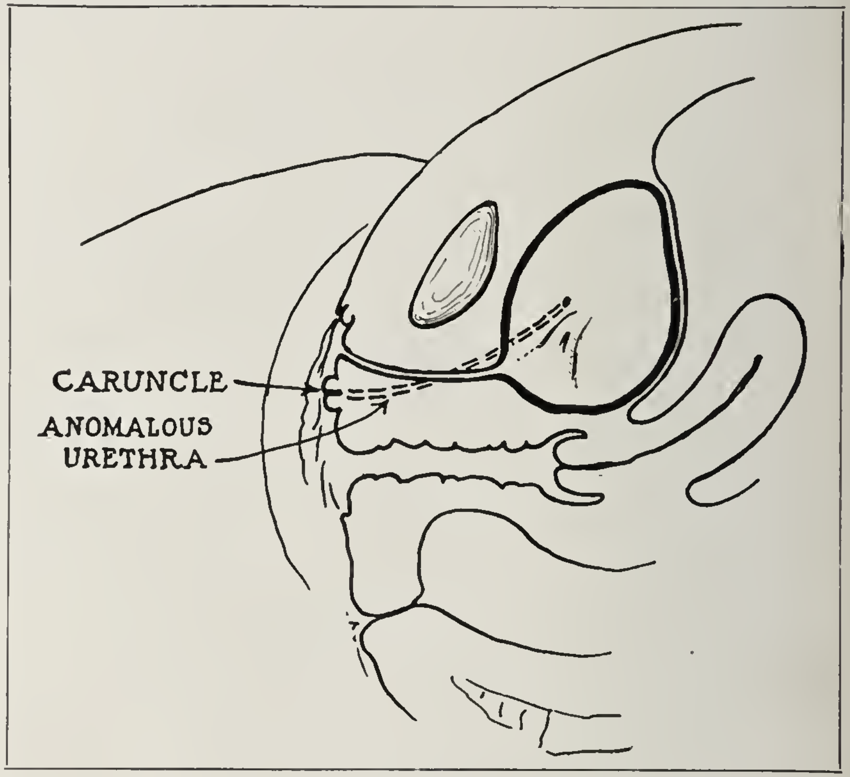


Fig. 2.—Course of second complete urethra.

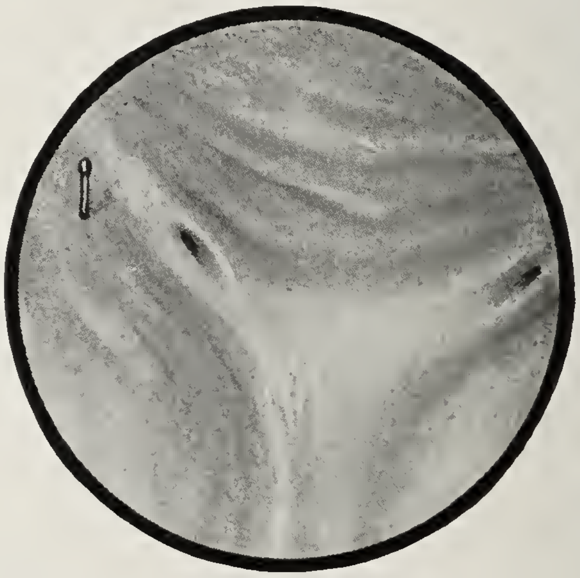


Fig. 3.—Cystoscopic view of probe entering bladder through aperture above and to the right of true ureteral orifice.

2020 Broadway.

Motion of Injured or Diseased Part Delays Recovery.—Uncontrolled movement of a diseased or injured part (if this is possible) will promote spread of the disease and delay recovery from the disability.—A. K. Krause: Rest and Other Things, p. 13.

A SAYRE'S FRACTURE DRESSING SUGGESTION

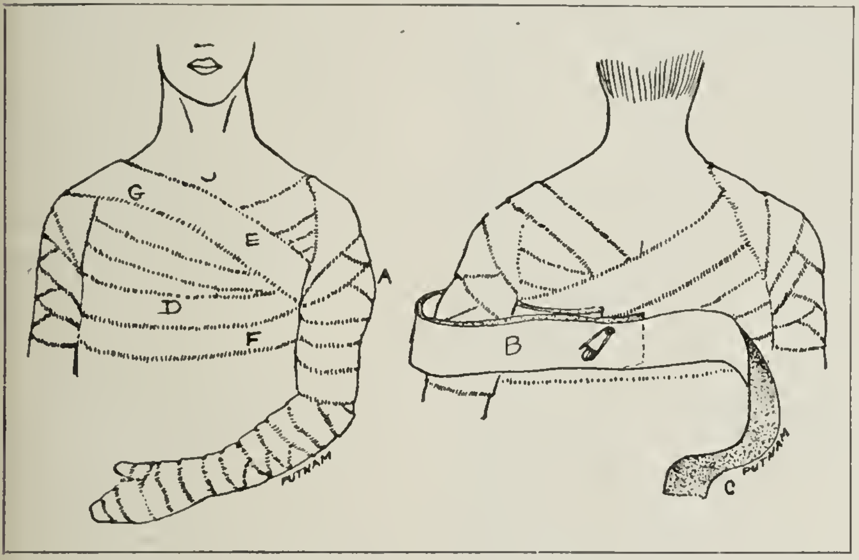
Glenn W. Putnam, M.D., Aurora, Ill.

I feel sure that most practitioners prefer Sayre's dressing for fractured clavicles. I feel equally sure that those who have used this form of dressing have found it unfeasible in a large number of cases, owing to sensitive skin which will not permit the continued application of an adhesive dressing, especially in the cases among children, and in those cases occurring in hot weather, in which the perspiration under the adhesive plaster often causes even severe skin erosions, in both instances in spite of careful cleansing of the skin and application of alcohol before the adhesive plaster is applied.

METHOD OF APPLYING DRESSING

An efficient form of dressing may be applied without the danger of skin lesions by following the instructions given below: Suppose we take, for example, a fracture of the left clavicle.

After the left arm has been padded at *A* with several turns of gauze, a bandage is applied to the left hand and arm to the axilla. A 2½ inch bandage is now applied to the lower part of the chest in circular turns until the axillae are reached; then a double spica is started with this bandage, finishing with a second of the same size, if required. This will cover the left arm and shoulder completely and anchor the chest bandages to the arms on both sides.



Method of applying bandage of adhesive plaster so as to avoid skin lesions.

Next, a 2½ inch adhesive strip is taken and a double strip made by turning the end back onto the adhesive surface, long enough to reach round the left arm. The four layers are loosely pinned together with a heavy safety pin, as pictured at *B*. This pin may be removed in subsequent inspections if it is found necessary to tighten this part of the dressing. Then the left arm is drawn well back by making tension on this strip and is applied to the back around under the right arm and onto the middle of the chest at *D*. Then two strips of adhesive plaster are applied from *D* to *E* and from *D* to *F* to anchor it firmly. In the original Sayre dressing the adhesive strip was not brought only to *D* but was carried on round under the left arm and back onto itself in the median line of the back. This relieves part of the tension on the left arm and thereby defeats the desired result to a certain degree.

Now the left hand is placed at *G*, and the regular adhesive strip with the slit for the elbow is applied over the dorsum of the left forearm, over the elbow, up the dorsum of the left forearm, onto the hand and then on over the right shoulder and down to the adhesive strip described above. The bandages are well anchored to hold the adhesive strips, and the adhesive plaster does not touch the body at any point. One should be careful not to get the bandage on the left arm too tight about the elbow, as this may bring about discomfort and trouble.

Sylvandell Building.

Special Article

THE INFLUENCE OF HEREDITY ON THE OCCURRENCE OF CANCER*

H. GIDEON WELLS, M.D.
CHICAGO

Until recently it has not been possible to speak with assurance concerning the influence of heredity on the occurrence of cancer; the evidence at hand has been of such an unsatisfactory character that the validity of whatever conclusions were drawn was always open to question. Numerous attempts to secure information by studying general mortality statistics, hospital populations or isolated clinical observations have led to contradictory results, as they were bound to do from the inherent errors in the data obtained from such sources. Furthermore, until within a comparatively short time, we had no definite knowledge of the principles of heredity itself, and this ignorance foredoomed to futility any speculations on the subject.

It so happens that the year 1900 saw the rebirth of two unrelated discoveries which, together, have led to an entirely new outlook on the problem, for they placed for the first time on an experimental basis the investigation of both heredity and cancer. In this year, independently, three botanists (de Vries, Correns and Tschermak) reported the rediscovery of the fundamental principles of heredity which the Austrian monk Gregor Mendel had worked out so accurately and described in 1866.

The same year witnessed the work by Leo Loeb in Chicago and by Jensen in Copenhagen, demonstrating that sarcomas in rats and carcinomas in mice can be inoculated into other animals of the same species for an indefinite number of generations—Jensen's mouse carcinoma is still being transplanted in many laboratories. The same fact had been demonstrated in 1889 by Hanau, and in 1891 by Morau, but, like Mendel's discovery, its significance had not been appreciated at the time and it had not been followed up. Although we have since learned that the information to be obtained from transplanted tumors is limited, especially in respect to the influence of heredity, these observations placed cancer research on an experimental basis, and the recent rapid progress in our knowledge of cancer has been largely due to the stimulus to investigation given by tumor transplantation work.

During the twenty-two years that have passed since these rediscoveries were made, genetics has become one of the most active fields of biologic research. Experimental cancer research has likewise been one of the most attractive subjects of pathology, although perhaps somewhat obscured by the contemporaneous development of the more hopeful science of immunology. In view of the relatively short period covered by these investigations, and the difficulties inherent in the problems themselves, it is not surprising that we are only just now beginning to secure evidence concerning the relation of heredity to cancer. In the following paragraphs I shall endeavor to present, as concisely as possible, the evidence that we now have concerning the influence of heredity on the occurrence of cancer.

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* From the Department of Pathology, University of Chicago, and the Otho S. A. Sprague Memorial Institute.

A. *EVIDENCE FURNISHED BY HUMAN PATHOLOGY*

Human material has furnished evidence that may be classified in two chief groups: (1) statistical investigations and (2) cancer families.

STATISTICAL EVIDENCE

Statistical evidence may be dismissed with the statement that, in the question of human cancer heredity, *all existing statistical evidence is valueless for any exact information on the subject,* and it must remain so until such time as we have necropsy records on all persons dying in several generations. When we consider how few persons have knowledge of a physician's diagnosis of the fatal illnesses of even their grandparents, to say nothing of their great uncles and aunts and of preceding generations, we at once recognize the limitations of clinical histories in casting light on the relation of human heredity to cancer. And even if we did have such records of clinical diagnosis we should be no better off, for the error in such diagnoses is far too large to permit us to use them.

We find that, even in large modern hospitals, necropsies show an error in clinical diagnosis in respect to cancer of anywhere from 20 to 50 per cent., depending on how large a proportion of the cases are of malignancy in the internal organs.[1] With such a great error in the diagnoses in large hospitals, where every modern diagnostic resource is available, what must the error be in the clinical diagnoses made on private patients under the varied and unfavorable conditions that often obtain even in present days, to say nothing of the diagnoses in previous generations before the days of microscopy or modern methods of diagnosis?

In considering the relationship of heredity to cancer, even a single error in diagnosis might totally destroy the value of an entire family history, making it appear that cancer was present in a branch of a family when it was not, or that it had failed to appear in a certain branch in which it actually did exist. Therefore, the records that exist now, or that may be obtained in the future, can be of no value whatsoever for this purpose until they all contain a complete postmortem examination with microscopic control.

With these essential facts before us, we must dismiss the numerous discussions in the literature based on mass statistics. By so doing we lose nothing, for the conclusions are as contradictory as possible. On the one hand we have the much-quoted and carefully compiled statistics of an expert statistician, Karl Pearson, using an absolutely worthless material, the histories of patients in a large charity hospital as to the incidence of cancer in their known relations. These failed to show any evidently greater proportion of cancerous relations in cancer patients than in patients with other diseases. Any medical man who has questioned the patients of such a hospital knows how absolutely worthless is the information that the patients can give in respect to family history. Most of them do not know how many and which of their relatives are living, to say nothing of the causes of death. Thus, in a discussion of the relation of heredity to cancer, Bashford[2] reports that in the histories of 2,932 cancer patients, in respect to familial occurrence of cancer, "no reliable statement was obtainable for 2,263." That is to say, in less than one fourth of the cases was there even a layman's knowledge of cancer in the family, although in the 4,526 parents there undoubtedly were not far from four or five hundred cases of cancer. To use refined statistical methods on such material is as useless as some of the attempts that are made to use the extremely exact methods of physical chemistry in interpretating biologic processes that even in controlled conditions show variations of 50 per cent.

It is only fair to Pearson to quote his own conclusion:

> The data do seem to justify further inquiry and to suggest to my mind that possibly the tendency to cancer does not run strongly in families. I admit that I should accept this only with reluctance, for general health, I find from my own investigations, is inherited exactly as any physical character like shape of the head, and length of life, is inherited also. It is difficult to conceive that longevity and general health can be inherited if the tendencies to particular diseases do not largely run in families. Cancer may be an exception, of course, and certainly the above results, without being convincing, do call upon us to pause and ask for further inquiry.

From this it is seen that Pearson was much more conservative in his deductions than most of the writers who have quoted his carefully analyzed statistics as weighty evidence that there is no hereditary influence in cancer.

On the other hand, we may find as many sets of statistics as we wish, which, like those of Williams,[3] show that a very considerable number of the relatives of cancer patients have had cancer; but they are not usually so controlled as to be of any value, even if such mass statistics could mean anything. About the only thing we can deduce from them is that most of the published statistics indicate that usually a larger proportion of the relatives of cancerous subjects have been cancerous than of the relatives of noncancerous patients. Few investigators, like Pearson, find the proportion of cancerous relatives the same in the two groups, and still fewer, if any, find more cancer among the relatives of the noncancerous subjects.

Of material of this sort, perhaps the best is that considered by Little.[4] This is contained in the family history records of the Eugenics Record Office of the Carnegie Institution, which have been furnished by persons of intelligence, conscientiously endeavoring to provide accurate family histories for scientific purposes. Analysis of these records shows that cancer occurs much more frequently among the descendants of cancerous parents, or in persons with cancerous relatives, than is to be expected from the general cancer mortality figures. However, we have here the usual defect in that the occurrence or absence of cancer is based on only the layman's belief concerning the cause of death of relatives, and the vital statistics used for comparison are of no more accuracy than any statistics not based on necropsy records, and probably give too low a cancer rate.

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[1] Wells, H. G.: Relation of Clinical to Necropsy Diagnosis in Cancer, and Value of Existing Cancer Statistics, J. A. M. A. **80**: 737 (March 17) 1923.

[2] Bashford: Proc. Roy. Soc. Med. **2**, Part 1, p. 63, 1909.

[3] Williams: Natural History of Cancer, New York, William Wood & Co., 1908, p. 367.

[4] Little: Eugenics, Genetics and the Family, **1**: 186, 1923.

CANCER FAMILIES

Much attention has been given to the occurrence of families in which a strikingly large proportion of members are cancerous. The existence of such families cannot be denied. Some of these families have become classical in cancer literature. Such is the Bonaparte family; for Napoleon I, his father, his brother Lucien, and two of his sisters, Pauline and Caroline, all were believed to have died of cancer of the stomach. One of the most remarkable is the family of Madame Z, reported by Broca in 1866, and mentioned in virtually every discussion of heredity in cancer since that time. Many more such families might be described. The chief trouble with most of these reports is that they do not include all the noncancerous members of the family, and hence we cannot always be sure that the incidence is really so exceptional. Furthermore, they have, of course, the defect of depending only on family traditions and belief as to the cause of death.

In family records with a high incidence of cancer, no matter how high the proportion is, the possibility that the heaping up of cases in these families may depend on chance cannot be evaded. Granted that of the entire population past 40, about 10 per cent. will have cancer, the laws of probability would determine the occurrence of occasional families in which a high proportion of cancer cases would occur if heredity had no influence at all. Bashford[5] gives the accompanying table showing how large a number of cases of cancer are to be expected on this basis, independent of any other influence than that of chance.

Likewise, there should be fortunate families that escape cancer through pure chance. As far as I can learn, no one has sought families that show an immunity to cancer, although such family records should be more attractive than the other kind.

Occurrence of Cancer in Families, According to the Laws of Probability *

Number of Cancer Deaths in Family	Per Hundred Families of 6 Members, viz., 3 Men, 3 Women	8 Members, viz., 4 Men, 4 Women	10 Members, viz., 5 Men, 5 Women
None	51	41	33
One	36	39	39
Two	11	16	20
Three or more	2	4	8
	100	100	100

* Including only persons living thirty-five years or more.

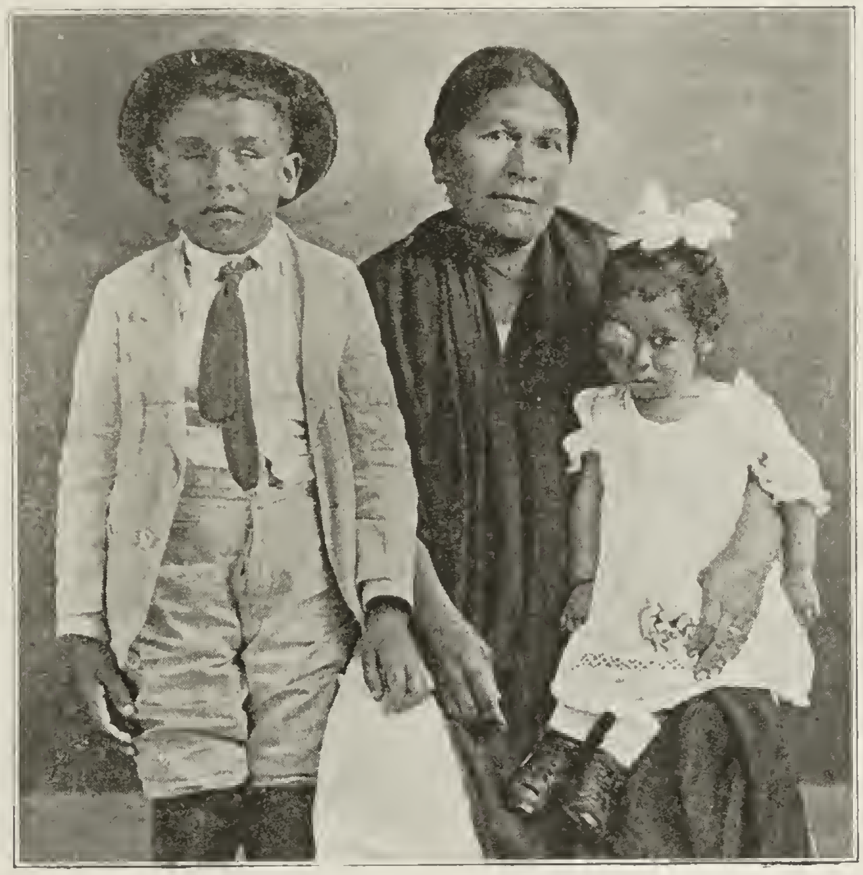

Fig. 1.—Familial glioma (Comas).

But when we find families that have many cases of a certain sort of tumor which is not common, or a tendency to frequent location of a certain tumor in a certain place, the law of probability becomes inadequate. We have just such records.

Undoubtedly the retinal glioma families afford the most striking examples of such unquestionable heredity influence. Glioma of the retina is a rare neoplasm, which is striking in that it often occurs in infants or even at birth. Its familial occurrence is equally striking, and we have numerous records of such families as the following:

1. Newton[6] has reported a family of sixteen children, of which ten had died of retinal glioma, the disease being bilateral in seven cases. Two of the others died in infancy, and four were alive and well. Both parents were free from tumor, but a brother of the father was believed to have died of the same disease.

2. Wilson[7] reported a family in which eight children had retinal glioma.

3. Purtscher[8] has described a glioma family: A man who died of sarcoma of the arm had eleven children; two of six boys died of glioma of the retina (at 9 and 3 years); a daughter had bilateral glioma (verified by Fuchs), which retrogressed spontaneously. Her only child, a boy, died of glioma. Two children of the members of the family, who remained tumor free themselves, developed glioma; one died, and in the other the tumor retrogressed during ten years while under observation in the clinic of Fuchs.

4. Comas[9] has described a striking instance of familial glioma: Among eleven brothers and sisters, five have had glioma of the retina. Of the five, three sisters and two brothers, only one brother is alive; he is now 12 years old and enjoys good health, although blind. Both his eyes were enucleated, the left when he was 2 years old and the right six months afterward (Fig. 1). Recently, Dr. Comas writes me, the father has died from gastric cancer. The mother is in good health, and the other children, one of them 16 years old, are also in good health. The illustration (published with the permission of Dr. Comas) shows the mother, the blind brother, and one of the sisters who died shortly after this picture was taken.

It may be suggested, not without justification, that retinal glioma is not a typical and unquestionably

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5. Bashford: Proc. Roy. Soc., Med. Sec. **2**: 67, 1909

6. Newton: Australian M. Gaz., May, 1902, p. 236.

7. Wilson: Tr. Path. Soc. Dublin, 1871-1874, p. 138.

8. Purtscher, reported by Peller: Wien. klin. Wchnschr. **35**: 121 (Feb. 9) 1922.

9. Comas, L.: Five Cases of Glioma of the Retina in One Family, J. A. M. A. **75**: 1664 (Dec. 11) 1920.

malignant neoplasm, for it is often bilateral, does not commonly produce remote metastases, and may even retrogress spontaneously (witness one of Purtscher's cases). I therefore add some other examples of familial neoplasms.

Silcock[10] describes the following instance: A mother and daughter each suffered from melanosarcoma of the choroid of the left eye, each identified microscopically. The mother's father and each of her twin sisters had had an eye extirpated because of disease, but that this was melanosarcoma in all three cases is not known.

Williams[11] has collected a large number of family groups in which several members of the same family have died of similar or identical sorts of neoplasms, some of the instances being very striking, as are also the families described by Bashford,[12] Pel,[13] Peiser,[14] Watkins,[15] Richards,[16] and Oidtman.[17]

As especially significant may be cited the interesting cases reported by Burkard[18] of twin sisters, aged 21 years, who developed each a fibro-adenoma of the left breast, each of the same microscopic structure, at almost the same time and in the same part of the breast. This recalls the remarkable family described by Critzmann,[19] in which all members who were *not* twins died of cancer, all the twins escaping. Such an instances must be related to Galton's family, remarkable for the number of twins; whenever single children were born they always had six fingers and six toes, but the twins always had the normal number.

Another striking instance is reported by Hedinger[20] of primary liver cancer in two sisters examined at necropsy within one week. No cancer was known in the family, but Hedinger believes it impossible that two such rare tumors could have occurred in sisters without a familial organ disposition. Another case of rare tumor in sisters is reported by Primrose,[21] namely, primary "carcinoma" or cancroid of the appendix.

Some interesting data are given by Peller[22] from his analysis of a questionnaire sent out to the entire medical profession of Austria, from whom 389 replies were received; but here the factors of selected material and uncontrolled data make the significance of the reported material of uncertain value, for it is probable that observations in which many of the members of a family are cancerous are especially often recorded because they are especially striking.

Perhaps the most reliable family records of cancer in the literature are those reported by Warthin,[23] which have the virtue of being based on histologic examination in at least many of the cases, and in being collected in a university hospital population probably with better information as to family history than is likely to be the case in large city hospitals with a foreign-born clientele. He cites with diagrams several families in which a striking history of cancer was obtained. In one, of forty-eight descendants of a cancerous grandfather, seventeen had died or been operated on for cancer, and many of the survivors were below the usual cancer age when the paper was published. The preponderance of carcinoma of the uterus (ten cases) and of the stomach (seven cases) is striking. Another family, in which the father and mother escaped cancer although each had cancerous brothers and sisters, consisted of three, daughters, all of whom had uterine or ovarian tumors. Especially striking is a family in which a cancerous father and a cancerous mother had six children, all of whom died of cancer, as did the only grandchild; that is, of the entire family of nine members in three generations, all died of cancer, as did the paternal great grandfather.

Warthin[24] thus sums up his study:

> In the histories of cancer cases coming from the state of Michigan and examined at the pathological laboratory of the university, about 15 per cent. show a striking history of multiple family occurrence. When the difficulty of obtaining good histories is considered, this proportion is relatively high, and, on the whole, corresponds fairly closely with the percentage obtained by Williams. We must conclude, then, that a definite and marked susceptibility to carcinoma exists in certain families and family generations. This family tendency is usually most pronounced when there is a history of cancer in both paternal and maternal lines. In such families there is an especial tendency for carcinoma to appear at an earlier age than in the forebears, and in these younger individuals the cancer usually shows an increased malignancy.

Wolff,[25] in his great compilation of cancer literature, says that recent authors find that from 11 to 18 per cent. of their cancer cases show evidence of an hereditary influence. After discussing this evidence, he concludes:

> Nevertheless, we must admit that heredity may be a factor for predisposition to cancer, for it is admitted that heredity is seen in nevi, warts and other skin abnormalities which are known to be closely related to cancer formation; furthermore, heredity is understandable on the assumption that abnormalities in fetal development, which likewise are often the starting point of a cancer, may repeat themselves in several members of a family or of a generation.

He cites a report by Rüder, in which seven boys, from 5 months to 10 years of age, in one family exhibited epithelial "carcinoma" of the skin, in a form of papillary nodules up to bean size, while five girls of the same family showed none. The formation of these nodules was preceded by an inflammatory reaction where exposed to light. The course was slow, but nothing is said as to the outcome. The parents of these boys were healthy, but a grandfather had the same disease.

Those authors who consider that tumors arise usually or always in some embryonal rest of necessity lay much weight on heredity. Thus, Ribbert,[26] for instance, maintains that irritation cannot cause cancer unless there are already present the necessary germ cells, which, like all other anomalies of the germ plasma, are transmissible. He believes that ordinarily tumors develop spontaneously without exciting cause, solely because of the presence of anomalous predisposing germ cells. This view can scarcely be held now in the light of the newer studies on the experimental production of cancer, unless we agree to the proposition that nearly all individuals have such anomalous germ cells located in any part of the body that we choose to irritate with our cancer-exciting agent.

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[10] Silcock: Brit. M. J. **1**: 1079, 1892.
[11] Williams: Natural History of Cancer, p. 356.
[12] Bashford: Proc. Roy. Soc. Med. **2**: 71, 1909.
[13] Pel: Berl. klin. Wchnschr. **52**: 288, 1915.
[14] Peiser: Med. Klin. **11**: 193, 1915.
[15] Watkins: Brit. M. J. **1**: 190, 1904.
[16] Richards, C. M.: Am. J. Roentgenol. **8**: 514 (Sept.) 1921.
[17] Oidtman: Nederl. Tijdschr. v. Geneesk. **1**: 2184, 1917.
[18] Burkard: Deutsch. Ztschr. f. Chir. **169**: 166, 1922.
[19] Critzmann, cited by Williams: Natural History of Cancer, p. 374.
[20] Hedinger: Centralbl. f. allg. Path. **26**: 385, 1915.
[21] Primrose, Alexander: Ann. Surg. **72**: 690 (Dec.) 1920.
[22] Peller: Wien. klin. Wchnschr. **35**: 121, 1922.
[23] Warthin, A. S.: Heredity with Reference to Carcinoma, Arch. Int. Med. **12**: 546 (Nov.) 1913.
[24] Warthin, A. S.: J. Michigan State M. S., January, 1914.
[25] Wolff: Die Krebskrankheit, Jena **2**: 695, 1911.
[26] Ribbert: Deutsch. med. Wchnschr. **45**: 1265, 1919.

The only study of heredity in human cancer in which the mendelian principles of heredity are considered is that of Levin,[27] who used material collected by field workers of the Eugenics Record Office at Cold Spring Harbor. Unfortunately, these field workers were not physicians, and the data that they collected must have been limited to what the members of the investigated families knew or believed concerning the ailments of their relatives and ancestors. There were two "fairly complete" and three "fragmentary" records available, from a study of which this conclusion is reached:

> The incidence of cancer in these families is not greater numerically than would be found among the population of the community as a whole. But there are several points in the analysis which indicate that cancer may be influenced by heredity. A cancerous fraternity usually shows in a previous generation a cancerous member either on the maternal or paternal side or both. In other words, a cancerous fraternity is usually derived from the union of two germ plasms, each of which is characterized by the presence of germ cells that are nonresitant to cancer.

It was also noted that there is a distinct family susceptibility of organs; in one family all the women with cancer had uterine involvement "except one in the omentum"; in another family group the males had intestinal cancer, the females breast cancer. Analysis of the collected statistics gave Levin evidence that *resistance to cancer is a dominant character,* the absence of which creates the susceptibility to cancer.

Benign tumors, and especially various cutaneous growths that are essentially benign neoplasms, often exhibit a striking and undeniable hereditary occurrence. Several such records of dermatologic heredity are collected by Meirowsky and Bruck.[28] Hereditary telangiectasis is also well known, the literature having been reviewed by Goldstein.[29] Multiple benign cystic epithelioma is one of the growths that has a distinctly familial distribution, and these growths,[30] which usually more or less resemble carcinoma histologically, sometimes become malignant. As illustrating the familial character of these growths may be cited the case reported by Heidingsfeld,[31] in a man of 65, whose four children, like himself, exhibited the growth on the nose; his maternal uncle and aunt had a similar growth, his mother had died at 30 without having any growths, and there had been no cases on the paternal side. Probably this is the type of growth referred to by Wolff as cutaneous epithelioma.

Another form of benign neoplasms with an extremely marked hereditary character are the multiple cartilaginous exostoses. The literature of this topic has recently been reviewed by Maynard and Scott,[32] who reported the occurrence of a family with sixteen known cases in three generations, an important feature being that the mother who transmitted the condition apparently did not herself have the disease. This has been observed in other families with this disease and is of much significance in respect to the mendelian principles of transmission of inheritable characters, as will be shown later.

Von Recklinghausen's disease, or multiple neurofibromatosis with its various related and complicating conditions, has a most striking hereditary character, at least one fifth of all patients showing close relatives with the same rare disease, which is especially significant in the fact that there is a noteworthy tendency to malignant transformation. The disease appears not only often in several members of a family, but also for many generations, its character being so striking that the lay patient is usually well aware of similar conditions in his relatives and ancestors. For example, Harbitz[33] has described a family in which the disease was known for five generations, it being of significance that in one generation it was transmitted by a woman who herself was not affected, although it was present in two of her sisters. The literature on this subject has been discussed especially by Langer[34] and by Herxheimer and Roth.[35] Davenport[36] found evidence, from an analysis of 243 cases, that the hereditary factor behaves as a dominant, coming down equally well in either male or female lines, and affecting the two sexes alike. Sometimes, however, there is a failure of dominance and generations are skipped.

Possibly of some relationship to these conditions is the central nervous sclerosis associated with multiple symmetrical adenoma sebaceum, as indicated by the family reported by Berg,[37] in which the father had tuberous cerebral sclerosis associated with adenoma sebaceum and a large, mixed, embryonal type of renal tumor; the daughter with the same nervous system disease and the sebaceous adenomas had a small angiofibroma of the kidney, and the paternal grandfather died with a large renal tumor but without the nervous and cutaneous lesions.[38] This disease is commonly associated with renal, cardiac and retinal[39] tumors, as well as various developmental defects, which facts bring closely together the potential relationship of inherited developmental anomalies and consequent hereditary neoplasms.

(To be continued)

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27. Levin: Ztschr. f. Krebsforsch. **11**: 547, 1912.

28. Meirowsky, E., and Bruck, W.: München. med. Wchnschr. **68**: 1048 (Aug. 19) 1921.

29. Goldstein, H. I.: Hereditary Hemorrhagic Telangiectasia with Recurring (Familial Hereditary Epistaxis, Arch. Int. Med. **27**: 102 (Jan.) 1921.

30. Orsmby: Diseases of the Skin, 1915, p. 647.

31. Heidingsfeld: J. Cutan. Dis. **26**: 18, 1908.

32. Maynard, H. H., and Scott, C. R.: Hereditary Multiple Cartilaginous Exostoses, J. A. M. A. **76**: 579 (Feb. 26) 1921.

33. Harbitz, Francis: Multiple Neurofibromatosis (von Recklinghausen's Disease, Arch. Int. Med. **3**: 32 (Feb.) 1909.

34. Langer: Inaug. Diss., Leipzig, 1906.

35. Herxheimer and Roth: Beitr. z. path. Anat. u. z. allg. Path. (Ziegler's) **58**: 319, 1914.

36. Davenport: Proc. Nat. Acad. Sc. **4**: 213, 1918.

37. Berg: Ztschr. f. ges. Neurol. **19**: 528, 1913.

38. Hanser: Berl. klin. Wchnschr. **55**: 279, 1918.

39. Van der Hoeve: Arch. f. Ophth. **105**: 880, 1921.

The Physician.—There are men and classes of men who stand above the common herd, the soldier, the sailor, the shepherd not infrequently; the artist rarely; the physician almost as a rule. He is the flower of our civilization and, when the stage of man is done and only to be marveled at in history, he will be thought to have shared as little as any in the defects of the period and most nobly exhibited virtues of the race. Generosity he has, such as is possible to those that practice an art, never, to those who drive a trade. Discretion, tested by a hundred secrets, tact tried in a thousand embarrassments, and, what are more important, Herculean cheerfulness and courage.—Robert Louis Stevenson.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, SEPTEMBER 22, 1923

IRON IN RELATION TO ANEMIA AND OTHER DISORDERS

There are types of anemias in which the origin of the disorder is so obvious that it calls for no unusual sagacity to manage the situation. Hemorrhages of all sorts are certain to lead to a "dilution" of the blood, for a time at least, provided the bleeding has been sufficiently extensive. Sometimes the hemorrhage is external and evident, while in other cases it is occult in character so that the escape of blood from the blood vessels is not betrayed so readily; but in either event the restoration of the circulation through regeneration of an adequate supply of corpuscles and hemoglobin is likely to go on uneventfully if no peculiar disease manifestations interfere with the normal progress of restitution. Hematogenesis is subject, however, to the same limitations that attach to all processes of growth. Formation of cells and tissues cannot exceed the supply of the essential component of the new structures. Protein manufacture in the body depends on the availability of certain amino-acids without which the albuminous substances cannot be synthesized in the organism of man. If the supply of one of these "building stones," such as tryptophan or lysin, is limited, a corresponding limit is placed on the genesis of new protein. The so-called "law of minimums" applies here as elsewhere in nature where constructive changes depend on the securing of certain requisite materials preformed.

The need of protein in blood regeneration is obvious; and since one blood protein, hemoglobin, is iron-bearing, this element becomes one of the limiting essentials in the process. As is the case with most of the inorganic constituents of the body, iron is needed in such comparatively small amounts that it attracts less attention than some of the substances that we are bound to consume by the ounce or pound in order to meet our weekly needs. Perhaps, therefore, the results of an unsuspected shortage are more elusive than is commonly appreciated. This is particularly true of the young, in whom bodily growth and development may proceed in a seemingly satisfactory way although careful examination may reveal an unmistakable anemia. Physiologists have been aware that animals living on diets supposed to be adequate, as judged by the somatic condition of the subjects, may nevertheless experience delay in the regeneration of blood after hemorrhage unless some suitable source of iron is provided. For example, in Scott's[1] recent investigations at the University of Cambridge, England, animals fed from the time of weaning on white bread and whole milk, and subjected to successive bleedings each amounting to 1 per cent. of the body weight, showed a fall in the color index of the blood which persisted for two or three weeks after the hemorrhages were stopped. Control animals fed during the same time on this diet plus green foods showed a comparatively inappreciable fall of color index. A seemingly small difference in the diet may thus become responsible for pronounced physiologic benefits under conditions of stress.

Even more subtle effects have been produced in the young bred from mothers that had long been on the bread-milk diets. The adolescents showed a marked fall in the color index of the corpuscle owing to the fact that the hemoglobin content of the blood had fallen, while the number of the erythrocytes had risen. Scott[2] believes that attention should be directed to such possibilities when the number of red cells does not directly betray their poverty in iron-bearing hemoglobin. Experimentally, green foods always facilitate recovery from this "latent diathesis" which manifests itself as anemia in the offspring. The importance of green vegetables thus becomes emphasized anew. In the adult, the possibility of deficiency is rarely threatening. In the young, in whom growth and change call for continuance of new supplies and for whom the range of the diet is usually far less liberal, the menace is somewhat greater. Even wholesome bread and milk may need a supplement.

Lately, attention has been directed to the possibility that deficiency of iron in the diet may lead to other disorders quite as detrimental as the long recognized anemia manifestation. Serious disease has been recognized in young pigs suckled by sows fed on food which, for various reasons, does not contain enough iron to keep pace with the growing demands of the sucklings.[3] The symptoms observed are not greatly unlike those seen in "wet" beriberi in human beings, a disease also often arising from the use of diets poor in iron. In the pig, iron therapy has been found advantageous for the relief of the conditions outlined. That milk itself may vary in its iron content in relation to the feed of the lactating animal has been clearly demonstrated for cows.[4] It may contain twice as much iron when they are on green pasture as when they subsist on the winter feeds. The newer stories of iodin, calcium and iron are beginning to emphasize the possible importance of the inorganic constituents of food in nutritional disorders.

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[1] Scott, J. M. D.: Studies in Anemia, I, Biochem. J. **17**: 157, 1923.

[2] Scott, J. M. D.: Studies in Anemia, II, Biochem. J. **17**: 166, 1923.

[3] McGowan, J. P., and Crichton, A.: On the Effect of Deficiency of Iron in the Diet of Pigs, Biochem. J. **17**: 204, 1923.

[4] Hess, A. F.; Unger, L. J., and Supplee, C. G.: J. Biol. Chem. **45**: 229 (Dec.) 1920.

BIRTH STATISTICS FOR 1921

Since the permanent census act was passed in 1902, the Bureau of the Census has made annual collections of mortality statistics from a steadily increasing area, which now contains 82.2 per cent. of the population of the United States. Until recently, however, few states maintained reliable birth registration systems. The first annual birth report was for 1915, and included ten states and the District of Columbia. The birth registration area now comprises twenty-seven states, which contain 65.3 per cent. of the population of the United States. The seventh annual report [1] on birth statistics published by the Bureau of the Census has just been received. It shows a birth rate of 24.3 per thousand population for 1921, as against a birth rate in 1920 of 23.7. There is a marked excess of births over deaths in every state in the registration area, as well as for nearly every city. Wherever deaths outnumber births, the excess is usually among the colored population. It is a notable fact that, almost invariably, the number of male births exceeds the number of females. This is true not only in the United States, but also, it appears, in England and Wales. There have been "hundreds of groundless theories" to explain this phenomenon. The recent figures for England and Wales, it is said, "give some color to the theories that war and epidemics are followed by increases in masculinity of live births." Knibbs [2] points out that "the one point which is clear is that death in utero (at least in the later stages) is marked by much greater masculinity than that which characterizes live births." The greatest masculinity (1,095) appears for children of mothers born in England, Scotland and Wales, and the lowest (1,030) for the negro. Italians also show a comparatively low masculinity. For stillbirths, masculinity is invariably much greater than for live births, and infant mortality among males is universally higher than among females in the early days of life.

A comparison of birth rates from 1917 to 1921 shows a gradual decrease for each year through 1919, when the birth rate was lowest. Comparing the rates for 1921 with those of 1917 for the states which composed the area in 1917, it is found that ten states show decreases and ten states and the District of Columbia show increases, the greatest decrease being for Connecticut (4.6) and the greatest increase for North Carolina (2.9). The birth rate of 23.5 for the rural part of the original registration area in 1921 is 1.2 lower than the rate for the rural part of the 1921 registration area (24.7), whereas the death rate (12.1) and infant mortality rate (79) for the rural part of the original registration area are, respectively, 0.9 and 5 higher than the corresponding rates (11.2 and 74) for the rural part of the 1921 registration area. These differences, it is said, in the death rates from the two areas are no doubt partly due to a difference in the population; 25 per cent. of the rural part of the original registration area is composed of places having from 2,500 to 10,000 inhabitants in 1920, while only 18 per cent. of the rural population of the present registration area reside in localities of that size.

In 1921, in Connecticut, for example, 56 per cent. of the white children born had foreign-born fathers; in New York, 49 per cent.; in New Jersey, 48 per cent. An interesting table is presented to show the racial composition of the coming generation in the registration area. It appears that in 1921, in only 67.1 per cent. of the births of white children were both parents born in the United States. In 6.2 per cent. of the white births, both parents were born in Italy.

The infant mortality rate is defined as the number of deaths of infants under 1 year of age per thousand born alive, and was 76 in 1921, as against 86 in 1920. Thus, for every thirteen infants born alive, one dies before the age of one year. The infant mortality rate for the rural population has declined since 1915 from 94.4 to 79.5, or, in round numbers, 15 per thousand births in six years. The infant mortality rate for the urban population has declined in the same time from 103.3 to 78.6, or 25 per thousand live births. The greater decline for the cities appears to be due almost entirely to a greater decrease in the rates from bronchopneumonia, diarrhea and enteritis.

URIC ACID AND DERMATOSES

In his address as chairman of the Section on Dermatology and Syphilology at the San Francisco session, Haase [1] lamented the seeming lack of progress in the study of the etiology of dermatologic maladies. He alleged that the ability of the specialists in this field of medicine as nosologists has been gained at the expense of the more profound consideration of the causation of many obscure diseases of the skin; and he makes an earnest plea for more active cooperation between the dermatologist and the internist, biochemist and pathologist. Since these words were uttered, an illustration of what can be accomplished by enterprise of this sort has been published by Schamberg and Brown [2] of the Research Institute of Cutaneous Medicine, Philadelphia. It is not always easy, even for the most expert, to differentiate between a chronic dermatitis due to local irritants and an eczema of constitutional origin. For the latter, etiologic factors have been sought and recognized in almost every possibility of physiologic malfunction.

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[1] Birth Statistics for the Birth Registration Area of the United States, 1921, Seventh Annual Report, Washington, D. C., Government Printing Office, 1923.

[2] Census of the Commonwealth of Australia **1**, Appendix A, p. 141, 1911.

[1] Haase, Marcus: "Etiology Unknown," J. A. M. A. **81**: 703 (Sept. 1) 1923.

[2] Schamberg, J. F., and Brown, H.: The Relationship of Excess of Uric Acid in the Blood to Eczema and Allied Dermatoses, Arch. Int. Med. **32**: 203 (Aug.) 1923.

The Philadelphia investigators have been impressed, like others, with the reputed association of gout and eczema. Instead of being discouraged, however, by the current (and not entirely unjustified) disrepute of attempts to put uric acid into the category of a source of human ills, Schamberg and Brown have endeavored to learn by direct chemical examination of patients rather than by empiric speculation whether or not there is a high incidence of hyperuricemia in any of the common dermatoses. Their survey reveals the fact that although there is, as might be expected, a great variation in the uric acid content of the blood of patients with cutaneous diseases, it is high in many patients with eczema and in some with pruritus, both general and local. Such hyperuricemia is in contrast with the lower average figures secured from patients with psoriasis, acne, urticaria and other dermatoses.

Although Schamberg and Brown believe that the hyperuricemia was etiologically related to eczema and pruritus in a considerable number of the persons studied by them, they are laudably reserved in their interpretation of the facts. It is not without significance that appropriate dietary measures affecting the purin metabolism have made many of the patients referred to more rapidly amenable to treatment than persons previously treated without this therapeutic measure. It is generally held that uric acid is one of the first nitrogenous waste products to be held back in cases of incipient renal incapacity. Retention of urea and nonprotein nitrogen follow more severe renal structural damage. Whether the alleged hyperuricemia of the cutaneous diseases already mentioned can be explained on the basis of renal dysfunction presents an interesting speculation in the light of the newest data. One way, at least, has been further opened to the possible elucidation of an important problem in dermatology.

Current Comment

THE NEWSPAPER AND THE PUBLIC HEALTH

In her recently published work, The Newspaper and the Historian, Lucy M. Salmon,[1] professor of history in Vassar College, has compiled a vast amount of material to indicate that the newspaper constitutes the most authentic record of the civilization of the period it covers. Repeatedly she makes clear the attitude of the press toward problems affecting the health of the people and the medical profession:

> The newspaper is intimately connected with all questions of public health and its effective aid in promoting it is everywhere recognized. "Printers' ink is saving more lives than any other single agency employed by modern health workers," was the statement made at the forty-third annual meeting of the American Public Health Association in 1915. "You may cure individuals of their ills in the privacy of a sickroom, but to cure the public of its ills you must get into the newspaper," sums up the question. The press reports health congresses, announces medical and surgical discoveries, publishes vital statistics, and hospital reports; it is coming to reject advertisements of patent medicines and of quack doctors; it carries on campaigns against flies, mosquitoes, rats, caterpillars, impure milk, contaminated drinking water, and exposure of food to dust; it opens a column for giving free advice on matters of health—"the health column in newspapers is as indispensable as the joke column"—and in every way it records the growing interest in all questions of private and public health. In its turn, the department of public health often takes the press into its confidence and thus secures its cooperation in the presentation and circulation of information bearing on the subject.

As Miss Salmon indicates, the public is beginning to look more and more to the newspaper as a source of general information; it is important that the information be trustworthy and that it be supplied through authoritative sources. Readers who have studied the health advice now offered to the American public through a variety of health columns and syndicated articles have, no doubt, observed that a considerable part of this advice is written with a view to its selling qualities rather than with any relation to its authenticity. However, it is not only the articles on single subjects that are colored; the news itself may be edited for ulterior motives. Of this Miss Salmon says:

> In the consideration of public health, the press is not so much divided against itself as it is divided with reference to the parts of the subject itself. The press has a free hand in some of its campaigns for public health—flies, rats, mosquitoes, and caterpillars are not commercialized, and campaigns against them are universally popular. But the press suffers a heavy handicap when it attempts to improve other conditions that militate against the health of the public. Efforts to secure pure milk may run counter to milk dealers and to the Grange; proposals to improve the water supply come into collision with the taxpayers; epidemics must not be reported because they reflect on the board of health and diminish out-of-town trade; news of the bubonic plague must be suppressed because its publication will interfere with travel; disgraceful living conditions in congested districts must be ignored because the tenement houses are the property of wealthy residents; the results of accidents must be minimized because they reflect on the railroads, or on important local manufacturing industries, or on the large department store; danger from fire in buildings where many persons are employed must not be dwelt upon because the owners are influential citizens; advertisements of patent cure-alls must not be rejected because they make widely known the home town where they are manufactured; a "clean-up-week" must not be urged because it is opposed by the board of public works; exposure of filthy conditions behind the scenes in restaurants will result in boycotting the restaurants; advocacy of free clinics may incur the displeasure of the medical profession; the premature announcement of discoveries in medicine or surgery may bring only ridicule on the paper overzealous to publish news.
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> In all matters pertaining to the public health as reported by the press, the inquiries of the historian must be specially directed toward discovering how far conditions that interfere with the good health of the public are commercialized and how far they are free from those outside influences that tend to limit the press in its discussion of them.

In her analysis, the author has indicated an important problem for the medical profession: how best to utilize the press for the progress of science and the teaching of health, and how to discount the commercial interests which are willing to use a great implement for what is essentially an immoral purpose.

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[1] Salmon, Lucy Maynard: The Newspaper and the Historian, Oxford University Press, 1923.

CANCER WEEK

In the space of two generations, the recorded mortality from cancer throughout the world has been trebled. As pointed out in our London letter last week, the British ministry of health has considered the problem so pressing as to appoint a special service to keep in touch with cancer investigation and to intensify studies along this line. In our own country, the campaign against cancer by all of the organizations interested in health, and particularly by the American Society for the Control of Cancer, has been conducted for some years. Each year has been marked by a cancer week in which special efforts were made to bring the matter prominently to the attention of the public and to disseminate information more widely. This year the organization has adopted a new policy, which will no doubt have the effect of prolonging the interest of the public and of increasing the efficiency of the preventive work. Instead of a single campaign throughout the country there will be six campaigns, each of a month's duration. Three weeks will be devoted to preparation, and the fourth to the carrying out of the campaign activities. The work will begin in the Northwestern section, October 15, and will proceed month by month through the Southwestern, Southeastern, Lake, Eastern and New England regions, terminating May 14. To this work the medical profession should lend its most active and earnest cooperation.

SO-CALLED PSEUDOCHYLOUS EFFUSIONS

Effusions that are milky in appearance have been described under a variety of names. The designations have been selected to indicate the supposed cause of the characteristic turbidity in each case. Thus, chylous ascites is referred to in contrast to "chyliform" or "pseudochylous" effusions, the latter being assumed to contain fluid which resembles chyle in appearance but does not contain fatty matter. The characteristic optical properties of the "pseudochylous" fluids has variously been attributed to proteins having unusual properties, and to lipoid-protein complexes of uncertain character. The complete absence of fat has never been affirmed, but there has been hesitation to believe that the very small quantities of fat sometimes reported could account for outspoken turbidity such as the milky ascitic fluids exhibit. Blankenhorn[1] of the Lakeside Hospital at Cleveland, who has made a careful chemical examination of characteristic "pseudochylous" specimens, found them to be essentially protein-poor blood serum made turbid by emulsified fat so finely divided that it had assumed properties common to colloids. On microscopic examination, some of the particles in suspension as a dispersoid were large enough to be recognized as definitely spherical; others were too small to be defined. The spherical forms were never larger than one-fourth the diameter of a red cell; most of them were smaller, but no one size seemed to predominate. The recognition of fat particles of such variable size in physiologic fluids deprives the expression "pseudochylous" of its intended significance. Consequently, Blankenhorn properly argues that it should now be abandoned as meaningless or, at any rate, misleading. Through the demonstration that emulsified or "homogenized" fat is the sole cause of milkiness in effusions, this type of turbidity gains a real diagnostic significance. It has been shown experimentally that so-called "pseudochylous" fluids can be made to develop from chyle in animals. Hence Blankenhorn[2] has concluded from his recent study of human material that the term "chylous" is accurate and general enough to designate all milky effusions save those that can be shown to originate from lipemic blood.

THE EYESIGHT OF CHAUFFEURS

The Journal recently commented[3] on the necessity for defining some mental and physical standard for those who endeavor to drive motor vehicles on the public highways. The increasing mortality in this country from this cause is attracting attention throughout the world. To say that the increase is a logical matter, resulting from increasing population or a larger number of motor vehicles, does not extenuate the increasing loss of life, especially since it is clear that proper control would bring about an immediate cessation. Recently, in a case brought before a British court, it was discovered not only that the driver of a motor vehicle was intoxicated at the time the accident occurred, but also that he was possessed of but a single eye, the other eye being artificial. An amusing side to the case was the fact that the man who examined him after the accident did not detect the artificial eye but reported that the pupils in each eye were dilated. As the medical press points out: "In the case of the chauffeur everything is different: alert and perfect vision in both eyes is indispensable and should be made essential before a license is issued to a motor driver from the point of view of the public safety." The setting of a standard of vision and examination as to the ability of drivers to meet the standard by competent observers might well be the first step in a plan for controlling accidents so far as they are represented by deficiencies in the drivers of motor cars.

AN IMPROVED (?) ETHER

In 1921, Dr. H. E. G. Boyle of London read a paper before the Section on Miscellaneous Topics at the annual session of the American Medical Association. His paper dealt in part with a so-called improved ether—"Ethanesal." The claims made for the product were that it was a modified ether superior to ordinary ether. These were based on the theory that pure ether is less desirable as an anesthetic than ether which contains certain "impurities." In due time Dr. Boyle's paper was submitted for publication. It was returned on the ground that The Journal does not publish articles on new remedies until such products have been reported on favorably by the Council on Pharmacy and Chemistry. The Journal was criticized by a physician who was interested in an anesthesia journal, for its refusal to publish the paper. "Ethanesal" was developed in England along the same lines as its Canadian prototype, "Cotton Process Ether." The usual chemical data regarding "Ethanesal" were given at the time, but not sufficient to remove it from the semisecret class of prorietaries. So much for ancient history. On another page of this issue the results of a painstaking investigation made by Dale, Hadfield and King in England are briefly given. The work of these and other investigators makes plain the fallacy of the claims of superiority made for "Ethanesal." Incidentally, the whole question of "cotton-process ether" and "Ethanesal" demonstrates again the advantage to our profession of a competent judicial body—the Council on Pharmacy and Chemistry—to investigate new additions to our materia medica. At the present time, Ethanesal is being advertised to the medical profession of Great Britain as an ether superior to that which has been standardized and is official in the pharmacopeias of both countries.

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[1] Blankenhorn, M. A.: The Causes of Turbidity in Milky Ascitic Fluids, Arch. Int. Med. **32**: 140 (July) 1923.

[2] Blankenhorn, M. A.: Chylous and Pseudochylous Effusions, Arch. Int. Med. **32**: 129 (July) 1923.

[3] Safe Drivers, Current Comment, J. A. M. A. **81**: 835 (Sept. 8) 1923.

THE METABOLISM OF PREMATURITY

The difficulties involved in the care of prematurely born infants are familiar to all who have occasion to deal with such children. The application of external heat to maintain their body temperature calls for constant care and sometimes for considerable ingenuity. Sudden deaths during the early days after birth are by no means uncommon. In connection with the management of premature infants, experience has preceded science in determining the proper courses to pursue. Lately, however, considerable progress has been made in establishing the physiologic basis for their requirements. Talbot[1] and his collaborators at the Massachusetts General Hospital, who have collected the data most assiduously, have ascertained that in prematurity the heat production is very low when calculated on the basis of total production per day or per unit of body surface. They point out that, on the basis of the theory as to the relation of heat production to body surface, one would expect an output per unit of surface as in full-term infants; but the prematurely born produce less heat. It thus becomes clear why there is the necessity to give the premature baby much more protection against heat loss in its period of prematurity than at any other period of infancy. Talbot and his colleagues have found that the basal metabolism of the premature infant not only is lower than that of the full-term baby but also remains so for at least three months. Furthermore, even if the handicap of time is allowed, the premature infant produces less heat on his expected birth day than does the full-term infant during the first week of life. Muscular activity, which is almost synonymous in these cases with kicking and crying, affects the basal metabolism of the premature as it does in the normal infant. This may mean an increment of more than 40 per cent. But ordinarily the premature infant "belongs physiologically in the same class as the cold-blooded animal." It has not the strength to form heat by exercise; so that instead of crying or shivering as does the healthy full-term infant, the premature baby lies quiet, and the extra heat lost from the body is not replaced. These studies emphasize more than ever the need of careful temperature control for the prematurely born, not merely for days but usually during the early weeks of life.

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[1] Talbot, F. B.; Sisson, W. R.; Moriarity, M. E., and Dalrymple, A. J.: The Basal Metabolism of Prematurity, III, Metabolism Findings in Twenty-One Premature Infants, Am. J. Dis. Child. **26**: 29 (July) 1923.

THE TRANSMISSION OF TETANUS ANTITOXIN THROUGH THE PLACENTA

In a discussion of the functions of colostrum, in a recent issue of The Journal,[1] it was pointed out that the early postpartum mammary secretion is probably of less importance, from the standpoint of conferring certain types of immunity on the new-born, in the case of the human infant than in some other species, such as cattle. The reason for this may be found in the relative permeability of the placenta in different groups of animals. In cows, the barrier enveloping the fetus does not allow the transmission of immune substances through it, so that the colostrum becomes an important factor in conferring immunity on the offspring. The human placenta is comparatively simple in structure, and consequently far more permeable; at any rate, diphtheria antitoxin seems to penetrate it without noteworthy loss, so that the concentration of the protective substance is quite as large in the cord blood as in the maternal circulation, in human beings. Similarly, it has been found by Ten Broeck and Bauer,[2] at the Peking Union Medical College, that when tetanus antitoxin is present in the mother's blood serum it is also present in the cord blood of her new-born offspring. In the majority of cases the content in the two bloods was approximately the same, so that the human placenta must be readily permeable to this immune substance also. Aside from this biologic consideration, it is a matter of hygienic interest that children should be born with such protection in a region where there are many human carriers of tetanus bacilli. Since the colostrum doubtless also contains the tetanus antitoxin in the case of the mothers referred to, the infants may thus receive an additional supply of protective substance. Probably these are factors of importance in Peking, where approximately a third of the population are carriers of tetanus bacilli and where, notwithstanding, there is a comparatively low incidence of tetanus infections.

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[1] Human Colostrum, editorial, J. A. M. A. **81**: 662 (Aug. 25) 1923.

[2] Ten Broeck, C., and Bauer, J. H.: The Transmission of Tetanus Antitoxin Through the Placenta, Proc. Soc. Exper. Biol. & Med. **20**: 399 (April) 1923.

The New York Cardiac Clinic.—The cardiac clinic as conducted in New York under the guidance of the Association for the Prevention and Relief of Heart Diseases is a mighty step in the right direction. Only two cities in our state outside of New York City have cardiac clinics. I should like to make a plea for the establishment broadcast of these clinics. There is ample material to keep such clinics very active, and the purpose for which they were originally planned might better succeed. Thus, much might be accomplished for the public, for the community and state, and for the furtherance of our studies in cardiac cases.—M. G. Levy, *New York State J. Med.* **23**:72 (Feb.) 1923.

Association News

CHICAGO SESSION

The Board of Trustees has selected May 19-23, 1924, as the dates for the Chicago Session of the American Medical Association. If for any reason it becomes necessary to change these dates, notice will be given in The Journal.

SECRETARIES' CONFERENCE

The regular annual Conference of Secretaries of Constituent State Medical Associations will be held at the headquarters of the American Medical Association, 535 North Dearborn Street, Chicago, Nov. 16 and 17, 1923. The presidents, presidents-elect and editors of state medical association journals have been invited to attend the conference. It is hoped that the secretary of every state medical association will be present. The program, now in process of preparation, will be mailed to all members of the conference as soon as it is completed.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

CALIFORNIA

Society News.—The trustees of the Los Angeles County Medical Association have been offered a lease for a period of forty-nine years on the county medical lot at Orange and Westlake, for $311,299.95.

DISTRICT OF COLUMBIA

Proposed Clinic for Arrested Persons.—A clinic where, in certain instances, persons arrested may be examined as to their physical and mental condition is advocated by Dr. William C. Fowler, health officer of the District of Columbia, who believes that such a clinic would be an invaluable aid to the courts. There are persons sentenced to penal institutions who should, instead, be sent to hospitals. Dr. Fowler said that "judges who are in doubt as to a prisoner's physical or mental condition might send the accused person to a clinic to be examined by specialists." He estimated that an initial appropriation of $15,000 would be needed to open the clinic, and said that the plan was generally endorsed in Washington. Dr. Fowler proposes to submit the plan to the general welfare organizations of the District, including the Board of Children's Guardians.

FLORIDA

New Veterans' Hospital.—The two general medical wards of the U. S. Veterans' Bureau Hospital No. 63, Lake City, have been completed and equipped. They have a capacity for 300 patients. Major R. W. Brown is commanding officer of the institution.

ILLINOIS

Money Spent for "Patent Medicines."—According to an estimate of the U. S. Public Health Service, people in Illinois last year spent $30,000,000 for "patent medicines." For state public health service they spent, it is said, less than $500,000.

A Staff Dinner.—The physicians of the Brokaw Hospital staff gave a dinner at the Bloomington Country Club in honor of Dr. Perry L. Noggle, who will move to Florida, and to Dr. Joseph Norman Elliott, who goes to the Ford Hospital, Detroit.

Personal.—Dr. Katherine B. Luzader, chairman of the Bond County Community Nursing Service, has been reelected to that office.——Dr. Frank L. Alloway, Champaign, has been appointed attendant specialist in eye, ear, nose and throat to the U. S. Veterans' Bureau, Champaign, to succeed Dr. Ralph W. Hulett who resigned on account of ill health.

Standard Program for County Tuberculosis Work.—The Madison County Medical Society, at its meeting at Edwardsville, September 7, and the Rock Island County Medical Society at Moline, September 11, unanimously endorsed a county tuberculosis program presented by Dr. George T. Palmer, Springfield, president of the Illinois Tuberculosis Association, to be carried out by the county sanatorium board and including regular consulting clinical service, extension of nursing service and the care of tuberculous patients in the higher type of existing public or private sanatoriums.

Board of Education Drops Physicians.—The three physicians who for a number of years have been retained by the board of education of Belleville regularly to "inspect" the physical condition of school children, will not be reappointed. Their former duties in this regard have been taken over by a school nurse employed at $160 a month, which means a saving to the board of $900 a year. Abandonment of the school physician system, it is said, was due largely to a controversy that arose last year in which the physicians objected to the school nurse making diagnoses. Those who will not be reappointed are Drs. Adolph E. Hansing, Henry Reis, Jr., and Charles R. Huggins.

INDIANA

Hospital News.—The Hope Methodist Hospital, Fort Wayne, is being remodeled to provide for eighteen additional beds, and additional roentgen-ray equipment. Dr. Merrill F. Steele is superintendent of the institution.

IOWA

Child Welfare Clinic.—The child hygiene staff of the University of Iowa will visit various towns in Sac County, beginning September 24. The arrangements for the clinic were made through efforts of the county medical society and the county health nurse. The work will comprise (1) examination of infants and children up to 15 years of age, (2) advice to parents of such children and (3) advice to expectant mothers. The service is without charge.

Maternity Clinics.—Under the auspices of the extension division of the State University of Iowa College of Medicine, Iowa City, and under the provision of the Sheppard-Towner Law, clinics have been held in thirty-five counties of the state, in all of which there has been the active cooperation of each county medical society. The medical staff consists of three pediatricians, three women physicians and one obstetrician. Dr. L. R. Randal, of the State University of Iowa, will meet with the county medical societies at their meetings on request to the director of the extension division of the university. Prof. Edward H. Lauer has recently been appointed as director of the extension division of the university, to succeed Prof. Orie E. Klingaman, who resigned to accept a position in New York.

KENTUCKY

Campaign to Encourage the Use of Milk.—A "Milk for Health Week" will be observed at Hopkinsville, beginning October 22, to encourage the feeding of milk to children. It will be supervised by the federal department having charge of this work, and various city organizations will cooperate. Dr. William E. Gary is chairman of the campaign, it is said, the first of its kind to be held in Kentucky. A recent survey of the school children of Hopkinsville showed that 55 per cent. of them were undernourished, it is reported.

MAINE

Public Health Meeting.—The annual meeting of the Maine Public Health Association was held in Bangor, August 28, under the presidency of Dr. Elmer D. Merrill, Dover-Foxcraft. Dr. Charles A. Moulton, Hartland, president of the Maine Medical Association, and Dr. Bertram L. Bryant, Bangor, secretary of the public health association, gave addresses.

MARYLAND

New President of State Medical Society.—On account of the death of Dr. Herbert Harlan, president of the Medical and Chirurgical Faculty of Maryland, Dr. Harry Friedenwald, Baltimore, has been elected by the council as president of the faculty for the remainder of the year.

Memorial Hospital Staff Moves.—The entire personnel of the Union Memorial Hospital, Baltimore, has been removed, after three weeks of preparation, from its old quarters on Division Street to the new structure at Thirty-Third and Calvert Streets. The official opening will be September 22. Patients will be received September 24.

MASSACHUSETTS

Hospital News.—A campaign for funds for the new $100,000 wing to the Massachusetts Women's Hospital at Roxbury, Boston, is being planned by the Woman's Charity Club, Boston. The addition will contain twenty-five rooms, which will be used for maternity cases.

MICHIGAN

State Medical Meeting.—At the one hundred and third annual meeting of the Michigan State Medical Society at Grand Rapids, September 11-13, the following officers were elected for the ensuing year: president, Dr. Guy L. Connor, Detroit; vice presidents, Drs. William Northrup, Grand Rapids; Edward Sawbridge, Stephenson; Alvan A. Rosenberry, Benton Harbor, and Michael F. Brondstetter, Mount Pleasant; treasurer, Dr. David Emmett Welsh, Grand Rapids, and secretary-editor, Dr. Frederick C. Warnshuis, Grand Rapids. The next annual meeting of the society will be held at Mount Clemens, in 1924.

Personal.—Dr. Lloyd C. Harvie has resigned as city physician of Saginaw.——Dr. Alexander Corpron, Ypsilanti, recently sailed from New York for Bombay on his way to Nadiad, Western India, to resume his practice as a medical missionary in the Thoburn Memorial Hospital.——Dr. Clarence V. Spawr, Benton Harbor, has been elected department commander in Michigan of the American Legion.——Dr. Egerton T. Wilson, U. S. Veterans' Bureau, has been appointed chief medical officer in the Saginaw office to succeed Dr. James J. Haviland, who resigned, September 1, to resume private practice in Oswoso.

MINNESOTA

Public Health Meetings.—The annual meeting of the Minnesota Public Health Association will be held at St. Paul, October 31.——The annual meeting of the Minnesota State Sanitary Conference will be held at the time of the Minnesota Educational Association's annual session in St. Paul.

A Survey of Midwives.—The division of child hygiene is conducting a survey of midwives in Minnesota and making statistical studies of births and maternal and infant deaths. Physicians and health officers are requested to send the names of midwives, licensed or otherwise, known to them, to the division of child hygiene. A full report of the work done will be made at the annual meeting of the Minnesota State Medical Association in October.

Personal.—Dr. Carol E. Jameson of the Mayo Clinic, Rochester, has sailed for Vellora, India, where she will continue the practice of medicine.——Dr. Walter E. Hatch, Duluth, has been appointed physician in charge of the venereal clinic at St. Mary's Hospital (the Mayo Clinic) to succeed Dr. O. A. Oredson, who resigned recently.——Dr. John Anderson of the London School of Tropical Medicine, London, England, visited the Mayo Clinic on his way to Hong Kong, China, where he will take a chair of medicine at the Hong Kong University of Medicine.——Dr. E. P. Lyon, dean of the University of Minnesota Medical School, recently attended the Physiological Congress at Edinburgh, Scotland, preceding a tour of Europe.——Dr. Edward G. Joseph of the Mayo Clinic, Rochester, will in the future practice surgery in New Zealand.

MISSOURI

Dr. Burrill Honored.—Dr. Charles W. Burrill, Kansas City, was elected surgeon-in-chief by the Grand Army of the Republic, September 6, to succeed Dr. George T. Harding, Marion, Ohio, father of the late President.

Alumni Banquet.—There will be a University Medical College Alumni reunion banquet, October 9, at 7:30 p. m., in the Francis I Room, Hotel Baltimore, Kansas City. For information, address Dr. Hermon S. Major, chairman entertainment committee, 3100 Euclid Avenue, Kansas City.

Medical Meeting.—The first autumn meeting of the Buchanan County Medical Society was preceded by the thirteenth annual dinner at the sanatorium of Dr. Charles R. Woodson, St. Joseph, September 5. Dr. Woodson and Dr. Jacob Geiger, the two oldest members of the profession in St. Joseph, gave addresses.

Personal.—Dr. George A. Johns, St. Louis, was recently appointed superintendent of the new St. Louis Training School for the Feebleminded. Dr. Johns was for twelve years superintendent of the City Sanatorium.——Dr. Frederick C. E. Kuhlmann, formerly of St. Louis, has resigned from the U. S. Public Health Service and will resume practice in St. Louis County.——Dr. Richard L. Sutton, Kansas City, professor of dermatology, University of Kansas School of Medicine, Lawrence, has left for big game hunting in Tanganyika, British East Africa.

NEBRASKA

Soldiers' Home Offered to Government.—The recent state legislature offered as a gift to the nation the state soldiers' home on the outskirts of Grand Island, if the government will provide for veterans of all wars therein. The offer is being considered by the Veterans' Bureau. The property comprises more than a section of land, and buildings worth several hundred thousand dollars, it is reported.

Personal.—Dr. Samuel J. Stewart, superintendent of the Institution for the Feebleminded at Beatrice, has resigned.——Dr. Ira H. Dillon, former head of the Bureau of Health of Nebraska, has located at Waterloo, Iowa.——Dr. George P. Shidler, York, has been appointed physician at the women's reformatory at York to succeed Dr. Leo D. Rose, Utica, who resigned.——Dr. Andrew Sinamark has accepted a position with the Veterans' Bureau, with headquarters at Omaha.

NEW HAMPSHIRE

Personal.—Dr. Clara Israeli, Concord, has resigned as pathologist of the state board of health, to accept the position of resident physician of the city board of health, Manchester.

NEW MEXICO

Personal.—Dr. George S. McDonald, health officer of Torrance County, has resigned and will return to his home in Kentucky.——Dr. Guy W. Luckey has been appointed full-time health officer for Valencia County.

NEW YORK

"Bone Doctor" Arrested.—It is reported that Charles Czganik, Seneca Falls, "bone specialist," was arrested, September 15, on a charge of manslaughter. The charge was made, it is said, after a necropsy had been performed on Peter Gierlowski, who fractured four vertebrae in a fall from a tree. Gierlowski, who was first attended by surgeons, consulted Czganik, who removed the cast and attempted to manipulate the bones.

Hospital News.—A $250,000 addition will be erected at the Niagara Falls Memorial Hospital, Niagara Falls.——Bids closed, August 30, for the new $100,000 building to be erected at the Herkimer Memorial Hospital, Herkimer.——The additions to the Nassau Hospital, Mineola, L. I., are nearing completion. In order to hasten the work, a part of the hospital has been closed for two months, so that only cases of accident or of very serious illness are being cared for at the institution. When the construction work has been completed, the hospital will afford ample facilities for the district it serves.

Anesthetists Meet.—The New York Society of Anesthetists held a joint meeting with the Boston Society of Anesthetists, the Providence (R. I.) Society of Anesthetists, the Second District (N. Y.) Dental Society and the Third District (N. Y.) Dental Society at Albany, September 20, under the presidency of Dr. Charles H. Sanford, New York City. "Psychology in Anesthesia" and "Analgesia and Deep Anesthesia with Nitrous Oxid and Oxygen" were discussed, and clinics were given on gas-oxygen and ethylene.

New Health Secretary.—Dr. Matthias Nicoll, Jr., state commissioner of health, has announced the appointment of Dr. Edward H. Marsh, Brooklyn, as secretary of the New York State Department of Health to succeed Curtis E. Lakeman. Dr. Marsh, who is assistant professor of preventive medicine at Long Island Hospital Medical College, lecturer on hygiene in the University and Bellevue Hospital Medical College and consulting dermatologist to the Nyack Hospital and the Huntington Hospital, L. I., has served for a number of years as secretary of the public health council of the state board of health (which position he will continue to fill) and as sanitary supervisor.

Memorial to Dr. Biggs.—The July issue of *Health News*, the monthly bulletin of the New York State Department of Health, is a memorial to Dr. Hermann M. Biggs, state health commissioner from 1914 until the time of his death. Among those who have contributed in recognition of the services of Dr. Biggs are: Drs. Matthias Nicoll, Jr., T. Mitchell Prudden, William H. Park, Simon Flexner, H. Homer Folks, Linsly R. Williams, L. Emmett Holt,

S. Josephine Baker, C. E. A. Winslow, Livingston Farrand, Frederick F. Russell, Walter B. James, Walter F. Wilcox, Hugh S. Cumming, Charles V. Chapin, George C. Whipple, Victor C. Vaughan, Mazyck P. Ravenel, C. E. Levy and Eugene R. Kelley.

New York City

Neurologic Clinics Open.—The Neurological Institute, 151 East Sixty-Seventh Street, announces that a night treatment clinic for men will be open on Monday and Thursday evenings, and for women on Tuesday and Friday evenings at 7 p. m.

Health Day for City Schools.—Announcement has been made that November 13 has been set aside as Health Day in the schools of the city. On that day, all regular work will be put aside and the time given to matters pertaining to health. Each teacher will examine her pupils, and send those she thinks need attention to the department of hygiene.

New Italian Hospital.—The annual festival for the Italian Hospital will be held this year at the Manhattan Casino, September 20. Dr. John W. Perilli, president, states that funds raised on this occasion will form the nucleus of a $2,000,000 fund with which a modern hospital building will be erected. The present building is inadequate to meet the demands made by the Italian population of this city.

Free Lectures at New York Postgraduate Medical School.—A course of lectures is announced by the Post-Graduate Medical School and Hospital to be given at 5 o'clock, Friday afternoons during the coming season. These lectures will be free, and all members of the medical profession in New York City and vicinity are invited to attend. The following lectures are scheduled for next month: October 5, "The Treatment of Nephritis," Dr. Arthur F. Chace; October 12, "A Diagnostic Clinic," Dr. John F. Erdmann; October 19, "The Pathology and Prognoses of Eye Changes in Diabetes," Dr. Max Cohen; October 26, "Uterine Hemorrhage—Its Significance and Treatment," Dr. Henry Dawson Furniss.

Hospital News.—A $15,000 addition will be erected at the New York Nursery and Childs' Hospital.——A $250,000 home will be erected by the Bronx County Society for the Prevention of Cruelty to Children.——The New York Institute for the Education of the Blind has sold the block on the east side of Ninth Avenue and Thirty-Fourth Street, which it has occupied for nearly fifty years. The sale price was approximately $1,000,000.——The drive to raise $100,000 with which to build an additional wing to the Brownsville and East New York Hospital, which was discontinued during the months of July and August, will be resumed at once. It is expected that construction work on the new building will be begun next spring.——The Beth Israel Hospital, which needs $1,500,000 to complete the new buildings, has adopted the plan of "selling" 300 beds in the new structure at $5,000 each. Thus far, sixty-seven have been "sold."——Work of constructing the new wing to Trinity Hospital at East New Avenue and Fulton, Brooklyn, has been started and it is expected that the whole plan of remodeling the hospital will be completed by the first of the year. It is estimated that the cost of the improvements will approximate $200,000.

NORTH CAROLINA

Progress Against Bovine Tuberculosis.—In the present campaign to eradicate tuberculosis in dairy herds of the state, the herds of ten counties have all been tested, released and passed by the state department of agriculture. The inspections have been completed in three other counties, which will be recommended for release this month. In fifteen other counties that have made appropriations for this purpose, inspections are progressing in nearly all of them. The inspector in charge of the work said, it is reported, that less than 2 per cent. of the cattle of the state now are tuberculous, a contrast to some states in which from 21 to 40 per cent. are not uncommon figures. He said also, "I am disappointed to find so few cattle on the farms of North Carolina. With its climate and ideal conditions for year round grazing, this could be made a great cattle-breeding state. North Carolina needs more cattle. We are trying to make health conditions better for these cattle so that herds may be built up without danger of infection from tuberculosis."

TENNESSEE

Personal.—Dr. Lockhart D. Arbuckle, Nashville, medical officer of the U. S. Navy recruiting service in the state, has been assigned to the U. S. S. *Savannah.* Dr. Robert W. Wimberly, Washington, D. C., will succeed Dr. Arbuckle.——Dr. Eugene L. Bishop, Nashville, has been appointed superintendent of the division of rural sanitation of the state board of health.

Annual Meeting of Medical Society.—The Walnut Log Medical Society, organized a year ago by members of the Fulton and Hickman County medical societies of Kentucky and of the Obion and Dyer County medical societies of Tennessee, will hold its first annual meeting at the Walnut Log Hotel, October 17-18. Since only a limited number can be accommodated this year, hotel reservations will be made on applications for membership to which any member of the component societies is eligible. The session will afford an excellent outing, particularly for members who hunt and fish.

TEXAS

Hospital News.—The Parkland, Woodlawn, Union and Convalescent hospitals of Dallas are now under the control of a hospital board of six members, which have approximately the power of directors of corporations. The county and city will jointly defray the cost of operation of these institutions, whose combined property value is about $285,000.——The new addition to the Parkland City-County Hospital, Dallas, has been completed and the furnishings are being installed. The new institution has a capacity for 206 patients. Dr. George C. Kindley, Dallas, has been appointed superintendent of the institution, and is now in charge.

University Limits Freshman Class.—The School of Medicine of the University of Texas has decided to limit its freshman class to sixty members. The board of regents has approved the decision of the faculty and the limited number applied to the class entering this summer. The first selection of sixty-six applicants were accepted tentatively, July 16, which number was later increased to 100, when sixty were selected from that number strictly on a scholarship basis. This, it is said, is considered necessary, although regrettable. The clinical facilities at Galveston for teaching purposes are limited. There are 300 ward beds and an outpatient department. There were, last year, 3,681 ward patients and 24,502 outpatients. Experience has shown, it is said, that this is sufficient for a class of from forty to fifty in each of the junior and senior years, which means that not more than sixty should be accepted for the first year.

VIRGINIA

Cost of Transportation in Rural Health Work.—A complete and accurate record of the cost of operating 22½ horsepower automobiles used in county health work in Virginia appears in *Public Health Reports,* Aug. 31, 1923. Accurate monthly financial statements were made out for each county in which cooperative rural health work is carried on. The data cover a period of three and a half years, beginning May 1, 1919. The average monthly cost of operation for the 357¾ car-operating months was $41.69. As a solution of the transportation problem of the sanitary officer, each county is given a touring car at the beginning of work, and $25 a month is charged against the county budget of $2,500 a year as an automobile purchasing fund for replacements. This, with the cost of operation ($41.69), makes the total average monthly cost of transportation $66.69, or $800.28 a year. Of thirty-four automobiles bought between May 1, 1919, and March 1, 1923, ten were still in use; of the twenty-two cars sold, fourteen were sold at a profit to the automobile fund and eight at a loss. The roads over which the cars were operated were of all types, and all the operators were reasonably careful and efficient. It is believed, it is said, that the conditions under which these cars were operated were such as to make a fairly accurate estimate of the general average cost of this kind of transportation in county health work.

WISCONSIN

Personal.—Dr. C. W. Muehlberger, a research assistant at the university, has been appointed acting state toxicologist under the new law which created that position.——Dr. Maybelle M. Park, director of the juvenile department of the state board of control, has resigned.——Dr. E. L. McKinley, Dodgeville, has accepted a position on the medical faculty of McGill University, Montreal.

Mental Hygiene Clinic to Be Established.—It is reported that the National Committee for Mental Hygiene will establish a psychiatric clinic in Milwaukee in the near future to work in conjunction with the juvenile court on the same lines as the one established last year in St. Louis. Dr. Smiley Blanton, of the University of Wisconsin, recently reported that 7 per cent. of the school children of Milwaukee are mentally abnormal.

Use of Narcotics Defined.—The Wisconsin State Narcotic Law, which became effective in July, defines the legitimate use of narcotics as follows:

> A physician acting in accordance with proper medical practice may prescribe or dispense narcotics for the relief of acute pain, or for any acute condition, such as influenza, renal calculi, broken limbs, and such incurable diseases as cancer, advanced tuberculosis and other diseases well recognized as coming within this class, and the physician may prescribe no quantity greater than that ordinarily recognized by members of his profession to be sufficient for the proper treatment of the given case. It shall be a violation of this section for any physician to prescribe narcotic drugs to a patient suffering from narcotic addictions except only in cases where the drug addict is being treated by such physician for the cure of narcotic drug addiction.

State Medical Meeting.—The seventy-seventh annual meeting of the State Medical Society of Wisconsin will be held in Milwaukee, October 3-5, under the presidency of Dr. F. Gregory Connell. Dr. William A. Pusey, Chicago, President-Elect of the American Medical Association, will present the only address of the evening at the annual banquet, October 4. He will speak on "A Study of the Wilderness Road to Kentucky—A Doctor's Diversion," the talk to be illustrated. Among other physicians who will give addresses during the session are Drs. Gideon Timberlake, Baltimore; William Clark Danforth, Chicago, and James B. Murphy of the Rockefeller Foundation, New York.

CANADA

Personal.—Drs. Frederick A. Aylesworth, Carl E. Hill, M. Lyon and Walter W. Wright have been recently appointed as senior demonstrators in ophthalmology at the University of Toronto, Ont.——Dr. Helen MacMurchy, Ottawa, Ont., was appointed honorable president of the Child Protection Officers' Association at the annual meeting of the association at Winnipeg, Manit.

Hospital News.—The cornerstone for a new hospital at Essondale for acute mental diseases was recently laid. The hospital will cost $600,000, and will be ready for occupancy in March, 1924.——A hospital which will cost about $150,000 will be erected soon at Nanaimo, B. C.——The third hospital to be established in New Ontario by the Ontario division of the Canadian Red Cross Society was officially opened last week at Dryden, Ont.——A campaign among residents of the east end of Toronto, Ont., will soon be inaugurated to raise $500,000 for the erection of a general hospital. Interest in the project has been stimulated by a donation of $100,000 by the Hill estate of Toronto, which will soon be handed over to the hospital committee. The hospital will be modern in every respect and will accommodate 200 patients.

Western Ontario Aademy of Medicine.—The academy of medicine held its first general session of 1923-1924 in the Medical School Auditorium, London, Ont. Dr. Charles S. McVicar of the Mayo Clinic, Rochester, Minn., spoke on "Sick Headache in Relation to Gastro-Intestinal Diagnosis" and "The Internist's Responsibility and Factors Involved in the Selection and Preparation of Surgical Risks." Dr. J. C. Masson, also of the Mayo Clinic, gave an address on "Uterine Prolapse and Its Treatment." The district meeting of the Ontario Medical Association comprising Middlesex and the adjoining counties will be held conjointly with the academy meeting, October 4. The morning program will be clinics by the staff of Victoria Hospital and the medical school. The afternoon program will comprise addresses by Dr. Joseph C. Bloodgood, Baltimore, on "Cancer Problems," and Dr. O. P. Kimball, Cleveland, on "Goiter Prevention." An open forum will be held in the evening to discuss public health questions.

GENERAL

Biography of General Gorgas.—The widow of the late Surg. Gen. William C. Gorgas is collaborating with Burton J. Hendrick, author of "The Life and Letters of Walter H. Page" in preparing a biography of General Gorgas. It is hoped to be able to publish the biography during the coming year.

Central Neuropsychiatric Association.—The Central Neuropsychiatric Association will hold its annual meeting at St. Louis, October 20. The program will be provided by the neuropsychiatrists of St. Louis and will include clinics on neurosurgery, neurology, psychiatry, endocrinology and mental hygiene, as well as reports and demonstrations of research work now being carried on.

Society Amends By-Laws.—The Radiological Society of North America, at the midyear meeting in San Francisco, amended its by-laws to the effect that in the future its official journal, *Radiology*, will be published under the control of a committee composed of members of the society. Dr. Maximilian J. Hubeny, Chicago, was chosen editor. The first issue under the new editorship appeared this month.

American Roentgen Ray Society.—At the twenty-fourth annual meeting of the American Roentgen Ray Society at the Congress Hotel, Chicago, September 18-21, Dr. Hollis E. Potter, Chicago, was installed as president. The $1,000 Leonard prize for the best original research in the field of roentgen ray, radium or radioactivity was awarded to Prof. William Duane of Harvard University, Boston. Representatives from several foreign countries were present at the sessions.

A Plant for Cleansing Oysters.—According to the *Engineering News-Record* (June 14, 1923), a plant for the purification of oysters consists of two 6,000 gallon basins into which sea water disinfected by electrolytically produced sodium hypochlorite is pumped. There is thus produced an excess of chlorin in the water in which oysters are allowed to lie in layers not more than 8 inches deep. The process is simple and the cost is low enough to make the plan practical. The tanks will handle 400 bushels of oysters in twenty-four hours.

German Grants for Scientific Research.—The Prussian Academy of Science voted grants for this year's research, July 25. Their value, computed by Professor Goldschmidt, Berlin, as of that date was as follows: Dr. F. Leng for work on the physiology of cell division, 20,000 marks, the equivalent of 4 cents; Professor Pompecky, for work on the Tendagusu fossils, 80,000 marks, or 18 cents; Professor Guthnick, for thermo-electric measurements of stars, 100,000 marks, or 22 cents. The largest award was for work on the Egyptian texts, 500,000 marks, or $1.11.

The Millbank Memorial Fund.—Dr. Stephen A. Douglass, head of the tuberculosis branch of the National Military Home Hospital, Dayton, Ohio, has been offered the clinical directorship of the Millbank Memorial Fund, which was established to conduct clinics in various localities in an effort to lower the death rate in the United States. Clinic centers will be established in Cattaraugus County, N. Y., in Syracuse, N. Y., and the Bronx, New York. Between $300,000 and $400,000 will be spent annually for at least five years, under the administration of a board of trustees. The project will resemble in some respects the Framingham community.

Prizes for American Chemists.—At the annual meeting of the American Chemical Society, in Milwaukee, it was announced by President Edwin C. Franklin that more than $80,000 in prizes, consisting of money, scholarships and books, will be distributed by the society to students in the high, secondary and higher educational schools of the United States as awards in essay contests in chemistry next year. The amount was made available through Mr. and Mrs. Francis P. Garvan of New York in memory of their daughter. The Allied Chemical and Dye Corporation of New York gave $500,000 to found the American Chemical prize with an annual value of $25,000 to be awarded the chemist in America who, in a period to be determined, makes a contribution of outstanding merit in the science of chemistry. Washington, D. C., was announced as the convention city for the spring meeting of the society in 1924, and Ithaca, N. Y., for the autumn meeting.

Annual Meeting of Tri-State District Medical Association.—The annual assembly of the Tri-State District Medical Association will be held at Des Moines, Iowa, October 29-November 1. The association began as a district association about ten years ago. It now includes practically all the Middle Western states. It is a postgraduate organization with no political or legislative duties. The annual assemblies are devoted to medical advancement and study in the form of diagnostic clinics, orations, symposiums and discussions. The membership is received by registration. In order to register, a physician must be in good standing in the state medical society in the state in which he resides. The officers are: president of clinics, Dr. William J. Mayo, Rochester, Minn.; president, Dr. Horace M. Brown, Milwaukee; president-elect, Dr. Clifford U. Collins, Peoria, Ill.; managing director, Dr. William B. Peck, Freeport, Ill.; associate managing director, Dr. J. Sheldon Clark, Freeport, Ill.; secretary, Dr. Edwin Henes, Jr., Milwaukee, and treasurer, Dr. Henry G. Langworthy, Dubuque, Iowa.

The Demand for Supplemental Academic Training.—The U. S. Public Health Service in 1920 conducted a venereal disease summer school that covered two weeks of intensive study. The following year, it held sixteen general public health summer schools at various geographic centers in cooperation with state departments of health. Three times the number expected attended in 1920, and a large number were present in 1921. This experience led the U. S. Public Health Service to send a letter of inquiry to about 9,500 practicing physicians, 6,000 public health nurses and 3,500 employées of health departments, to determine their interest in summer schools of six or eight weeks' duration. There were more than 6,000 replies to 20,571 letters, and of these 5,746 replied that a need exists for the type of instruction proposed; 1,970 physicians replied they could probably attend if the instruction was not given too far from home. A later announcement will be made, it is said, of plans for public health summer schools to meet the demand for supplemental training revealed by this inquiry.

Prevalence of Epidemic Diseases.—The service of epidemiologic intelligence and public health statistics of the League of Nations gives in a recent bulletin the general weekly mortality rates (on annual basis) of prevalent notifiable diseases in the larger cities of Europe, Africa, America, Australasia and Asia from Dec. 31, 1922, to July 14, 1923. It is said that there has been a decline in the prevalence of cholera in India. Typhus and relapsing fever continue to decrease in Russia; in Poland they have continued at the same level, with no indication of an epidemic rise. The incidence of both diseases in these countries is far below what it was in 1922. Typhus was reported from Czechoslovakia, Bulgaria and Algeria. The high incidence of influenza persists in Spain, but a rapidly declining incidence was reported for Norway, Sweden, the United States and Algeria. A rise in the prevalence of malaria is reported from Russia. Smallpox has decreased in India, since the crest of the epidemic was reached in March. In the United States, the number of cases notified in the twenty-seven states for which reports are recurrently given (population approximately 60,000,000) has shown a tendency to drop during June, but the incidence continued to remain on a relatively high level throughout the year up to that date. While the number of cases of cerebrospinal meningitis reported for every country is small, the disease continues to be widespread in Europe and in the United States. The number of cases of epidemic (lethargic) encephalitis is reported on the decline in all countries.

Bequests and Donations.—The following bequests and donations have recently been announced:

Woman's Hospital, New York City, $2,000,000, and the Frederick Ferris Thompson Hospital, Canandaigua, N. Y., $400,000, by the will of Mrs. Mary Clark Thompson.

The New York, St. Luke's and the Presbyterian hospitals, New York, are to divide equally the residual portion of the estate of the late John H. Flagler, after $500,000 is given to the newly incorporated Alice Mandelick Flagler Foundation, for charitable purposes. Nurses are intended to be the chief beneficiaries of this foundation.

The Home for Incurables and the Presbyterian Hospital, Philadelphia, together with two other sectarian institutions, are named in the will of the late George H. Buchanan. The four institutions are to receive the residue of a personal estate of "more than $200,000," the bulk of which is left to two daughters of the testator.

Monmouth Memorial Hospital, Long Branch, N. J., $60,000 for an addition to its nurses' home, by Park M. Wooley of New York.

Harvard College, Radcliffe College and the Massachusetts General Hospital, Boston, each, $50,000; New England Hospital for Women and Children, the Children's Hospital, the Infants' Hospital, Boston, and the Bertram Home for Aged Men, Salem, Mass., each $10,000; the Home for Aged Colored Women, the Perkins Institution for the Blind and the Industrial Home for Crippled and Deformed Children, Boston, each $5,000, under the will of David P. Kimball of Boston.

University of Pennsylvania, Philadelphia, for a scholarship, $5,000, and to the Hahnemann Hospital of Philadelphia, $5,000, for a free bed, and to the Children's Homeopathic Hospital, Philadelphia, $5,000, by the will of Clara P. Kilpatrick.

Biloxi City Hospital, Biloxi, Miss., $3,072, the proceeds from a fête held by the Elks Club.

Children's Hospital School, Baltimore, $1,000, to be known as the James Farnandis Fund, and $1,000, to be known as the Elizabeth Farnandis Fund, under the will of Mrs. Elizabeth Farnandis Mitchell.

Knoxville (Tenn.) General Hospital, a completely equipped children's ward, by Dr. W. S. Nash.

Petersburg (Va.) Hospital, a new $250 etherizing apparatus by members of the women's auxiliary of the institution.

LATIN AMERICA

Installation of the New President of the National Public Health Service in Argentina.—The president of Argentina has appointed Dr. Gregorio Aráoz Alfaro to be president of the national department of hygiene. This department is to be extensively reorganized, according to the *Semana Médica* for August 9, with a view to correlating its action with the work of all the other health organizations.

Memorial to Arteaga.—A marble tablet was placed in the Hospital of Maternity and Infancy, Havana, July 17, in memory of Dr. Julio F. Arteaga, whose name has been given to one of the wards. A portrait was also unveiled. Dr. Huguet, director of the hospital, made the address. The ceremony was presided over by Dr. Juan F. Morales Lopéz, as the representative of the national public health service.

Supervision of the Practice of Medicine in Peru.—The committee appointed to investigate and suggest ways and means for regulation of the practice of medicine in Peru has been organized. It includes the following representatives of various professional entities: Dr. Estanislao Pardo Figueroa, president and representative of the government; Professors Avendaño and Paz Soldán, representatives of the medical faculty; Drs. H. Larrabure, representative of the Academia de Medicina; Graña of the Peruvian Sociedad de Cirujía, and Ricardo Palma, representative of the Círculo Médico of Peru.

Appeal for Legislation to Regulate Medical Advertising.—The *Brazil-Medico* relates that the Sociedade de Medicina e Cirurgia has appealed to the authorities to amend the law regulating advertising, and provide that the editors of newspapers, journals and other publications shall be held responsible for all advertisements or other matter published referring to the practice of medicine or pharmacy of a secret character. Advertisements shall be considered of a secret character when they relate to the treatment of any disease or other affection without the confirmation of a qualified professional, the testimonials not signed by physicians, and the declarations of treatment guaranteed by individuals or groups of individuals. Penalties are to be provided for infraction of these rules. The bill is now under discussion.

Congress of Hygiene in Brazil.—The *Brazil-Medico* for August 4 announces that the first Brazilian congress of hygiene was to meet in Rio de Janeiro under the direction of the Sociedade Brazileira de Hygiene, Sept. 7, 1923. Among the subjects to be considered were: ventilation of buildings; hygienic improvement of cities; improvement of measures against mosquitoes in large cities; value of disinfection in prevention of infectious diseases; feeding of children; soldiers' rations; infantile hygiene; organization of public health nursing; antimalarial measures; sanitation of municipalities; hospital isolation as prophylaxis against tuberculosis, and free treatment in venereal diseases. Among the speakers on these questions will be Prof. José C. del-Vecchio, Dr. Eustachio Bittencourt Sampaio, Prof. João Felippe Pereira, Dr. Domingos Cunha and Miss Ethel Parsons.

Personal.—Prof. A. R. Marotta, of the editorial staff of the *Prensa Médica Argentina*, has, by the president of the republic, on recommendation of the directing council of the medical faculty, been appointed professor of the surgical clinic at the University of Buenos Aires.——Dr. Felipe A. de la Torre, surgeon of the military hospital of San Bartolomé, Peru, has left for a journey of study in Europe.——Dr. B. Sosa Artola has gone to Europe as representative from Peru to an international congress of the Red Cross.——Dr. Fernando Gorriti has been appointed assistant director of the national colony of the insane of Argentina.——Prof. José María Jorge has been appointed delegate from Argentina to the national French medical congress in Bordeaux, to be held September 27-29. The congress includes all French-speaking countries.——Dr. Carlos Chagas, chief of the national public health service of Brazil, director of the Instituto Oswaldo Cruz and representative from Brazil to a committee of the League of Nations, was the guest of honor at a dinner given by the king and queen of Belgium in the castle of Laeken.

FOREIGN

South African Medical Association.—The nineteenth annual session of the South African Medical Association will be held at Grahamstown, in 1924, under the presidency of Dr. E. G. Dru Drury of that city.

Memorial to Pravaz.—The small town in France where the inventor of the type of the hypodermic syringe, Dr. C. G. Pravaz, was born in 1791 is to raise a monument to his memory. He founded an orthopedic institute at Lyons and is said to have been the first to apply electricity in treatment of aneurysms.

Hospital News.—At the London (Eng.) Hospital, 17,444 inpatients and 107,455 outpatients, who made 466,337 separate attendances, were treated last year. The average total cost of each inpatient was $50, and of each outpatient, $2.50.——An anonymous donor has donated the sum of $1,000 yearly to King Edward VII Hospital for the purchase of insulin.

Scientific Institution to Combat Transmissible Diseases in Netherlands Indies.—The *Nederlandsch Tijdschrift voor Geneeskunde* reports that the committee in charge of the approaching Queen Wilhelmina jubilee in Dutch India has collected 230,000 florins to be used for the purpose of establishing an institution for scientific investigations with a view to combating transmissible diseases. The institution will be called "Koningin Wilhelmina Jubileumstichting."

Foreign Congresses May Be Held in America.—At the Edinburgh meeting of the International Physiological Congress an invitation to meet in the United States was presented by Prof. A. J. Carlson, president of the American Physiological Society, and an international committee was appointed to consider the possibility of accepting for 1926.——At the International Congress of Psychology at Oxford the question of meeting in the United States in 1926 was also considered.

The Parkin Prize.—In a bequest made to the Royal College of Physicians of Edinburgh by the late Dr. John Parkin, a prize of $500 is offered for the best essay on certain subjects connected with medicine. The subject of the essay for the present period, in terms of the deed, is: "On the Curative Effects of Carbonic Acid Gas or Other Forms of Carbon in Cholera, for Different Forms of Fever and Other Diseases." The prize is open to competitors of all nations, but the essays must be written in the English language and must be received by the secretary not later than December 31.

Students' Number of the Lancet.—The *Lancet* of Aug. 25, 1923, is devoted largely to medical education in England. The metropolitan medical schools and hospitals are grouped under the University of London, of which they are constituent bodies, and a similar plan is adopted in dealing with the provincial universities, the hospitals connected with which are described with the universities. Regulations for examinations, both preliminary and professional, at these centers are set forth. An account is also given of conditions under which commissions can be obtained in the various medical services of the government.

Society News.—The Spanish Congress of Pediatrics was held at San Sebastian, September 2-7, under the presidency of Dr. Arquellada.——The twenty-ninth Congress of the Italian Society of Internal Medicine will be held in Rome, October 24-26, under the presidency of Dr. V. Ascoli. Prof. Maurizio Ascoli will discuss "Diabetes Insipidus," and at a meeting held in conjunction with the Italian Society of Surgery, Prof. Ferruccio Schupfer will speak on "Cholelithiasis, with Special Reference to Pancreatitis and Infection of the Bile Ducts."——The second congress of the Italian Society of Urology will be held in Rome, October 27. Professor Mingazzini is secretary of the society.

The International Congress on Puerperal Fever.—The international gatherings in honor of the Pasteur centennial would not be complete, it was reiterated, without one devoted to puerperal fever. The one just held at Strasbourg, with a numerous attendance, and delegates from far and near, was presided over by Professor Bar of Paris. After the historical session, the etiology and prophylaxis of puerperal fever were discussed, Hauch of Copenhagen declaring that neither bacteriology nor microscopic examination of the blood is of much use in the diagnosis in comparison to clinical observation. Alfieri of Pavia summarized the present status of treatment according as the lesions are circumscribed to the uterus or the infection has become general, emphasizing the vital importance of an early diagnosis, allowing local obstetric or surgical treatment while the foci are still accessible.

Personal.—Dr. Huertas, director of the provincial hospital of Madrid, has been decorated by the Greek government with the insignia of the order of George I.——Professor Recasens, dean of the medical faculty of Madrid, has been made commander of the Légion d'honneur of France.——Dr. B. Galli-Valerio, on the twenty-fifth anniversary of his professorship at the University of Lausanne, was honored by his colleagues and present students by an address recording his life and work in hygiene and parasitology.——Prof. Riccardo Versari, director of the institute of anatomy of the University of Rome, has received the gold medal of the Società Italiana delle Scienze for a recent work on embryology of the human eye.——Dr. Andrew Balfour, for the past ten years director-in-chief of the Wellcome Bureau of Scientific Research, London, England, will resign, October 31. He will be succeeded by Dr. C. M. Wenyon, for nine years director in research in the tropics at the Wellcome Bureau.——Dr. C. U. Ariens Kappers, director of the Netherland Central Brain Institute, Amsterdam, has sailed from Marseilles en route to Peking, China, where he will lecture in the Union Medical College. Dr. C. J. Van der Horst will be in charge during Dr. Kappers' absence. During the summer American workers at the laboratory have been Dr. W. H. Addison, of the University of Pennsylvania, and Dr. H. H. Charlton, of the University of Missouri.

Deaths in Other Countries

J. G. Saner, M.B., M.C., F.R.C.S., Johannesburg, formerly resident surgical officer at Guy's Hospital, London, and a veteran of the World War.——Dr. **E. Schlumberger,** formerly chief of staff of the hospitals of Mulhouse, aged 73.——Dr. **G. Cosco,** inspector general of the public health service in Italy until retired recently, author of works on laboratory research and prophylaxis of epizootic diseases.——Dr. **Strauss,** Paris, medical inspector general, honorary director in the war department.——Dr. **Natale La Placa,** killed in a motorcycle accident in Sicily. Two years ago the profession in Sicily presented him with a gold medal in token of appreciation of his efforts for the welfare of the rank and file of the profession.——Dr. **Julio Carrerá y Angulo,** on the staff of the municipal hospital at Havana, vice president of the Sociedad de Estudios Clinicos.——Dr. **Gregorio Hunt,** director of the hygiene department of the Asistencia Pública at Buenos Aires.——Dr. **P. L. Boulloche,** chief of staff at a large Paris children's hospital for twenty years.——Dr. **F. Spallitta,** professor of physiology at the University of Palermo, aged 63. He was one of the pioneers in experimental physiology.——Dr. **Evaristo Ausín y Ortega,** Madrid, said by the *Medicina Ibera* to be the last representative of homeopathic medicine in Spain.

CORRECTION

Construction Continues at Reconstruction Hospital.—It was stated in The Journal, June 16, p. 1782, that construction work had been indefinitely postponed at the Reconstruction Hospital, New York. The executive secretary of the hospital has informed The Journal that this item was wrong and that construction work has never been discontinued.

Government Services

Special Instruction in the Navy

The Surgeon General of the Navy has instituted a policy of affording members of the medical corps opportunities to take courses of instruction in special branches of medicine and surgery at civilian institutions in this and foreign countries. The medical officers selected are required to demonstrate their qualifications to become specialists in the particular work to which they are assigned. Navy medical officers are encouraged to choose some specialty after having qualified as general medical officers and, as far as practicable, are encouraged to continue along the lines of work selected.

During the last fiscal year, of the 760 medical officers in the navy sixty-seven received special courses of instruction at civilian institutions, and thirty others completed the special course of naval medicine and surgery at the U. S. Naval Medical School, Washington, D. C. Some of the institutions to which medical officers were detailed for instruction are: aviation medicine, U. S. Army School of Aviation Medicine, Mitchel Field, L. I.; diseases of the heart, the National Hospital, London, England; diseases of the eye, ear, nose and throat, Harvard University Medical School, Boston, and at certain hospitals and clinics in Philadelphia; internal medicine, Harvard University Medical School, and the Massachusetts General Hospital, Boston; urology, the Brady Institute, Baltimore, and the University of California, San Francisco; surgery, the Mayo Clinic, Rochester, Minn., and the Laboratory of Surgical Technique, Chicago; gynecology and obstetrics, the Lying-In Hospital, New York, and Harvard University Medical School, Boston; pediatrics, Harvard University Medical School, Boston; electrocardiography, hospitals at Brooklyn and Johns Hopkins Medical School, Baltimore; roentgenology, the University of California, San Francisco; industrial hygiene, Harvard University School of Public Health; psychiatry, Government Hospital for the Insane, Washington, D. C., and tropical medicine, the London School of Tropical Medicine, London, England.

Similar opportunities have been afforded dental officers, twenty of whom received special courses in dental surgery during the year, at Northwestern University Dental School, Chicago; Columbia University Dental School, New York; the Mayo Clinic, Rochester, Minn., and the U. S. Naval Dental School, Washington, D. C.

Program for Interchange of Health Officers

The Third Interchange of Health Officers, arranged by the health section of the League of Nations, was in session at Washington, D. C., during the week of September 10-15, at the offices of the U. S. Public Health Service. Twenty-four physicians and health officers, representing each of the countries of Europe, and Canada, Brazil, Mexico, San Salvador and Chile, participated in a course of study and observation of health conditions and sanitation in the United States. The program arranged by the U. S. Public Health Service included addresses by officials of the service on subjects of health activities and the organization of the Public Health Service, an address by Secretary of State Charles E. Hughes, visits to the Army Medical School and the Navy Medical School, the Venereal Disease Clinic of the District of Columbia and to the Hygienic Laboratory and Children's Bureau. Following the observation of national health agencies at Washington, September 22, the delegation of visitors will separate into three groups, one proceeding to Virginia, another to North Carolina and a third to Alabama, where for about three weeks, they will observe and study state and local health departments. Richmond, Va., Raleigh, N. C., and Montgomery, Ala., are the southern cities selected for study. The groups will proceed thence to Massachusetts, New York and Pennsylvania. Syracuse, N. Y., Allentown, Pa., and one of the smaller cities of Massachusetts (yet to be designated) will be visited for a short period. Thereafter, visits will be made to New York, Boston and Philadelphia. The plans call for a reassembling of the entire delegation in Washington late in November for a final conference. The delegation is accompanied by an English physician, Dr. Norman V. Lothian, of the health section, League of Nations, Geneva, Switzerland.

Commanding Officer at Veterans' Hospital Transferred

Col. Robert H. Stanley, U. S. Public Health Service, commanding officer of the negro veterans' hospital at Tuskegee, Ala., has been relieved from duty at that place and ordered to the federal hospital at Fort Bayard, N. M.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Sept. 1, 1923.

The Decline of Chlorosis

In *Guy's Hospital Reports,* Dr. J. M. H. Campbell has shown by statistics that an enormous decline has taken place in the incidence of chlorosis, not only in this country but also in others. At Guy's Hospital, chlorosis has been separately indexed since 1888, so that its yearly incidence can be judged by the number of patients admitted. The statistics of some other great hospitals, London and provincial, were also examined. The combined result shows a steady decline since 1903. Very little, if any, of the decrease can be accounted for by changes in the use of the word chlorosis, or by improved methods of diagnosis. In 1916, the number of cases was only half the number in 1910, and less than quarter of those in 1903. From 1899 to 1903 there was a small increase, which was balanced by the decrease from 1903-1906. At the Massachusetts General Hospital, Cabot has shown a similar drop, which was most marked in 1900-1902, just before the beginning of the English drop. A similar fall has been recorded in Sweden and Finland, in which countries the disease diminished rapidly at some time between 1900 and 1902, then more slowly, and almost disappeared about 1912-1916. There is good evidence that improved conditions of factory life and domestic service are the main causes of the decrease. Probably these act by giving more opportunities for fresh air and exercise. The evidence is that chlorosis is only an exaggeration of a normal change that occurs in the blood of girls at puberty. From 14 to 16 there has been found in them a sudden sharp drop in the specific gravity of the blood, from 1.050 to 1.041, at which point it remains until the age of 22. In chlorosis, the drop is much greater than normal. The tendency to anemia at puberty is well known. As all the other changes of puberty depend on the internal secretion of the ovary, it seems that chlorosis depends on the same cause.

Metal Grinding and Pulmonary Disease

The home office has issued an important report by one of its medical inspectors, Dr. E. L. Middleton, on the effects of grinding metals and similar processes. Among the workers, a diminution of chest expansion, not due to age, was found to result from inhalation of the dust. This was greatest in those exposed to silica dust. The diseases resulting are discussed under the headings of tuberculosis, bronchial catarrh, bronchitis and pulmonary catarrh. Evidence of tuberculosis was found in 7 per cent. of wet sandstone hand grinders (who are thus especially exposed to silica dust) as compared with 2.76 for all other groups of workers. Pulmonary tuberculosis, associated with dust exposure, produced a high proportion of victims late in life. Thus, while the highest death rate from the disease for males in Sheffield was 40, that for Sheffield grinders and cutlers was about 50. Those affected showed signs of fibrosis of the silicotic type. Catarrh confined to the larger bronchi, on the other hand, was slightly more prevalent among glazers and dressers exposed to irritating dust with a low silica content. Chronic bronchitis followed established bronchial catarrh, and in glazers and dressers it was associated with a different type of fibrosis from that caused by silica dust—a type originating around the larger air passages, in distinction to silicotic fibrosis, which originates in the alveolar areas. Pulmonary catarrh, distinguished by cough and "tightness on the chest," was a sequel to fibrosis. It was peculiar to silicosis and had a bad prognosis. Fibrosis, bronchitis and pulmonary catarrh represented silicosis and predisposed to tuberculosis, but might progress to a fatal issue without that complication. Bronchial catarrh and bronchitis, with interstitial fibroses, and no peculiar predisposition to tuberculosis, formed a second type of pneumonoconiosis, which follows inhalation of irritant but nontoxic dusts, such as those composed of emery and other oxids of aluminum and silicon carbid. Grindstones are now giving place to manufactured wheels, which generate far less dust and are not composed of silica, to the advantage of the workers.

The British Journal of Anaesthesia

In these days, every specialty into which medicine is split seems to require its own journal. The last to start a journal in this country are the anesthetists. The first number of the *British Journal of Anaesthesia* has just appeared. The promoters include the leading anesthetists of this country and hope to make the scope of the journal extend over the whole British empire. The first number opens with a historical article by Sir D'Arcy Power. An important article on the use of anesthetics in combination, by E. P. Donovan and J. T. Gwathmey, follows. W. J. McCardie discusses bronchopulmonary complications following anesthesia, J. Blomfield, sacral analgesia, and C. Langton Hewer, new anesthetics. The number closes with full abstracts and bibliography of current literature of anesthetics. The journal is a quarterly, and the annual subscription is $10. The publishers are Sherratt and Hughes, Manchester. It is scarcely necessary to say that the magazine should prove most useful to all interested in anesthetics.

A National Pathologic Museum

In a letter to the *Lancet,* a pathologist, Dr. E. H. Shaw, urges the establishment of a national pathologic museum, to contain examples of every disease of which specimens can be obtained, especially microscopic sections of the different tissues. The specimens should be fully described and accompanied by clinical histories, so that pathologists might turn to them for guidance. The attention now being devoted to the cancer problem leads Dr. Shaw to suggest that the histologic side should be more widely and extensively studied. He finds that the histologic structure of tumors varies so much that it is difficult to follow them and keep them in mind. The great majority of specimens of malignant growth can be easily recognized, but there is a minority that offers great difficulty. Such are very early growths and malignant changes occurring in a primary innocent tumor. Specimens of these would form valuable material for recognizing cancer in its earliest stage and for the training of pathologists. when in difficulty, a pathologist might turn to them for guidance.

Life Assurance and Welfare Work

The Wesleyan General Assurance Society, which was one of the offices which recently announced a scheme of periodic medical examination of policyholders, has now inaugurated a health service bureau to carry out an extensive program of welfare work. This scheme is intended to supplement, not to replace, the existing agencies operating for the same purpose. The work of the bureau will include the preparation and distribution of literature bearing on personal and civic hygiene, the rudiments of health and the prevention of disease. Machinery will be set up for the study of morbidity and mortality statistics, and periodic health surveys will be made. Whatever will promote health and longer life will be within the range of the service. The society hopes that its efforts will merit the attention of health officers all over the country, and that it will be permitted to render such assistance to them and to the ministry of health as lies within its powers. The society has direct relations with nearly two million policyholders, whose homes it is called on to visit for the collection of premiums, in most cases, weekly. It holds that actuarial research indicates that the cost of health and welfare work will be abundantly justified by the saving of mortality. But it is also "actuated by the desire to render a very real service to the whole community."

PARIS

(From Our Regular Correspondent)

Aug. 31, 1923.

Use of White Lead Paints

The international conference of labor, held at Geneva in 1921, adopted the draft for an international agreement concerning the use of white lead paints. Up to the present time, this draft agreement has not been ratified by the French parliament. M. Frois has recently presented to the Société de médecine publique a communication on the subject, from which it appears that, from certain points of view, the measures adopted by France are more efficacious than those proposed by the above mentioned draft agreement. This is true both as regards the prohibited products and the supervised trades.

In France, white lead, lead-containing linseed oil, and all specialties containing white lead, are prohibited. The Geneva draft agreement would prohibit white lead and lead sulphate but tolerates the use of white pigments containing a maximum of 2 per cent. of metallic lead. The prohibition in France includes all purposes for which white lead paints are used by decorators—both interior and exterior decoration of buildings. The international draft agreement prohibits the use of white lead paints only for the interior of buildings, and, by way of exception, permits their use in railway stations and in certain industrial establishments, on the ground that they are indispensable.

However, our labor legislation would be improved if it were reinforced at certain points; for instance, by the adoption of the prohibition of lead sulphate on the same basis as white lead. Although lead sulphate is less toxic than white lead, there is no good reason for substituting it for white lead, either wholly or in part, in the manufacture of paints. But the ratification of the Geneva draft is eminently desirable because it broadens the scope of the protection, which is much greater than is at present enforced in France. Our labor laws afford protection, in the matter of hygiene and safety during work, only to workmen who are working under an employer. No protection is afforded workmen or master painters who work independently, nor even to members of a family working under the authority of the father, the mother or a guardian, except when the work is accomplished by the aid of a steam-boiler or a mechanical motor, or when the industry is classed among dangerous occupations, which is not the case here. Then again, the use of white lead by independent painters, and this is especially frequent in rural districts, entails unfair competition and creates bad feeling between contractors who cannot legally use white lead and the man who can; this puts a premium on fraud from which the health of the workmen suffers. At the present time, the presence of a keg of white lead in a paint shop where several workmen are employed constitutes merely a presumption of fraud, since the employer can always claim that he has it merely for his personal use. Finally, when a wall is covered with white lead paint, whether it was applied by workmen or by the employer himself, there is no means of knowing when some one will scrape this surface with its toxic coating. It is possible that a workman will thus become the victim of a serious intoxication. All these contingencies are rendered impossible by the international draft agreement, since, according to the terms of the draft, the prohibition applies to the use of white lead and lead sulphate in general, without specifying that the prohibition applies only to hired workmen. The prohibition will therefore affect not only contractors and master painters who use the paint themselves but also workmen who may be working on their own account.

In view of the facts as here set forth, the Société de médecine publique unanimously adopted a resolution urging parliament to ratify the draft agreement concerning the use of white lead paints on or in buildings, but with the understanding that the adoption of this agreement shall in no wise impair the application of the preventive measures already prescribed in France by the *Code du travail* (labor code) with reference to the use of lead-containing products, and more particularly, white lead.

The Association of Friends of Children's Hospitals

The lowering of the birth rate is not the only factor that plays a part in the depopulation of France; the high child mortality must also be taken into account. About 140,000 children die annually, and at least 80,000 of these could be saved if proper hygienic methods and a proper regimen were employed. Bottle feeding and separation of the infant from the mother are the principal causes of mortality in early childhood. Then again, prolonged hospitalization of children is pernicious. Young convalescing children do not find in the hospital the conditions necessary for rapid recovery. What they need is country life under good hygienic conditions.

In order to remedy present conditions, pediatricians, heads of services of the Paris hospitals, have formed an association which has taken the name of "Les amis des hôpitaux d'enfants" (friends of children's hospitals). Its purpose is to aid all children found in, or that have been in contact with, the hospitals of Paris, and more particularly, to encourage breast feeding by the mother by all possible means, especially by facilitating the employment of mothers under conditions such as will make it possible for them to perform remunerative work; to place infants who are deprived of breast feeding under the care of societies that will be able, under medical supervision, to assure them the necessary conditions for their regular growth; to place convalescent children where they will find, under medical supervision, good moral and hygienic conditions; to see to it that the services of children's hospitals are provided with a sufficient number of social workers to superintend in the homes the application of treatment prescribed by the physicians, after the children are dismissed from the hospital, and to see that the mothers and children enjoy all the advantages offered by the child welfare societies. The association will publish bulletins, pamphlets, documents and memoirs, organize lectures and lecture courses, motion picture exhibits, the installation of museums and exhibits, and the allotment and distribution of gratuities, pensions, rewards, prizes, etc. It may also aid in the establishment, development and support of agencies founded for similar ends, by annual subventions or single gifts. The office of the secretary is: 19, rue de Vienne, Paris-8e.

Chronic Intermittent Albuminuria in Young Soldiers

In making systematic examinations of the urine of recruits just before enrolment, a military physician, Dr. Tamalet, was surprised at the relatively large number of men with albuminuria. The percentage observed in the garrison regiments at Troyes was 4. It is probable that the percentage in other garrisons is about the same. This emphasizes the importance of the early detection of these latent cases of albuminuria, for it enables physicians to observe these subjects in the hospital and to decide on their fitness for service during the first sixty days after enrolment.

Of twenty-three such cases of albuminuria observed by Tamalet not one subject was aware that he had albuminuria. Not a single recruit had called the attention of the regimental physician to his state of health, and it was only the routine examination of the urine, made at the time of the enrolment, that revealed the presence of albumin. Almost all these recruits were apparently robust, the majority of them being farmers. Their history might be summed up somewhat as follows: A slight attack of influenza in 1918 or 1919; no previous scarlet fever, diphtheria or other grave toxi-infection; no venereal disease; no digestive disturbances. The urine had never been examined before their enrolment in the regiment. The council of revision (the exemption board in France) had declared them "fit for armed services."

Tamalet emphasizes the fact that these latent types of albuminuria, that exist unknown to the subject, can be studied only in the hospital, where hourly urinalysis and tests of renal function show, as a rule, that it is a chronic intermittent albuminuria associated, in about 50 per cent. of the cases, with disturbances in the elimination of methylene blue; occasionally, slight arterial hypertension, without pathologic azotemia or retention of chlorids, is present. These cases of intermittent albuminuria, which appear often to be sequelae of influenza, may be due to a renal deficiency, an early nephritis or to defective absorption of alimentary proteins, entailing the entrance of heterogenous albumins into the blood stream. They should be regarded as possibly a premonition of nephritis that will occur sooner or later, and this possible outcome should dictate the medicolegal attitude to be taken toward these subjects. The best method of disposing of their cases is to place them on the suspended list, by reason of the hardships imposed on the state by the act of March 31, 1919, with respect to pensions for disability.

Inquiry Into the "Crèches"

There are, in France, many types of establishment for the care of babies. The "crèches" (nurseries), are establishments which take care of babies between the ages of 1 month and 3 years during the day, and return them to their mothers in the evening. The "pouponnières" (baby homes) give both night and day care. The "chambres d'allaitement" (milk stations) are in connection with a commercial or industrial organization and take care of breast fed babies only during the working hours of the mother. Finally, the "garderies" (protective agencies) supervise children of school age outside class hours.

The crèches are managed under regulations that are more than 25 years old and are greatly in need of modification. The League for the Prevention of Infant Mortality has taken up the study of model regulations which, while the league could not enforce them, might serve as a guide to administrators of these institutions. Dr. Clotilde Mulon, an investigator for the committee appointed to draw up these regulations, sent a questionnaire to every crèche in France with the object of compiling a set of files for the committee, and with the hope of suggesting certain improvements to the institutions themselves. To 400 letters sent out only eighty-nine answers were received—too small a proportion—which denotes a regrettable indifference on the part of three fourths of the directors. This inquiry proves that the inefficiency of the crèches has been increased by difficulties growing out of the war. It confirms the criticisms already made concerning these institutions: insufficiency both in quantity and in quality of personnel (Variot); lack of active interest on the part of the physician; numerous infections (Marfan, Porak, and others); frequency of rickets. In order to diminish the mortality and morbidity among the babies cared for in these institutions, Madame Mulon recommends that medical inspections be made daily, not by a rotation of physicians but by one physician, who should be paid and held responsible for the sanitary condition of the institution. The physician should have a voice in the administration of the crèche, especially in regard to the selection and development of the personnel and in imposing penalties for infractions of rules. The nursing staff should be composed of women who have received technical instruction in puericulture. The milk should be sterilized in the morning in the nursing bottles, according to the method of Soxhlet as simplified recently by Renault (taken out of the water before it commences to boil). The rubber nipples should not be kept in sterile water, as this favors the growth of bacteria, but should be cleaned after each feeding, dried, and placed in covered receptacles, and should be steeped for two minutes in boiling water before using. The search for contagious diseases in the stage of incubation should be systematically made every day by a directress specially trained by a course in a children's hospital and every doubtful case should be immediately isolated until the arrival of the physician. An isolation ward for ten children should be compulsory in every crèche.

To obtain these reforms promptly and to aid those crèches which are anxious to improve, a subsidy should be given to all that observe the elementary rules of caution for the safeguarding of the infants.

Decrease of Alcoholism Among the Labor Population of the North

The ministry of labor has published an account of the inquiry ordered by M. Albert Peyronnet, minister of labor, to ascertain whether alcoholism, with its harmful effects on production, good order and regularity of work, was or was not decreasing among the laboring population.

In the Paris region (THE JOURNAL, July 21, 1923, p. 227) the inspectors who had charge of the inquiry paid particular attention to the labor federations and to the heads of large industrial establishments which, by reason of their daily contact with laborers, are in the best position to furnish authoritative opinions. The data collected show that even before the war, but especially since the armistice, there has been considerable improvement in regard to temperance, with consequently greater attention to work on the part of the men and a practical disappearance of the Monday slowup.

These figures are borne out by a noticeable decrease in the sale of liquor and in the number of arrests for drunkenness. The high price of alcohol, the antialcoholic crusade, the development of sports and a more sensible use of holidays are the causes to which this improvement is most often attributed. Some reports showed a large sale of wine in the place of gin and other alcoholic beverages.

The French Pharmacopeia in Alsace and Lorraine

The consulting council of Alsace and Lorraine has just been asked for an opinion on the subject of introducing the French pharmacopeia into the three recovered departments. This introduction has been demanded by the Chamber of Pharmacists. They maintain that those concerned having been placed, by the law of May 28, 1923, on the same footing as their confrères of the interior, it is only just that they submit to the same rules. Among other things, the project abrogates the ordinance of Oct. 27, 1901, relative to the sale of medicine by nonpharmacists, an ordinance that has been much abused. A period of ten years will be allowed all druggists in which to get rid of the stock of articles, the sale of which will be forbidden.

Foundation for the Study of Foreign Sciences and Civilizations

A donation of 500,000 francs has just been made by Madame Albouquerque, widow of the Count of Montfort-Laurito, which makes possible the visits of young Frenchmen to foreign countries for the purpose of studying the sciences and civilizations of those countries. The income from this foundation, which is to be increased by other gifts and legacies, will be used either as gifts or as loans. Gifts and loans will be tendered only to applicants who agree to remain abroad for three years, either in one country or in a group of countries that have a similar civilization. An annual report will be furnished on the work accomplished, and at the end of the visit a collective study will be published. Candidates must be of French nationality, under 30 years of age, and must possess a diploma or university degree such as a degree in law, letters, sciences or medicine or a diploma in pharmacy.

Death of Dr. P. L. Boulloche

Dr. Pierre-Louis Boulloche, staff physician of the Breton hospital, has just died at the age of 58 years. He was born in Paris, Dec. 3, 1864, and was appointed physician to the Paris hospitals at the age of 33. He devoted his professional studies to diseases of children. He wrote little, and left but one monograph, on "Angina with False Membranes," which appeared in 1892.

ROME

(From Our Regular Correspondent)

Aug. 23, 1923.

Second International Congress of Military Medicine and Pharmacy

In a recent letter (The Journal, July 7, 1923, p. 55) I reported briefly the proceedings of the second International Congress of Military Medicine and Pharmacy, but did not take up the subjects that were discussed.

Evacuation of Sick and Wounded

The following conclusions were reached:

The first essential in the general organization of evacuations is effective collaboration between the general command and the army medical corps. The former should furnish the latter, in addition to necessary information on the military situation, such general aid as is consistent with the situation. The medical corps, in turn, must endeavor to adjust its activities to the military necessities. Admission of physicians to the staffs and participation of the chiefs of the medical corps of large units in the general command are indispensable for carrying out this adjustment.

In order to utilize common resources more fully, to consider each other's needs, and to harmonize methods and principles of action, close contact must be maintained between the medical unit at the front and the medical unit of the territorial base.

In the general organization it is vitally important to harmonize the technical medical needs and the military necessities. The technical needs include: consideration of the factors concerned in the evolution of wounds and diseases; the bearing that these factors have on the establishment and special subdivision of the sanitary corps for the various lines from the front to the base, on the assignment of duties and the specialized training of the technical personnel, and on the organization of the machinery for evacuation and its functioning.

The appointment of well qualified technical advisers to the chiefs of the medical units, not only of those with the armies in the field but also of those at the base, will facilitate greatly the planning and securing of technical needs.

The care of the wounded and of the army in general requires foresight, ample personnel and abundant equipment of high quality to insure rapidity of transportation and evacuation with early medical attention and treatment under all circumstances. The need to improve and develop means of transportation of all kinds—on land, at sea and in the air—cannot be too strongly emphasized.

It is desirable that nations endeavor to establish uniformity in the essential characteristics of the means of transportation so that, when necessity arises, parts may be interchangeable.

Cooperation Between Military and Civil Authorities

Close cooperation between civil and military sanitary authorities (the form of collaboration will vary in the different countries) is necessary in order to prosecute the ideal of securing a strong, healthy population of sturdy citizens and stalwart soldiers.

In the interest of public health and of military solidarity, systematic inspection of school children should be organized, in order to discover and correct physical defects. The records thus collected would be the beginning of a sanitary history, which young men would present when examined for military service.

The war furnished a unique opportunity for experimentation in prophylaxis; in fact, it may be said that the organization of the army provides a much more favorable field of observation than civil life.

In the prevention of venereal disease, continence should always be recommended; present methods of venereal prophylaxis do not offer absolute protection. It is important that the greatest care and attention be given to the conditions under which the soldier lives, not only as regards lodging and the performance of military duties, but also with respect to the disposition of leisure time, the games and sports that are accessible (recreation halls).

The soldier should be instructed on the menace of venereal disease by means of tracts, pamphlets, illustrated lectures and motion pictures. He should be taught the principles of venereal prophylaxis (more particularly, individual prophylaxis), but the fact should be emphasized that the means employed are not infallible. All means should be employed to secure an early diagnosis, and complete curative treatment should always be instituted as soon as possible, incomplete or inadequate treatment being a potent cause of distribution of the disease.

As regards tuberculosis, all agencies that have undertaken properly planned campaigns against the disease should be recognized and encouraged and the military authorities should cooperate with them. Investigations into antituberculosis inoculation open up interesting vistas of the future.

In discussing vaccines and serums, it was pointed out that, in addition to smallpox vaccination, the value of which has long been established, the efficacy of antityphoid, antiparatyphoid and anticholera vaccines, both in prevention and as an aid in treatment, has been clearly demonstrated. Vaccinations against bacillary dysentery and influenza, on the other hand, have not yet proved of value. Antitetanic and antidysenteric serums have been found effective, the former as a preventive, the latter as a curative agent; but as yet no favorable results have been secured with the serum of gas gangrene, except in the French and Belgian armies.

With respect to mental diseases, it was emphasized that the study of psychiatric cases by army physicians deserves special attention, for the war brought this field of pathology into prominence. Psychiatric examinations, preferably during a period of observation following enrolment, render it possible to eliminate from the service the mentally abnormal and defective. The large majority of epileptics and psychoneurotics in whom the symptoms of disease develop under the influence of military activity can also be detected.

DISINFECTION AND DISINFESTATION

These conclusions were recorded:

Disinfection can be accomplished by natural means or by the use of mechanical, physical or chemical procedures. In carrying out disinfection, no set of rules should be followed too closely. Different conditions will require slightly different adaptations. Too great importance cannot be attached to continued disinfection and to the most punctilious cleanliness in sickrooms. Practically, it is eminently desirable to select certain standard disinfectants in order that comparisons of results may be made. For disinfestation, the methods that give the best results are those that employ heat, especially dry heat. Of the gases, chloropicrin and hydrocyanic acid have been found very efficacious. However, hydrocyanic acid is highly toxic, and should never be used without adequate precautions, and then only by a specially trained personnel under the most rigorous supervision. The method of neutralization with formaldehyd, recommended by Martinez Roca, should be used whenever possible. The personnel to whom the work of disinfection and disinfestation is entrusted should be specially trained. For the army, special detachments for disinfection and disinfestation are of great importance.

TREATMENT OF THORACOPULMONARY WOUNDS

In closed thoracopulmonary wounds, caused by small projectiles (bullets or shell fragments), a waiting policy should ordinarily be pursued, provided there is little or no hemothorax, and no hemoptysis is observed. The production of an artificial pneumothorax constitutes a real progress in the therapy of these conditions. Prophylactic surgical treatment is always indicated in exposed lesions of the thoracic wall, with or without rib fractures. Immediate opening of the cavity is always indicated in open pneumothorax to stop bleeding and ward off infection. On the other hand, in closed wounds with a pneumothorax, hemostasis usually takes place spontaneously, but immediate opening may be indicated in cases of persistent hemoptysis or progressive hemothorax, particularly if there is retention of a projectile and if the size of the projectile is greater than that of a shell splinter. As for pericardiocardiac wounds, immediate operation is rarely indicated to stop bleeding; it is more frequently indicated to prevent infection. In the zone of hostilities as well as at the base, special services for the treatment of thoracic wounds during the secondary and remote periods are necessary. Either during the secondary or the remote period projectiles remaining in the pleura or the lung, or in close proximity to large vessels, should be removed. Indications for the extraction of pericardiocardiac projectiles should be subordinated to the study of functional circulatory symptoms. Pulmonary tuberculosis is a rare complication of thoracic wounds. However, these may cause a latent focus to flare up or may aggravate a specific process already in evolution.

CHEMICAL LABORATORIES IN THE ARMY

The necessity for controlling water and food supplies for the army, for carrying out clinical investigations, and for conducting analyses required by the high command justifies the organization by the army medical corps of chemical laboratories with equipment and methods adapted to the needs of the armies in the field. The methods to be used by chemical laboratories in the field should be accurate, rapid and simple of execution. The selection of such methods, in keeping with progress in science, should constitute one of the most important peace-time considerations of military pharmacy. The methods found especially applicable for field service should be recorded in a special pharmaceutic formulary. In view of the importance of chemical research in the army, the methods selected or elaborated by the pharmaceutic services should be discussed at future international congresses of military medicine and pharmacy.

DATE OF THE NEXT MEETING

At its final session, the International Congress of Military Medicine and Pharmacy decided to request France to convene the third congress in 1925, under the same rules as the first and second congresses, held, respectively, at Brussels in 1921 and at Rome in 1923.

The questions placed on the agenda for the 1925 meeting are: technical specialization as the basis for the functioning of the army medical corps; its application to the different departments, with communications from France and Ireland; the selection of the personnel, with communications from France, Poland and Argentina; the etiology and treatment of traumatic arthritis and its sequelae, with papers from France and Belgium; and methods for the analysis of dressings and suture materials, with reports from France and Roumania.

BERLIN

(From Our Regular Correspondent)

Aug. 25, 1923.

The Birth Rate and the Excess of Births Over Deaths

Immediately after the war, a strong reaction set in as regards the factors affecting vital statistics. The years 1919 and 1920 were record years in Germany for marriages. Also the birth rate returned to that of prewar times, although no records were broken as was the case after the war of 1870. The most surprising manifestation was that the mortality fell rapidly. This was probably due, in the main, to the changed age distribution of the inhabitants, though doubtless also affected by the fact that, during the food blockade, the weakest among the population had died. During the last two years, the immediate results of the war have been counterbalanced, to a great extent, so that now it may be said that vital statistics in Germany present an approximately normal aspect. The year 1922, concerning which the final results have recently been published by the federal statistical bureau in the biweekly *Wirtschaft und Statistik,* shows considerable change over the previous year. The number of marriages is still 50 per cent. higher than before the war, but, as compared with the previous year, the number per thousand inhabitants dropped from 11.8

to 11.1. The number of marriages for the whole German empire, exclusive of Mecklenburg, was 673,652. The number of births scarcely corresponds to the large number of marriages. In 1913 there were 28.5 births per thousand inhabitants; in 1921 there were 26.1 births, and in 1922 only 23.6 births, which includes stillbirths. The lowering of the birth rate, as against prewar times, is most marked in the large cities. For instance, the birth rate for Berlin fell from 20.2 in 1913 to 14.6 in 1921 and to 12.3 in 1922. But also the predominantly rural provinces show a decrease in the birth rate. Thus, last year, the birth rate for East Prussia sank from 30.6 to 27.8; for Pomerania, from 28.6 to 26.1; for Bavaria, from 27.7 to 25.6; for Wurttemberg, from 24.2 to 21.7, per thousand inhabitants. The decrease in the industrial regions, for example, in Silesia, Saxony, Thuringia and Anhalt, is especially marked. Not only has the birth rate decreased with reference to the total population, but Germany showed last year also a marked absolute decrease. The number of living births in 1921 was 1,560,447, and in 1922 only 1,380,885, which was doubtless due in great measure to the cession of East Upper Silesia. However, in spite of this heavy drop in the birth rate, there was a large excess of births over deaths for Germany as a whole. That is due to the fact that, since the war, we have had a comparatively low mortality. The death rate last year was 15.1, which, compared with 14.7 for 1921 (a record year), showed a retrograde movement, although it was lower than the rate just previous to the war. The total number of deaths (exclusive of stillbirths) was 865,193. This gives an excess of births over deaths of 513,692, or 8.5 for each thousand inhabitants. This is, to be sure, a decrease of 33 per cent. as compared with the years just previous to the war. But it should not be forgotten that the tendency toward a decrease in the birth rate became manifest soon after 1880 and by the close of the century had become more marked, so that it may be said that the retrograde movement since the close of the war is merely a continuation of the manifestations already apparent in 1914.

The Status of School Psychologists

A school psychologist was recently appointed for the schools of Mannheim, a manufacturing town in northern Baden, with a population of around 200,000. His duties, which he will carry out under the supervision of the institute for psychology and pedagogics in the *Handelshochschule*, will include the collection of data that will be useful for purposes of instruction; observation of pupils; examination of pupils; collaboration in the solution of important psychologic and pedagogic problems, and aid and advice to be rendered the instructional corps in the study and judgment of peculiar individuals among the pupils.

Effect of Bad Economic Conditions on Public Health

The financial straits of our people finds its expression in other ways than in the increase in the number and gravity of the cases of tuberculosis and in the undernutrition of infants. It is regrettable to note that the number of suicides and attempted suicides is also on the increase. In the month of June, according to the official report, 151 cases were announced from Berlin alone. In Dresden there were fifteen suicides and twenty-six attempted suicides. In medical circles as well, similar cases have been reported. Repeatedly, deaths have been announced as due to lack of food.

The Children in Large Families

The economic distress is naturally felt most in large families, especially in the cities, and particularly when the children have not yet become wage-earners. For this reason, in many places the large families have combined and have adopted a communal arrangement in which, while agreeing to take a neutral attitude toward political and religious questions, they have made common cause of their social and economic interests. These *Vereinigungen der Kinderreichen* (unions or clubs of large families), the number of which now exceeds 300, have formed a league for the protection of large families. In view of this fact, Prof. Eugen Schlesinger of Frankfort-on-the-Main, a well known pediatrician and social hygienist, has taken occasion to investigate the conditions prevailing in these large families, not only from a hygienic but also from a social and intellectual point of view. The results of his researches, which he has published in the *Archiv für Kinderheilkunde,* he has summed up thus: In the *Volksschulen* (the nonclassical common schools) from 35 to 50 per cent. of the pupils, the percentage varying with the social status of the parents, come from large families of four or more children. In the schools of middle grade and in the secondary schools the percentage is from 16 to 20. (From 10 to 25 per cent. belong in the "only child" category.) More than 50 per cent. of the children of large families are of school age. The grown-up sons and daughters who have finished school constitute the second largest number, while the young children under school age and the infants are the fewest in number, though more in need of welfare assistance than the other two classes. Child mortality in families of four children amounts to 15 per cent. of living births; in families with five or six children, 25 per cent.; in families with seven children, 32 per cent., and in families of ten and more children the mortality is usually above 40 per cent., and often more than 50 per cent. This high mortality affects especially the children under 6, which inures to the advantage of the younger and youngest infants. The highest point of development, especially from the point of view of general bodily constitution, is reached, on the average, by the second and third child, although the fourth child may be only slightly inferior, whereas conditions as affecting the children under 6 and the younger school children become gradually worse. The new-born and the older infants in large families are well developed and hearty, as a rule, unless the number of births is exceedingly large. The weight and essential measurements of the new-born increase in direct proportion to the age of the mother and the number of births up to the last and highest group, and up to the highest number of births from 75 to 80 per cent. of the infants are breast fed, without any noticeable diminution in the milk supply of the mothers. But, in the second half year in the lives of the children born late, as compared with those born during the early part of the period of fertility, in large families, a weakening of development is noticeable, and from the third to the sixth year a progressive downward trend of bodily health often becomes manifest. In many children in large families the evidences of retarded development may be especially noted in the sixth and seventh year, about the time they enter school. A few years later, a partial recovery takes place; in fact, in many instances the lost ground is regained in a comparatively short time. The children of the lower middle class, and especially the school children of the families that are under the care of the welfare committee for large families, at present constitute an exception. These children may be said to be far below par, though possibly the juveniles of these families are in a still worse condition, for 18 per cent. of them do not become wage-earners on leaving school. But, as a rule, this retardation is compensated during the following years. Even though, in large families of children, they may present, during school age, approximately the same physical development, from the intellectual side, judged from their accomplishments in school, a weakening tendency will often be noted toward the end of the series. This tendency often manifests itself in a lack of home training, as evidenced by weaknesses of character; in the juveniles, especially, a feeling of oneness with the family and a healthy community spirit are wanting.

Distribution of Human Milk Through the Infant Welfare Centers

As I reported in a previous letter, Dr. Klose, the director of an infant welfare center, was induced by the scarcity and the high price of cow's milk in 1920 to use, as supplementary aid, collected human milk for the feeding of weakly and sick infants. An assistant of Dr. Klose (in the little town of Wittenberge) reported recently in the *Deutsche medizinische Wochenschrift* on the experiences with the method during the past three years. During these three years, 248 liters of human milk was collected. In passing judgment on what may seem to be an inconsiderable amount, it should be remembered that the individual contributions were frequently no more than 100 gm. The 248 liters was collected from thirty-five mothers. As will be readily understood, it was often very difficult and sometimes impossible to prevail upon women to contribute their surplus of milk, not infrequently owing to the objections raised by their husbands. It goes without saying that the necessary precautions in the selection of mothers was taken, especially women suspected of tuberculosis or syphilis being rejected. The price paid for human milk was only twice that of cow's milk, it being feared that, if more were paid, there might be a temptation to adulterate the contribution. The forty-six children that were fed with the milk thus collected thrived wonderfully well, as could be easily demonstrated; and particularly children with cholera infantum and pylorospasm, grave atrophy and progressive tuberculosis, and also premature infants, were much benefited by its use.

Marriages

Ira Luther Houghton to Miss Alice Estelle Stearns, both of Baltimore, at Fredericksburg, Va., September 4.

Paul Melanchton Vogt, Reading, Pa., to Miss Ellen Rebecca Rhoads of Bogertown, Pa., September 1.

Ernest Edward Kessler, Los Angeles, to Miss Simona Laborin of Hermosillo, Sonora, Mexico, July 8.

Alfred Harvey Black, Thomaston, Ga., to Mrs. Obie McKenzie Duncan of Montezuma, recently.

Raymond Lorraine Jeffery, Seattle, to Miss Margaret Hickman of Chariton, Iowa, June 21.

George W. Stoler to Miss Florence Lebzelter, both of Lancaster, Pa., September 19.

Elmer T. McGaugh, Richmond, Mo., to Miss Nan Jo Stalcup of Chicago, June 14.

Alexis T. Telford to Miss Ida E. Markman, both of Olney, Ill., June 30.

Deaths

Charles Frederick Millspaugh, Chicago, died, September 15, at the Presbyterian Hospital, of pneumonia. Born at Ithaca, N. Y., June 20, 1854, Dr. Millspaugh graduated from the New York Homeopathic Medical College, New York, 1881, and practiced medicine in his native state for ten years. He was botanist at the University of West Virginia from 1891 to 1893, and curator of the department of botany at the Field Museum of Natural History, Chicago, from 1894 until the time of his death. He was professorial lecturer in economic botany, University of Chicago, since 1895. Dr. Millspaugh explored in Mexico, Brazil, the West Indies and the Bahama Islands. He was author of "American Medical Plants" and many other works.

William Thomas Patton ⊕ New Orleans; Medical Department of the Tulane University of Louisiana, New Orleans, 1908; professor of otology, laryngology and rhinology, Loyola Post-Graduate School of Medicine; on the staffs of the Charity and Presbyterian hospitals; aged 38; died, September 4, at Rochester, Minn.

Joseph P. Porth ⊕ Jefferson City, Mo.; St. Louis Medical College, 1887; formerly mayor of Jefferson City; at one time member of the state legislature and city council; served as county physician for many years; aged 58; died, August 30, of heart disease.

James Ferlando Graham, Chicago; Medical Department of the University of the City of New York, 1880; member of the Illinois State Medical Society; Civil War veteran; aged 75; died, September 14, of arteriosclerosis and interstitial nephritis.

Columbus S. Jenkins, Tellico Plains, Tenn.; Tennessee Medical College, Knoxville, 1900; member of the Tennessee State Medical Association; mayor of Tellico Plains; aged 50; died suddenly, August 29, at the Knoxville General Hospital.

George Herman Wellbrook, Dayton, Ohio; University of Virginia Department of Medicine, Charlottesville, 1894; served in the M. C., U. S. Army, during the World War; aged 48; was found dead in bed, August 30, of heart disease.

Jacob Lewis Arbogast, Sacramento, Calif.; Cooper Medical College, San Francisco, 1899; aged 56; died, September 4, at the Sacramento Hospital, of bullet wounds received, when shot by a bandit.

Herbert Carl Waite, Columbus, Ohio; Cleveland Homeopathic Medical College, 1898; served in the M. C., U. S. Army, during the World War; aged 51; died, August 30.

William Henry Newlon ⊕ Fort Madison, Iowa; College of Physicians and Surgeons, Keokuk, 1890; aged 61; died, August 30, at the home of his daughter in Berkeley, Calif.

Oliver D. Robinson ⊕ Georgetown, Del.; University of Pennsylvania School of Medicine, Philadelphia, 1884; aged 60; died, September 2, of carcinoma of the bladder.

John Henry Bowen, Dolgeville, N. Y.; Long Island College Hospital, Brooklyn, 1883; also a pharmacist; aged 75; died, September 1, following a long illness.

Charles Heyer, St. Louis; University of Giessen, Germany, 1863; member of the Missouri State Medical Association; aged 84; died, August 22, of senility.

Monroe Melvin Knight, Buchanan, Mich.; Hahnemann Medical College and Hospital, Chicago, 1883; aged 69; died, August 28, of bronchopneumonia.

James A. O'Donnell, Baltimore; Johns Hopkins University Medical Department, Baltimore, 1911; aged 37; died, September 7, of bronchopneumonia.

Augustus Walker Maclay, Goshen, N. Y.; Medical Department of the University of the City of New York, 1865; aged 81; died, August 13, of senility.

Eugene A. Whittington, Little Mount, Ky.; University of Louisville Medical Department, 1889; aged 74; died suddenly, August 25, of heart disease.

William W. Rich, Center, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1879; aged 79; died, August 6, following a long illness.

John Milton Latta, Wichita, Kan.; University of Michigan Medical School, Ann Arbor, 1883; aged 70; died, August 25, following a long illness.

Charles John Parsons, Ardoch, Ont., Canada; L.S.A. London, England, 1883; aged 74; was found dead in bed, June 16, of cerebral hemorrhage.

Hiram W. Marsh, Winfield, Kan.; University of Michigan Medical School, Ann Arbor, 1866; aged 89; died, August 27, of senility.

Raymond William Stockwell ⊕ Oswego, N. Y.; University of Buffalo Department of Medicine, 1910; aged 39, died, August 27.

Julius J. Hilton, Greensboro, N. C.; University of Maryland School of Medicine, Baltimore, 1886; aged 63; died, August 31.

Vesta M. W. Swarts, Auburn, Ind.; Fort Wayne College of Medicine, 1882; aged 82; died, August 2, of senility.

W. P. Dabney, Combs, Ark. (licensed, Arkansas, 1903); aged 83; died recently, of senility.

Guy M. Canfield ⊕ Detroit; Cleveland (Ohio) Medical College, 1894; aged 51; died in June.

The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other General Material of an Informative Nature

SO-CALLED "IMPROVED" ETHERS

Claim that Pure Ether Has No Anesthetic Properties, Without Foundation

Since the use of ether for anesthesia was demonstrated in 1846, there have been many investigations of its composition in relation to its actions. The generally accepted view has been that the anesthetic action of ether is due to the ether (diethyl oxid) itself, although at various times during the first five decades of its employment assertions were made—without substantiating evidence—that certain impurities enhanced its anesthetic value.

In 1919 Cotton[1] declared that, as a result of certain experiments, ethyl ether, specially purified, "was not a good anesthetic and that real anesthesia could not be obtained unless it [ether] contained some potent synergist." He then announced that he had prepared a superior product, which became known as "Cotton Process Ether."

At that time the exact composition was not given but some time later, the manufacturer who placed the product on the market, E. I. Dupont de Nemours & Co., Inc., stated[2] that the composition was highly refined diethyl oxid, $(C_2H_5)_2O$, plus approximately two volumes of ethylene (C_2H_4), one-half volume of carbon dioxid (CO_2) and 1 per cent. by weight of ethyl alcohol. The firm also signified its intention of submitting the product to the Council on Pharmacy and Chemistry, which it did two years later. Since that time the company, apparently, has endeavored to obtain sufficient evidence for claims of superiority, but so far these have not been presented and confirmation of Cotton's claims is lacking. It is but fair to say that the Dupont company has not been actively "pushing" the product during the past two years.

Wallis and Hewer of England have also recommended a new general anesthetic. They, too, declare[3] that pure ether possesses practically no anesthetic properties. The composition of the Wallis and Hewer product has been vaguely claimed to be purified ether to which is added, in unspecified amounts, a mixture of ketones (identified only as comprising those in the middle of the series) which have been treated previously with carbon dioxid and ethylene. The product has been placed on the market under the name "Ethanesal." It received some endorsement, especially from Dr. H. E. G. Boyle of London who made it the subject of addresses on anesthesia before medical audiences in this country.

The claim that pure ether is devoid of the usual anesthetic attributes seemed so out of accord with the understanding of ether anesthesia that it was not surprising that other investigators took up the problem. Thus it was that over a year ago Bourne and Stehle[4] showed that ether prepared in a way to exclude impurities such as are ordinarily present possesses the usual anesthetic properties. As for "Ethanesal," Henry Robinson[5] states in his recent textbook:

> "I have been unable to discover any advantage possessed by this anesthetic over ether; and in particular I believe that so far from being less liable (as is claimed) to cause vomiting, ethanesal is actually more often followed by vomiting than ether itself. Ethanesal is considerably the more expensive of the two."

Of particular scientific interest is the painstaking investigation recently reported by Dale, Hadfield and King[6] made by them for the purpose of throwing light on the claim that pure ether has little or no anesthetic action. They also report the results of their examination of "Ethanesal." They first made a purified ether—absolute diethyl oxid—by a special method. This ether, which was free from aldehydes, ketones, acids, mercaptans, alcohol and all other known impurities, including ethylene, was first carefully tested in the laboratory on a series of cats. Induction of anesthesia occurred smoothly and with a rapidity at least equal to that normally seen when ordinary good anesthetic ether is administered. Such difference as was observable could be satisfactorily attributed to the smaller amount of pharyngeal and tracheal secretion provoked, the pure ether being distinctly less irritant than most specimens of ether sold for anesthetic purposes. This absence of irritation not only facilitated induction, but enabled deep anesthesia to be maintained with a smaller quantity of the ether. As a result of their experiments, the authors believe that the purer the ether, the more easily and smoothly can anesthesia be induced and maintained.

When this pure ether was used for patients requiring anesthesia with ether for surgical operations, the results, like those obtained in experiments on cats, were decisive in favor of perfectly pure ether. The after-effects were no worse than those usually following anesthetic ether. During the administration the tendency to coughing and salivation appeared to be less than usual. In all cases the surgical anesthesia was complete and no complaint was made of rigidity. These experiments appear to prove beyond doubt that chemically pure ether is an anesthetic, at least as satisfactory and effective for the human subject as the best ethers usually sold for that purpose. In the opinion of these investigators efforts to improve the properties of ether, as an anesthetic for ordinary use, can be most profitably directed to the discovery of methods for rendering and keeping it free from the irritant impurities.

The experiments with "Ethanesal," made by Dale, Hadfield and King, failed to afford any evidence of an anesthetic potency which is not satisfactorily accounted for by that of the purified ether, which is its main constituent. Several samples of "Ethanesal" were submitted to fractionation. The samples contained 95.5 per cent. ether, 4 per cent. of normal butyl alcohol, and 0.5 per cent. of a mixture of ethyl alcohol and an aldehyde, and possibly traces of other substances. This analysis showed a composition which differs from the claims. These differences were called to the attention of the manufacturers of "Ethanesal" who stated that normal butyl alcohol should not be a constituent of "Ethanesal," and that its presence in the samples examined must have been due to an error. The authors claim they are left in a state of complete uncertainty as to whether any of the numerous published clinical observations of the action of "Ethanesal" were carried out with ether containing genuine ketones (as claimed by the manufacturers) or with ether containing normal butyl alcohol (as found by the investigators) of which some portion had been oxidized to butylic aldehyde. Meanwhile, in view of their failure to detect any real difference between the action of "Ethanesal" and that of pure ether (either separated from it, or prepared independently) they feel justified in requiring further proof before admitting that the nature of the added constituent could make any serious difference.

Thus the work of Dale, Hadfield and King gives no support to the statements that pure ether is devoid of anesthetic action, and that the activity in this direction of ordinary ether is due to impurities. On the contrary, their work shows that the anesthetic action of ether is improved by purification. As an anesthetic, the purest ether is the best. Furthermore, the work of these men indicates that there is no evidence to warrant attributing the anesthetic properies of "Ethanesal" to any other constituent than the ether.

The work of Stehle and Bourne in Canada and of Dale and his co-workers in England demonstrates anew that, notwithstanding the claims of the proponents of the so-called improved ethers, the theory of ether anesthesia is still unchanged.

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[1] Cotton, J. H.: Cotton Process Ether and Ether Analgesia, Am. J. Surg., Anesthesia Supplement, April, 1919, p. 34.

[2] Cotton Process Ether, J. A. M. A. **74**: 1474, 1920.

[3] Wallis, R. L. McK., and Hewer, C. L.: New General Anesthetic, Its Theory and Practice, Lancet **1**: 1173, 1921.

[4] Stehle, R. L., and Bourne, W.: The Anesthetic Properties of Pure Ether, J. A. M. A. **79**: 375, 1922.

[5] Robinson, Henry: Hewitt's Anesthetics and Their Administration, New York: Oxford University Press, 1922.

[6] Anesthetic Action of Pure Ether, Lancet **1**: 5192 (March 3) 1923.

Development of Tuberculosis.—From infection to first illness, lung tuberculosis is a slowly creeping and insidious thing; between the two incidents there are probably more often years than weeks or months.—A. K. Krause.

Correspondence

MENTAL TESTS FOR MOTORISTS

To the Editor:—In the editorial comment (The Journal, September 8, p. 835) in which is suggested the devising of standards for drivers of motor vehicles, there occurs a suggestion that seems to me might well be amplified by those who are specializing on psychologic tests. The various works on this subject and particularly the articles in the *Journal of Personnel Research* show that while progress in reliable mental tests is slow, it is, nevertheless, continuous and practically useful in industry. Not only have special tests been devised which show the fitness of persons for particular occupations, but these tests are also being used in practice in the employment departments of a number of the most progressive employers of labor.

The use of special psychologic tests in a few of the most modernized of our civil service departments indicates, as does your comment, the feasibility of extending the same principle to the examination of automobile drivers. The tests that you suggest for eyesight and hearing would, of course, be comparatively simple. The more crucial test of rapid and correct decision in emergencies is one that will undoubtedly require considerable experimental work. This, however, is one of the most important considerations for increased safety in the streets.

Those who are approaching the subject of mental tests from the scientific side could hardly serve society in a better way than to work out and secure the application of such examinations on which would be conditioned the granting of licenses to drivers.

William C. Ewing, Philadelphia.
Managing Director and Secretary,
The Child Federation.

THE NEED FOR PHYSICIANS IN THE PUBLIC HEALTH FIELD

To the Editor:—The nationwide interest in measures for the improvement of the public health has resulted in the extension and standardization of health organizations and activities generally. In consequence, the number and stability of public health positions have greatly increased in recent years. In fact, this increase has occurred so rapidly that the facilities for the education of sanitarians and scientific workers in the public health field has not kept pace with it, although substantial progress has been made within the last decade in the number of universities giving such instruction.

The conference of officials and eminent specialists in public health education convened by the Surgeon General of the U. S. Public Health Service focused attention on this condition (Future of the Public Health in the United States and the Education of Sanitarians, Public Health Bulletin 124, U. S. P. H. S.), and should result in the institution of short courses of instruction for health officers, physicians and others, as well as in more systematic instruction of undergraduate students by medical schools.

The complex conditions of the recent past have resulted in a shortage of candidates even for positions for which the essential requirements on entrance do not include special sanitary training but a thorough medical training and hospital experience. In some of these positions the successful candidates are assured of subsequent special training for the duties to be performed by them.

In the U. S. Public Health Service, for instance, a number of vacancies now exist for recent graduates of medicine between the ages of 23 and 32. These positions, which are permanent, provide attractive compensation from the beginning, and the opportunities for professional advancement in public health endeavor are excellent.

Within the last three years, 8,841 physicians have graduated from our medical colleges, 4,707 of this number having liberal arts degrees. It would seem that many from among this number would be attracted to the public health field, especially in those positions involving not only general work but also hospital and research work.

J. W. Kerr, M.D., Washington, D. C.
Assistant Surgeon General, U. S.
Public Health Service.

"DEVIL'S GRIP"

To the Editor:—I note in The Journal, September 8, an article entitled "An Epidemic of Mild Fever of Unknown Origin." Apparently it is to all intents and purposes the same disease that I described in The Journal, May 28, 1921, under the title of "An Unusual Pain Syndrome Associated with the Present Wave of Influenza." Neither of us is correct, because we describe a symptom; yet it seems that the two articles should be coupled for future research.

Thomas F. Reilly, M.D., New York.

"CONTROL OF OPHTHALMIA NEONATORUM"

To the Editor:—The plea of Dr. F. Park Lewis (The Journal, September 8, p. 849) is one that should be read by every physician that practices obstetrics. Blindness from ophthalmia neonatorum could and should be prevented. In thirty years' practice I have never had blindness result from this cause. I have always carried in my obstetric bag a solution of silver nitrate, 1 per cent., and never neglect to use it. The state of Illinois now furnishes this solution in beeswax ampules, and there is no excuse for a doctor not having it with him. I know a young woman, now 19 years old, blind from this cause, owing to the neglect of a drunken doctor. I am surprised that this infection occurs in well regulated hospitals as stated in Dr. Lewis' letter. We should have an editorial on this subject.

H. W. Smith, M.D., Roodhouse, Ill.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

INTESTINAL PARASITES

To the Editor:—Please discuss the treatment of the following described intestinal parasites: In size, they are about one-tenth that of a No. 60 sewing thread, from one-fourth to one-half inch in length. Magnified, the heads of a few have three or four thornlike projections. From this I concluded that they are what is described in the books as the thorn headed worm. A woman, aged 54, has been annoyed by them about two years. They have resisted all ordinary treatment so far. The most generally used anthelmintics have been used in large doses supplemented by large enemas of salt or soapy solution, followed by quassia, changed at times to mercuric chlorid, 1: 8,000, with mercurial ointment externally. This treatment has been followed daily for weeks with only partial relief.

M.D., Illinois.

Answer.—The description of the worm does not enable us to identify the animal sufficiently, nor are we familiar with any extraordinary treatment for worms, "all ordinary treatment having been used." The worm might be sent to the Department of Parasitology at the University of Illinois for identification.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Arizona: Phoenix, October 2-3. Sec., Dr. W. O. Sweek, 404 Heard Bldg., Phoenix.

California: Sacramento, October 15-18. Sec., Dr. Charles B. Pinkham, 906 Forum Bldg., Sacramento.

Colorado: Denver, October 2. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

Florida: Tallahassee, October 9-10. Sec., Dr. W. M. Rowlett, Tampa.

Georgia: Atlanta, October 9-11. Sec., Dr. C. T. Nolan, Marietta.

Idaho: Boise, October 2. Dir., Mr. Charles Laurenson, Boise.

Illinois: Chicago, October 9-11. Supt. Mr. V. C. Michels, Springfield.

Iowa: Des Moines, September 25-27. Sec., Rodney P. Fagen, State House, Des Moines.

Kansas: Topeka, October 9. Sec., Dr. Albert S. Ross, Sabetha.

Michigan: Lansing, October 9. Sec., Dr. Beverly D. Harison, 707 Stroh Bldg., Detroit.

Minnesota: Minneapolis, October 2-4. Sec., Dr. Thomas S. McDavitt, 539 Lowry Bldg., St. Paul.

Missouri: Kansas City, October 3-6. Sec., Dr. Cortez F. Enloe, State House, Jefferson City.

Montana: Helena, October 2. Sec., Dr. S. A. Cooney, 205 Power Bldg., Helena.

Nevada: Carson City, November 5. Sec., Dr. Simeon L. Lee, Carson City.

New Jersey: Trenton, October 16-17. Sec., Dr. Alexander MacAlister, State House, Trenton.

New Mexico: Santa Fe, October 8-9. Sec., Dr. W. T. Joyner, Roswell.

New York: New York, Albany, Syracuse, Buffalo, September 24. Sec., Dr. William D. Cutter, Albany.

Porto Rico: San Juan, October 2. Sec., Dr. Jorge del Toro, 1 Olimpe St., San Juan.

South Carolina: Columbia, November 2. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

Utah: Salt Lake City, October 2. Dir., Mr. J. T. Hammond, Salt Lake City.

Wyoming: Cheyenne, October 8-10. Sec., Dr. J. D. Shingle, Cheyenne.

Massachusetts March and April Examination

Dr. Charles E. Prior, secretary, Massachusetts Board of Registration in Medicine, reports the oral, written and practical examination held at Boston, March 14-16, 1923. The examination covered 16 subjects and included 70 questions. An average of 75 per cent. was required to pass. Of the 48 candidates who took the physicians' and surgeons' examination, 28, including 3 osteopaths, passed, and 20, including 2 osteopaths, failed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
University of Colorado	(1910) 78.8, (1912)	83.5
American Medical Missionary College	(1900)	77.9
Tulane University	(1915)	87.5
College of Physicians and Surgeons, Boston	(1920)	77
Harvard University	(1921) 83.6, 85.7, (1922)	82.6, 86.4
Middlesex College of Medicine and Surgery	(1920)	79.1
(1921) 75.2, (1922) 75, 76.1		
Tufts College Medical School	(1922)	75, 83.4
University of Michigan Homeo. Medical College	(1914)	76.1
Kansas City University of P. and S., Missouri	(1920)	75
St. Louis College of Physicians and Surgeons	(1921)	75.7, 76
Long Island College Hospital	(1921)	76
Syracuse University College of Medicine	(1920)	85.1
McGill University	(1921)	78.2
University of Jurjev, Russia	(1917)*	75
University of Khakov, Russia	(1921)*	75
University of St. Vladimira, Kief, Russia	(1918)	76.2
Osteopaths		75, 77, 78.8

FAILED

Chicago Homeopathic Medical College	(1901)	66.2
Maryland Medical College	(1913)	55.9
College of P. and S., Boston	(1916) 71.3, (1918)	72.3
Middlesex College of Medicine and Surgery (1920) 68.5, (1922) 70, 71.9, 72.6		
Grand Rapids Medical College	(1906)	69.5
St. Louis College of Physicians and Surgeons (1920) 68.2, 69.5, (1921) 67.8, (1922) 63.1, 69.8, 70.2, 72.7		
Meharry Medical College	(1921)	66.7
University of Naples, Italy	(1913)*	71.5
Osteopaths		60, 72.9

* Graduation not verified.

Dr. Prior also reports the special written and oral examination held at Boston, April 12, 1923. The examination covered 16 subjects and included 70 questions. An average of 75 per cent. was required to pass. One candidate was examined and passed. The following college was represented:

PASSED

College	Year Grad.	Per Cent.
Columbia Univ. College of Physicians and Surgeons	(1889)	78.8

District of Columbia April Examination

Dr. Edgar P. Copeland, secretary, District of Columbia Board of Medical Supervisors, reports the oral and written examination held at Washington, April 10-12, 1923. The examination covered 16 subjects and included 80 questions. An average of 75 per cent. was required to pass. Eight candidates were examined, all of whom passed. Seven candidates were licensed by reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Howard University	(1920) 86.9, (1922)	80.9
University of Michigan Medical School	(1922)	80
Hahnemann Med. Coll. and Hosp. of Philadelphia	(1917)	79.3
Temple University	(1919)	89.1
University of Pennsylvania	(1892)	77.6
Vanderbilt University	(1916)	85.4
Medical College of Virginia	(1922)	87.2

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
Howard University	(1908), (1913)	Alabama
Ensworth Medical College	(1910)	Missouri
University of West Tennessee	(1914, 2) Missouri (1916)	Tennessee
University of Virginia	(1915)	Virginia

Georgia June Examination

Dr. C. T. Nolan, secretary, Georgia State Board of Medical Examiners, reports the written examination held at Atlanta, June 6-8, 1923. The examination covered 10 subjects and included 100 questions. An average of 80 per cent. was required to pass. Sixty-five candidates were examined, all of whom passed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Emory University (1922) 87, (1923, 50), 89, 89, 89, 90, 90, 90, 90, 90, 91, 91, 91, 91, 92, 92, 92, 92, 92, 92, 92, 92, 93, 93, 93, 93, 93, 93, 93, 93, 93, 94, 94, 94, 94, 94, 94, 94, 94, 94, 94, 95, 95, 95, 95, 95, 96, 96, 96, 97, 97, 97		
University of Michigan Med. School	(1917)	93
Jefferson Med. College	(1921)	96
Meharry Medical College (1923, 10) 83, 85, 87, 87, 90, 90, 90, 90, 90, 91		
University of Tennessee	(1923, 2)	89, 91

Virginia June Examination

Dr. J. W. Preston, secretary, Virginia State Board of Medical Examiners, reports the written examination held at Richmond, June 19-22, 1923. The examination covered 9 subjects and included 90 questions. An average of 75 per cent. was required to pass. Of the 59 candidates examined, 57 passed and 2 failed. Twelve candidates were licensed by reciprocity and four candidates were licensed by endorsement of credentials. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Medical College of Alabama	(1894)	83
George Washington University	(1922)	85
Johns Hopkins University	(1923)	82.5
Hahnemann Med. Coll. and Hosp. of Philadelphia	(1923, 2)	92, 93.1
Jefferson College Med. Dept	(1923)	91.9
University of Pennsylvania	(1923)	89.5
Meharry Medical Collge	(1923)	80.2
University of Nashville Med. Dept	(1906)	78.2
Medical College of Virginia (1923, 34) 76.4, 81, 82, 83.5, 84, 85, 85, 86, 86, 86, 86, 86, 86.1, 86.3, 87, 87, 87, 87.9, 88, 88, 88, 88, 88, 88, 88.5, 89, 89, 89, 89, 89.9, 90, 91, 91, 91		
University of Virginia (1921) 81, (1922, 4) 78, 83, 87, 89, (1923, 9) 85, 86, 87, 88, 88.5, 89, 90, 90, 91		

FAILED

College	Year Grad.	Per Cent.
College of Phys. and Surgs., Dallas	(1907)	71
University of Kiel, Germany	(1919)	65

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
Yale University School of Medicine	(1917)	Minnesota
Emory University	(1920)	W. Virginia
University of Georgia	(1913)	Georgia
Bennett College of Eclectic Med. and Surg	(1906)	Penna.
Loyola University	(1916)	N. Carolina
Tulane University	(1887)	New York
College of Phys. and Surgs., Baltimore	(1913)	W. Virginia
University of Maryland	(1921, 2)	Maryland, Missouri
University of Buffalo	(1913)	New York
University of Vermont	(1918)	Vermont
University of Virginia	(1914)	W. Virginia

ENDORSEMENT OF CREDENTIALS

College	Year Grad.	Endorsement with
University of Arkansas	(1917)	U. S. Navy
Rush Medical College	(1921)	U. S. Navy
Medical College of the State of South Carolina	(1916)	U. S. Navy
University of Virginia	(1893)	U. S. Army

Book Notices

TONSILLECTOMY BY MEANS OF THE ALVEOLAR EMINENCE OF THE MANDIBLE AND A GUILLOTINE. With a Review of the Collateral Issues. By Greenfield Sluder, M.D., Clinical Professor and Director of the Department of Rhinology, Laryngology and Otology, Washington University School of Medicine. Cloth. Price, $5. Pp. 176, with 90 illustrations. St. Louis: C. V. Mosby Company, 1923.

This monograph includes a substantial bibliography and an index. The object, as stated in the preface, is to present in a satisfactory manner the author's method of tonsillectomy. To this he subsequently decided to add a review of such collateral issues as embryology, comparative anatomy, general human anatomy, physiology, pathology, clinical laryngology and surgery. The primary object has certainly been accomplished. The clearness of the text, together with ample illustrations, leaves little to be desired as an authoritative guide for this operation, which has become a method of performing tonsillectomy now utilized by almost all laryngologists, at least in this country. There are many who have used this method for years, however, who do not consider it the method of choice for all cases in which tonsillectomy is indicated. The reason why the author finds it universally the method of choice, perhaps, may be expressed in his own words (p. 98): "Some surgeons, however, can perform some operations better by one method than another, oftentimes as a result of being more interested in some one technic. For this reason they will, consciously or not, study the requisites, anatomical and otherwise, and learn these better than when this interest does not exist." The argument in favor of nitrous oxid anesthesia will not appeal to many surgeons who prefer to do their work more deliberately under ether, and prefer the latter method, also, because it provides opportunity for making sure that the bleeding is successfully controlled before deciding that the operation has been completed. The important thing, as the author repeatedly points out, is that the operation of tonsillectomy has been successfully carried out. It is not so important what instrument is used or what method employed. A valuable addition is the review of collateral issues. The profession has been fed up too much on the technic of tonsil operations to the exclusion largely of the much more difficult and certainly more important problems of the pathology of these structures and an intelligent consideration of what constitutes proper indication for their removal. As the author states (p. 76): "The present day literature bears witness to the popularity of the tonsils as the scapegoat for almost all mischief that cannot be fixed upon the teeth." The inevitable result has been the flooding of the country by indiscriminate, uncalled for tonsil operations. More emphasis might have been given to the proposition that the decision for the removal of the tonsils ought to be made by the properly trained laryngologist only in cases in which the local trouble is the main indication. In all other cases in which the supposed indication is some systemic infection, this decision should be reached only in conference with the internist.

BLUTKRANKHEITEN UND BLUTDIAGNOSTIK. Lehrbuch der klinischen Hämatologie. Von Dr. med. Otto Naegeli, o. ö. Professor der inneren Medizin an der Universität Zürich. Fourth edition. Cloth. Price, $6.20. Pp. 587, with 62 illustrations. Berlin: Julius Springer, 1923.

This edition has been much enlarged and improved, especially by the introduction of many colored plates showing various types of normal red and white cells and also the blood pictures in various diseases. These plates are especially well done, and add greatly to the value of the book. Almost every section of the work has been enlarged, so that the work partakes of the nature of an encyclopedia of hematology. The sections dealing with technic are, perhaps, much more brief than is usual with works of this character, but sufficient is given to cover the field in an entirely adequate manner. As in most of the German works on the blood, almost no mention is made of the immense field of chemical examination of the blood, beyond the usual stereotyped discussion of the physicochemical characteristics, such as determination of the viscosity, estimation of albumin and globulin, and determination of specific weight, dry residue and osmotic pressure. No space is given to the methods for determining such factors as the nonprotein nitrogen, urea, uric acid, creatinin, sugar, cholesterol or the inorganic constituents, many of which factors are of great value in our present-day clinical work. Strangely enough, although little attention is given to the question of the reaction of the blood, no mention is made of the hydrogen-ion concentration or other factors, which we in America are using to such an extent. The book may be recommended to those who desire a reference work on hematology which covers the field of blood histology, and outlines the clinical picture of the various blood and general diseases. The plates will enable the worker to familiarize himself with the normal and abnormal blood cells.

THE MEDICAL DEPARTMENT OF THE UNITED STATES ARMY IN THE WORLD WAR. Volume I: The Surgeon General's Office. Prepared under the Direction of Major Gen. M. W. Ireland, M.D., Surgeon General of the Army. By Col. Charles Lynch, M.C., Lieut. Col. Frank W. Weed, M.C., Loy McAfee, A.M., M.D. Cloth. Gratis. Pp. 1389, with illustrations. Washington: Government Printing Office, 1923.

Several months ago we published a review of Volume XV, Part 2 of this series; it concerned the anthropologic, medical and casualty statistics of the United States Army during the World War. The present volume is devoted to a complete survey of the work done in the Surgeon General's Office, and succeeding volumes will be devoted to other aspects of the work.

The initial work of the present volume was under the editorial direction of Lieut. Col. Fielding H. Garrison and Lieut. Col. Casey A. Wood. Their service was discontinued in the latter part of 1920, and since that date all editorial work has been handled in the historical division of the Surgeon General's Office. The general editorial direction has been under Col. Charles Lynch, Lieut. Col. F. W. Weed and Dr. Loy McAfee.

According to the preface, the first medical and surgical history of a war was published by the British Army Medical Department in 1858 and concerned the service of that army in Turkey and the Crimea. The remainder of the preface is an account of other medical and surgical war histories, particularly with relation to the American Civil War.

The book begins with a general introduction describing the evolution of the medical department and the Red Cross Units into complete war strength. The first section describes the relations of the medical department to other war services. Section 2 consists of twenty-seven chapters on the organization and administration of the Surgeon General's Office. In each instance the ranking officer in charge describes the way in which his department was conducted.

Of perhaps greatest interest to medical men in general is the section on personnel, since this describes the way in which civilian physicians were brought into the service, how they were commissioned, and regulations regarding rank and placement in the service. The chapters devoted to various specialties are instructive in their descriptions of the organization for work but are purely historical in character. Their practical value is limited entirely to war periods.

Section 3 is concerned with voluntary aid. Here the various chapters discuss the cooperative efforts of the American Red Cross, Advisory Commission of the Council of National Defense, the National Research Council, the American Medical Association and the Commission on Training Camp Activities.

The appendix contains a list of medical officers killed in the service, abbreviations, and the complete texts of orders, regulations and other instructions governing the medical department issued during the World War. This last item occupies about half the present volume. It is almost wholly printed on a different quality of paper. It represents, in some respects, the most instructive part of the book so far as the general reader is concerned. In these regulations may be read the development not only of methods of handling men and organization but also of medical and surgical care and preventive medicine.

The book concludes with a well prepared index. On the whole, the first volume is a guarantee of the great thoroughness with which this work is being done. It is more extensive and apparently more systematically organized than the British

Medical History, recently reviewed. It seems to lack, however, somewhat of the literary quality which distinguishes the British reports, and it differs also in its lack of reference to individuals responsible for various discoveries and changes affecting the medical service.

In 1920, an appropriation to publish the history was obtained from Congress which provided the sum of $50,000, with the stipulation that the complete cost of the history should not exceed $150,000. In this connection it may be pointed out that the United States Medical History of the World War is limited to an edition of about 3,000, and that it will be available only to libraries and institutions. The British Medical History is for sale in any book store to any one interested; no doubt this will help to some extent in defraying the cost of publication. It is proposed to issue the complete work by 1926.

Ueber Grippepsychosen. Von Dr. med. F. Walther. Paper. Pp. 160. Bern: Bircher, 1923.

This discussion on the mental complications and sequelae of influenza is based on sixty cases observed at hospitals for the insane in the vicinity of Bern, Switzerland. As regards time relationship to influenza, the psychoses are divided into those occurring during (1) the prodromal period, (2) the febrile period, (3) defervescence and (4) convalescence. A distinction is made between pure grip psychoses, of which there were forty-five cases in the series, and the cases in which the grip was only one factor. The pure grip psychoses are divided into (1) states with chiefly disorders of consciousness: deliriums, twilight states and amentia; and (2) states with chiefly affective disorders: depressive, manic and hysteriform.

The Colloidal State in Its Medical and Physiological Aspects. By Sir William M. Bayliss, F.R.S., M.A., D.Sc., Professor of General Physiology in University College, London. Cloth. Price, $2.15. Pp. 95, with illustrations. New York: Oxford University Press, 1923.

This monograph is an attempt to give a short, but accurate, account of the properties of colloids, so far as these have bearing on the phenomena that occur in living beings. The author is himself an active and successful investigator in this field. There are brief chapters on the nature of the colloidal state, interfacial phenomena, precipitation, osmotic pressure, viscosity, surface tension, inhibition, physiologic action, and a concluding chapter on proteins and hemoglobin. The significance and probable action of inorganic drugs administered in organic or colloid combinations is briefly discussed in the chapter on physiologic action. The volume is admirable in clearness of diction and in judgment on the many unsettled questions in this field, but there is little or no reference to the literature. The book is a useful aid to biologists and physicians who try to keep abreast of the important advances in colloid chemistry in their relation to physiology and pathology. But one completes the study of this book with the feeling that the brilliant author would have rendered physiology and medicine greater service by allowing himself more pages for more detailed treatment of some of the topics.

A Monograph on Gonorrhœa. By A. Reith Fraser, M.D., Lecturer in Venereal Diseases, University of Cape Town. Cloth. Price, 18 shillings, net. Pp. 508, with 105 illustrations. London: Henry Kimpton, 1923.

This volume shows commendable acquaintance with the modern literature of gonorrhea, and a large experience in the treatment of the infected urethra in the male; remedies for such treatment are well chosen and wisely used. But the author's conception and treatment of gonorrhea beyond the urethra, that is, in the seminal duct proper, is less modern and less commendable. Thus, he states that extension of the infection to the vesicles is uncommon except in the chronic stage of gonorrhea (p. 314), although epididymitis, common in the acute stage, proves a preexisting vesiculitis. Consistently, he fails to recommend that when epididymotomy is performed (p. 334) the infected vesicle should be filled with a suitable solution by way of the vas at the same sitting, though such is current practice and teaching. In a long and critical discussion of the standard of cure in the male (pp. 401-416) there is no mention of the microscopic examination for gonococci of the seminal fluid, which obviously contains fluid from all urethral pockets as well as from the usually infected seminal vesicles. Until the advances in the treatment of gonorrhea developed during the last decade shall be incorporated, the book will be valuable for reference rather than as a guide to treatment.

The Infant and Young Child: Its Care and Feeding from Birth Until School Age. A Manual for Mothers. By John Lovett Morse, A.M., M.D., Professor of Pediatrics, Emeritus, Harvard Medical School; Edwin T. Wyman, M.D., Instructor in Pediatrics, Harvard Medical School, and Lewis Webb Hill, M.D., Assistant in Pediatrics, Harvard Medical School. Cloth. Price, $1.75 net. Pp. 271, with 16 illustrations. Philadelphia: W. B. Saunders Company, 1923.

This book fulfils almost every requirement for the proper instruction of mothers in the care of infants. The advice is practical, nonequivocal, simple and well illustrated. Just enough advice is given to inform parents concerning the main facts relative to illness, without inducing unsafe lay diagnosis and treatment. It is interesting that the authors recognize the fact that persons will indulge in some self-medication for minor conditions and that they recommend a suitable household medicine chest to control such conditions in childhood. On the whole, this is one of the most satisfactory books on the care of children yet published.

Recent Advances in Medical Education in England. A Memorandum Addressed to the Minister of Health by Sir George Newman, K.C.B., M.D., Hon. D.C.L., Chief Medical Officer of the Ministry of Health. Paper. Price, 1 shilling, 3 pence, net. Pp. 195. London: His Majesty's Stationery Office, 1923.

This is a report to the ministry of health, containing an account of the present position of medical education in England and a brief history of the steps leading to that position. It states that the medical course is five years in length; that the medical curriculum has recently been revised; that the number of lectures have been reduced and examination methods made less burdensome, and that the aim is to provide the student with the essential tools whereby he can secure the experience through which he may become a reliable and efficient workman. It takes up in detail the teaching of the various subjects included in the curriculum from the premedical subjects to the courses in the specialties. It is an excellent and logically arranged presentation of the medical curriculum of the present time. The principal changes during the last five years are enumerated as (*a*) reorganization of the grant-in-aid (for universities) system; (*b*) the establishment of clinics of university standard and (*c*) new curriculums in medicine, dentistry and public health. A significant statement is that the war has stimulated an appreciation of the need for "a more practical application of science to the practice of medicine, and the necessity of medical research."

Stammering, Cleft-Palate Speech, Lisping. Edited by Kate Emil-Behnke. Second edition. Cloth. Price, $1.25. Pp. 101. Chicago: Chicago Medical Book Company, 1922.

The authors of this book are neither physicians nor psychologists, but professionally have been trainers of voice for singing and speaking. In their especial work they have been well known and highly respected in England for many years. But the elocutionary teacher is in this day not fully competent to enlighten the world on subjects that require for their complete understanding a broad knowledge of both medicine and psychology. While this book contains interesting, but mostly long known, ideas on stammering, especially on the peripheral side, the important modern psychoneurologic point of view is almost entirely ignored, and the anatomicophysiologic knowledge displayed is far from exact or reliable. The book is not a complete or safe guide to the layman, or a reliable treatise for the physician.

El Cuidado del Niño. Instrucciones para las Madres de Familia. Por el Dr. Alfonso G. Alarcon. Paper. Pp. 167. De Tampico: "El Mundo," 1922.

This little book on child's hygiene is one of those unpretentious works that prove far more useful than contributions of an elaborate character. The author is right in saying in his preface that no more profitable work could be undertaken in his country than the training of the masses in the care of children. He has done his share with this compilation of practical advice to mothers.

Medicolegal

Consent to Examination in Malpractice Case

(Garrett v. Johnson (Ore.), 212 Pac. R. 110)

The Supreme Court of Oregon, in affirming a judgment in favor of the defendant, says that the plaintiff sought to recover damages for personal injuries which he alleged were caused by a surgical operation performed on him in a careless, negligent and unskilful manner by the defendant. The answer filed by the defendant put in issue all the charges of negligence and lack of skill and the claims of injury and damages alleged in the plaintiff's complaint. Two days before the trial of the action, the defendant filed a motion, supported by affidavit, wherein he applied to the court for an order requiring the plaintiff to submit his person, before the trial, for a physical examination by competent and reputable physicians and surgeons, to be appointed by the court. The plaintiff did not resist the motion, and accordingly it was granted. The plaintiff did not object or except to the allowance of the motion, but acquiesced in its requirements, and submitted to the physical examination directed therein without protest. The plaintiff further entered into a stipulation with the defendant wherein the filing of written findings by the physicians appointed to examine him was expressly waived by him, and in which it was agreed that either party to the action might call those physicians as witnesses on the trial and examine them orally as to the condition of the plaintiff, and that either party might question the physicians prior to the trial as to the result of their examination. The plaintiff called as a witness in his behalf one of the physicians who made the examination. On his appeal to the supreme court the plaintiff assigned as error the action of the trial court in allowing the defendant's motion to require him to submit his person for physical examination, as stated above. But the record disclosed that the action of the trial court which the plaintiff assigned as error was taken with his consent, and that the question suggested by the plaintiff's assignments of error was not raised in the court below. Questions not raised in the lower court, and which do not challenge the jurisdiction of that court, are not reviewable in the supreme court. On the record before it, the supreme court is without authority to review the decision on the motion requiring the plaintiff to submit to a physical examination.

Hardships of the Law for Would-Be Practitioners

(People v. Anderson (Calif.), 214 Pac. R. 244)

The District Court of Appeal of California, Third District, in affirming a judgment of conviction of the defendant of practicing medicine without a license, says that it was charged in the information that the defendant "on or about the 5th day of December, 1921, . . . did then and there wilfully, wrongfully, and unlawfully practice, attempt to practice, and advertise and hold himself out as practicing a system or mode of treating the sick and afflicted in this state without having at the time of so doing a valid unrevoked certificate from the state board of medical examiners of the state of California."

The offense was sufficiently described in contemplation of Section 17 of the state medical practice act (Statutes of 1917, p. 114). The court holds also (without stating what the evidence showed, or what system the defendant practiced) that the evidence was sufficient to justify the conviction. Indeed, at the time the judgment was pronounced, counsel for the defendant admitted that his client had practiced his system of treatment without a license from the duly authorized authorities, but he contended that the board of medical examiners had acted capriciously and arbitrarily in denying the defendant a certificate. But if such a consideration might be regarded in a proceeding of this kind, it was sufficient to say that there was no evidence to that effect, and such an assertion did not, of course, afford any ground for setting aside the verdict. It was very true, as was stated by the trial judge, that neither that court nor any other court made the law. If the law is wrong—if it naturally creates a hardship on a certain class of practitioners, resort to the legislature or to the people is the only remedy; the courts cannot correct it. The courts are bound by the law, and perform their duty in accordance with the law only as they find it.

Extent of Period of Temporary Total Disability

(Peabody Coal Co. v. Industrial Commission et al. (Ill.), 139 N. E. R. 7)

The Supreme Court of Illinois says that an employe of the coal company sustained a severe injury to his left arm. It appeared that he went back to his work in the mine two or three different times before he found that he could not keep on working because he could not lift his arm. The court thinks that the finding of the industrial commission that the man was totally incapacitated for twenty-six weeks found support in the testimony—that is, the time of treatment for six months, deducting the time he worked and received compensation and adding the time for the building-up process immediately following the time of treatment. Under the decisions of this court, the extent of the period of temporary total disability is the period of the healing process, during which time the injured employee is totally incapacitated for work by reason of the illness attending the injury. The fact that this employee attempted to perform labor at the mine and failed should not stand as a bar to prevent his receiving compensation for the time he was incapacitated, and this court thinks the time for the building-up process was properly included as a part of the period of temporary total incapacity.

Characterization of Action Against Physician

(Pate v. Dumbauld (Mo.), 250 S. W. R. 49)

The Supreme Court of Missouri, Division No. 2, says that the plaintiff was kicked on his right leg by a horse, and suffered a compound fracture, the shin bone being broken about midway between the knee and the ankle. The defendant attended him for about two months, when, while the cast was still on, the plaintiff discharged the defendant from the case and called an osteopath to treat the leg. Subsequently the plaintiff brought this action to recover damages for alleged malpractice by the defendant.

At the outset, it was important to determine whether this was an ordinary action for damages, in which the facts constituting the alleged negligence were specifically pleaded, or whether general negligence was pleaded, and a recovery sought under the doctrine of Res ipsa loquitur ("the matter speaks for itself"). In plain, unequivocal language, the petition set out, in detail, all the facts, including the alleged negligent acts of the defendant in failing to perform his duty. Under such circumstances, there was no room for the principle of Res ipsa loquitur, even if it might otherwise be applied in a case of this character, in which general negligence is relied on. When the plaintiff chooses in his petition to allege specific acts of negligence, the rule of law places the burden of proving such negligence on him, and a recovery, if had at all, must be on the specific negligence pleaded. Counsel for the defendant vigorously assailed the intimation in *Eichholz* v. *Poe* (Mo.), 217 S. W. 285, that a recovery may be sustained in a malpractice case, based on the doctrine of Res ipsa loquitur, and they cited a large number of well-considered cases sustaining their contention. But this court, having reached the conclusion that this action was one based on specific acts of negligence, deems it unnecessary to consider the question as to whether a recovery can be had in a case, under a plea of Res ipsa loquitur.

It was not alleged in the petition, or asserted elsewhere, that the defendant did not possess the ordinary and average skill of regular physicians in the place of his residence and vicinity. In the absence of evidence on the subject, the law presumed that he did his duty.

The osteopathic physician was the only physician who testified in the case. He removed the plaster cast from the plaintiff's leg after the defendant had been discharged. He said that there was no evidence that the bones had not been properly set; that no union had occurred because Nature had failed to throw from the ends of the broken bones the exudate or callus necessary to unite the bones, and that such failure was due to the condition of the plaintiff's blood; that the plaintiff's physical condition was such that no bone-growing material was thrown out from the ends of his bones by Nature; that it would have made no difference in this case whether the bones were placed or held in apposition or not. This witness also stated that the plaintiff, who was 27 years old when injured, was afflicted with a form of epilepsy; that during the epileptic convulsion the muscles contracted to such an extent that the broken bones would separate unless there was enough bone-growing material there to hold them together; that a roentgenogram taken almost eleven weeks after the accident showed that no exudate or bone-growing material had been thrown out.

No man should be held to a higher degree of skill or care than a fair average of his profession, and the standard of due care is the conduct of the average prudent man. Taking the testimony of the plaintiff and his witnesses at full value, this court is of the opinion that he failed to show by substantial evidence that the defendant was derelict in respect to his professional duty in this case, or that he was guilty of any of the specific acts of negligence charged against him in the petition. The trial court properly refused to submit the case to the jury on mere conjecture, but erred in setting aside the nonsuit which it had granted and in afterward granting a new trial; wherefore its order is reversed, and the cause remanded, with directions to set aside its order granting the plaintiff a new trial, and to reinstate the judgment of nonsuit formerly entered in favor of the defendant.

Definitions of Words "Wounds" and "Lesion"

(People v. Durand (Ill.), 139 N. E. R. 78)

The Supreme Court of Illinois says that the defendant was convicted of murder by throwing at a man named Wilson a piece of brick which struck him a little above and about two inches back of his left ear. Wilson died a short time after he fell. The skull was fractured and slightly indented, and there were a cut and a bruise over the fracture. The cut and bruise were the only wounds on the body, according to the testimony of the physicians. At the close of the people's evidence, the defendant's counsel moved the trial court to exclude all the evidence and to direct a verdict for the defendant on the ground of a variance between the indictment and the proof. Every count in the indictment charged that the deceased received a mortal wound on the left side of the head at the hands of the defendant, from which he instantly died. It was the contention of the defendant that there was no proof of a wounding of the deceased by the defendant, and that for that reason he could not have died from a wound. But a wounding was clearly proved, and there was no variance. In medicine the word "wounds" means injuries of every description that affect either the hard or soft parts of the body, and it comprehends bruises, contusions, fractures, luxations, etc. In law the word means any lesion of the body, and the correct definition of a "lesion" is a hurt, loss or injury. Under the statute of 9 George IV, it has been held in England that in criminal cases to make a wound there must be an injury to the person by which the skin is broken through. The decisions under that statute have no binding force in Illinois, as that statute was never the law in Illinois.

Physician Not Allowed to Contradict Testimony of Brother of Patient

(Arizona Copper Co., Limited, v. Garcia (Ariz.), 214 Pac. R. 317)

The Supreme Court of Arizona says that in this action to recover damages for personal injuries the question was raised: Was the defendant company entitled to examine plaintiff Garcia's physician for the purpose of contradicting evidence introduced by Garcia of what the physician did in the course of his treatment incident to the injury? Garcia's brother testified that fragments of bone were removed from Garcia's leg by the physician. The defendant offered to contradict that testimony by the testimony of the same physician, but was not permitted to do so. The rights of the parties in the premises were governed by the Arizona statute, which reads:

> A physician or surgeon cannot be examined, without the consent of his patient, as to any communication made by his patient with reference to any physical or supposed physical disease or knowledge obtained by personal examination of such patient; provided, that if a person offers himself as a witness and voluntarily testifies with reference to such communications, that is to be deemed a consent to the examination of such physician.

In *Arizona & New Mexico Railway* v. *Clark,* 235 U. S. 669, 35 Sup. Ct. 210, this statute was construed. Mr. Justice Pitney there says:

> To construe the act in accordance with the contention of plaintiff in error would not only be a departure from its language, but would render it inapplicable in all cases where the "physical or supposed physical disease" is the subject of judicial inquiry, and where any averment respecting it is made in pleading, or evidence on the subject is introduced at the trial in behalf of the patient. This would deprive the privilege of the greatest part of its value, by confining its enjoyment to the comparatively rare and unimportant instances where the patient might have no occasion to raise an issue or introduce evidence on the subject, or where the patient's disease might happen to be under investigation in a controversy between other parties. We are constrained to reject this construction.

The construction of the statute in question as embodied in this quotation is the law of Arizona. In accordance with it the ruling of the trial court excluding the testimony of the physician was correct.

Roentgenograms Sufficiently Identified by Physician

(Jones v. Sinsheimer (Ore.), 214 Pac. R. 375)

The Supreme Court of Oregon says that, in this action to recover damages for personal injuries from the plaintiff's having been hit by the defendant's automobile, the defendant contended that the trial court erred in admitting some roentgenograms of the plaintiff's broken bones, on the ground that the roentgenograms were not properly identified. However, the physician under examination at the time the roentgenograms were introduced in evidence declared that they were pictures of the injured part. That was sufficient to overrule the objection, which, indeed, went only to the weight of the testimony.

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, Washington, D. C., Oct. 15-20. Dr. Luther C. Peter, 1529 Spruce St., Philadelphia, Secretary.

American Association of Railway Surgeons, Chicago, Oct. 18-20. Dr. L. J. Mitchell, 29 E. Madison St., Chicago, Secretary.

American Child Health Association, Detroit, Oct. 15-17. Dr. Philip Van Ingen, 125 East 71st St., New York, Secretary.

American Public Health Association, Boston, Oct. 8-11. Mr. A. W. Hedrich, 370 Seventh Avenue, New York, Secretary.

American Roentgen Ray Society, Chicago, Sept. 18-23. Dr. W. W. Watkins, Goodrich Building, Phoenix, Ariz., Secretary.

Association of Military Surgeons of the United States, Carlisle Barracks, Pa., Oct. 4-6. Col. James Robb Church, Army Medical Museum, Washington, D. C., Secretary.

Central Neuropsychiatric Association, St. Louis, Oct. 20. Dr. Karl A. Menninger, Topeka, Kan., Secretary.

Central States Pediatric Society, Detroit, Oct. 18-19. Dr. H. T. Price, Westinghouse Building, Pittsburgh, Pa., Secretary.

Delaware State Medical Society, Middletown, Oct. 8-9. Dr. W. O. La Motte, Industrial Trust Building, Wilmington, Secretary.

Indiana State Medical Association, Terre Haute, Sept. 26-28. Dr. Charles N. Combs, Terre Haute, Secretary.

Medical Association of the Southwest, Kansas City, Mo., Oct. 4-8. Dr. E. H. Skinner, Rialto Building, Kansas City, Mo., Secretary.

Minnesota State Medical Association, St. Paul, Oct. 10-12. Dr. Carl B. Drake, Guardian Life Building, St. Paul, Secretary.

Mississippi Valley Medical Association, Hot Springs, Ark., Oct. 9-11. Dr. John L. Tierney, University Club Bldg., St. Louis, Secretary.

Nevada State Medical Association, Reno, Sept. 28-30. Dr. Horace J. Brown, Thoma-Bigelow Building, Reno, Secretary.

New England Surgical Society, Boston, Oct. 18-19. Dr. P. E. Truesdale, 151 Rock Street, Fall River, Mass., Secretary.

Pennsylvania, Medical Society of the State of, Pittsburgh, Oct. 1-4. Dr. W. F. Donaldson, Jenkins Arcade, Pittsburgh, Secretary.

Southern Medical Association, Washington, D. C., Nov. 12-15. Mr. C. P. Loranz, Empire Building, Birmingham, Ala., Secretary.

Tri-State District Medical Society, Des Moines, Iowa, Oct. 29-Nov. 1. Dr. William B. Peck, 82 Stephenson Street, Freeport, Ill., Managing Director.

Vermont State Medical Society, Bennington, Oct. 11-12. Dr. W. G. Ricker, St. Johnsbury, Secretary.

Virginia, Medical Society of, Roanoke, Oct. 16-19. Mr. G. H. Winfrey, 104½ W. Grace St., Richmond, Secretary.

Wisconsin, State Medical Society of, Milwaukee, Oct. 3-5. Mr. J. G. Crownhart, 558 Jefferson St., Milwaukee, Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obstetrics and Gynecology, St. Louis

6: 1-136 (July) 1923

Some Fundamental Elements in Advancement of Medicine. J. A. Sampson, Albany, N. Y.—p. 1.
*Radiography of Closed Fallopian Tubes: To Determine Location of Obstructions. W. T. Kennedy, New York.—p. 12.
Desiccated Ovary: Its Use, Preparation and Suggestion as to Method of Standardization. W. G. Lyle, New York.—p. 33.
Limitations of Radiotherapy in Management of Fibromyoma of Uterus. J. A. Corscaden, New York.—p. 42.
Dextroversion of Uterus, with Congenital Absence of Left Fallopian Tube, Ovary, Broad Ligament, Round Ligament, Kidney and Ureter. W. T. Dannreuther, New York.—p. 50.
*Insufflation of Uterus and Fallopian Tubes. Report of 600 Cases Examined by Rubin Method. A. H. Aldridge, New York.—p. 53.
Fibroid Tumors Complicating Pregnancy and Their Treatment. G. W. Kosmak, New York.—p. 63.
Processes of Tubal Pregnancy. E. McDonald, Philadelphia.—p. 72.
*Uterine Carcinoma and Its Treatment by Continuous Low Heat: Preliminary Report. J. F. Percy, Los Angeles.—p. 78.
Hemorrhages in the New-Born. L. A. Wing, New York.—p. 85.

Radiography of Closed Fallopian Tubes.—Kennedy insists that a roentgenogram should not be made in any case in which there is evidence of bleeding. The degree of flexion of the body of the uterus can be determined if one knows the position of the uterus. The internal os can withstand a pressure of 200 mm. of mercury in the cervical canal without its musculature allowing the passage of solution into the uterine cavity. Many isthmuses, while permitting the sodium bromid solution to pass through their canals, can overcome a pressure of 200 mm. of mercury and expel their contents. Thirty and 8 tenths per cent. of the tubes examined were occluded at the isthmus and 69.2 per cent. were occluded at the fimbria. Of the tubes casting a shadow, 61.2 per cent. of the isthmuses appear and 38.3 per cent. do not appear. Study of a sterile woman having no active cervical or tubal involvement should be initiated with carbon dioxid insufflation (Rubin). If an occlusion is determined, the uterus and tubes should be roentgenographed to determine the points of occlusion, and provided the husband is normal, a salpingostomy may be done, with some hope of success, if the occlusion is at the fimbriated end of the tube.

Insufflation of Uterus and Tubes.—An experience with 600 cases convinces Alridge that the Rubin method for the determination of tubal patency is a simple, safe, diagnostic procedure. If details in technic are carefully controlled one can form a definite opinion as to the condition of the tubes in approximately 85 per cent. of the cases examined. Patients should not be examined when near a menstrual period or in the presence of acute pelvic inflammatory disease or serious organic heart disease. All cases of sterility, in which a definite diagnosis of the cause cannot be made by bimanual pelvic examination, should be insufflated. Conditions which accompany menstruation, uterine displacements, ovarian and uterine tumors, may cause partial or complete tubal obstruction and yet not be apparent to inspection at operation. The method is almost entirely diagnostic. Pregnancy follows insufflation in only a very small percentage of cases. Operative procedures to open tubes or to keep them open in cases where both tubes have been involved in an inflammatory process, fail in a very high percentage of cases.

Continuous Low Heat Treatment of Uterine Carcinoma.—Percy makes a preliminary report on the value of the prolonged use of a low degree of heat in the treatment of suitable cases of cancer. Some of these are in the vagina, cervix, uterocervical junction and body of the uterus. In the majority of instances in which this apparatus is used the heat is easily regulated and controlled so as to be destructive only in a minimum degree to normal tissues, while acting in the greatest measure as a destroyer of the cells of cancer in any portion of the birth tract. An additional benefit is the one of practical freedom from danger and as well simplicity and comparative cheapness of the required apparatus.

American Journal of Physiology, Baltimore

65: 223-417 (July 1) 1923

Contraction Rate of Excised Rat Uterus with Reference to Oestrous Cycle. E. Blair, Berkeley, Calif.—p. 223.
Effect of Deficient and Excessive Pulmonary Ventilation on Nasal Volume. A. L. Tatum, Chicago.—p. 229.
Electromyographic Studies of Muscular Fatigue in Man. S. Cobb and A. Forbes, Boston.—p. 234.
*Influence of Pancreas Perfusate on Pancreatic Diabetes (Dogs). E. R. McCarthy and H. C. Olmstead, Chicago.—p. 252.
*Studies on Physiology of Liver. V. Hepatic Factor in Chloroform and Phosphorus Poisoning. C. S. Williamson and F. C. Mann, Rochester, Minn.—p. 267.
*Alleged Effects on Body Growth and Gonad Development of Feeding Pituitary Gland Substance to Normal White Rats. C. S. Smith, Chicago.—p. 277.
*Effect of Quinin on Iodin Content of Thyroid. H. Sugata, Chicago.—Chicago.—p. 282.
Lipase Production by Liver. P. V. Prewitt, New York.—p. 287.
Influence of Thyroid Extracts and Thyroxin on Rate of Multiplication on Paramecia. G. T. Cori, Buffalo.—p. 295.
Effect of Tension on Action Current of Skeletal Muscle. A. Forbes, L. H. Ray and A. McH. Hopkins, Boston.
*Hemolytic Action of Radium Emanation. A. C. Redfield, and E. M. Bright, Boston.—p. 312.
*Suprarenals and Pancreatic Diabetes. G. N. Stewart and J. M. Rogoff, Cleveland.
*Action of Insulin on Suprarenalectomized Rabbits. G. N. Stewart and J. M. Rogoff, Cleveland.—p. 342.
*New Experiments on Nature of Sensation of Thirst. G. T. Pack, New Haven, Conn.—p. 346.
Functions of Cervical Sympathetic as Manifested by Its Action Currents. J. Byrne and W. Einthoven, Leyden, Netherlands.—p. 350.
Toxicity of Alcoholic Extract of Ox Bile When Fed to White Rats. E. F. Cooper, Chicago.—p. 363.
*Studies on Pathogenesis of Tetany. II. Mechanism Involved in Recovery from Parathyroid Tetany. L. R. Dragstedt, K. Phillips and A. C. Sudan, Chicago.—p. 368.
Circulatory Responses of Man to Sudden and Extreme Anoxemia. E. C. Schneider and D. Truesdell, Middletown, Conn.—p. 379.
Influence of Hydrion Concentration on Vascular Tonicity. I. With Special Reference to Buffered Phosphate Perfusing Solutions, and Specific Action of Lactate Ion, in Frog. C. D. Leake, F. G. Hall and A. E. Koehler, Madison, Wis.—p. 386.
*Effects Following the Intestinal Administration of (Iletin) Insulin. D. S. Hachen and C. A. Mills, Cincinnati.—p. 395.
*Studies on Physiology of Liver. VII. Effect of Insulin on Blood Sugar Following Total and Partial Removal of Liver. F. C. Mann and T. B. Magath, Rochester, Minn.—p. 403.

Influence of Pancreas Perfusate on Diabetes.—Pancreatic perfusates, obtained by perfusing for from fifteen to sixty minutes the excised dog pancreas with defibrinated diabetic dog's blood slightly diluted with Tyrode's solution, when transfused into completely pancreatectomized dogs, McCarthy and Olmstead state, do not consistently reduce the hyperglycemia and glycosuria. There may be a temporary decrease in the excretion both of sugar and nitrogen in the urine. Similar results are secured by transfusion of spleen perfusates into diabetic dogs. Perfusing such organs as the pancreas or the spleen, even under the closest approximation to physiologic conditions, appears to add toxic substances to the perfusate, and as judged by the extremely slight response of the perfused pancreas to secretion, the cells are probably not in condition to secrete the hormones. Under more artificial conditions of perfusion, such as the use of pure Ringer or Tyrode solutions, and by prolonging the perfusing time, the hormones may enter the perfusate, not by cell secretion, but by cell extraction or solution. Such perfusates become essentially crude organ extracts, containing also substances that are toxic on intravenous injection.

Hepatic Factor in Chloroform and Phosphorus Poisoning.—A series of experiments was performed by Williamson and Mann to determine whether the characteristic symptoms and the concomitant changes in the blood, namely, a decrease in blood sugar and the appearance of uric acid, which invariably follow total removal of the liver by surgery, would also occur after the administration of chloroform and phosphorus. The characteristic symptoms which follow hepatectomy were not observed after poisoning with chloroform or phosphorus, although the results of the poisoning were in many instances fatal. Hypoglycemia occurred in but a small percentage of these experiments and uric acid in the majority. The results conclusively prove that the poisons, while greatly injurying the functions of the liver, do not produce complete hepatic insufficiency, except, possibly, in a very small number of instances. Other tissues and organs are undoubtedly profoundly affected, and in many instances the functional damage to the liver is probably not the primary cause of death. However valuable studies on the effect of chloroform, phosphorus and allied poisons may be, particularly in relation to hepatic disease, conclusions with regard to the function of the liver based on such studies must be drawn cautiously.

Effect of Feeding Pituitary to Normal Rats.—When desiccated pituitary gland substance (whole gland, anterior lobe, posterior lobe) is fed in quantities of from 0.05 to 0.30 gm. per day for from four to sixteen weeks to white rats 1 month old, and on an adequate dietary, Smith says it is evident that pituitary feeding has no influence on body growth or gonad development.

Effect of Quinin on Iodin Content of Thyroid.—Sugata found that both quinin and high external temperature cause an increase in the iodin content and concentration in the thyroid while a decrease is produced by starvation. These facts are correlated in the view that endogenous protein metabolism is fundamentally responsible for the distribution of iodin in the body.

Hemolytic Action of Radium Emanation.—The destruction of erythrocytes by radium emanation, according to Redfield and Bright, is due chiefly to the action of alpha rays. The processes of hemochromolysis and stromatolysis proceed independently of one another. The electrical resistance of the suspension increases as hemochromolysis proceeds, and is reduced again when stromatolysis occurs.

Suprarenals and Pancreatic Diabetes.—In the experiments made by Stewart and Rogoff the right suprarenal was removed in dogs, and the left was denervated. In addition the medulla of the left gland was destroyed by curetting with a drill inserted at the upper pole. A portion of the cortex of the left suprarenal was also destroyed. The epinephrin output was, of course, abolished by this operation. After an interval for recovery of the animals, total pancreatectomy was performed. Diabetes appeared precisely as in dogs whose suprarenals had not been interfered with. The hyperglycemia and glycosuria were as quickly developed, reached as high a level, and were similarly affected by insulin. Even after removal of the (already denervated and demedullated) left suprarenal, the diabetes persisted in undiminished intensity, so long as the animals remained in good condition. There is, therefore, no experimental basis for the theories which assign to the suprarenals (particularly to the epinephrin physiologically liberated from them) a special relationship to the pancreas in the regulation of the carbohydrate metabolism and the blood sugar content, and in the genesis of the diabetes which follows pancreatectomy.

Action of Insulin on Suprarenalectomized Rabbits.—The action of insulin on rabbits which have survived complete removal of the suprarenals, Stewart and Rogoff state, does not differ noticeably from its action on normal rabbits.

Nature of Thirst Sensation.—Cannon's theory of thirst is substantiated by Pack by the fact that pilocarpin administered to rabbits deprived of water for seven days relieves thirst by stimulating the flow of saliva.

Parathyroids Part of Detoxicating Mechanism.—The experimental evidence presented by Dragstedt et al. seems most in harmony with the theory that the parathyroid glands form a part of the detoxicating mechanism of the body.

Effect of Intestinal Administration of Insulin.—The experiments made by Hachen and Mills showed that insulin placed in the small intestine of rabbits and dogs causes a very prompt lowering of the blood sugar level in ether hyperglycemia. Although the effect of insulin by the intestinal route is prompt, its action is not sustained, lasting only an hour. Therefore, to produce the desired effect by intestinal administration huge doses of insulin are required. Subcutaneous and intravenous administration of small quantities of insulin gives prompt results as well as sustained reactions, lasting over a period of several hours. In man, the blood sugar lowering effect of insulin was not noted after good sized doses were administered by the intestinal route.

Effect of Insulin on Blood Sugar After Hepatectomy.—Blood sugar estimations were made by Mann and Magath following the injection of insulin, before and after total and partial removal of the liver. The symptoms associated with the hypoglycemia following the administration of insulin do not differ essentially from the symptoms associated with the hypoglycemia following removal of the liver, and the action of glucose seems to be identical in the two conditions. However, the hypoglycemia following the administration of insulin may not always be associated with symptoms, while that following removal of the liver invariably produces symptoms. The effect of large doses of insulin in producing hypoglycemia is not changed by total removal of the liver, nor is the hypoglycemic action of small doses of insulin modified by the partial removal of the liver. On the other hand, the liver is absolutely necessary for the permanent recovery of the blood sugar level. When the liver is totally removed, the blood sugar level cannot be maintained normally. When the liver is partially removed the return to normal following insulin is greatly retarded. These experiments prove that the liver is certainly not necessary for the hypoglycemic action of insulin, although they do not show that it is not directly or indirectly involved in such an action. These experiments also definitely prove that the liver is necessary for permanent recovery of the blood sugar level.

American Journal of Roentgenology and Radium Therapy, New York

10: 507-592 (July) 1923

*Osteitis Deformans. S. Moore, St. Louis.—p. 507.
Complete Anterior Dislocation of Distal Epiphysis of Femur. T. West, Rye, N. Y.—p. 519.
Secondary Signs of Gallbladder Pathology. R. D. Leonard, Boston.—p. 521.
*Roentgenographic Study of Gastric Mucosa in Normal and Pathologic States. R. A. Rendich, New York.—p. 526.
Case of Syphilis of Stomach. S. F. Weitzner, New York.—p. 537.
Case of Adenopapilloma of Stomach. I. S. Ingber, San Francisco.—p. 539.
Diagnosis of Obscure Abdominal Lesions by Roentgen-Ray Gastro-Intestinal Examination. W. H. Dickson, Toronto, Canada.—p. 540.
Roentgen-Ray Diagnosis of Unusual Laryngotracheal Esophageal Conditions and Diseases. S. Iglauer, Cincinnati.—p. 547.
Coccidioidal Granuloma. Report of Cases. R. G. Taylor, Los Angeles.—p. 551.
Cardiac Measurements in Children. R. M. Tyson and F. F. Borzell, Philadelphia.—p. 559.
Water Cancer or Gangrenous Stomatitis Treated with Roentgen Ray. J. W. Cathcart, El Paso, Texas.—p. 561.
Device to Prevent Omission of Filter in deep Roentgen-Ray Therapy. G. E. Pfahler, Philadelphia.—p. 562.
New Tube Holder for Roentgen-Ray Therapy. T. A. Groover and E. A. Merritt, Washington, D. C.—p. 564.
Deep Roentgenotherapy in Treatment of Carcinoma of Breast. G. E. Pfahler, Philadelphia.—p. 566.
Simple Monogram for Determination of Radium Skin Doses. E. H. Quimby, New York City.—p. 574.
Roentgen-Ray Therapy in Treatment of Nasal Polypi. J. G. Ware, Santa Barbara, Calif.—p. 579.

Osteitis Deformans.—Moore suggests that Paget's disease be investigated more thoroughly than it has been for the reason that there might be uncovered a function of bone other than the rather passive ones of support and the housing of blood-forming organs. Aberrance of this possible function may produce the disease known as osteitis deformans.

Roentgenographic Study of Gastric Mucosa.—The prime object of Rendich's work was the demonstration of the gastric rugae as an indication of gastritis; this possibility having suggested itself after observing the wide variation in the size and character of these folds, particularly during fluoroscopy. Later, it seemed to Rendich that such study of the mucosa offered possibilities of demonstrating the earlier changes of organic lesions and in the more detailed study of these conditions already recognized by the present day routine procedures. The method of examination suggested has already served very satisfactorily in more detailed and confirmative evidence of gastric ulcer; more complete study of gastric neoplasm; differentiation of extra-gastric pressure defects from intrinsic lesions; the more satisfactory examination of the enterostomized stomach; the study of gastritis, and the demonstration of the small intestine.

American Review of Tuberculosis, Baltimore

7: 291-374 (July) 1923

*So-Called Selective Collapse in Artificial Pneumothorax: Plea for Low Intrapleural Pressures. H. Hennell and B. P. Stivelman, Bedford Hills, New York.—p. 291.

*Lower Lobe Pulmonary Tuberculosis. W. S. Middleton, Madison, Wis. —p. 307.
Primary Complex in Human Tuberculosis and Its Significance. A. Ghon, Prague.—p. 314.
*Wildbolz Auto-Urine Test for Activity in Tuberculosis. J. H. Korns, Peking, China.—p. 318.
*Wildbolz Auto-Urine Reaction: Report of Seventy-Five Cases. J. M. Hayman, Jr., Philadelphia.—p. 325.
*Comparison of Sodium Hydroxid and Antiformin Methods for Cultivating Tubercle Bacilli. M. B. Lurie, Denver.—p. 332.
Relation of Mineral Dusts to Tuberculosis. III. Relatively Early Lesions in Experimental Pneumokoniosis Produced by Carborundum Inhalation and Their Influence on Pulmonary Tuberculosis. L. U. Gardner, Saranac Lake, N. Y.—p. 344.
*Cauterization: Its Effect on Cutaneous Tuberculous Lesions and Dissemination of Tuberculosis in Guinea-Pig. H. J. Corper and M. B. Lorie, Denver.—p. 358.
Case of Chronic Miliary Pulmonary Tuberculosis of Low Virulence. I. S. Kahn, San Antonio, Texas.—p. 370.

Selective Collapse in Artificial Pneumothorax.—By so-called selective collapse is meant the tendency of the injected air to accumulate about the diseased part of the lung, as if selectively collapsing it, and leaving the healthy portions relatively unaffected. Cases are presented by Hennell and Stivelman which are illustrated with roentgenograms to show the delicacy of the mechanism of this phenomenon under various circumstances. While it is admitted that in a limited group of cases with a fixed mediastinum, and in the presence of certain definite indications, the use of even very high positive pressures may be justifiable, it is claimed that the old practice of establishing and maintaining in all cases a complete collapse of the treated lung by suitable positive pressures is entirely unwarranted in the light of better understanding of the pneumodynamics of induced pneumothorax. Among the great advantages of this method the following are particularly noteworthy: (*a*) The more perfect control over the pneumothorax that can be exercised with it, especially with reference to the ultimate reexpansion of the lung at the termination of the treatment. (*b*) The possibility of avoiding chest deformity and the danger of reactivating dormant foci which are incident to excessive pulling of mediastinal structures and stretching of collapsed lung tissue, and which are likely to occur when complete collapse of the entire treated lung is resorted to.

Lower Lobe Pulmonary Tuberculosis.—Four cases of pulmonary tuberculosis are presented by Middleton in which the significant physical signs were in the basal lobes. In none of these cases were there signs of pathologic changes in the apices on physical examination.

Auto-Urine Test for Activity in Tuberculosis.—A series of eighty-one patients, thirty-three actively tuberculous and forty-eight nontuberculous, were given the auto-urine test by Korns, of which 74 per cent. agreed and 26 per cent. disagreed with Wildbolz' findings. Certain theoretical considerations are presented which lead the author to question the specificity of the test. He says that in its present form the Wildbolz test is not practically helpful, inasmuch as it would be unsafe in doubtful cases to use the test as a criterion of activity.

Auto-Urine Test.—Hayman believes that a definitely positive reaction, properly controlled, is indicative of active tuberculosis and that a negative test is of less value unless repeated. Doubtful reactions, when the degree of infiltration to test and control urines are approximately the same, must be interpreted with extreme care and are of little or no value in diagnosis. The test, while theoretically sound, is beset with so many sources of error in its present form, that reliance cannot be placed on it equivalent to the clinical criteria at present in use. It may, however, be useful to corroborate the clinical diagnosis.

Comparison of Sodium Hydroxid and Antiformin Methods for Cultivating Tubercle Bacilli.—Lurie regards the sodium hydroxid method as being decidedly superior to the antiformin method. The advantages of time saving and ease of manipulation possessed by the simplified antiformin method are gained at the expense of a decided decrease in the percentage of positive cultural results for human tubercle bacilli. If the sedimentation procedure is resorted to in both cases, the sodium hydroxid (Petroff's) method possesses the advantages of working with a more stable, more easily obtainable, less irritating and more economical reagent.

Effect of Cauterization on Cutaneous Tuberculous Lesions.—Corper and Lurie assert that cauterization of local intracutaneous site of inoculation of avirulent human tubercle bacilli (from 0.001 to 1.0 mg.) in guinea-pigs efficiently destroys and has a beneficial influence on the local lesion, without tending to affect appreciably the systemic dissemination of the disease, regardless of whether cauterization was performed immediately or one month after the intracutaneous inoculation. When, however, virulent human tubercle bacilli are used for intracutaneous inoculation, cauterization of the local site acts differently. It has beneficial influence on the local lesion of the skin, even when performed two weeks after the initiation of the lesion, and provided the infecting dose (0.000,01 mg. or less) is not excessive. When the intracutaneous dose is as large as 0.1 mg. the local effect of the cauterization is barely appreciable. When the intracutaneous dose for virulent bacilli is not excessive (not over 0.000,01 mg.), there is a striking effect of the cauterization of the local skin site on the general dissemination of the disease, depending on when cauterization was performed with relation to the infecting inoculation. If the local site is cauterized within four days after infection, there is found distinctly less macroscopic tuberculosis in the guinea-pigs examined two months after infection, while cauterization of the local site later than four days after infection results in a distinctly greater amount of generalized tuberculosis, as compared with control, untreated guinea-pigs given only the intracutaneous inoculation of the bacilli. If the intracutaneous dose of virulent bacilli is large (0.001 mg. or more) the striking differences produced by the local cauterization, both in the local site and the general tuberculous involvement, are to a great extent overshadowed by the massive infection of the guinea-pigs.

Boston Medical and Surgical Journal

189: 161-188 (Aug. 2) 1923

Salvage of Backward Child. W. E. Fernald.—p. 161.
*Clonorchiasis in Boston. G. C. Shattuck, Boston.—p. 165.
Chronic Bronchitis. J. B. Hawes, Boston.—p. 166.
Anesthesia: Report of 1500 Consecutive Cases. B. Rapoport, Boston.—p. 169.
End-Result Study of Dermatologic Cases Treated by Roentgen Rays. C. G. Lane, Boston.—p. 174.
Report of Five Cases of Acute Encephalitis. A. F. Anderson, Boston. —p. 177.

189: 189-218 (Aug. 9) 1923

Surgery of Prostate Gland. J. H. Gleason, Manchester, N. H.—p. 189.
Basal Metabolism. I. Modified Clinical Method of Determination. W. H. Stoner, Philadelphia.—p. 193.
Basal Metabolism. II. Simplified Data Card for Clinical Determination. W. H. Storier, Philadelphia.—p. 195.
Use of Tissue Juices in Tonsillectomy. J. B. Greene, Asheville, N. C. —p. 200.
Subcutaneous Emphysema Complicating Tonsillectomy. L. Richards, Boston.—p. 203.
Relation of Specialist to General Practitioner. W. G. Phippen, Salem, Mass.—p. 204.
Carcinoma of Appendix: Report of Case. R. J. Shafer, Lowell, Mass. —p. 206.

Clonorchiasis in Boston.—Clonorchiasis apparently has not been reported previously from the New England States. Shattuck records a series of fifty-four cases observed in Boston during the last sixteen months. Although the disease is generally regarded as incurable, a few cases in which treatment was permitted have yielded results which are distinctly encouraging. A fuller report of the cases treated will be made later.

Journal of Bacteriology, Baltimore

8: 297-419 (July) 1923

Gelatin Liquefaction by Bacteria. M. Devine and D. C. Carpenter, Iowa City.—p. 297.
Variation in Limiting Hydrogen-ion Concentrations of Streptococci. L. Brody and L. Arnold, Chicago.—p. 307.
Coagulation and Sterilization of Loeffler's Blood Serum Medium Under Steam Pressure. A. J. Hinkleman, Oklahoma City, Okla.—p. 315.
Effect of Certain Bacteria on Toxin Production of Bacillus Botulinus In Vitro. I. C. Hall and E. Peterson, Berkeley, Calif.—p. 319.
Nitrification. V. Mechanism of Ammonia Oxidation. A. Bonazzi, Wooster, Ohio.—p. 343.
*Morphology of Bacteria. H. Bergstrand, Stockholm, Sweden.—p. 365.
Clostridium Putrificum. II. Morphological, Cultural and Biochemical Study. G. F. Reddish and L. F. Rettger, New Haven, Conn.—p. 375.

Titrimetric Adjustment of Hydrogen Ion Concentration of Bacteriologic Culture Mediums. I. C. Hall, Berkeley, Calif.—p. 387.
Aroma Producing Micro-Organisms. V. L. Omelianski, Petrograd, Russia.—p. 393.

Morphology of Bacteria.—Bergstrand discusses several theories concerning peculiar forms in bacteria supposed to be organs of sexual and asexual multiplication. He also describes some spherical, ovoid or club-shaped bodies found by himself with *B. typhosus, V. cholerae, Corynebacterium diphtheriae* and other species, which he regards as chlamydospores.

Journal of Biological Chemistry, Baltimore

56: 701-939 (July) 1923

*Determination of Titratable Alkali of Blood with Dinitrosalicylic Acid. J. B. Sumner and R. S. Hubbard, Clifton Springs, N. Y.—p. 701.
*Fatty Acids of Blood Plasma. W. R. Bloor, Rochester, N. Y.—p. 711.
*Improved Procedure for Metabolism Experiments. G. R. Cowgill, New Haven, Conn.—p. 725.
*Glycolysis in Diabetic and Nondiabetic Blood. W. Denis and U. Giles, New Orleans.—p. 739.
Studies of Carbon Dioxid Absorption Curve of Human Blood. III. Form of Absorption Curve Plotted Logarithmically with Convenient Type of Interpolation Chart. J. P. Peters, New Haven, Conn.—p. 745.
"Permutit" As a Reagent for Amines. J. C. Whitehorn, Waverley, Mass.—p. 751.
Studies of Gas and Electrolyte Equilibria in Blood. V. Factors Controlling Electrolyte and Water Distribution in Blood. D. D. Van Slyke, H. Wu and F. C. McLean, Peking, China.—p. 765.
Presence of Yeast Growth-Promoting Vitamin in Cane Sugar. C. Funk and L. Freedman, New York.—p. 851.
Amino-Acid Nitrogen of Blood. I. Total Free Amino-Acid Nitrogen in Blood. N. F. Blau, New York.—p. 861.
Amino-Acid Nitrogen of Blood. II. Diamino Nitrogen in Protein Free Blood Filtrate. N. F. Blau, New York.—p. 867.
Amino-Acid Nitrogen of Blood. III. Study of Occurrence of Peptid Nitrogen in Blood. N. F. Blau, New York.—p. 873.
Preparation of Creatinin from Creatin. G. E. and W. S. Hinegardner, University, Va.—p. 881.
Dye Protein Aggregates. I. Congo Fibrin. L. F. Shackell, Chicago. —p. 887.
Growth Promoting Substances of Bacterial Origin. S. R. Damon, Baltimore.—p. 895.
Studies on Enzyme Action. XXIV. Kinetics of Ester-Hydrolyzing Actions of Some Tissue and Tumor Extracts. K. Sugiura, H. M. Noyes and K. G. Falk, New York.—p. 903.

Determination of Titratable Alkali of Blood.—A modification of the Greenwald and Lewman method for the determination of titratable alkali of the blood is described by Sumner and Hubbard. A table of results on different types of cases is given in which a comparison is made between the titratable alkali content of the blood and the carbon dioxid combining capacity of the plasma. In general, the two methods gave results which were roughly parallel, but in a case which showed retention and which was receiving alkali therapy, the amount of titratable alkali was increased by the treatment out of proportion to the increase in the carbon dioxid combining capacity of the plasma.

Fatty Acids of Blood Plasma.—The presence of highly unsaturated fatty acids in normal blood plasma is shown and its significance is discussed by Bloor. The evidence indicates that, in agreement with earlier work, the fatty acids of fasting blood plasma are present in definite compounds which exist in a definitely balanced relation to each other and also that the composition of the compounds with respect to saturated and unsaturated fatty acids is quite constant through the range of species examined and over a considerable range of total lipoid values.

Improved Metabolism Experiments.—The new procedure for metabolism experiments which Cowgill suggests utilizes his determination of the minimum dose for dogs of vitamin B in terms of a yeast vitamin powder, when the animal is fed under certain definite conditions. The first important principle on which the new procedure is based is that the diet for the dog shall consist of a mixture of isolated food substances which, when fed, will supply the body with everything that is necessary for proper nutrition (except vitamin B), or which lacks only one thing (other than vitamin B); namely, the variable under consideration. The second important principle followed is that the vitamin B shall be administered apart from the food mixture above mentioned. Cowgill had devised a new salt mixture utilizing the principle of supplying in the food daily an amount of each of the various inorganic substances equal to or slightly in excess of that eliminated through the kidney by a normal organism during twenty-four hours, these amounts being expressed in terms of grams eliminated per kilogram of body weight per day; at the same time this mixture offers to the body certain constituents in fairly normal ratios to others—sodium to potassium, for example.

Glycolysis in Diabetic and Nondiabetic Blood.—It has been found by Dennis and Giles that glycolysis in normal blood is much more active than in the blood of persons suffering from fairly severe diabetes. In the blood of two persons dying from diabetic coma practically no glycolysis took place even after standing for twenty-four hours. These findings are explained on the assumption that in normal subjects the "blood sugar" consists of gamma glucose which is readily attacked by the glycolytic enzyme, while in persons suffering from severe diabetes probably only a small portion of the reducing bodies consists of gamma glucoses, the main portion being the α-β form which the glycolytic enzyme is powerless to attack. The amount of glycolysis obtained bears no relation to the concentration of the blood sugar.

Journal of Radiology, Omaha

4: 221-260 (July) 1923

Radiography in Examination of Urinary Tract. C. G. Sutherland, Rochester, Minn.—p. 221.
Measurements on Two American Deep Therapy Machines; Duane Method. G. E. Pfahler, Philadelphia.—p. 225.
Roentgen-Ray Treatment of Tumors. E. L. Jenkinson, Chicago.—p. 229.
Roentgen Rays and Roentgen-Ray Apparatus; An Elementary Course. J. K. Robertson, Kingston, Can.—p. 233.
Present Status of Radiation Therapy; Case Reports. J. T. Stevens, Montclair, N. J.—p. 239.
Practical Problems in the Administration of High Voltage Roentgen Ray. R. H. Milwee, Dallas, Texas.—p. 244.
Bone Metastases Following Breast Carcinoma. T. H. Plank, Chicago. —p. 247.
Obstructing Foreign Body in Esophagus Unknown to Patient. E. L. Jenkinson, Chicago.—p. 248.

New Jersey Medical Society Journal, Orange

20: 217-252 (July) 1923

Pay Clinics. E. V. Delphey, New York.—p. 220.
Tuberculosis of the Hip in Children. J. H. Marcus, Atlantic City.— p. 223.
Lesions of Chest Most Frequently Mistaken for Pulmonary Tuberculosis. M. I. Marshak, Bayonne.—p. 226.
Mental Hygiene; Some of Its More Important Aspects. J. F. W. Meagher, Brooklyn.—p. 229.
Dietetics. D. E. English, Summit.—p. 237.
Twenty-Three Cases of Foreign Bodies in Esophagus and Bronchus. H. B. Orton, Newark.—p. 240.

Northwest Medicine, Seattle

22: 225-262 (July) 1923

Angina Pectoris. H. Brooks, New York.—p. 225.
Histologic and Clinical Studies of Cervical Carcinoma Treated with Gamma and Roentgen-Rays. H. Schmitz, Chicago.—p. 232.
Appraisal of Endocrinology. R. G. Hoskins, Columbus, Ohio.—p. 237.
Technic to Reduce Incidence of Headache Following Lumbar Puncture in Ambulatory Patients with Plea for More Frequent Examination of Cerebrospinal Fluids. H. M. Greene, Portland, Ore.—p. 240.
Common Sense Standardization Versus Tradition and Routine in Surgical Care of Patient. W. Kelton, Seattle, Wash.—p. 246.

U. S. Naval Medical Bulletin, Washington, D. C.

19: 1-114 (July) 1923

Foreign Bodies of Dental Origin in Air and Food Passages. L. H. Clerf.—p. 14.
Surgical Treatment of Chronic Suppurative Pericementitis. W. L. Darnall.—p. 16.
Manipulation of Amalgam. H. E. Harvey.—p. 21.
Relation of Modern Dentistry to Group Diagnosis as Conducted at Naval Hospital, San Diego, Calif. L. C. Montgomery.—p. 27.
Tropical Duty as Predisposing to Gingivitis. P. S. Tichey.—p. 31.
Manipulation of Modeling Compound and Sectional Modeling Compound Impression Technic. J. J. Haas.—p. 34.
Wiring Method of Treatment for Fractures of Mandible. E. H. Tennent.—p. 38.
Use of Modified Baker Anchorage in Nasal Dental Service. W. L. Darnall.—p. 42.
Cementation. H. E. Harvey.—p. 45.
Clean Cotton Pellets. H. E. Harvey.—p. 49.
Field Service Instruction for Dental Officers of Navy. J. V. McAlpin. —p. 51.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2: 165-214 (Aug. 4) 1923

Insulin. J. J. R. Macleod.—p. 165.
Relation of Faulty Nutrition to Development of Epithelioma Contagiosum of Fowls. R. McCarrison.—p. 172.
Radiographic Localization of Spinal Lesions by Sicard's Method. P. Sargent.—p. 174.

China Medical Journal, Shanghai

37: 541-624 (July) 1923

*Intermediate Host of Schistosoma Japonicum in China. I. Its Discovery in Soochow Region. H. E. Meleney and E. C. Faust.—p. 541.
Id. II. Its Distribution in China. H. E. Meleney and E. C. Faust.—p. 545.
Contused and Lacerated Wounds of the Soft Parts. R. F. Maddren.—p. 554.
*Case of Wounded Chinese with Knife Inside Abdomen. G. W. Hollings and B. R. Vickers.—p. 560.
Treatment of Leprosy. L. S. Huizenga.—p. 567.
Treatment of Leprosy with Dean's Derivatives of Chaulmoogra Oil. G. L. Hagman.—p. 568.
Hookworm Problem in China. N. Bercovitz.—p. 576.
*New Theory as to Causation of Sprue and Results of Treatment Based Thereon. H. H. Scott.—p. 581.
*Unusual Case of Lead Poisoning. J. L. Maxwell.—p. 584.

Schistosoma Japonicum in China.—The habit of the mollusk called by Heude, *Hemibia,* which acts the intermediate host of *Schistosoma japonicum* in the endemic region about Soochow, China, is described in detail by Meleney and Faust. Possible seasonal variations of its habitat in this region are suggested. Possible variations of its habitat in other endemic regions of China are discussed. Evidence is offered that the intermediate host of *Schistosoma japonicum* probably exists in regions not yet endemic for the disease, and that the disease is still spreading in China. A simple method is described for determining infection of a given snail by *Schistosoma japonicum.*

Knife Disappears in Abdomen After Stabbing.—A Chinese, aged about 34, gave a history of having been stabbed in the abdomen, and stated that the weapon had disappeared inside. It was five days since the injury and he walked to the hospital. He did not complain of a great deal of pain, and his pulse was only 90 per minute and of good volume. On examination there were two wounds: one in the right rectus muscle, about 2 inches below the umbilicus; the other in the left rectus muscle below the sterno-xiphoid articulation. There was no rigidity of the abdomen, nor fluid in the flanks, but the liver dulness was absent even in the midaxillary line. On probing the wound in the left rectus, a hard object was felt at the bottom of a sinus, about 1½ inches long, leading downward and slightly outward. On opening the peritoneum, there was no escape of gas or fluid. The haft of the knife was seen almost surrounded by omentum. The blade was bent at an acute angle behind the stomach. After some difficulty it was extracted. No hemorrhage or escape of bowel contents followed its withdrawal. The patient died in collapse within twenty-four hours. A necropsy was not permitted.

Causation of Sprue.—Scott's theory is this: in endemic areas the conditions are such that there is an excessive proteid or fatty diet, or a method of cooking which tends to lead to an acid dyspepsia, combined often with an excessive ingestion of citrates in fruit which may combine with the calcium. Excess of proteins stimulates overproduction of acid in the gastric juice, or, what amounts to the same thing, may lead to a higher working level of acid; that is, habitual overacidity; or the fatty diet and the monotony of the food lead to a lowering of digestive activity, whereby fermentation, catarrh, dyspepsia and intestinal toxemia result. The entrance of acid into the duodenum stimulates the production of secretin, so there is habitual overproduction of secretin; overproduction of secretin leads to overstimulation of the pancreas, with the resultant hypersecretion from this organ, and, secondarily to this, an upset in the balance of other endocrine glands, among them the salivary glands and the parathyroids. Again, the diet above mentioned sets up, or tends to lead to, a condition of intestinal toxemia, or allows the growth of some organism which itself sets up such intestinal toxemia.

Lead Poisoning.—Maxwell records a case of lead poisoning in a woman whose work was to melt down counterfeit dollars, which were mainly composed of lead, in order to recover from them such silver as they contained. This, apparently, was the only source from which the infection could have been derived.

Indian Medical Gazette, Calcutta

58: 289-350 (July) 1923

Clinical Kala-Azar Work Performed at Special Kala-Azar Hospital Shillong During 1922. H. E. Shortt and R. T. Sen.—p. 289.
*Evidence of Cure in Treatment of Kala-Azar by Antimony. F. P. Mackie and H. C. Patni.—p. 293.
*Globulin Opacity Test for Kala-Azar. U. N. Brahmcharia and P. B. Sen.—p. 295.
Thirty Years' Experience of Kala-Azar in Nowgong District of Assam. J. D. Price.—p. 296.
Incidence of Kala-Azar in Bengal. L. E. Napeir.—p. 299.
Epidemiologic Study of 663 Cases of Kala-Azar Admitted to Madras City Hospitals Between 1913-1922. J. Cunningham and P. S. Varadarajan.—p. 301.
Results of Treatment of Cases of Kala-Azar Admitted to the Madras City Hospitals Between 1913-1922. J. Cunningham and P. S. Varadarajan.—p. 307.
Kala-Azar in Madras Presidency Outside Madras City. J. Cunningham and P. S. Varadarajan.—p. 308.
*Iodin in Treatment of Malaria, Kala-Azar and Smallpox. J. J. A. Brachio.—p. 311.
Unusual Complication (Hemoperitoneum) in Kala-Azar. H. Chatterjee.—p. 313.
New Instrument for Taking Uncontaminated Swabs from Interior of Uterus. N. Gupta.—p. 314.
Case of Acute Intestinal Obstruction. F. J. W. Porter.—p. 315.
Stab Wound of Enlarged Spleen. L. W. Hefferman.—p. 315.
Unusually Large Supraclavicular Lipoma. G. C. Ramsay.—p. 316.

Antimony Cures Kala-Azar Patients.—Mackie and Patni assert that the generally accepted "full course of treatment," namely, 200 c.c. of a 1 per cent. solution of sodium antimony tartrate, is in many instances ineffective in curing the case. Each case must be treated on its merits and a hard and fast limit of treatment abandoned. Treatment should be continued till all or most of the clinical criteria of cure are evident. Even when all these favorable signs are present the patient may still be harboring living *Leishmania* and, therefore, the only real evidence of cure is the failure to grow the parasite from material obtained by splenic puncture. Microscopic examination of the splenic juice is, by itself, insufficient to prove cure. There is a real danger to be apprehended from insufficiently cured cases as these may in all probability act as chronic carriers of infection in the community.

Test for Kala-Azar.—A test is described by Brahmachari and Sen, the globulin opacity test, for kala-azar; if in any case the height of globulin precipitated by diluting the serum with 6 parts of distilled water and estimated in the way described is 1.25 inches or less, then it may be regarded as fairly diagnostic of kala-azar.

Iodin in Treatment of Malaria, Kala-Azar and Smallpox.—Brachio prefers tincture of iodin to quinin in the treatment of malaria. He gives 10 drop doses, three time a day, for about ten days. An attack of fever treated with iodin does not relapse. Cases that resisted oral treatment with iodin up to the fourth or fifth day, were given one or two intravenous injections of ¼ grain of iodin which was sufficient to bring the temperature to normal and to keep it there. In the treatment of kala-azar, iodin by mouth and intravenously has given the best results. Forty minims of the following solution are given at a time: Iodin, 6 grains (0.4 gm.); potassium iodid, 6 grains (0.4 gm.); distilled water, 1 ounce (30 c.c.). This quantity is injected intravenously every other day up to five injections and then 10 drops of tincture of iodin is given by mouth, three times a day, for a week. Brachio also uses tincture of iodin externally and internally in the treatment of smallpox, intravenously for carbuncle, internally for dysentery and diarrhea, and intravenously for gonorrhea.

Lancet, London

2: 211-266 (Aug. 4) 1923

*Should Infant Mortality Be Reduced? F. E. Wynne.—p. 211.
Vasostomy for Seminal Vesiculitis: New and Improved Technic for Operation. F. Kidd.—p. 213.
Case of Parenchymatous Hypertrophy of Breasts. D. C. L. Fitzwilliams.—p. 218.

*Digestive Function in Pulmonary Tuberculosis. J. G. Hislop.—p. 221.
*Traumatic Rupture of Hydronephrosis. H. W. L. Molesworth.—p. 224.

Relation of Heredity and Environment to Infant Mortality.—Wynne examined the records of 100 deaths of infants who had been under the care of a child welfare center and of whose home conditions and heredity he had some knowledge. Of these 100 deaths, twenty-three were due to prematurity and definitely congenital conditions; thirty-nine to respiratory diseases, and twenty-four to diarrheal diseases, the balance of fourteen being due to other causes. In order to test whether there was a probable correlation of deaths from these causes with hereditary and environmental conditions, Wynne took the employment of the father and the home conditions as indices of heredity and environment. The percentage of second class parentage among children dying of congenital causes was very much greater than in children dying of respiratory disease, and considerably greater than in children dying of diarrheal diseases. The percentage of slum conditions is also much greater among the congenital deaths, doubtless because slum conditions are largely an index of parental degeneracy. The percentage of slum conditions among infants dying of diarrheal diseases is surprisingly low, but this is accounted for by the fact that breast feeding in Sheffield is the rule among the poorest classes, and the incidence of diarrhea is, therefore, slightly higher in the class just above the lowest. The figures are small, but the results show a definite correlation between heredity, environment, and deaths from these three groups of diseases.

Digestive Function in Pulmonary Tuberculosis.—It is suggested by Hislop that the usual effect of tuberculosis on the digestive function is one of inhibition, the quality and quantity of the gastric secretion depending on (1) the degree of inhibition, and (2) the quality and quantity of the secretion prior to the tuberculous onset. Indigestion in hypochlorhydria is never severe and readily yields to treatment directed toward stimulation of gastric secretion. Hunger pain coming on two hours or more after a meal is the predominant symptom, which is temporarily relieved by the ingestion of food. The second type is the more common. The symptoms are: flatulence, pain, nausea and vomiting. The main feature is intolerance of fats alone or in a mixed diet. Soups are often avoided because of the fat, and fat is cut off bacon unless it be crisp, while milk or milk and egg is felt to increase the symptoms. Cod liver oil and malt and milk are disliked by the majority of tuberculous subjects, and almost universally when dyspepsia is marked, but numbers take both even when they disagree, simply on account of medical advice. The treatment consists in keeping the mouth and teeth clean by an acid mouth wash used each night and morning. Diluted nitrohydrochloric acid should be given in doses of from 10 to 30 minims (0.7 to 2 c.c.) before or during each meal. Aperients should be taken when needed. No dyspeptic patient should be required to take an excessive diet. Milk should be given in moderation, and the addition of sodium citrate will often overcome difficulty in the assimilation of moderate or reduced amounts. Any mixture of proteins with fats in a liquid form should be avoided. Meats are better cooked in their own juices; milk should not be given with meals at which meat is served; fish should not be fried in oils; the fat with meat, for example bacon, should be crisped. Carbohydrates should be served at meat meals.

Traumatic Rupture of Hydronephrosis.—Molesworth adds one to the eleven cases on record. His patient slipped from a chair on which she was standing and struck her left side a moderate blow against a sharp edge. Immediately she suffered violent left-sided abdominal pain, and shortly afterward vomited. Pain continued, and next morning a nephrectomy was done. The only difficulty was in distinguishing the collapsed sac from the descending colon. The specimen was a thin-walled left hydronephrosis of congenital type.

Medical Journal of Australia, Sydney

1: 715-728 (June 30) 1923

Possibilities of Organization of Profession Throughout State in Treatment of Accidental Injuries. F. A. Hadley.—p. 715.
*Treatment of Inequality of Length in Lower Limbs. N. D. Royle.—p. 716.
*Two Pancreatic Functional Tests. G. Cameron.—p. 718.
Rupture of Deep Femoral Artery in Patient with Infective Endocarditis. J. Macnamara.—p. 724.

Treatment of Inequality of Length in Lower Limbs.—Of five patients with unequal length in the lower limbs, the cause of the inequality in four was anterior poliomyelitis; in the fifth, osteomyelitis was responsible for the loss of a section of the shaft of the right tibia. In four instances shortening was carried out by Royle by exsecting a piece of the femur. In each instance the femur was approached from the lateral aspect just above the line of the lateral intermuscular septum. The length to be removed was first of all marked on the periostum and the bone was then divided by means of a hand drill. The bone was drilled from the lateral aspect in three places so that when complete there were actually six drill holes in the circumference of the bone. It was then easy to cut with a sharp osteotome between the drill holes and remove the section of bone with a minimum of trauma. This method has the advantage of leaving surfaces which interlock easily and do not present the possibility of failure to unite from dearth of bone cells in the approximated areas. An intramedullary splint to prevent lateral displacement of the two divided ends was made from the exsected piece of bone. In the fifth case a piece of tibia was removed.

Two Pancreatic Functional Tests.—Cameron has used the epinephrin eye test and has estimated the diastasic content of the urine in 161 cases. In pancreatic disease, the eye test generally yielded a reaction. Uniformly positive results were obtained in patients with conditions of increased thyroid activity and disturbances of other endocrine glands. In patients with arthritis deformans of the general progressive or monarticular forms a reaction was often obtained. Patients with diabetis mellitus often failed to yield reactions. The measurement of the diastasic content of the urine was originally introduced by Wohlgemuth. The urine of a patient with acute pancreatitis showed a diastasic value of 70 units before operation. In the patients with subacute pancreatitis the urinary diastasic values varied between 50 and 150 units and gradually decreased as the patients improved. In the urine of a patient with chronic pancreatitis, a value of 50 units was obtained. In the urine of three patients with carcinoma, the values were, respectively, 10, 20 and 4.

2: 1-26 (July 7) 1923

Clinical Interpretation of Blood Pressure Readings. C. B. Blackburn.—p. 1.
"Mestizos of Kisser" and Problem of Acclimatization of European Races in Tropics. E. Rodenwaldt.—p. 6.
Treatment of Syphilis by Bismuth Salts. L. P. Carvell.—p. 8.
*Appendicitis Complicated by Septic Portal Thrombosis. A. W. Farmer.—p. 8.
Case of Total Deafness and Aphonia Following Severe Shock (Burn). R. Francis.—p. 10.
Acute Sigmoiditis: Perforation and General Peritonitis Following Rectal Injection. C. MacDonald.—p. 10.

Appendicitis Complicated by Septic Portal Thrombosis.—Farmer records the case of a woman, aged 25, who complained of acute and continuous pain in the abdomen for twelve hours. The pain was situated in the epigastrium and the lower part of the abdomen and was severe on the left side. The pain did not radiate. The patient had vomited once during the night, the vomiting having been induced to ease the pain. The bowels were constipated. There was no history of previous attacks. There were no signs of jaundice; micturition was normal; the menses had been regular. On examination, the tongue was found to be moist and particularly clean; the heart and lungs were clear; the abdomen moved well on respiration, but was somewhat rigid on the right side only, both in the upper and lower regions. There was tenderness in the epigastrium on the right side, with, perhaps, the maximum tenderness in the right iliac fossa below McBurney's point. On vaginal examination the uterus appeared normal; there was tenderness in both fornices with some fulness in the left. At operation the appendix was found congested and bound down by adhesions, the lumen being occluded just beyond its midpoint. The appendix was removed; the pelvic organs were found normal and the abdomen was closed. On section the appendix showed acute ulceration proximal to the obstruction with pus in the lumen.

On the next evening the patient's abdomen became distended; she was parched and distressed with rising temperature and pulse rate. Relief was given by means of appropriate treatment. All went well until the sixth day after operation, when the temperature and pulse rate again began to rise; she became restless and complained of pain in the right flank. That evening a round worm measuring 20 cm. (8 inches) was passed by the bowel. The next day she passed 230 c.c. of dark blood by the bowel and a mass was palpable in the right hypochondrium. The patient was also intensely jaundiced and her condition was rapidly becoming critical. A second laparotomy was performed. High up in the right kidney pouch a pocket was opened containing dark blood and a small quanity of purulent fluid. It was impossible to locate the source, so two large drainage tubes were inserted and the abdomen closed. The condition was by this time desperate and remained so for the next three days. The intense jaundice persisted for this period and then began to diminish. The respiration was sighing and rapid and the pulse was about 150 in rate and barely perceptible. After the third day the condition improved somewhat with free discharge of blood stained pus through the tubes. The patient steadily improved until the thirteenth day after the operation, when breathing became distressed and more rapid, with elevation of temperature and pulse. On examination of the chest, dulness, diminished vocal resonance and fremitus were detected over the base of the right lung, extending upward to just above the angle of the scapula. On the next day a record syringe was passed into the right pleural cavity between the seventh and eighth ribs posteriorly and slightly purulent fluid was withdrawn. The cavity was then aspirated and 450 c.c. of fluid withdrawn. The next day the patient passed 280 c.c. of blood stained, offensive material by the bowel. From this time she gradually improved and made a complete recovery.

Annales des Maladies Vénériennes, Paris

18: 337-416 (May) 1923

Syphilis at Conception. J. Golay.—p. 337.
*Intramuscular Arsenical Treatment of Syphilis. R. Rabut.—p. 351.
Necessity for Medical Supervision of Regular Clandestine as Well as of Licensed Prostitution. L. Bizard.—p. 354.
*Inadequate Preventive Treatment of Syphilis. Gouin and Jégat.—p. 368.

Intramuscular Injection of Arsenicals.—Rabut relates some experiences which show that the intramuscular route for injection does not prevent toxic manifestations from the arsenicals. The pain from the intramuscular injection is often intolerable, and a large nodule may develop, so there is no advantage from using this route.

Inadequate Preventive Treatment of Syphilis.—Gouin and Jégat report a case in detail in which the man was given a total of 1.95 gm. of neo-arsphenamin, in four injections at six or seven day intervals. The wife had been under treatment for secondary syphilis when the husband returned from a two years' absence, and she was told to bring the husband for examination. A chancre developed the ninety-fifth day after the infection, and the inadequate treatment seemed to have conferred a malignant character on the syphilis. The chancre recurred, and the tongue and palate ulcerated, notwithstanding resumption of vigorous treatment. The ulceration resisted arsenicals and mercury, but healed under bismuth the ninth month after infection. The Wassermann reaction had been positive only during the fifth month.

18: 497-576 (July) 1923

Pentavalent Arsenic Derivative in Treatment of Syphilis. C. Laurent. —p. 497.
Sodium Tartrobismuthate in Treatment of Skin Disease and Syphilis. Parreiras Horta.—p. 520.
*Traumatism Influencing Site of Syphilids. Halbron and Barthélemy.—p. 526.
Gonococci in Scrotal Abscess from Gonorrheal Orchitis-Epididymitis. Matarasso.—p. 529.

Trauma Produces Local Predisposition to Syphilids.—In the first of the two cases described, the lesion in the right palm had proved refractory for a year under treatment with the usual local measures. The man was a shoemaker, and his tools fitted into the palm affected. The positive Wassermann reaction pointed the way to effectual treatment, as in the second case in which the lesions were between the right scapula and the spine. They had been mistaken for lupus, but subsided under specific treatment. The region showed the traces of cautery for neuralgia four years before.

Annales de Médecine, Paris

13: 391-494 (May) 1923

*Prophylaxis of Tuberculosis in Infants. Bernard and Debré.—p. 391.
*Incubation Period of Typhoid Infection. De Lavergne.—p. 421.
Diverticulosis and Diverticulitis of the Large Intestine. R. Bensaude, A. Cain and P. Hillemand.—p. 433.
Basal Metabolism. H. Stevenin and H. Janet.—p. 459.

Tuberculous Infection of Infants and Its Prophylaxis.—Bernard and Debré deny the heredity of tuberculosis. Only 14 per cent. of infants of 127 tuberculous mothers examined by them were born before term, and the physical development was normal in 70 per cent. They are infected from the mother and others, through the milk in nursing, sensitiveness to infection being most pronounced during the first two weeks. Infants exposed to contagion for six months rarely escape infection. Prophylaxis consists in separating the infant from the source of contagion before infection has taken place.

The Incubation Period in Typhoid.—De Lavergne reports extensive research on rabbits which has convinced him that the essential characteristics of human typhoid are the long duration of the incubation period (two weeks) and the progressive and extensive invasion of the mesenteric chain of lymph glands. Neither the septicemia nor the contingent intestinal lesions are essential features of typhoid fever in man. After ingestion, the typhoid bacilli pass into the lymphatic vessels of the intestine. This induces an ordinary local inflammatory process. The anatomic manifestation of this is hypertrophy; the biologic manifestation of it is a sensitization. When, two weeks later, the bacilli that have got into the blood are returned to the bowel from the blood, thus reaching the bowel a second time, they find the lymphatic vessels sensitized by their previous passage. The reaction consequently is different this time. In the rabbit there is no incubation period, no reaction on the part of the mesenteric glands, and only slight and transient septicemia. In man, there is a lively reaction in the mesenteric lymphatic vessels, long period of incubation, and severe and prolonged septicemia.

Archives des Maladies de l'App. Digestif, Paris

13: 521-624 (June) 1923

*Ulcer of Ascending Colon. J. Chalier and Mallet-Guy.—p. 521.
*Retention Tube in the Stomach. D. Simici and E. Voiculesco.—p. 533.
*Complications of Cancer in Esophagus. Hanns and Joublot.—p. 560.
Functioning of Stomach in Diaphragmatic Eventration. E. Fatou and A. Lucy.—p. 566.
*Means for Detecting Occult Bleeding in Digestive Tract. I. Iovin.—p. 582.

Simple Ulcer of Ascending Colon.—Absorption from an ulcer in the stomach is less dangerous, from the standpoint of infectious consequences, than absorption from an ulcer in the colon. In a case of the latter described, intestinal hemorrhage was the first symptom to attract attention. There was a tendency to diarrhea, and the right iliac fossa was tender; this fixed tenderness corresponded to the ulcer. Pains above the umbilicus, three hours after eating, and contracture of the abdominal wall were evidently the result of reflex spasm of the pylorus. Necropsy revealed a simple ulcer of the linear type. Old tuberculous lesions were evident, especially in the pleura and suprarenals.

Prolonged Intubation of the Stomach.—This communication from Bucharest describes the findings in normal and pathologic stomachs with an Einhorn tube left in the fasting stomach for several hours, the contents being aspirated at half hour intervals. Thirty-three subjects were thus examined, and the findings in five are analyzed in detail, as also in a case of gastric cancer, one of syphilis of the stomach, one of plastic linitis, and two of the twelve cases of hyperchlorhydria without ulcer. The fasting stomach was never found empty. There was always from 20 to 80 c.c. of fluid in the normal fasting stomach, and as much as 195 c.c. was sometimes secreted in two hours.

Fistulas into Air Passages with Cancer in the Esophagus.—The man in the case described was unable to pass the food into the stomach unless he bent forward and coughed hard, compressing the stomach with his hand. This may have been responsible for the fistulas into the bronchi.

Occult Hemorrhage in Gastro-Intestinal Tract.—Iovin concludes from his comparative tests with the various technics in vogue, that the Gregersen test (with 0.5 per cent. benzidin) is the best for general use. It is simple, easy, and sensitive enough. If a control test is desired, the Boas method with alcohol and chloral hydrate is advisable. He charts the comparative findings in the stools from 156 persons, including twenty-four healthy persons, who had not been eating meat, and five healthy persons after administration of hemoglobin.

Bulletin Médical, Paris

37: 763-790 (June 30) 1923

- *Arsenical-Mercurial Treatment of Tabes. J. A. Barré.—p. 769.
- *Multiple Joint Lesions in Tabes. T. Alajouanine.—p. 771.
- *Biologic Tests in Tabes. T. Alajouanine and R. Marquézy.—p. 778.
- *Incipient Tabes. P. Morin.—p. 783.

Treatment of Tabes.—Barré reports the usual discouraging results from arsenical, mercurial and bismuth treatment of tabes.

Polyarticular Lesions in Tabes.—Alajouanine reproduces twenty roentgenograms from men with tabes showing extensive deformity of many large and small joints. The other nervous symptoms of tabes were mild in one case, and the man was able to walk notwithstanding the joint lesions. The polyarthropathic type of tabes testifies to the trophic element in tabes.

Biologic Tests in Tabes.—The findings in the cerebrospinal fluid with different tests are charted for comparison in forty cases of different stages of tabes. In some stationary cases the fluid responded normally to every test.

Diagnosis of Incipient Tabes.—Morin calls attention to the loss of the biceps femoris tendon reflex—even on one side—as the most reliable early sign of tabes. The reflex is a contraction of the biceps femoris elicited by tapping its tendon in the popliteal space, just above the head of the fibula. This *réflexe péronéo-fémoral postérieur* was described by Guillain and Barré in 1916, and experience has confirmed the value of its abolition as an early objective sign of a tabetic lesion. In a case described, atrophy of the optic nerve had developed after an accident to the head. There were no symptoms except the impairment of vision and the abolition of this biceps femoris reflex, but during the following year other symptoms of tabes slowly developed. The evolution of tabes is progressive, except for longer or shorter stationary periods, and the progress is a regular progression from below upward. Hence the reflexes in the legs are the first to show the effect. He has never encountered a case of tabes with loss of reflexes in the arms while those in the legs were intact. He noted sphincter disturbances in 58 per cent. of his hospital cases of tabes. This begins usually as a slight difficulty in voiding urine, alternating with incontinence. Both are transient and variable. In 37 tabetics examined, the sexual functions were normal in 21 and normal except for partial loss of desire in 4 others. There was impotency or diminished sexual function in only 11, and 8 of these patients were over 50 years of age. In all but one in this group, the tabes was of long standing. Disturbance in sexual function, therefore, cannot be regarded as an early sign of tabes.

37: 793-820 (July 7) 1923

- *Action of Insulin in Diabetes. H. Chabanier et al.—p. 799.

Action of Insulin in Diabetes.—This study of the physiopathology of acidosis and the action of insulin in diabetic coma and impending coma, confirms the importance of the glycemia after ingestion of a given amount of glucose as a gage of the tendency to acidosis. "The hyperglycemia of the diabetic is a compensatory process, like the hyperazotemia in nephritis." The data presented explain that the acetonuria in diabetes, in infectious and toxic conditions, in starvation, and in cyclic vomiting, is always traceable to the glycemia being below a given ratio in relation to the fat radicals. Ingestion of glucose, increasing the glycemia, dispels the acidosis. In one grave case of diabetes, the acetonuria reappeared whenever the glycemia dropped below 0.8 per cent. "The introduction of insulin has solved the problem in another way, realizing a long sought ideal."

37: 883-910 (July 28) 1923

- *Notification of Syphilis.—p. 889.
- *Syphilis in Infants. M. Pinard.—p. 894.
- Allergy in Syphilis. P. Gastinel and A. Boutelier.—p. 897.
- Arthralgia in Syphilis. P. Blum.—p. 900.

Notification of Syphilis.—The advisability of compulsory notification of syphilis has met with overwhelming denunciation from French physicians, with a single exception. A number of letters on the subject are published here. Carle describes the astonishment of the majority of the French delegates to the International Medical Congress in London when they learned next day that a unanimous vote had been taken recommending compulsory notification. "The bustle of leaving for lunch at the noon hour, and the confusion of languages had facilitated the prestidigitation and camouflage methods with which the resolution—proposed by Scandinavian delegates and strongly endorsed by the president, Malcolm Morris—had been presented and voted on." He adds that syphilis is cured by drug treatment and not by official decrees. Syphilis is retreating before our present methods of attack. A full-fledged chancre is becoming a rarity, almost a curiosity. But if compulsory notification should be decreed, it would empty at one stroke all our dispensaries and consultations. Pathault of Biarritz declares that public hygiene has too long been passive and negative. "Prohibition, notification and all such measures merely lead to concealment and neglect. Public hygiene should be positive and active. The first and most important measure is to protect the sick against exploitation by quacks." . . . "The tuberculous, the syphilitic, the cancer cases are victims of the advertising pages of many journals. The public press should not be allowed to publish advertisements of medicine, and the sale of proprietaries without a physician's prescription should be forbidden." Other replies were summarized in the Paris Letter, p. 842.

Treatment of Syphilis in Young Infants.—Pinard declares that the reliance must be on arsenicals in progressive doses, by the vein or subcutaneously. Bismuth does not seem adapted for infants. "Mercury has rendered some service, but it has made many victims to the hypocrisy of society, adding to the number of cases of dystrophy, mental deficiency and asthenia, and preparing the soil for tuberculosis and cancer. By curing inherited syphilis early we will do more to eradicate tuberculosis and cancer than by any of the measures now in vogue."

Bulletins de la Société Médicale des Hôpitaux, Paris

47: 645-678 (May 4) 1923

- *Arsenical Treatment of General Paralysis. R. Targowla.—p. 645.
- *Inefficacy of Diphtheria Antitoxin by the Mouth. Carnot and Blamoutier.—p. 652.
- *Pulmonary Amebiasis Cured by Emetin. L. Ramond et al.—p. 655.
- Aneurysm of Abdominal and Thoracic Aorta. Laubry and Routier.—p. 662.
- A Case of Dercum's Disease. Laignel-Lavastine and Largeau.—p. 665.
- Cure of Hodgkin's Disease by Radiotherapy. P. Jacob.—p. 668.

Arsphenamin Treatment of General Paralysis.—Targowla recommends Sicard's method of repeated injections of small doses during a long period. He used arsphenamin according to this method in three cases, with a certain improvement in one, scarcely appreciable and temporary in another, and no results in the third. It did not prevent a wave of exacerbation soon after. However, the treatment may be followed by a remission and partial retrogression of the clinical manifestations, especially of insufficient functioning of the kidneys. Decreased permeability to phenolsulphonephthalein was associated with an abnormal ureosecretory constant in nine of twelve cases of general paralysis. Elimination of the dye became normal in his first case and declined in the third, with temporary return to normal at the end of the first series of injections. He refers to Sicard's satisfactory results in a number of cases of general paralysis from injections of 18-20 gm. neo-arsphenamin yearly, subcutaneously or intramuscularly. The Wassermann reaction in the cerebrospinal fluid generally remains unchanged in general paralysis, even after intensive treatment.

Attempts at Diphtheria Antitoxin Immunization by the Mouth.—Carnot and Blamoutier obtained positive Schick reactions in 19.2 per cent. of 140 adults. To settle the question of possible immunization with diphtheria antitoxin administered by the mouth or rectum, they selected seven positives who took 20 c.c. of the antitoxin by mouth, and eight, 30 c.c. by rectum, and in seven others, 30 c.c. of the diphtheria antitoxin was introduced directly into the duodenum by the Einhorn tube. The Schick reaction continued positive in all. Then they treated these same patients with 20 c.c. of the antitoxin plus 10 c.c. ox-gall, without change in the reaction. One person received 160 and another 180 c.c. by all three ways in five days, with no change. All these persons were free from lesions in the digestive tract. In another group of four with ulceration in the digestive tract or an erosion in the mouth, all with positive Schick reactions, the diphtheria antitoxin was introduced into the digestive tract in quantities of 20 or 30 c.c., with negative reactions in three days. In another case there was no absorption from an external wound treated with diphtheria antitoxin. They conclude that in a healthy state the intestinal epithelium is not permeable for diphtheria antitoxin.

Pulmonary Amebiasis, Without Abscess of the Liver, Cured by Emetin.—Ramond, Denoyelle and Lautman recognized the dysenteric origin of the hemoptysis, in the man, which they attributed to pure pulmonary amebiasis. Having lived a long time in a colony with endemic dysentery, he had suffered an acute attack of amebic dysentery, three years before, which had been cured by emetin. The localization of the physical signs at the base of the right lung and the purulent and bloody sputum indicated rupture of an amebic focus in the bronchi.

Gynécologie et Obstétrique, Paris

7: 369-448 (May) 1923

- *Radiotherapy of Uterine Fibromas. P. Bégouin.—p. 369.
- Liver Functioning During Pregnancy. P. Couinaud and R. Clogne.—p. 372.
- *Extraction of After-Coming Head. L. Bylicki.—p. 388.
- *Abnormal Duration of First Stage of Labor. E. Gueissaz.—p. 390.
- Atresia of Vagina as Complication of Acute Infectious Diseases. Serdukoff.—p. 412.
- Technic for Artificial Partition in Vagina. H. Hartmann.—p. 415.

Hemorrhagic Uterine Fibromas.—Bégouin insists on the necessity for dilating the uterus to inspect it, and thus exclude polyps and submucous fibromas, before applying roentgen-ray or radium treatment.

The After-Coming Head. — Bylicki asserts that the Mauriceau-Smellie-Veit maneuver, the finger applied over the superior maxilla, does not influence the relations between the head and the thorax. All it accomplishes is to decide whether the child is to be born with its mouth open or closed.

Abnormal Duration of First Stage of Labor.—Gueissaz gives a general review of this subject from different standpoints. It is based on experience with 150 cases at the Lausanne maternity. Anomalies in dilatation may be due to extra rigidity of the tissues or to defective labor contractions. Morphin in certain conditions aids, and hot vaginal douches occasionally helped. Full hot baths in case of anomalies in the labor pains often proved effective, especially for excited or impatient, nervous women. Manual dilatation according to Bonnaire was applied when the fetus was suffering. The inflatable bag is a useful but dangerous adjuvant. Instrumental dilatation and incision of the cervix are denounced as unphysiologic.

Paris Médical

13: 389-420 (May 5) 1923

- Diseases of Deranged Metabolism in 1923. Linossier and Monod.—p. 389.
- *Hormones from Medical Standpoint. L. Hallion.—p. 400.
- *Rickets and the Nourishment of the Bones. Mouriquand.—p. 406.
- *Diagnosis of Diabetes. M. Labbé.—p. 411.
- *Glycemia and Glycosuria after Epinephrin Tests. H. Bierry and F. Rathery.—p. 415.

The Hormones from the Medical Standpoint.—Hallion recalls that by the term hormone we mean a substance that is secreted and passes normally into the blood, and he adds that probably each organ has its own special hormone, not merely the endocrine glands. An extract of a gland contains more than the hormone of that gland, and its action is presumably twofold, supplying the lacking hormone and stimulating the sluggish organ itself to better function.

Rickets and the Nourishment of the Bones.—Mouriquand comments on the essential differences between human rickets and experimental rickets. Some of the severest cases of rickets he has encountered were in infants living in well ventilated and sunny homes. Cod liver oil seems to contain some substance which causes the deposit of calcium in the bones. This action seems to link experimental rickets with the deficiency diseases, but human rickets does not always yield to cod liver oil. Few infants fail to get sunlight. The human soil is prepared by infections of various kinds which interfere with the normal growth of bone, possibly by an indirect phosphorus deficiency, a deficiency in its assimilation. In human rickets, the hyperemia and the proliferation of the bone marrow entail a decalcifying chondromyelitis. This is not apparent in rat rickets, although the rachitic process is histologically identical with the human process. His research on guinea-pigs confirms that the bone reacts differently in different species. Rats never developed scurvy, and it seems to be difficult to induce rickets in guinea-pigs. He urges study of experimental rickets in as many species of animals as possible, and research to discover the reasons why some species are more resistant than others.

Diagnosis of Diabetes.—Labbé discusses, in particular, glycosuria from abnormal permeability of the kidneys for sugar, with normal sugar content of the blood, even after test ingestion of glucose, and also the glycosuria from insufficiency of the liver. In this latter group, the urine contains elements suggesting sluggish liver functioning, in addition to the sugar. The sugar content of the blood, fasting, is normal, and is only slightly increased by test ingestion of glucose. This slight, inconstant and variable alimentary hyperglycemia with insufficiency of the liver deserves study from the standpoint of diagnosis. The prognosis is favorable in these cases of glycosuria from insufficiency of the liver, and they do not require antidiabetic diet. There is no progressive tendency, and conditions usually right themselves when the diet includes less meat and fat and more milk.

Glycemia and Glycosuria After Test Injection of Epinephrin.—Bierry and Rathery remark that the diet preceding, and the preceding glycemia modify the response to the epinephrin test. Their experiments on dogs confirmed further that the effects differed according as the epinephrin was dextrorotatory or levorotatory, synthetic or natural. They comment on the antagonistic action of ergotinin and epinephrin. Ergotinin alone did not seem to affect the sugar content of the blood, but it prevented epinephrin hyperglycemia. There was no parallelism between the hyperglycemia and the glycosuria, after test injection of epinephrin.

13: 421-436 (May 12) 1923

- *Gastroptosis. P. Carnot.—p. 421.
- *Proteus Vaccine Therapy in Typhus. P. Modinos.—p. 425.
- General Principles for Reconstruction of Fractured Bones. R. Soupault.—p. 429.
- Pain in Stomach Before Eating. Matignon.—p. 432.

Ptosis of the Stomach.—Carnot says that treatment must be based on the degree of the ptosis, and the elasticity of the stomach and abdominal walls. In the elderly and in those with flabby tissues, the stomach must be rested and supported. In the young, and in all with vigorous and elastic tissues, the reverse should be the rule; the measures should be directed to exercise and strengthen the stomach walls. The majority of cases are between these two extremes, and treatment should be by rest at certain times and exercise at others. With simple gastroptosis, there should be no splashing sound in the fasting stomach, and the stomach tube should show no relics of food. Another test is the time required for the passage from the stomach of 250 c.c. of tepid water, standing and reclining. An instructive test of the resistance of the stomach walls is roentgenoscopic examination after ingestion of 50 c.c. of a contrast suspension. The lowest point reached by the stomach is marked, and then another 50 c.c. is ingested, and the lowest point reached is marked, and so on. The successive stretching of the stomach is an index of the muscular tonus of the organ. Another means for estimating the tone of the tissues is the rise of the stomach when the abdomen is retracted as the diaphragm is aspirated; the stomach rises considerably when the tone of the abdominal walls and diaphragm is good. With extreme and permanent ptosis, the patient should recline as much as possible, and always after eating, and have small frequent meals, of easily digested extra nourishing food. In the cases promising improvement, the main meal of the day should be taken at evening, and be eaten reclining, thick soups, purées, fruit and green vegetables, without regard to volume and weight, but foods rich in purins should be avoided. Breakfast and lunch should be light, fluid, and small in amount. If raw eggs, skimmed milk (with a little sodium citrate or gelatin to prevent clotting, and hasten its passage from the stomach), and raw chopped meat are taken, they should be followed by reclining on the right side. Exercises to develop the muscles of the anterior abdominal wall will help in the recuperation of muscular tonus by the viscera as well, but in all forms of gastroptosis, reclining during digestion, possibly with the pelvis raised, is the main reliance.

Treatment of Typhus.—Modinos admits that *Proteus* X is not involved in the causation of typhus, but the fact that it is agglutinated by typhus serum suggested that it might serve for vaccine therapy. His experience in twelve cases of typhus with such a vaccine demonstrated, he says, that it certainly attenuated and shortened the disease, and warded off complications, even in the gravest cases. His charts from five cases show the prompt benefit. The vaccine was injected on four successive days.

Revue Franç. de Gynécologie et d'Obstét., Paris

18: 321-352 (May 25) 1923

*Inoperable Cancer of Uterine Cervix. A. Perrola.—p. 321.
Vaginal Hysterectomy in Grave Peritonitis Following Abortion. J. P. Tourneux.—p. 330.
Extra-Uterine Pregnancy Operated on After Fifth Month: Deformity of Fetus: Pus in Digestive Tract. A. Laurentie.—p. 335.

Treatment of Inoperable Cancer of Uterine Cervix.—Perrola compares the outcome in 50 cases before radium was introduced with 63 given radium treatment since 1914. In 28 of the 50 preradium cases, no benefit was derived from the various palliative measures applied. The pains were permanently abolished in only 4 cases, and temporarily in 3. They persisted unmodified in 29 and increased in 14. The longest survival was eighteen months, the average, seven or eight. In the radium-treated group, the survivals ranged from six to sixty-seven months, and 3 are still living, from sixty-six to seventy-four months since the treatment, the average, fourteen months. The radium arrested the hemorrhagic discharge in all but 11 cases, and the pains in all but 13 cases.

Pediatria, Naples

31: 465-520 (May 1) 1923

The Endocrine and the Vegetative Nervous Systems in Children. E. Mensi.—p. 465.
*Habitual Vomiting in Infants. R. Vaglio.—p. 482.
Chloroma in Infant. I. Nasso.—p. 489.
Orthopedic Surgery for Valgus. Deformity from Infantile Paralysis. N. Caprioli.—p. 495.

Habitual Vomiting in Infants.—Vaglio encountered 20 cases of habitual vomiting among the 4,000 infants at the Naples children's clinic (less than 0.5 per cent.). Syphilis was certain or probable in 75 per cent. of this group of 20 infants. The 5 free from suspicion of syphilis all showed nervous hyperexcitability, and the fontanels were taut. Lavergne noted excessive intracranial pressure in 2 of his 3 cases of habitual vomiting, and in one of Vaglio's 5 cases hydrocephalus developed later. He therefore ascribes the excessive reflex excitability of the stomach to the central nervous system. Dollinger comes to the same conclusion, but is inclined to ascribe it to some birth injury of the brain, as there is always a history of difficult delivery in these cases.

Rivista di Clinica Pediatrica, Florence

21: 257-320 (May) 1923

*Acute Acid Intoxication in Children. A. Furno.—p. 257.
*Asphyxia of Infant After Blow on Nose. P. Brusa.—p. 291.

Acute Acid Intoxication in Children.—Furno analyzes the clinical picture in two children long under observation, and the necropsy findings in a boy of 7, who died in a few hours after reaching the hospital. He showed signs of grave acetonemia although previously healthy except that eight months before there had been a week of uncontrollable vomiting. The child died twelve hours after the onset of convulsions and coma; the temperature was normal; the reaction for acetone and diacetic acid was pronounced in the urine, and a strong odor of acetone was evident as the skull was opened. The meninges were intact. The thyroid was large, the structure like that of exophthalmic goiter, and Furno accepts this latent hyperthyroidism as the primary factor. The thymus was unduly large for the age, the hypertrophy involving the cortex. The liver and pancreas were gravely affected secondarily. In the two clinical cases, tuberculous meningitis had been diagnosed at first, until disproved by the normal cerebrospinal fluid and the acetonuria, and the recovery in a week under alkaline treatment: 15 or 20 gm. of sodium lactate daily, in sweetened water, fractioned. He theorizes that the acetonemia is due to abnormal metabolism of fats, and that the acute attack is a phenomenon of probably anaphylactic nature. During the attack, the liver suffers most.

Asphyxia of Infant from Traumatic Occlusion of the Nose.—A blow on the nose had induced a hematoma in the nasal passages. When the nose is obstructed, an infant is liable to apply its tongue against the palate during inspiration; reflex spasm of the glottis is another complication to be feared. Immediate tracheotomy, as in the case described, may have to be considered as the only means to save the child.

21: 321-384 (June) 1923

*Infant Mortality. A. Gismondi.—p. 321.
*Improved Breast Pump. C. Cocchi.—p. 345.

Infant Mortality in Italian Industrial Town.—Gismondi's analysis shows a gradual decline in the child death rate since 1900 in the town of Sampierdarena from 46 to 22 per thousand inhabitants, and of infants less than a year old from 16.1 to 8.3 per cent. of the children born. This formed 52.4 per cent. of the total deaths in children under 13. The population of the town is 62,604, and his charts show the effect of the infant welfare work carried on for the last few years. Another point brought out is that a third of the total child mortality is due to disease of the respiratory apparatus. Child welfare work in general has been directed against disease of the digestive apparatus, and the respiratory apparatus has been comparatively neglected hitherto.

Improved Breast Pump.—The glass receptacle has two outlets, one on each side close to the bottom, forming a long glass tube on each side. The mouth of the jar has a broad flat brim to fit over the breast, and a narrow groove above and below narrows the lumen of the jar near the brim. One of the outlets is fitted into the rubber cork of a nursing bottle. A rubber tube fits over the other outlet, and a vacuum is induced with this tube. The nipple is drawn into the jar and through the narrow portion by the aspiration, and in four or five minutes from 500 to 100 gm. of milk can thus be obtained. The suction and pressure on the nipple reproduce the natural mechanism of the infant's suckling, and the milk is ready for use at once, without decanting.

Archiv für Kinderheilkunde, Stuttgart

72: 241-320 (May 19) 1923

*The Hemoclastic Crisis in Children. R. Kochmann.—p. 242.
Pseudoleukemic Anemia in Twin Infants. E. Marquard.—p. 251.
Inhibiting Influence of Syphilitic Flocculation on Saponin Hemolysis. Tebbe.—p. 257.
*Scoliosis After Pleurisy in Children. J. Rey.—p. 261.
Clinical Observations on Measles. P. Widowitz.—p. 274.
Present Status of Chronic Adenoiditis. F. Schleissner.—p. 282.

Hemoclastic Crisis in Children.—Kochmann adds confirmatory evidence as to the clinical importance of Widal's hemoclastic crisis in children. He never found it positive in children over 1 year old with healthy kidneys, while it was distinctly positive in the children with liver disease. In young infants, the "protein-binding" function of the liver (proteopexy) is so inadequately developed that the "immunity" following the crisis lasts only four hours, while in older infants and children it persists for eight hours. The liver of infants with severe nutritional disturbances is so badly damaged that the hemoclastic crisis occurs even after an interval of less than four hours from the last feeding. This experience may have clinical importance, as it suggests defective proteopexic functioning of the liver, and hence a predisposition to toxicosis.

Scoliosis After Pleurisy.—Rey remarks that when the child recovers after pleurisy there is liable to be a tendency to scoliosis from cicatricial shriveling of the pleural adhesions and bands. He was able to reexamine recently 31 of the 62 children with pleurisy with effusion at the Freiburg clinic in recent years. In 27 of the 31 there was scoliosis; in 2 the scoliosis had been present before the pleurisy; in the other 25 the spine was drawn toward the diseased side, the scapula was abnormally low, and the circumference of that side of the chest was smaller than the other. In 10 with extreme scoliosis, the interspaces were abnormally narrow. These experiences warn of the importance of prevention. With rapid resorption of a large effusion, there is always danger of deformity. If practicable, the child should be kept in a plaster bed during the stage of resorption, and this is indispensable when a tendency to scoliosis appears. During convalescence, watch should be kept for any tendency to curvature of the spine later. Systematic breathing exercises are useful. When scoliosis has developed, treatment should be started as early as possible.

Archiv für Verdauungs-Krankheiten, Berlin

31: 127-251 (May) 1923

*Duodenal Diverticula. H. Ohnell.—p. 127.
Etiology of Peptic Affections in Stomach and Duodenum. M. Holzweissig.—p. 175.
*Basis for Protein Therapy of Gastric and Duodenal Ulcer. II. G. Holler and J. Vecsler.—p. 189.
*Sliding and Deep Palpation of the Abdomen. T. Hausmann.—p. 217.
Spasm of Ileum with Cecum Process. T. Bársony.—p. 245.
Hyperbilirubinemia in Migraine. G. Hetényi.—p. 247.

Clinical Importance of Diverticula in the Duodenum.—Ohnell refers only to diverticula not connected with an ulcer, and compares the clinical course with the roentgenograms or operative findings in 34 cases. In 6 cases there was concomitant ulcer; in 5 intestinal dyspepsia or colitis; in 2 pancreatitis; in one the gallbladder was diseased, and there were abnormal gastric secretory conditions in 8. In the total 34 cases pain was prominent in 85 per cent. Vomiting or acid eructations were noted in 44 per cent. There was retention in the diverticulum in 76 per cent. and motor disturbance in stomach or duodenum in 45 per cent. The region of the diverticulum was tender in 29 per cent. The clinical picture generally is that of an ordinary chronic gastric or duodenal ulcer. The diverticulum is usually so inaccessible that radical removal is risky. Internal measures should be directed against the accompanying stomach or intestinal complications.

Protein Therapy of Gastric and Duodenal Ulcer.—Holler and Vecsler argue that the tonus of the vegetative nervous system is regulated by the action of the products of intermediate metabolism. They discuss the physiologic and pathologic manifestations of visceral nerve tonus, with special regard to the origin and treatment of gastric and duodenal ulcer. They call attention in particular to the urinary anomalies in these conditions. Although the parenchyma of the kidneys is sound, the output of salts and water is decidedly modified. This they ascribe to a functional anomaly probably located in the sacral portion of the autonomic nervous system. It yielded to atropin, and, when syphilis was involved, to specific treatment. They add that anomalies of this kind in stomach and kidney function in patients with encephalitis, particularly in those with parkinsonian symptoms, suggest that foci in the central vegetative tracts may entail changes in visceral tonus, and may accompany ulcer formation in stomach and bowel. Experiments indicate that central nervous processes alone may induce ulcer and this localization may be connected with the pupil anomalies often found in nonsyphilitic ulcer cases. There may be intermittent sialorrhea, frequently accompanied and followed by spasm in the throat, esophagus or stomach. This gastric "status neurotonicus" may or may not progress to actual ulceration. Most ulcer patients have a mixed sympathetic and parasympathetic overexcitability. Injury of nerves from some toxin is probably the commonest primary factor in ulcer production.

Differential Diagnosis of Abdominal Tumors.—Hausmann extols anew the advantages of his method of sliding and deep palpation of the abdomen. In a case described, one ovary was fastened to the mesentery and simulated a movable kidney. This is his twelfth article on his *gleit- und tiefenpalpation,* all published in German journals.

Beiträge zur klinischen Chirurgie, Tübingen

129: 483-724, 1923

*Action of Cholagogues. O. Specht.—p. 483.
*Gastric Secretion with Disease in Bile Ducts. G. Düttmann.—p. 507.
*Perforated Gastric and Duodenal Ulcers. W. Speck.—p. 537.
*Treatment of Rectal Cancer. F. J. Kaiser.—p. 595.
Etiology of False Lateral Ventral Hernia. R. Andler.—p. 613.
Ganglions on Peripheral Nerves. E. Reis.—p. 622.
Hereditary Elephantiasis. F. Reich.—p. 627.
Congenital Lockjaw. W. Schmid.—p. 633.
Intra-Abdominal Hemorrhage from Corpus Luteum Simulating Acute Appendicitis. W. Odermatt.—p. 663.
*Pneumoradiography. I. Szabó.—p. 677.
Sudeck's Atrophy of Bone. H. Hilgenreiner.—p. 683.
Spontaneous Hematoma in Abdominal Wall. H. Hilgenreiner.—p. 700.
*Action of Heat on Long Bones. A. Nussbaum.—p. 711.
Resection of the Kidneys. W. Peters.—p. 716.

Experimental Study of Cholagogues.—Specht's chart of the findings in dogs, with a fistula in the common bile duct, under the influence of various alleged cholagogues confirm their possible efficiency, although wide racial and individual differences were manifest. His research demonstrated that secretion of bile and urine proceed entirely independently. Even extreme fluctuations in the amount, specific gravity and sodium chlorid content of the urine occur without being reflected in the bile secretion. None of the alleged cholagogues such as Carlsbad salts, Liebig's meat extract, and agar, had any appreciable influence on bile secretion in his experiments; and sodium salicylate only in amounts that impaired the general health. The bile itself, or its elements, by mouth or injected subcutaneously or by the vein, was the one substance found effectual in increasing the flow of bile. The question now is to find the combination of these elements and the dosage which will induce the maximal effect with the minimal depressing influence on the heart action and destructive action on the blood corpuscles. We must test the biliary acids, alone or in combination, on patients after choledochotomy. His experiments suggest that the cholagogue action of the bile acids continues for several hours.

Liver Functioning and Duodenal and Gastric Secretion with Disease of the Bile Ducts.—Düttmann's research sustains the reliability of the Widal, Rosenthal, von Falkenhausen and Falta's functional liver tests. It confirms further the depressing influence on gastric secretion of disease in the biliary passages. Irreparable hypacidity and hypochlorhydria are entailed by inflammation in the biliary passages, and they persist in more than 50 per cent. of the patients after the operation. The duration of the inflammation and its degree are reflected in the intensity of the secretory deficit in the stomach. As the inflammation generally persists after internal or conservative surgical measures, the effect on gastric secretion keeps up unmodified. Hence the effort to relieve without removing the gallbladder has no justification, so far as the stomach is concerned.

Perforated Gastric and Duodenal Ulcers.—Speck reviews the experiences at the Dresden hospital with 105 cases of this kind since 1900, comparing them with 3,224 he has compiled from the literature. He estimates that perforation occurs in about 10 per cent. of these ulcers. In his 105 cases, men predominated, 3:1, and in the duodenal ulcer cases, 8:1. The clinical picture, the pathology and the outcome are discussed in detail. In 22 recently reexamined cases, 17 of the patients were in perfect health, 2 complained of oppression in the stomach, not impairing the earning capacity. Only one patient has required operation since for hernia in the cicatrix, and now has symptoms suggesting peptic ulcer. In these cases the ulcer had been merely sutured in, in 3, while in the 16 others this had been supplemented by gastro-enterostomy. Resection of the perforated ulcer was never deemed necessary. He comments on the increasing prevalence of duodenal ulcers. The proportion in former years was 4:1 in favor of the stomach; now it is 2.5:1 in favor of the duodenum. In recent years, the patients with perforated ulcer have been nearly all men. The mortality has dropped from 66 to 42 per cent., or to zero when there is no delay before operating. Five pages of bibliography are appended.

Cancer of the Rectum.—Kaiser advocates invagination amputation and submucous operating in removing the lower end of the rectum. The tube of mucosa can be easily separated from the submucosa, and be drawn out intact, as he explains with ilustrations.

Pneumoradiography.—Szabó expatiates on the advantages and harmlessness of injecting oxygen or carbon dioxid into the bed of the kidney, as he applied it in sixty-two cases (bilaterally in nine).

Action of Heat on Long Bones.—Nussbaum experimented with six frogs, seven guinea-pigs and ten rabbits, applying steam to or freezing the exposed long bone, and then watching whether regeneration was complete enough to ward off spontaneous fracture. The outcome justifies tentative steam treatment of cancer in bone in man, as Wenglowski proposed in 1914. The heat or the freezing kills the vitality of the bone, but this aseptic destruction of bone is followed by complete regeneration. Spontaneous fracture occurred in three cases, but the fracture soon healed. The attempts to correct pseudarthrosis by this means proved futile.

Medizinische Klinik, Berlin

19: 781-816 (June 10) 1923

Manic-Depressive Insanity in General Practice. Rittershaus.—p. 781.
*Chagas' Disease. F. Munk.—p. 784. Conc'n p. 822.
Isolated Progressive Ophthalmoplegia. R. Stanka.—p. 790.
*Resuscitation by Intra-Aortic Injection. J. Tornai.—p. 792.
`Incarcerated Obturator Hernia. Pumplun.—p. 795.
Sterilizer for Sputum. G. Heuer.—p. 798.
*Renal Insufficiency. H. Pribram and O. Klein.—p. 799.
Gynecology from Practitioner's Standpoint. E. Runge.—p. 801. Cont'n.
Recent American Works on Obstetrics. Liepmann and Lienig.—p. 802.

Chagas' Disease.—Munk gives his impressions from a trip to Brazil, and especially on the trypanosomiasis with goiter, nervous and heart disturbances to which Chagas has called attention. He suggests that if Chagas is correct in alleging that the goiter is essential to the clinical picture this is an important contribution to the debated question of an infectious origin for endemic goiter. Infection with *Schizotrypanum cruzi* is responsible for the clinical picture, but Munk ascribes the swellings to edema, similar to that in trichinosis and in sleeping sickness. The paralysis is also a consequence of the infection. The unusual prevalence of continuous arrhythmia and weakness of the myocardium in men and women in the forties is probably due to the inflammatory reaction to foci of dead trypanosomes in the heart. These heart disturbances do not develop till many years after the acute phase in childhood. The infection upsets the balance in the endocrine system, and this may explain the development of the goiter. From this standpoint, Chagas' disease is of great significance and he urges search for a causal infection in all foci of endemic goiter.

Intra-Aortic Injection in Resuscitation.—Tornai has applied in twenty-two cases this method of treating collapse, which he prefers to intracardiac injection of the stimulant. The drug is carried at once to the brain and medulla. The method is simpler and less dangerous, he says, than intracardiac injection, but answers the same purpose. He uses a fine needle, 8 or 10 cm. long, slanting at an obtuse angle to the syringe. The needle is introduced on the median line, between the sternum and the trachea, but closer to the trachea, down to the arch of the aorta. When the movements of the needle show that it is in contact with the pulsating wall of the aorta, he pushes it in 0.5 cm. deeper, and injects the caffein, strophanthin, strychnin or other stimulant. The patient reclines in an absolutely horizontal position. In three cases of apoplexy, he withdrew 150-200 c.c. of blood before injecting the stimulant. Withdrawing blood from the aorta in this way, in cases requiring venesection on account of brain symptoms, is probably more effective and safer than venesection. Intra-aortic injection may tide the patient past the danger point in meningitis, encephalitis, uremia, and eclampsia, but its main field seems to be in collapse at operations. Two patients, dying from cancer or liver disease, roused at once from moribund unconsciousness and took nourishment. One survived for twenty-eight hours, the other for four days.

Retention with Insufficiency of the Kidneys.—Pribram and Klein state that with gradually developing insufficiency of the kidneys, the ratio of the urea to the total residual nitrogen in the blood differs in different stages, as they show by concrete examples. In the first, the retention stage, the blood may contain residual nitrogen to the maximal level, with high to maximal urea content, and the urea nitrogen forms a large proportion of the total residual nitrogen. Clinical manifestations may be absent or merely dyspepsia, apathy, etc. The second stage is the phase of toxic destruction of albumin. The residual nitrogen is high to maximal, but the ratio of the urea to the residual nitrogen declines in favor of the increasing nonurea nitrogen. This is the stage of uremia.

19: 817-854 (June 17) 1923

*Cocain Addiction. E. Joel.—p. 817.
Collective Inquiry on Blood Transfusion.—p. 819.
*Treatment of Hemorrhage from the Lung. M. Weiss.—p. 824.
Tumor in the Pituitary. G. Herrmann.—p. 826.
Ponndorf's Scarification Tuberculin Treatment. Unverricht.—p. 828.
*Fatal Ileus from Contrast Suspension. P. Klein.—p. 829.
Action of Potassium on the Heart. F. Turan.—p. 830.
Migration of Scrap of Projectile. R. Kobes.—p. 831.
Luxation and Rotation of Patella. H. Trausner.—p. 832.
*Nature of Bacteriophagy Phenomenon. W. Seiffert.—p. 833.
Tabetic Arthropathy in Ankle After Trauma. H. Engel.—p. 834.
Present Status of Orthopedic Operations. S. Peltesohn.—p. 837.

Cocain Addiction.—Joel has frequently witnessed that cocain addicts with complete change of environment were able to conquer their craving for the drug for months at a time, but when they returned to their former surroundings, they relapsed. This should be borne in mind in planning treatment, especially, he says, as with cocain snuffing there is no acquired poison-fast condition, like that with morphin and alcohol addiction. In several of his cases the cocain addiction could be traced to a physician's prescription for hay-fever. In conclusion he remarks, "I think we owe it to ourselves and to the prestige of our manufacturing chemists to put an end to the peculiar rôle we and they are now innocently playing in that we are supplying with cocain the addicts not only of Germany but of almost the whole of Europe." He adds that the law provides for limiting the import of coca leaves to the actual demand. This gives a lever which will enable the cocain evil to be uprooted.

Treatment of Hemoptysis.—Weiss relates that he has always succeeded in arresting hemorrhage from the lung, even in serious cases, by immediate injection of 6-10 c.c. of 25 per cent. camphorated oil. The patient is kept in bed for two or three days after the last bleeding, and a sand bag or icebag is laid on the side affected to restrict the excursions of the lung. Cold milk, sipped through a straw, is the best food; carbonated waters and carbonated baths seemed to bring on hemorrhage in some cases. A tablespoonful of salt in a glass of water, ingested in fifteen minutes, often proved useful, as also intravenous injection of 10 c.c. of a 10 per cent. sodium chlorid or calcium chlorid solution. The effect wears off in twelve hours. Constriction of the limbs to induce venous stasis with still perceptible pulse for two to six hours often served as a valuable adjuvant. No benefit was observed from gelatin injections, which are painful. Three tablespoonfuls of a 50:300 solution of calcium chlorid should be taken daily from the onset of the hemorrhage. The camphorated oil subcutaneously or intramuscularly is the main reliance; the effect lasts for about twelve hours. He repeats the injection of 6 or 10 c.c. of the 25 per cent. camphorated oil every twelve hours, for a week, gradually decreasing the dose. A single large dose is more effective than when fractioned. Small, recurring hemorrhages can be combated with 0.1 gm. camphor by the mouth three times a day, but injection of 2 c.c. of the 25 per cent. camphorated oil is more effectual.

Ileus from Contrast Suspension. — Necropsy revealed impacted barium sulphate as the cause of the ileus. The usual barium sulphate suspension had been given for roentgenray examination of the woman, aged 54, and repeated seven days later, the hysterectomy following in two days. The ileus developed at once, and proved fatal in six days. The two barium sulphate concretions measured 2.2 by 1.4 by 1.2 cm., and had lodged at the sigmoid flexure. Klein has encountered a case in which perforation of a gastric ulcer occurred an hour and a half after the young man had swallowed a suspension of bismuth. He knows of only two other instances of calculus formation from this cause: In Schwarz' case the barium sulphate calculus was pushed along and voided spontaneously by giving more of the suspension. In Kummat's case the bismuth had piled up in a hard mass in the stomach, and he queried whether it is ever safe to give a contrast suspension with stenosis of the pylorus.

Research on Bacteriophagy.—Seiffert passed sterile bouillon through a Berkefeld or Chamberland filter ten times. Then he filtered a d'Herelle lysate, sterilized for three hours at 100 C., and then passed bouillon through the filter, and the bouillon became highly bacteriophagic. This resistance of the lytic agent to heat contradicted all previous research. Then he heated several lysates to 100 C. for an hour. They all became inactive. These entirely inactive lysates were then filtered several times, and by the second to fourth passage they had become highly active as also sterile bouillon filtered after them. These experiences demonstrate that the d'Herelle bacteriophage is resistant to heat. The inactivation by heat is only apparent and transient. It proves, however, that the lytic agent cannot be a ferment or a virus. It seems to be an intermediate product of bacterial metabolism, and this product is able to activate the intrabacterial ferments. The d'Herelle phenomenon is thus an autolytic process.

19: 855-890 (June 24) 1923

Unusual Causes of Protracted Fever. W. Rindfleisch.—p. 855.
Syphilis Refractory to Arsphenamin. M. Jessner.—p. 857.
Collective Inquiry on Blood Transfusion.—p. 860. Cont'n.
Neuritis from Fowler's Solution. H. Scharfetter.—p. 863.
Prophylaxis of Roentgen-Ray Injuries. E. Markovits.—p. 866.
Nature of Hysteric Character. T. Pulvermacher.—p. 867.
Traumatic Hematomyelia. W. Heimann-Hatry.—p. 870.
Traumatic Aneurysm of Internal Circumflex Artery. Dvorak.—p. 871.
Ascarids in Liver. F. Rosenberger.—p. 872.
*Chronic Gastric and Duodenal Ulcer. B. O. Pribram.—p. 872.
Collargol Reaction in Cerebrospinal Fluid and Urine. J. Freundlich.—p. 874.
Fracture of Leg with Tabes and Aneurysm. H. Engel.—p. 875.
Recent Works on Infant Hygiene and Pathology. Rietschel.—p. 876.
Recent Research on Diphtheria. S. Lichtenstein.—p. 878.

Treatment of Chronic Gastric and Duodenal Ulcer.—Pribram insists that the success of shock treatment of gastric and duodenal ulcers does not conflict with the assumption that these ulcers are trophic. By measures to induce shock and hyperemia in recent ulcers he has started them on the road to healing. He has now a record of eighty cases.

19: 891-928 (June 30) 1923

Hypertrophied Prostate in the Elderly. Wossidlo.—p. 891.
*Retention of Testes. K. Büdinger.—p. 893.
*Tics of Organic Origin. J. Gerstmann and P. Schilder.—p. 896.
*Connection Between Hyperglycemia and Hypertension. S. Hetényi.—p. 899.
*Protein Therapy of Gastric Ulcer. F. Hampel.—p. 901.
*Progressive Dystrophy of Muscles. F. Rohr.—p. 903.
*Wassermann Reaction in the Cerebrospinal Fluid. V. Kafka.—p. 906.
Rôle of the Coccygeal Gland in Mammals. Pawloff and Schazillo.—p. 907.
Recent Work on General Pathology. L. Aschoff.—p. 911.

Ectopic Testes.—Büdinger asserts that the testis finds its way into the perineum more often than generally supposed, and that this false passage escaped detection in 29 cases in a recent series of 100 cases in which one or both testes were not in the normal position. In 15 cases only the right testis was in the perineum; in 10 the left, and in 4, both testes. In 2 other cases the testis was in its normal place but the vaginal process had gone astray; in 6 the vaginal process was normally located, while the testis was ectopic. In one case it was located above the symphysis, in 2 close under the skin of the perineum. In 33 cases the testis had worked its way upward between the aponeurosis of the obliquus externus and the superficial fascia. This superficial location is more favorable for reduction of the testis to its normal place than simple retention. There was cancer in one case in these two groups; during the same period 8 cases of cancer in the normally located testis were encountered. In one case, the left testis was in a superficial inguinal false passage, while the right testis was in its normal place and the seat of a sarcoma.

Tics of Organic Origin.—Among the cases described are two in which the multiple tics seemed to be sequelae of epidemic encephalitis.

Connection Between Hyperglycemia and Hypertension.—Hetényi declares that the data which he presents demonstrate that in acute diffuse glomerular nephritis, the high blood pressure and the high sugar content in the blood are elicited by the same factors. They always ran parallel in his extensive and repeated tests.

Protein Therapy for Gastric Ulcer.—Hampel reiterates that protein therapy should be tried in every case of gastric ulcer before considering operative measures. Very fine results are being reported with it.

Progressive Muscular Dystrophy.—Rohr reports a case in a boy, aged 9, in which endocrine insufficiency was evidently a factor. Under careful organ extract treatment, the child made rapid progress. Rohr lists the various symptoms which presumably indicate participation of the different endocrine glands, as a guide to treatment.

The Wassermann Reaction in the Spinal Fluid.—Kafka regards as of great practical importance the attenuation of the Wassermann reaction by inactivating at 56 C. He reports experiences in this line and theorizes to explain the phenomena observed.

Wiener klinische Wochenschrift, Vienna

36: 389-408 (May 31) 1923

*The Urobilin Problem. O. Weltmann.—p. 389.
Diazo-Reaction of Human Blood. A. Leimdörfer and D. Charnass.—p. 393.
*Treatment of Vincent's Ulcerative Stomatitis by Freezing. V. Jelinek.—p. 393.
Importance of Early Operation in Acute Pancreatitis. E. Schwarzmann.—p. 397.

The Urobilin Problem.—Weltmann says that Müller's experiments cannot be taken as proof of the enterogenous origin of urobilin, since urobilinogen is found regularly in the bile of swine. Consequently, the urobilinogen which appears in the urine of persons with the common bile duct obstructed, after ingestion of swine bile, is due to the urobilinogen content of the latter. He adds that urobilinogen is seldom found in the serum in liver disease with jaundice, but it is frequently found in pneumonia and other infections, with tumors, and in severe heart defects. The conditions responsible for the appearance of urobilin in the serum are the inability of the liver to destroy the urobilin that reaches it, and modification of the blood albumin, rendering it physically less capable of binding the urobilin.

Ethyl Chlorid Freezing in Treatment of Ulcerative Stomatitis.—Jelinek states that in 1919 and 1920 he had occasion to treat hundreds of soldiers and civilians with ulcerative stomatitis of the Vincent type of infection with spindle-shaped bacilli and spirochetes. The deeper the material for examination was taken, the purer the cultures of these microorganisms. He treated eighty-two cases by local treatment with ethyl chlorid, and the ulceration promptly subsided. The cure was complete in every case within a few days, while with all other methods of treatment the ulceration dragged along for weeks. To show that the ethyl chlorid did not act chemically, the ulcerations were painted with it several days in succession, without freezing, without results. It acted only in a temperature below Centigrade zero, the spirochetes disappearing after the first freezing, in some cases, while in others a second freezing after twenty-four hours was required. The spirochetes seem peculiarly susceptible to the action of the cold, and he suggests that this ethyl chlorid refrigeration method might prove useful for other spirochete affections, alveolar pyorrhea, gingivitis in scurvy, etc. There were only six relapses among the eighty-two patients thus treated.

Zeitschrift für klinische Medizin, Berlin

97: 1-188 (May 26) 1923

Reaction Capacity in Asthenia. L. Borchardt.—p. 1.
Origin of Heart Sounds. H. Gerhartz.—p. 6.
*Experimental Pyrogallol Anemia. J. Weicksel.—p. 26.
*The Racial Albumin Content of the Erythrocytes. J. Vorschütz.—p. 39.
The Brittle Bone and Blue Sclerotics Question. S. Singer.—p. 43.
*Congenital Myotonia. K. Nissen.—p. 58.
*The Electrocardiogram in Experimental Heart Disease. E. Schliephake.—p. 94.
*Angina Pectoris with Mitral Defect. M. Sternberg.—p. 110.
*Gage for Alveolar Tension. J. Holló and S. Weiss.—p. 131.
Acute Myelosis. A. Hittmair.—p. 138.
*Is the Glucose in Blood Prepared for Oxidation? Büdingen.—p. 147.
*Scurvy an Infectious Disease. S. Peschic.—p. 169.
Electrocardiograms with Needle Electrodes. H. Koenigsfeld and F. Stroebe.—p. 182.
The Blood Platelets in Infectious and Blood Diseases. R. Stahl.—p. 187.

Experimental Anemia.—Weicksel describes the changes in the blood and metabolism in dogs with anemia induced by pyrogallol.

Mechanism of Blood Grouping.—Vorschütz argues that the albumin content of blood cells determines agglutination and grouping and the speed of sedimentation. His research on horse, beef, swine and sheep blood sustains this assumption, as also study of three cases of pernicious anemia and several of bronchitis. The more rapid the sedimentation, the greater the content of albumin in the cells. This high albumin content must be a nucleoproteid that responds to electricity like a globulin body. Serum albumin, like hemoglobin, is indifferent to electricity. The difference between horse and beef erythrocytes is striking in respect to the albumin content.

Congenital Myotonia.—Nissen discusses the hereditary element in Thomsen's disease, and its relation to the mendelian laws of heredity. He gives some genealogic charts and a bibliography of 171 works bearing on congenital myotonia.

The Electrocardiogram in Experimental Aortic Insufficiency and Hypertrophy of the Left Heart.—Schliephake's research was done on rabbits under observation for several months.

Angina Pectoris with Mitral Defect.—The practical conclusion from Sternberg's long and illustrated study of mitral defects, clinical and postmortem, is that digitalis should be given for a long time, with large bleedings by venesection during the attack of angina pectoris.

Determination of Alveolar Tension.—Holló and Weiss describe what they call a simple clinical colorimetric method for determining the alveolar carbon dioxid tension.

Oxidation of Glucose.—Büdingen discusses whether other elements in the blood prepare the glucose for oxidation. He reports experimental research on the speed of its oxidation, and on means to accelerate it as a therapeutic measure.

Scurvy an Infectious Disease.—Peschic states that the great epidemic of scurvy in 1917 in the Belgrade region confirmed the infectious origin of scurvy, and that contagion was from human excreta and water contaminated with the excreta. The incubation was usually seven days, and the causal agent was *Bacillus scorbuti,* of the colon bacilli group.

Zeitschrift für Krebsforschung, Berlin

20: 211-320 (July 13) 1923

*Susceptibility of Centrosome. C. U. Ariens Kappers.—p. 211.
*Tar-Treated Animals. V. E. Mertens.—p. 217.
Follicular Oophoroma. O. Seifried.—p. 236.
*Double Primary Cancer. H. Spranger.—p. 243.
*Theoretical Study of Cancer Formation. A. Greil.—p. 250.

Susceptibility of the Centrosome.—Kappers' research on brain tumors has demonstrated that, at least in nerve tissue, the centrosome is liable to be located in the most exposed part of the cell. It is thus peculiarly exposed to injury from without, and he discusses the importance of this for plastic operations and in tumor production. Certain irritations seem to have an especially deleterious influence on the centrosome.

Tar Cancers.—Mertens refound in internal organs the tar painted on the rabbits' ears. The severest injury was evident in liver and kidneys. Among his 257 tar-treated animals only one developed actual cancer.

Multiple Cancer.—A primary carcinoma in two remote organs was found in six of the 417 cancer cases, at the Charlottenburg Hospital in a recent four and a half year period. One woman aged 63 had a gelatinous adenocarcinoma of the left breast and a basement cell epithelioma in the fundus of the uterus. The breast and the uterus were removed, but the woman died three years later from extensive recurrence of each of the primary cancers. Each then presented the aspect of a primary tumor, one in the bronchus, the other in the colon, but the microscope revealed the gelatinous and basement cell structure of the original growths.

Theoretical Study of Origin of Tumors.—Greil proposes a theory based on the dynamics of development.

Zeitschrift für Urologie, Leipzig

17: 321-384, 1923

The Pioneer in Endoscopy: P. Bozzini, 1773-1809. O. Ringleb.—p. 321.
*False Frenum of the Prepuce. M. Porosz.—p. 331.
*Medical Treatment of Hypertrophied Prostate. E. Moser.—p. 334.
Case of Double Ureters. A. Matusovszky.—p. 340.
*Kidney Tumors in Infants. W. Israel.—p. 345.
*Intake of Water and Urine Production. G. Armbruster.—p. 352.

False Frenum of the Prepuce.—Porosz regards this pseudofrenum as a relic of some inflammatory process, and urges the necessity for severing the fold or folds binding down the prepuce. Although brief, his communication is illustrated.

Medical Treatment of Hypertrophied Prostate.—Moser has been successful in treating disturbances from Hirschsprung's disease, hypertrophied prostate, and similar affections in which spastic contraction of muscular tissue is more or less of a factor. By local treatment with a sedative to relax the muscular contraction, the whole disturbance may subside below the level of appreciable symptom production. He here describes six typical cases of hypertrophied prostate which confirm the important share of spastic contraction of the prostate itself and of the adjoining musculature of the urethra and bladder in the clinical picture. Eliminating this element by injecting procain into the urethra or introducing it in a suppository into the rectum (0.1 gm. eucain), or both, repeating daily or on alternate days, materially reduced the size of the tumor, as a rule, and micturition returned to clinically normal conditions. No other treatment was given, not even sitz baths. By systematic sedative treatment in this way, he says, the number of cases of hypertrophied prostate requiring operative relief will be materially reduced.

Kidney Tumors in Children.—Israel says that a little girl is now in good health two years after removal of a large adenosarcoma of the left kidney at the age of 12 months. It had caused no symptoms, and the urine showed merely a trace of albumin, a few leukocytes and granular casts. About the same time he removed an adenosarcoma from the left kidney of a boy infant, aged 14 months, but this tumor had caused grave symptoms, and the child died from metastasis in two or three months. There had been three periods of fever and occasional hematuria, during the five months before the operation, that were interpreted as pyelocystitis.

Urine Production in Connection with Intake of Water.—Armbruster comments on the retention in the lymphatics of water injected intravenously. This is in marked contrast to the way in which water is speedily voided when an analogous amount is taken into the stomach. He has utilized this difference in treatment; in one case menstruation was restored in an insane girl by the increase in the blood pressure which followed intravenous injection of sodium chlorid solution. He explains further that, in the embryo, the umbilical cord serves for a secondary kidney.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

1: 2081-2180 (May 19) 1923

The First Park Daytime Sanatorium in the Netherlands. P. Muntendam.—p. 2084.
*Tuberculous Myocarditis. A. J. F. Oudendal.—p. 2087.
*Acute Peritonitis in Infants. M. C. M. Smid.—p. 2095.
*Research on the Bacteriophage. II. Janzen and Wolff.—p. 2107.
*Treatment of Empyema. P. R. Michael.—p. 2113.
*Insulin from Fish. D. E. Schouten.—p. 2118.
Chronaxia as Gage of Excitability of Tissue. van der Heijde.—p. 2119.

Spontaneous Rupture in Tuberculous Myocarditis.—Oudendal describes the findings in the cadaver of a young Chinese woman who died soon after being picked up in the street unconscious, with convulsions. His four plates show the tuberculous myocarditis and the ruptured aneurysm in the wall of the left ventricle. The chain of tracheal, bronchial, and cardiac lymph glands showed the progress of the invasion which had terminated in diffuse tuberculosis of the myocardium.

Acute Peritonitis in Infants.—Smid analyzes 14 cases of acute peritonitis in infants, comparing the necropsy findings with the clinical picture. The onset was acute and stormy in all; 2 had persistent diarrhea, 2 diarrhea only at first; others had tenacious constipation, or alternation of diarrhea and constipation, but 3 had normal stools throughout. All but 2 vomited; in 5 there was bile in the vomit. The abdominal walls were taut in 10, but only 5 presented much meteorism; in 3 the skin of the abdomen was cyanotic; in 2 the abdomen was evidently painful. Dulness was pronounced in 2, with slight dulness in one. The urine showed albumin and many leukocytes; the temperature was nearly normal in some; in others there was fever, intermittently or remittently high. The clinical picture differs thus materially from that of acute peritonitis in older children and adults. With acute gastro-enteritis in infants, he has found the abdominal wall usually relaxed and sunken. In the 2 cases of pneumococcus peritonitis, the stools were normal. The peritonitis was traceable to a hernia in one case; invagination in 2; infection from the umbilicus in 2; enteritis in 2, and a lung process in 3.

Research on the Bacteriophage.—Janzen and Wolff found staining the culture an aid in their study of bacteriophagy. They experimented with different disinfectants, and found that some destroyed the bacteria but left the bacteriophage unharmed. It seems to be extraordinarily resistant to chemical action, although some of the disinfectants temporarily checked its proliferation while others promoted it. The inhibition seemed to wear off in a few days.

Treatment of Pleural Empyema.—Michael has been applying the Bülau method of drainage with aspiration in a recent series of twenty-two cases of acute empyema. All recovered except three patients with septic influenza who died in a few hours after entering the hospital, and one child with bilateral pneumonia. The ages ranged from 2 to 58 years, and the patients were in the hospital from two to twenty weeks. The empyema was of one to eight weeks' standing. This aspiration treatment not only clears out the pus but aids in the reëxpansion of the lung.

Insulin from Fishes.—Schouten calls attention to the fish *Cyclopterus lumpus*, the sea-owl, which has an organ between the pancreas and liver that seems to be composed entirely of tissue showing the structure of the islands of Langerhans. He found it in eight specimens of this fish, and made an extract of this organ, intending to test its action on the blood sugar, but never carried the research farther.

1: 2201-2308 (May 26) 1923

*President's Address at Orthopedic Congress. Murk Jansen.—p. 2202.
*Bifurcation Treatment of Dislocation of Hip Joint. A. Lorenz.—p. 2207.
Orthopedic Experiences from the War. Sir Robert Jones.—p. 2215.
*Unrecognized Congenital Subluxation of Hip Joint. F. Calot.—p. 2223.
*Fundamental Laws Underlying Transplantation of Bone. F. H. Albee.—p. 2230.
*Treatment of Infantile Paralysis. K. Biesalski.—p. 2234.
Plastic Operations on Joints. H. Spitzy.—p. 2239.
Plastic Operations on Joints. V. Putti.—p. 2245.
Provisions for the Disabled in Great Britain. Sir Robert Jones.—p. 2254. Idem in Germany. K. Biesalski.—p. 2260. Idem in Vienna. H. Spitzy.—p. 2266.
*Legislation on Rehabilitation of the Disabled. F. H. Albee.—p. 2270.
Provisions for the Disabled in the Netherlands. J. van Assen.—p. 2273.

Orthopedic Surgery.—The thirteen articles in this number were read at the International Orthopedic Congress at Amsterdam on the twenty-fifth anniversary of the Netherlands Orthopedic Society.

Treatment of Dislocation of the Hip Joint.—Lorenz describes a new technic for treating irreducible acquired or congenital luxation of the hip joint. He calls it the bifurcation method, as he carves out a new head, on a level with the acetabulum, by a slanting osteotomy of the femur above the new head. The new head is fitted in the acetabulum, and the former head grows to its neck in time. The upper end of the femur thus has a Y shape, as his illustrations show, and the leg is shortened to the extent of the difference between the two tines of the fork. He advocates this method not only as the last resource in irreducible cases of pathologic dislocation, but also in pseudarthrosis, and in recurring dislocation in coxa vara. Notwithstanding the excellent results, he prefers his "inversion" method in simpler cases. With this, the flexion-adduction contracture is overcome by stretching or severing the adductors. This transforms the adduction into extreme abduction. This draws the ilium downward and thus gives a bone support to the top of the trochanter major. By changing the typical flexion of the hip joint into extreme extension, the weight of the body is thrown partially on the anterior portion of the ligament apparatus, the strongest in the body. By this means the soft parts in the back of the joint are relieved from excessive traction and the cause of the pain is thus removed. This inversion technic requires merely a few days of bed rest, but much depends on the after-care. If it fails to relieve permanently, it is a useful preliminary to the bifurcation operation. He has applied the latter in sixty cases, and some of the patients show no signs of crippling, and can run, jump and climb mountains. The operation can be done without exposing the joint and is absolutely harmless, he says. The extra-articular bone implantation methods can be applied only to young and vigorous patients, while the bifurcation method is applicable at any age, and to correct crippling from tuberculosis or osteomyelitis and to relieve pain with arthritis deformans.

Deforming Arthritis in the Hip Joint.—Calot presents data and arguments to show that all types of arthritis deformans restricted to one or both hip joints, in the young or the aged, are the results of congenital subluxation.

Principles for Bone Transplanting.—Albee analyzes what he has learned from 3,000 osteoplastic operations.

Physiologic Principles in Treatment of Infantile Paralysis.—Biesalski emphasizes among other points that the action of a muscle is entirely different with a normal and a crippled joint, and the points to which electricity can be applied with benefit are liable to be entirely different. The usual points may be inert, but remarkable improvement follows stimulation of the special individual points. He urges study of orthopedic physiology to realize physiologic orthopedics, and hails the important works of Murk Jansen, Lange, Spitzy, Putti and others in this line as remarkably encouraging.

Legislation on Rehabilitation of the Disabled.—Albee described the organization and workings of the 2,000 bed military orthopedic hospital in New Jersey, and the law adopted by the state in 1918 providing for orthopedic treatment for the disabled in industrial and other accidents. He added that thirty-three other states have passed similar laws since.

1: 2353-2452 (June 2) 1923

New Medical Dictionary. G. van Rijnberk.—p. 2354.
*Fatalities After Operations on Nose. H. Burger.—p. 2356.
*Erysipelas. D. Herderschêe.—p. 2367.
*Umbilical Colic in Children. H. Timmer.—p. 2378.
Protein Therapy Found Ineffectual in Treatment of Hemoptysis. T. Meuwissen and T. Thuis.—p. 2384.
Inversion of Appendix in Cecum. J. F. O. Huese.—p. 2393.
The Wounded in the Amsterdam Hospitals After Naval Battle in 1781. G. Hellinga.—p. 2395.

Fatalities After Operations on the Nose.—Burger has compiled sixty-six cases and comments on Loeb's collection among American surgeons of 190 fatalities after operations on the nose and 142 on the throat. He concludes his analysis with seventeen rules that should always be borne in mind in operating on the nose, and mentions in addition Ballenger's warning not to operate endonasally in cases of violent headache unless lumbar puncture shows that there is no danger of already existing meningitis. One of his rules is that if the physician causes pain in introducing the nasal speculum, this demonstrates that he is too clumsy to attempt even to probe the nose-frontal sinus passage. Consultation with the family physician, the internist, is always advisable.

Erysipelas.—Herderschêe relates that a chill ushered in the erysipelas in 57 per cent. of the 605 cases of erysipelas of the face in his service in the last six years, and in 50 per cent. of the 604 with erysipelas elsewhere on the body. The pain was sometimes so intense with erysipelas of the face that trigeminal neuralgia was assumed in the cases in which redness and swelling were late in appearing. The mortality was only 5.2 per cent. among the men and 6.1 per cent. among the women with erysipelas of the face. With erysipelas elsewhere, the figures were 13.5 and 14.1 per cent. Four of the 9 young infants and 8 of the 23 in these two classes died, as also 10 of the 48, and 33 of the 85 aged above 70. In 18.5 per cent. of the face erysipelas cases there was a history of previous attacks, as also in 14.4 per cent. of other localizations of erysipelas; in some cases it had returned ten times, or every year. Herderschêe's analysis shows that erysipelas deserves more consideration than is generally accorded, and requires special care in prophylaxis. The skin in heart and kidney disease seems to be peculiarly predisposed to erysipelas, and the heart and kidney affections are aggravated by it.

Umbilical Colic in Children.—Timmer compares the conflicting publications on this subject, but is convinced of the reality of a nervous and recurring form of pains in the umbilical region which have no connection with the appendix, helminths, enteritis, tuberculous glands or purpura. The attacks of pain are brief, the child seems normal in the intervals, and the abdomen seems normal except for a little tenderness at certain symmetrical points or on the median line. Even if the child is neurotic, if the pain is continuous and the temperature rises slightly, the disturbances cannot be regarded as "nervous umbilical colic" alone.

Acta Chirurgica Scandinavica, Stockholm

56: 1-102 (July 5) 1923

*Hallux Valgus. T. Sandelin.—p. 1.
*Chronic Tuberculosis of the Kidneys. G. Söderlund.—p. 27.
*Bone Grafts. A. Troell.—p. 59.
*Short Notes of Rare or Obscure Cases. G. Nyström.—p. 73.

Hallux Valgus.—Sandelin found hallux valgus in 30 per cent. of 3,200 feet examined at Helsingfors, including 30 in infants and 350 in persons over 60. Of the 150 patients requiring operative relief, only 10 per cent. were men. Recent reexamination of 107 in this operative group, comparing them with others, has demonstrated that as the hallux valgus begins to be painful, the patient walks more on the side of his foot to protect the sensitive exostosis against pressure and trauma. The weight of the body is thus thrown on the fifth metatarsal bone. This is unable to stand the strain, the ligaments stretch, and the arch of the foot gives way. The anterior points now supporting the foot are not modified by resecting the head of the first metatarsal bone. This, however, brings the deformed joint back to clinically normal conditions, and the whole disturbance gradually corrects itself. Patients in this category were always pleased with the result of the operation. On the other hand, the head of the first metatarsal bone should not be removed when the anterior arch of the foot is intact and the hallux valgus has not caused subjective disturbance. Removal of the head of the first metatarsal bone, in these circumstances, throws the weight on new points of support, and severe pain in the under part of the foot is almost certain to result. His experience in this class of cases has been very discouraging. He now advises against an operation in such cases, or applies Schede's operation. Recurrence may be anticipated with this. He applied this technic in twenty cases, and the Hueter method in the others. The hallux valgus was bilateral in all but six of the 106 operative cases. (In German.)

Chronic Tuberculosis of the Kidneys.—Söderlund discusses (in English) the primary localization of the tuberculous process. The microscopic findings in four cases, described in detail, testify that the primary focus had developed in one pyramid and long remained circumscribed there. When this focus finally broke through into the renal pelvis, a superficial tuberculous process rapidly developed throughout the renal pelvis. The primary, hematogenous process had probably persisted, completely shut off, for months or years, causing no symptoms except possibly slight pain in the back or kidney region.

Bone Grafting.—Troell reports the outcome in thirteen bone transplanting operations on cats. He also experimented with ivory. The article is in English and profusely illustrated.

Short Notes of Rare or Obscure Cases.—Under this heading Nyström offers the *Acta* as a forum for brief reports of surgical work making no pretensions to study of the literature or extensive material. The nineteen such reports given herewith refer to operations on the head, digestive, biliary and urinary apparatus, intestines, hernia, and the extremities, nearly all in English. Among them is Karstad's report of successful operative treatment for perforating duodenal ulcer in two boys, aged 10 and 12. In both, after retrocolic gastroenterostomy the horizontal portion of the duodenum was invaginated.

Hygiea, Stockholm

85: 353-400 (May 16) 1923

*Results of Gallstone Operations. K. Gramén.—p. 356.
Physiologic Adjuvant in the Rest Cure of Pulmonary Tuberculosis. A. Knopf.—p. 365.
Error in Thought and the Conventional. S. Hedenberg.—p. 379.

Investigation of Condition of Patients After Gallstone Operations at the Serafimer Hospital.—Gramén, in 1913 and 1922, investigated the health of the survivors of 313 patients, 68 men and 266 women, operated on for gallstones during the period from 1891 to 1912, with a mortality of 18 and 13 per cent., respectively, for men and women, lowered to 10 per cent. during the last five years. His purpose was to determine the relative merits of three operative methods. Cholecystectomy had been used on 238, with 29 deaths, 128 survivals in 1913 and 77 in 1922. The figures for cholecystostomy were 62 operations, 11 deaths, 34 and 18 survivals, respectively, and for cholecystotomy 12 operations, 2 deaths with 5 and 2 survivals, respectively. The personal examination or correspondence indicated good health in 72 per cent.; fairly good in 23, and poor in 5 per cent. This last group included 10 cholecystectomies (77 surviving in 1922); 10 cholecystostomies (18 surviving in 1922), and 2 cholecystotomies (2 surviving in 1922).

85: 449-496 (June 15) 1923

*Stethoscopy and Roentgenoscopy in Tuberculosis. Tillman.—p. 457.

Comparative Study of Auscultation and Roentgen-Ray Findings in Diagnosis of Tuberculosis of the Lungs in Adults.—Tillman says that, from blunders in diagnosis, 25 per cent. of patients received at hospitals for tuberculosis are not afflicted with that disease, or the tuberculosis has been treated for other lesions until it has advanced to an incurable stage. He has made a comparative clinical roentgenographic classification of 300 patients in the next largest tuberculosis hospital in Sweden. He found a fair agreement between the stethoscope and the roentgen examination in 25 per cent. of the cases where roentgenography had been employed to corroborate the clinical diagnosis, while roentgenography gave more instructive findings in 175 cases out of 243. It was surpassed by the stethoscope findings in only six cases. The roentgen procedure is, however, only a valuable auxiliary means of diagnosis. It should not be relied on alone.

85: 497-544 (June 30) 1923

*Methods for Determining Gastric Acidity. E. Wolff.—p. 497.
Optical Instruments Enlarging Process. H. Gertz.—p. 518.

Ion Method for Determining the Acidity of the Gastric Juice.—Wolff says that "free hydrochloric acid" is a misleading term, not based on physiologic facts, and that none of the published methods for its titration gives results, correct in principle. The hydrochloric acid in the gastric juice, in excess of that bound by albumin, is dissociated into hydrogen and chlorin ions, while acid salts and organic acids and the bound acid also generate a small amount of hydrogen ions. The sum total of these hydrogen ions represents the actual acidity. He has constructed a table in which the color variations of Lanz's titration method, after some changes, have been translated to variations from normal of hydrogen ion concentration. By this method he has examined forty stomach contents of about thirty patients with various gastric and other diseases, comparing the results with the amounts found through titration of the free hydrochloric acid, and found these too high, as a rule.

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THE TREND OF PREVENTIVE MEDICINE IN THE UNITED STATES *

JOHN A. FERRELL, M.D., Dr. P.H.
Director for the United States, International Health Board
NEW YORK

THE SCIENTIFIC BASIS OF PREVENTIVE MEDICINE

Scientific discoveries of the last half century regarding disease have furnished a sound basis for the field of preventive medicine. Public and private agencies have been established to apply this knowledge. The record of reduction of deaths from controllable diseases is proof of their effectiveness. Additional knowledge of other diseases is needed, and there is a growing tendency to encourage research.

ORGANIZATIONS FOR APPLYING PREVENTIVE MEDICINE

The growth of organizations for applying preventive medicine has followed the development of knowledge of disease.

The United States Public Health Service now has authority to engage in all activities that are proper functions of a national health department. It is a bureau of the Treasury Department. The collection of vital statistics and other public health activities are functions of other departments. The trend is toward consolidation of all federal health work into a single department.

City health departments are generally well organized and are applying the principles of preventive medicine on an intensive scale. The conservation of health during infancy and childhood is being emphasized. Such diseases as smallpox, diphtheria and typhoid fever are disappearing.

All the states in the Union now have health departments, most of them full-time, with the basic divisions of laboratory, vital statistics, sanitary engineering, and preventable diseases well established. The Eastern states have tended toward the centralized type of organization. The Southern, Middle Western and Western states have tended to adopt the decentralized type of organization and to cooperate in local health work with the county as the unit. County health organizations on a full-time basis are being rapidly established. The tendency toward the development of effective local health organizations with state cooperation is growing in the Eastern states.

LOCAL HEALTH ORGANIZATIONS

County Health Organization.—History: The county health organization is a development of the last seven or eight years. In 1914 there were only three in the United States. In 1915 and 1916 the state boards of health, in attempting to control hookworm disease with the financial assistance of the International Health Board, found it necessary to establish an agency to hold the gains and finish the job. As the county had been found by experience to be the most satisfactory unit in local governmental matters of this type, it was adopted as the basis for organizing the full-time local health service. The part-time county health officer had been found unsatisfactory.

The full-time experiment yielded satisfactory results, and soon the organization, in response to popular demand, extended its operations to the broader problems of public health. As the hookworm control measures evolved into full-time county health service on a partnership basis between state and county, so likewise have other specialized efforts in the field of preventive medicine. The United States Public Health Service, in a drive against typhoid fever, broadened its work by degrees to include rural sanitation, and finally it centered its efforts around the establishment of county health organizations as the best means of accomplishing its primary object. The National Tuberculosis Association and the National Child Health Council have recently decided to support the county health organization as the best agency for demonstrating in rural districts the possibilities in their special fields.

The growth in the numbers and distribution of full-time county health organizations since 1914 is reflected in Table 1.

Functions: The county health organization usually consists of a medical officer, a clerk-technician, one or more public health nurses, and, when necessary, a sanitary inspector, all serving on full time. The cost varies with local conditions. An expenditure of from 25 to 50 cents per capita will usually support a creditable staff. This is not burdensome on the taxpayers, and they find it an excellent investment.

The staff visits the schools and homes, and learns first hand the health needs of the individual and of the community. This information is recorded, and serves as a guide in formulating a sound program. If there is no special emergency, those measures are undertaken first which will contribute most readily to producing tangible results which the public can appreciate

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* Chairman's address, read before the Section on Preventive and Industrial Medicine and Public Health, at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

* Because of lack of space, this article is abbreviated in The Journal by omitting the discussion of the scientific basis of preventive medicine and the development and activities of the organizations for applying preventive medicine, federal, state and city, and the tables on which Charts 2 and 8 inclusive are based, and substituting therefor the introductory remarks that appear above. The complete article appears in the transactions of the Section and in the author's reprints, a copy of which may be obtained on request to the author.

The conduct of the work permits intimate acquaintance between the family in the home and the health worker. The value of this personal contact cannot be overemphasized. It leads to widespread interest in the rudiments of hygiene and public health and is far more effective than attempts at mere law enforcement. If recourse to law in dealing with a few recalcitrants becomes necessary, the local courts can be relied on for convictions.

Practically all of the 140 county organizations in the Southern states gave initial consideration to controlling the filth-borne group of diseases—typhoid fever, hookworm disease, diarrhea and dysentery, and evolved working methods which have yielded satisfactory results. Some of the counties having malaria have directed primary efforts to its control and are making appreciable progress. In other parts of the country the county organization has afforded the most satisfactory approach to the masses in dealing with tuberculosis, child welfare, maternity and infant welfare, venereal disease, and other public health matters. The outstanding problem in each county is emphasized as a means of securing the necessary local support for establishing the organization, and it is featured as the chief activity for from one to three years until definite results have been obtained.

Trend: The county health organizations have given promise of furnishing the rural areas and small towns with a health service approaching in adequacy that enjoyed by the cities; of serving as the long arms of state boards of health capable of reaching to the individual home in the rural district; of permitting more or less decentralization of state health work; of making possible the raising of the necessary funds in the easiest manner, and of stimulating community pride in meeting its obligations. The trend among public health forces, federal, state and voluntary, is toward cooperation with counties in the establishment, maintenance and extension of full-time health service and, when practicable, in bringing the health forces of the county and the towns of the county into a compact organization working in close association with the state board of health.

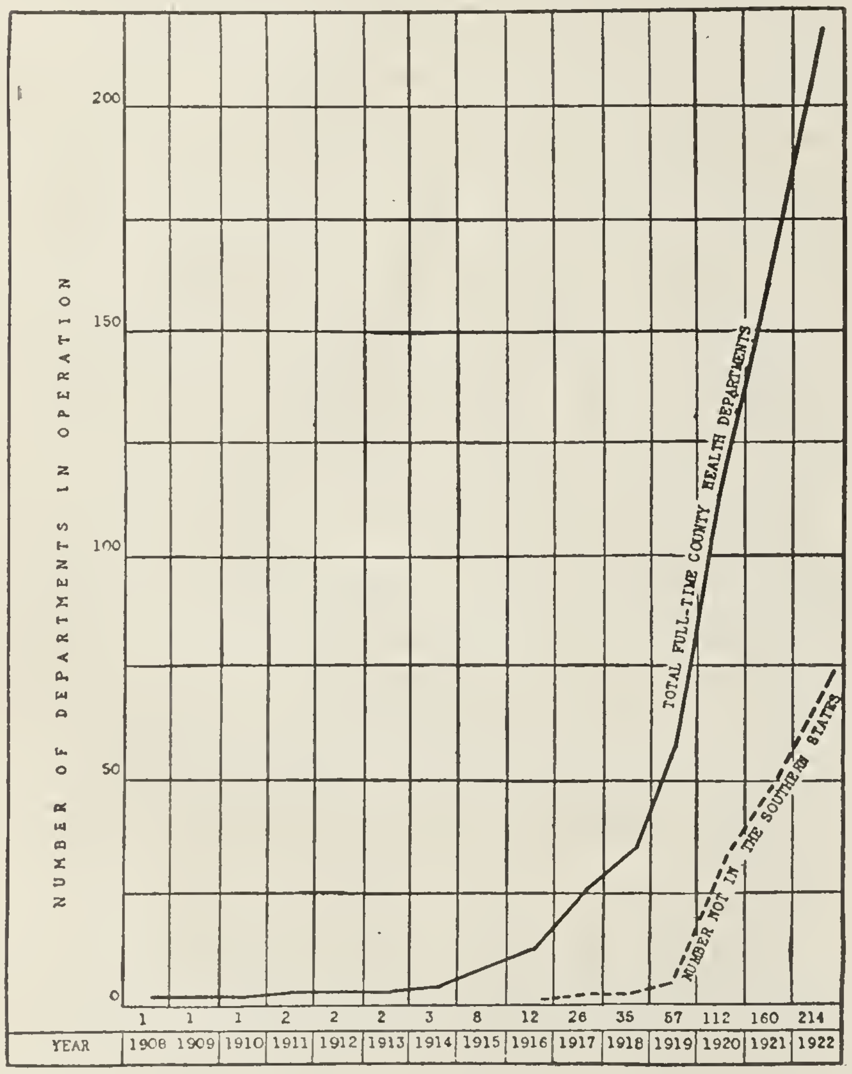

Chart 1.—Growth of full-time health departments in the United States: Lines indicate the number of departments at the close of each year which had been in continuous operation from the time they were first started.

Table 1.—*County Health Organizations, 1914-1923*

	1914	1918	1920	1923
Number of county organizations in U. S.	3	35	43	214
Number of states represented	3	11	16	26
Number of Southern states represented	3	8	11	14
Number of county organizations in Southern states	3	33	80	140
Number of county organizations not in South.	0	2	33	74

VOLUNTARY HEALTH ORGANIZATIONS

Popular interest in public health possibilities did not begin to crystallize until the beginning of the present century. The result has been the rapid growth not only of official public health organizations, but also of volunteer bodies seeking the prevention of disease and the promotion of health. We now have 121 national voluntary organizations, twenty-two of which are interested in the general promotion of health, twenty-nine in specific diseases or health problems, and seventy only incidentally in the promotion of health.

The National Tuberculosis Association was established in 1904, and has contributed to the community, state and national resources for the control of tuberculosis. The American Red Cross, the American Public Health Association, the American Social Hygiene Association, the National Child Health Council, the National Organization for Public Health Nursing, the International Health Board, and numerous other national organizations have likewise been created and have similarly contributed to the advancement of public health.

The voluntary organizations have aroused public interest in particular problems by the utilization of facilities beyond the resources of the public health agencies, and have developed effective field methods that could be adopted with a minimum of risk by the official agencies. They have aided the official agencies in securing needed legislation; in disseminating knowledge; in standardizing procedures; in setting up proper standards of training; in hastening legislation, and in other steps designed to assist the public agencies in their growth and in properly meeting their responsibilities.

PRESENT STATUS OF PUBLIC HEALTH IN THE UNITED STATES

ACHIEVEMENTS AND UNFINISHED TASKS

The phenomenal growth in the underlying sciences of preventive medicine has made possible certain striking achievements in the promotion of health, the prevention of sickness, and the saving of life. The masses have been educated through lectures, exhibits and demonstrations, by school instruction, and by papers, magazines and books. This public health education, together with improved economic conditions and the resulting higher standards of living, has undoubtedly contributed to better health and lowered rates of morbidity and mortality. Although mortality statistics have their limitations as indicators of the status of health promotion, I shall, in the absence of more satisfactory bases for measuring progress, employ them in this discussion.

The status of the general death rate in the United States, as compared with the rate of other nations, is suggested by the figures in Chart 2, quoted from mortality statistics, 1920. The reduction of the death rate for the registration area of the United States from 19.8 in 1880 and 17.6 in 1900 to 13.1 in 1920 makes a favorable showing. A recent bulletin giving the figures for 1921 shows a rate of 11.7, the lowest yet reached by any country except New Zealand, but there are indications that the United States 1923 rate will be somewhat higher.

The reduction in the death rates from diseases against which science has given us effective control methods, as, for example, typhoid fever, is striking, whereas diseases against which science has made little progress show slight or no reduction, and, as in cancer and heart disease, an actual increase has occurred. The situation will be illustrated by Chart 3, which gives the death rate in 1900, 1910 and 1920 from thirteen important causes of death in the registration area of the United States.

Some idea of the achievements and of the unfinished tasks based on present knowledge of the public health organizations will be obtained by noting the figures given in Charts 4, 5 and 6 for three causes of death—typhoid fever, diphtheria, and diarrhea and enteritis—which can be successfully combated. In the left hand column are listed states and cities having low death rates to show what is possible under present conditions, and in the right hand column are listed states and cities having death rates which, despite marked improvement, are still among the highest. These states and cities have clearly defined problems which we know it is practicable for them to carry much further toward completion. The actual vanishing point for typhoid fever was reached by Providence, New Bedford and Yonkers, three Eastern cities having a total population of almost 500,000, without a single death from typhoid during 1921.

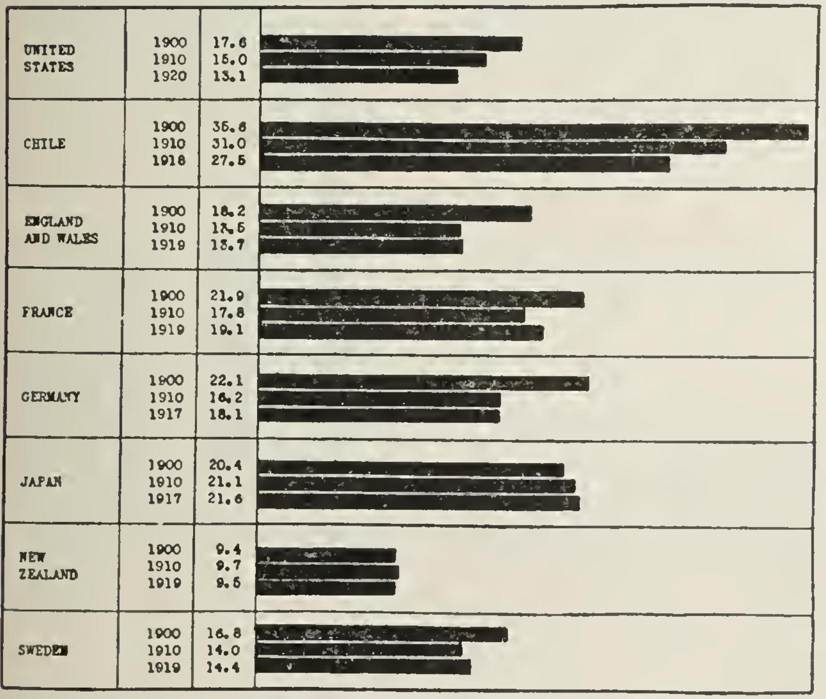

Chart 2.—Death rates from all causes per hundred thousand population for certain countries.

The census reports do not give statistics by counties, but the typical record of progress in controlling typhoid fever and hookworm disease over a period of from five to ten years in Southern counties, given in the specially collected figures of Charts 7 and 8, is evidence of the practicability of conducting health work successfully even in rural communities.

In noting the death rates, consideration should be given to special conditions which give rise to low or high rates. The South, for example, has its death rate raised by the exceptionally high mortality among negroes, whereas in certain Eastern centers the death rates among the families of the foreign-born are disquieting. On account of such factors it is evident that many cities and states must exert extraordinarily effective control measures. However, broadly speaking, the present status of health work in the United States, as reflected by mortality statistics, is most encouraging.

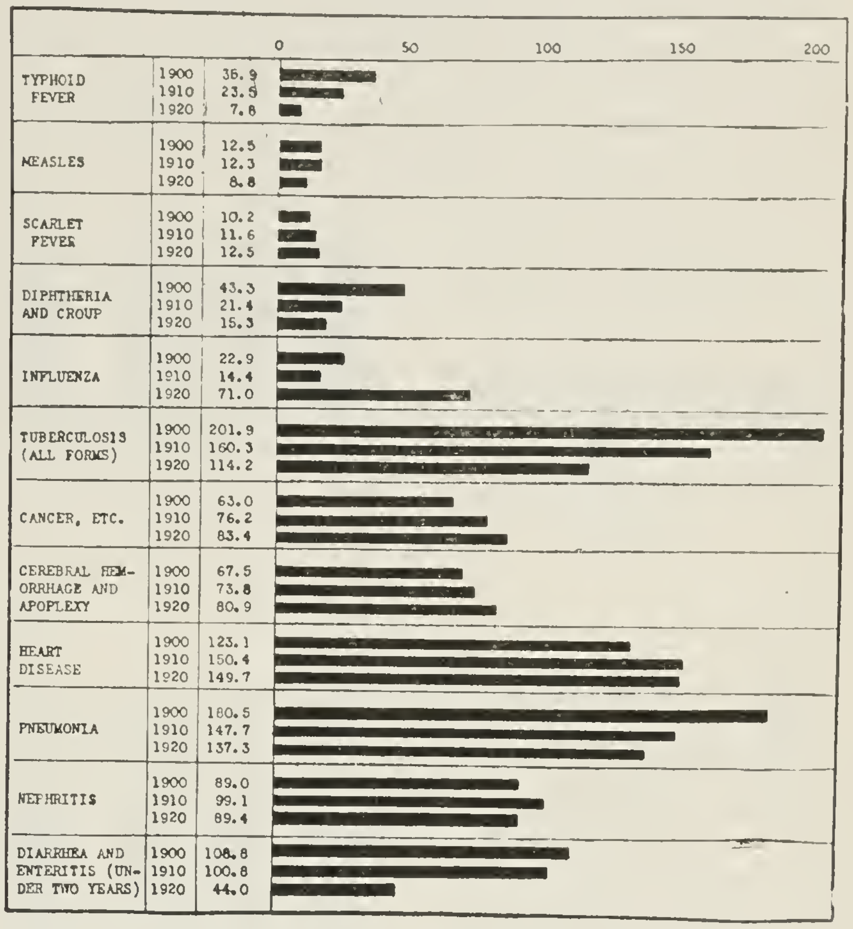

Chart 3.—Death rate per hundred thousand population for the registration area of the United States, 1900, 1910 and 1920, for thirteen important causes of death.

UNDEVELOPED AND UNOCCUPIED FIELDS OF PUBLIC HEALTH

LIMITATION OF THE PHYSICIAN'S FIELD

The physician in his practice does not enjoy as great freedom as does the health officer in placing his services at the disposal of those whom he might benefit. He is not expected individually to seek out those needing medical care or advice and acquaint them with the extent to which he is qualified to serve, but rather to remain in his office and wait for the people to discover him and his usefulness. Mainly those who are already sick or injured seek his aid. Misguiding influences cause many of this class to fall into the hands of quacks. Often, much time which the physician might with profit to himself and patient devote to preventive medicine is not adequately occupied because the public has not been taught to appreciate the importance and possibilities of preventive measures.

The outlook is encouraging. The modern medical schools are stressing or should stress the training of physicians to meet fully their opportunities in the practice of preventive as well as of curative medicine. The American Medical Association and many local medical associations are conducting campaigns for the education of the public with regard to the value of periodic physical examinations and other services the competent physician can render toward the promotion of health. The trend indicates that the physician and normal healthy individual are finding common ground in the field of preventive medicine. The health officer and the health nurse should be useful intermediaries in furthering this sane understanding.

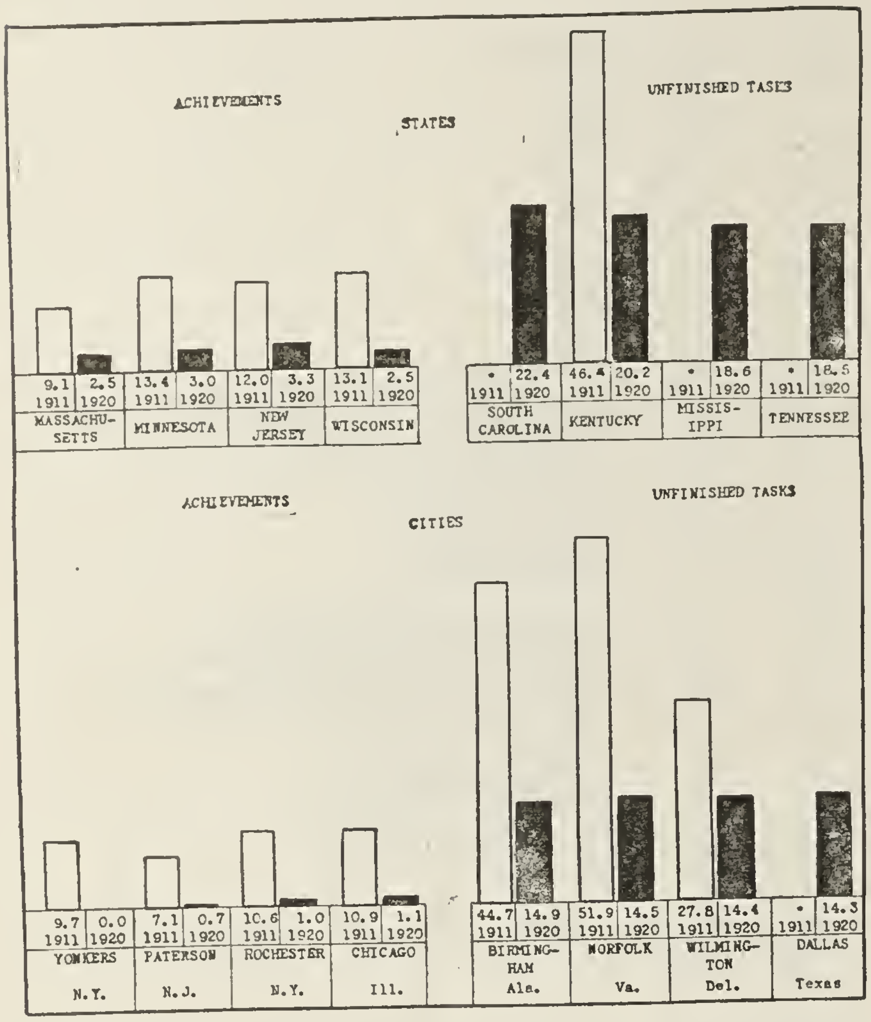

Chart 4.—Death rate from typhoid fever for each hundred thousand of population.

LIMITATIONS IN THE HEALTH OFFICER'S FIELD

The efforts that have been made to establish lines of demarcation between the fields of the physician and of the health officer, and to define "state medicine" have been unsatisfactory. In strictly community enterprises, such as water and sewerage systems, the collection of vital statistics, public health education, and the enforcement of quarantine laws, no question has arisen. When, however, the application of knowledge to the prevention of disease, as in hookworm disease, malaria and syphilis, leads to the treatment of the individual by the health workers, there arises difference of opinion as to how far the health officer should go. The same holds true in conducting maternity and infant welfare work, in correcting the physical defects of children, and in life extension clinics for thoses in the midperiod of life. Even in localities where no rigid restrictions are placed on the health workers in matters of individual or community health, the staff is too small to meet fully the opportunities for health service. The health officer is primarily a servant of the community. His sphere extends to the masses. In serving the individual, he does so primarily from the point of view of the best interests of the community. His efforts are directed toward enabling the individuals who compose the community to escape or indefinitely postpone the necessity for curative and repair treatment. There are no restrictions to prevent him from surveying the community and lending service wherever it may be needed. His initiative may find unobstructed outlet, and there is no excuse for idleness.

TYPES OF SERVICE YET TO BE DEVELOPED

Unfortunately, there are many problems not included in the ordinary public health program with which even the more progressive health departments under existing conditions have been unable to cope successfully. Careful surveys in various parts of the country in a number of fields indicate that there is vast loss of life, unnecessary sickness and suffering, and economic waste because doctors of curative and of preventive medicine are not available in sufficient numbers; and even in the more fortunate communities where the supply of physicians is abundant and the health organization is relatively satisfactory, the loss occurs because the fields of the two professions are too widely separated.

MATERNITY AND INFANT HYGIENE

It is estimated that from 20 to 40 per cent. of the women in confinement in the United States have no medical attendant; that 70 per cent. or more have no advice or instruction during pregnancy, and that even more fail to have a thorough examination to ascertain whether or not they are physically fit to go through the ordeal of childbirth. Dr. W. S. Leathers, health officer of Mississippi, has estimated that 40 per cent. of the births of his state are attended by ignorant midwives. Moreover, there is an appalling and unnecessarily high death rate among infants during the first and second years of life.

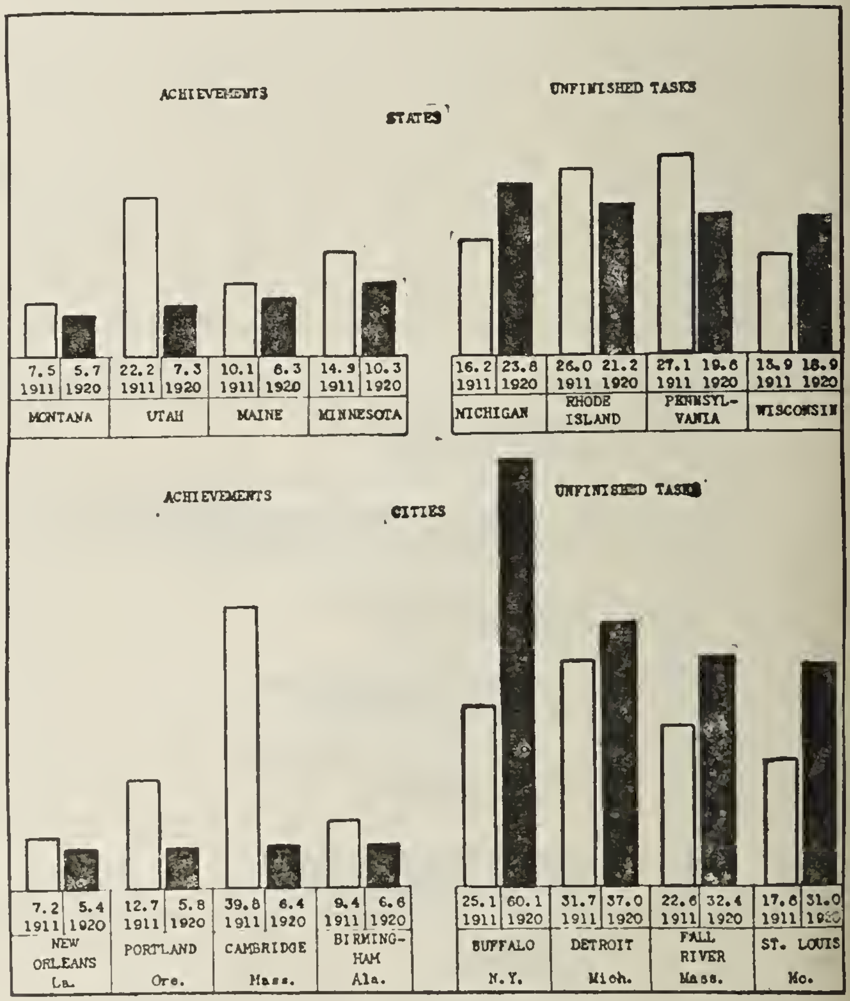

Chart 5.—Death rate from diphtheria for each hundred thousand of population.

CHILD HYGIENE

In the schools, educational facilities placed at the disposal of the children are only partly used, because a large percentage of the children are suffering from remediable impairments—malnutrition, infected tonsils, adenoids, defective vision, deformity, or mental and nervous disorders. The record of absentees and of those who leave school because of discouragement is needlessly high. A study by the United States Public Health Service, based on 3,786 school children, shows that "the rate of absence from sickness for children with defects is 22 per cent. greater than the rate for children with no defects; the rate for children with enlarged or diseased tonsils is 12 per cent. greater than the no-defect rate, and the rate for children with adenoids, defective tonsils, etc., associated with other defects, is 31 per cent. greater than the rate for the children with no defects." The examination by various investigators of 237,553 school children, distributed in five states, showed that approximately 70 per cent. of the children were defective; 11.3 per cent. had defective eyes; 20.7 per cent., defective nose or throat; 49.2 per cent., defective teeth; 10.7 per cent., defective skin; 5.4 per cent., defects in nutrition, and 4.3 per cent., deformities.

TABLE 9.—*Causes for Rejection, U. S. Draft Board*

	Number	Per Cent.
1. Total for all causes	467,694	100.00
2. Alcohol and drugs	2,007	0.43
3. Bones and joints	57,775	12.35
4. Developmental defects (height, weight, chest measurement, muscles)	39,166	8.37
5. Digestive system	2,476	0.53
6. Ears	20,465	4.38
7. Eyes	49,801	10.65
8. Flatfoot (pathologic)	18,087	3.87
9. Genito-urinary (venereal)	6,235	1.33
10. Genito-urinary (nonvenereal)	6,309	1.35
11. Heart and blood vessels	61,142	13.07
12. Hernia	28,268	6.04
13. Mental deficiency	24,514	5.24
14. Nervous and mental disorders	23,728	5.07
15. Respiratory (tuberculosis)	40,533	8.67
16. Respiratory (nontuberculous)	7,823	1.67
17. Skin	12,519	2.68
18. Teeth	14,793	3.16
19. Thyroid	8,215	1.76
20. Tuberculosis of parts other than respiratory	4,136	0.88
21. All other defects	14,314	3.06
22. Cause not given	25,419	5.44

EARLY ADULT HYGIENE

The physical handicaps of the preschool period linger until adult life is reached. The draft board, in an examination of 3,208,444 men, aged 21 and 30, inclusive, found only 2,076,185, or 64.71 per cent., qualified for military service. The causes for rejection of 467,694 registrants are analyzed in Table 9.

TABLE 10.—*Five Principal Causes of Death in U. S. Registration Area, 1920*

	Deaths, 1920	Rate per Hundred Thousand
Organic diseases of the heart	124,143	141.9
Pneumonia (all forms)	120,108	137.3
Tuberculosis (all forms)	99,916	114.2
Bright's disease and acute nephritis	78,192	89.4
Cancer	72,931	83.4

BASIC KNOWLEDGE NOT AVAILABLE

The five principal causes of death in the United States registration area are shown in Table 10.

Under the head of "achievements" we were unable to list these five and several other diseases concerning which scientists have not yet pointed the way to effective measures of prevention. Extensive research is the first step toward the solution of the problems, and should be and is being encouraged.

COOPERATION BETWEEN PHYSICIAN AND HEALTH OFFICER IN RESPECT TO UNOCCUPIED FIELDS

From the beginning of the development of preventive medicine, the physician has been the recognized leader. He has been selected to administer health work. The field has now reached a stage at which it may be considered as much a profession as the practice of clinical medicine. The unoccupied fields referred to above, and which Dr. W. S. Rankin of North Carolina has so well described, will undoubtedly be occupied, and it would seem the part of wisdom for the practitioners of clinical medicine and of preventive medicine to come together in frank conference.

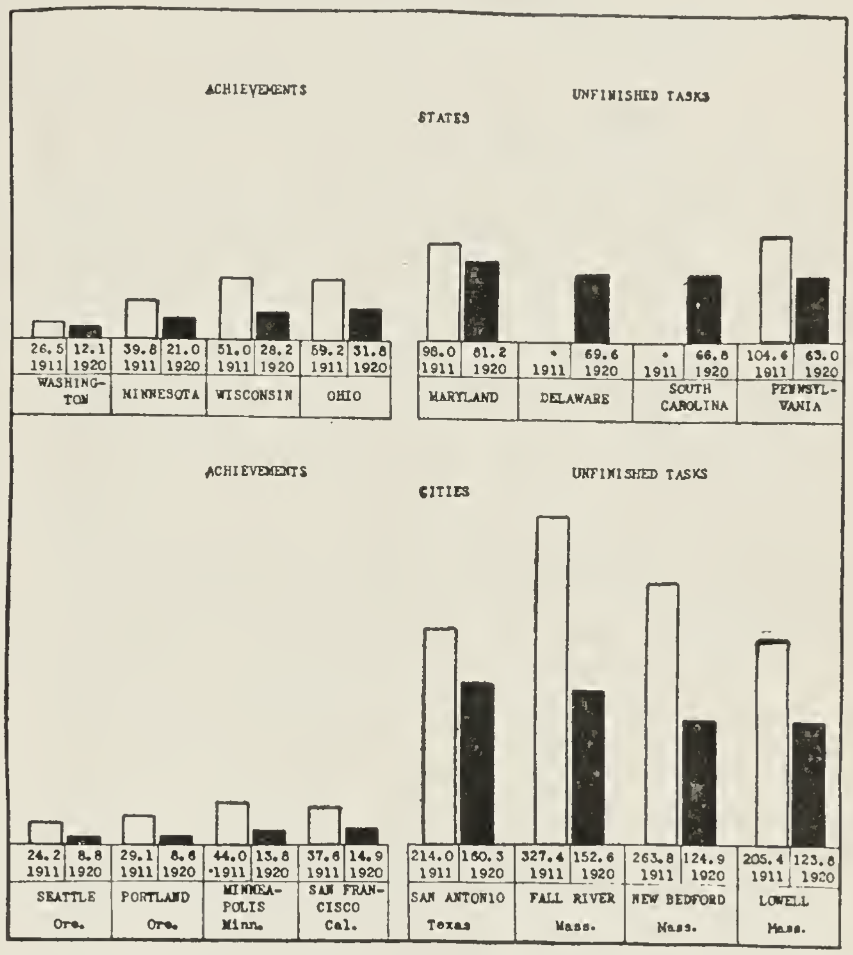

Chart 6.—Death rate from diarrhea and enteritis in children under 2 years of age, for each hundred thousand of population.

The growing public appreciation of the importance of periodic medical examinations would seem to point the way to a solution of the problem which will be fair both to physician and public. A well man is a greater asset to the community and is better able to pay the physician for his services than is a debilitated or incapacitated one. Once the individual is willing to pay reasonable fees to the physician in the practice of preventive medicine, and the physician in turn is equipped and ready on a reasonable basis to render efficient service, the problem of the organized health department, the public agency, will be greatly simplified, and the loss from sickness and physical impairment so conspicuously revealed by recent studies will cease.

A PROFESSIONAL BASIS FOR PUBLIC HEALTH

The progress of the last ten years toward placing public health service on a substantial professional basis has been gratifying. In 1910 only a few states had full-time health officers, and still fewer had established the essential divisions of service. At present, with few exceptions, all the states have full-time health officers, and about four fifths of them have the essential divisions operating on a full-time professional basis. Moreover, the cities and counties are recognizing the wisdom of conducting health work on a full-time basis, and there is increasing competition among them for the services of workers having training and successful experience.

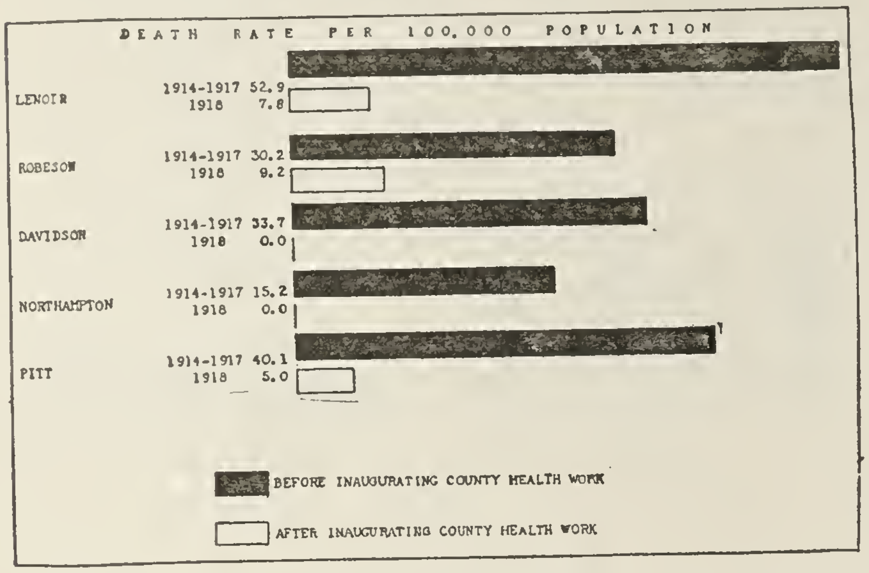

Chart 7.—County death rates from typhoid fever: average number of deaths from typhoid per hundred thousand population in five North Carolina counties for the years 1914 to 1917, before the inauguration of county health work, compared with that for 1918, the year succeeding its inauguration.

The majority of the health officers have not had special training. Some have gained aptitude for their duties through practical experience. As the scope of the work has broadened and as the procedures have become more definite, the demand for trained men has become urgent and the inducements to engage in the work have been made more attractive. In the most progressive health organizations, the service has been placed on a permanent and professional basis and the compensation made reasonably adequate. As the more backward organizations will inevitably follow their example, there may be expected a general improvement of conditions which will influence the most capable men and women to choose it as a vocation.

Extensive educational work will be required to hasten the general adoption of these high standards. Points which need particular emphasis from this standpoint include freedom from unwholesome political influence, security of tenure and adequate compensation.

Freedom from Unwholesome Political Influence.—In a number of states the selection of the chief health executive is a function of a board which has a rotating and overlapping membership similar to that of most university boards. The terms of a majority of the members do not expire during the governor's term of office. In these states, with rare exceptions, the chief health officer and others may expect to hold their positions during satisfactory service, and a high type of professional spirit has usually developed. There are still a number of states in which the governor appoints the health officer directly or indirectly, and in these states, with a few notable exceptions, there has been greater tendency to regard the health officer as a political appointee whose administration will terminate with that of the governor. This influence of politics, even during recent years, has deprived of their positions health officers who have demonstrated real ability and has discouraged many promising men from taking up public health work as a vocation. The man who turns aside from a profession or business to engage in public health work for two or four years to fill a political appointment cannot render the most efficient service. He lacks training, and his period of service is too short to warrant his taking it. Effective service obviously can be rendered only on a full-time basis. The nonpartisan health board having members with overlapping terms, with power to select the health officer, fix the length of his term and pass on his policies, as stated above, has proved the most satisfactory safeguard against political influence.

Security of Tenure.—When the chief health officer is chosen on a merit system, with power to appoint his staff, the subordinate positions are protected as to tenure, provided the organization is efficient and devotes sufficient effort to enlightening public opinion and thus prevent legislative reaction and diminished appropriations. The displacement of competent health officers for political reasons is occurring less often. The hope, it would seem, is justified that within another fifteen years only trained health workers will be in office, and their tenure will be as satisfactory as is now that of presidents and faculty members in our universities.

Adequate Compensation.—Salaries in health work already compare favorably with those in education and other branches of community service.[1] They are, however, below the returns obtainable by successful men and women in business and other professional fields. The upward tendency of the scale needs to be accelerated, particularly in the more backward states and cities, and this problem is almost wholly one of public and legislative enlightenment.

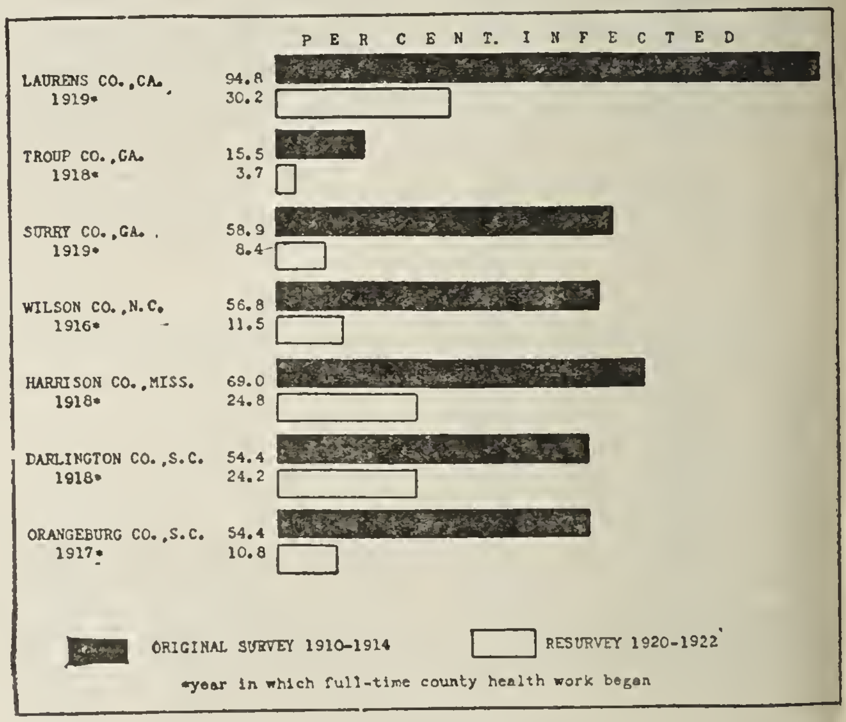

Chart 8.—Reduction in hookworm infection: rates found in original infection survey (1910-1914), compared with rates found in resurveys (1920-1922).

THE TRAINING OF PUBLIC HEALTH PERSONNEL

If the growth in public health service of the last fifteen years continues at the same rate, and county health work continues to spread, increasing difficulty will be encountered in finding the necessary trained personnel. If for each unit of 20,000 inhabitants there should be required a working force consisting of a full-time health officer, two public health nurses, a sanitary inspector, and a clerk-technician, as has been found desirable in the average county of this size, we shall need in the United States, with a population of more than 105,000,000, and allowing for the federal and state services each an additional 10 per cent., more than 7,000 full-time health officers, an equal number of sanitary inspectors, and twice this number of public health nurses, or a total of from 25,000 to 30,000 trained persons.

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[1] The prevailing salaries now paid throughout the United States were fully treated in the report of the Committee on Salary Standards, American Public Health Association, in the August, 1922, issue of the American Journal of Public Health.

If twenty years is taken as a reasonable period for this anticipated development, three hundred new health officers for administrative positions, exclusive of those needed for replacement, will be required each year, a number equivalent to about 10 per cent. of all the physicians being graduated at present by the medical schools of this country.

To meet this lack, three principal avenues of training are available: the school of experience, special courses, and university schools of public health.

The School of Experience.—Practically all of the older health officers were medical graduates who entered preventive medicine more or less by accident and secured their knowledge of it through practical experience. It is not minimizing their ability to say that they would have profited by a modern public health course, and they themselves are the first to recognize it. The school of experience is passing, largely because it has developed leaders of vision who see that the future belongs to the university schools. Until these are more fully established, however, and an adequate supply of trained men can be turned out, various devices must be adopted for improving the equipment of the existing personnel.

Special Courses.—A few of the larger and more progressive state boards of health are already providing facilities for supplying in part the special training needed by staff members of the state and local organizations. They offer reading courses and correspondence study courses; and, with the cooperation of private agencies, including the International Health Board, a few of the states are obtaining fellowships to schools of public health for their more successful staff members.

University Schools of Public Health.—All of these efforts at training are but makeshifts, however, against the day when the profession of preventive medicine will require as strict a training as that of curative medicine. The two outstanding centers for this type of training today are the School of Hygiene and Public Health of Johns Hopkins University, and the School of Public Health of Harvard University, both of which have first-class equipment, large faculties and generous endowments, and the advantages of great centers of scientific learning. There were in 1922, however, nine other universities in the United States offering graduate courses in public health, the majority of which have regular courses of study leading to the degree of Doctor of Public Health after one or two years' work. Eventually, let us hope, the number of university schools of public health of quality equal to the schools maintained in law, medicine or engineering will be adequate to meet the needs of the nation.

PUBLIC HEALTH EDUCATION ESSENTIAL

Although the progress of public health education during recent years has been gratifying, the work to be done is still in its early stages. The knowledge of hygienic methods of living during infancy, childhood, adolescence and maturity should be widely disseminated. There should be developed a keener appreciation of individual and community responsibility for cooperating with and supporting the health organizations. When the public becomes thoroughly alive to the importance of health work, it may be relied on through its legislative bodies to make the service attractive for the workers, free them from unwholesome political influences, and on the basis of merit accord them professional standing and adequate compensation; and this transition will in turn afford a compelling incentive to young men and young women of the best type to take up the work as a profession.

SUMMARY

1. The scientific discoveries regarding disease of the last half century have established a sound basis for the field of preventive medicine.

2. Public and private organizations to apply the knowledge have been established. Those having competent full-time personnel have achieved notable results in saving life.

3. The tendency is toward extension of county health service on a full-time basis, with the state cooperating.

4. The physician and health officer occupy fields separated by an unoccupied field in which the saving of life and the promotion of health are neglected. They should give their combined attention to correcting the situation.

5. Public health is a distinct professional field; universities are offering courses of training for it; political interference in policies and tenure is diminishing; compensation is increasing, and public health information is being widely disseminated.

Acute Obstruction of Coronary Artery.—For a long time I had the conception that obstruction of any large branch of a coronary artery meant sudden death. That is perhaps true in the majority of instances. But I have learned that a patient may have acute obstruction of the coronary artery, or some of its larger branches, and may live for days, for months, or may ultimately recover functionally. The reason why these patients were looked upon as doomed to a sudden death was largely because the coronary artery was considered to be a terminal, or end artery. There were said to be no anastomoses that amounted to anything between the right and left branch. If, therefore, the coronary artery was obstructed, as in the descending branch of the left coronary, all that portion of heart muscle nourished by it became inefficient. It was thrown out of commission. The heart must of necessity stop. There were no branches to keep up the circulation. Anatomists have shown there are anastomoses, that are not negligible. Pathologists have shown that some patients who have had obstruction of the coronary artery have lived for months and years, and that the infarcted area has scarred over, and while it has not itself been able to contract in a normal way, it has held and has not yielded in a serious aneurysmal dilatation; and the patient has died from some other disease. Contrary to Cohnheim, other experimenters have had their dogs and other animals live for months and years, even after ligation of large branches of the coronary. Physicians have had patients die with symptoms suggestive of this accident and at autopsy months after an old obstructive lesion has been found.—James B. Herrick, "Practical Points Concerning Diagnosis and Treatment of Heart Disease," *Nebraska State M. J.* **8**:301, Sept., 1923.

MENACE OF THE UNVACCINATED *

VICTOR G. HEISER, M.D.
NEW YORK

One hundred and twenty-seven years ago, Jenner made knowledge available which, if effectively applied, would have brought smallpox under complete control. But its adoption was not universal, and millions have died from smallpox since then. The antivaccinationists of the past have largely contributed to such a result, but that is behind us and cannot be remedied. The future, however, is still before us. Shall a few fanatics, with their unproved allegations, be allowed to spread disfiguration, blindness and death to innocent victims of their folly? Should we suffer a person to burn down his house because he believes it noninflammable, if his action menaces the houses of others? Certainly not. Yet we remain complacent when persons promote conditions that destroy lives and happiness.

Those who are indifferent and who fail to have their children vaccinated are also contributors to the continuance of smallpox—that disgrace to civilization. The catastrophe that recently occurred in the Philippine Islands, when more than 50,000 persons lost their lives from smallpox, should be a warning to the people of the United States. The conflagration in the Philippines was made possible by a huge group of unvaccinated children, and the heat of it was intense enough to affect those who were semifireproofed because their vaccination was of too long standing.

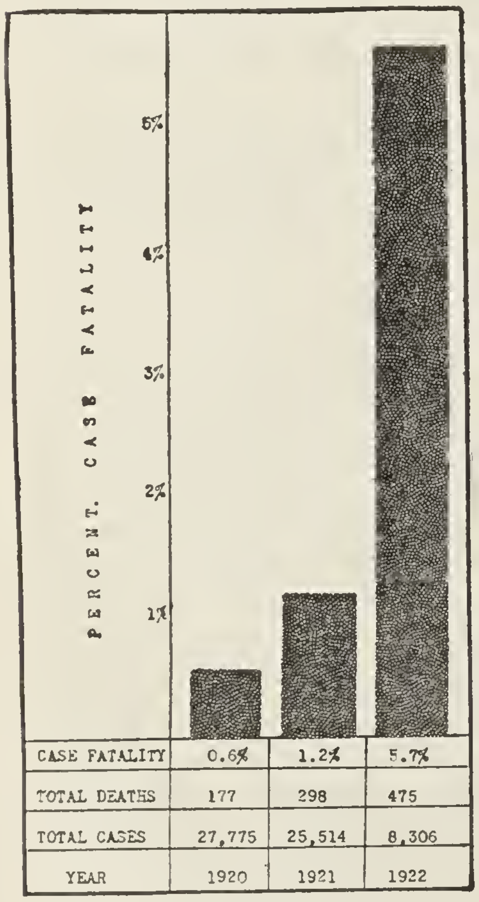

Chart 1.—Smallpox cases and deaths in 246 American cities, indicating the rapidly increasing virulence, 1920-1922; from Statistical Bulletin, Metropolitan Life Insurance Company, May, 1923.

INCREASE IN VIRULENCE

A huge population susceptible to smallpox is coming into being in the United States. Our comparative freedom from smallpox for many years has created a feeling of security and indifference to protective aids and allowed us to forget that the security we have had was purchased with effective vaccination. That this condition of affairs is a serious menace is well illustrated by the increasing virulence of smallpox. The disease was five times as dangerous in the United States in 1922 as it was in 1920. In other words, 1 per cent. of those who contracted the disease in 1920 died, and 5 per cent. died in 1922. The mortality rate from smallpox has been increasing steadily from year to year.

Denver, thanks to an unvaccinated population, has had an experience that is very illuminating. From September, 1921, to November, 1922, 123 persons died of smallpox, of whom 110 had never been vaccinated, and of the remaining thirteen, not one had been vaccinated within twenty years. Denver also furnishes additional evidence of the increase in virulence of the disease. Among 924 patients, thirty-seven died in 1921, whereas among 802 cases, there were 247 deaths in 1922.

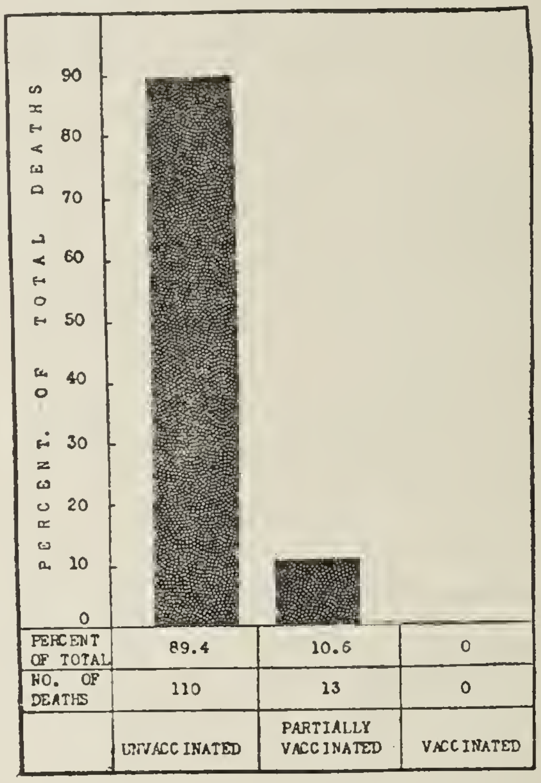

Chart 2.—Proportion of vaccinated, partially vaccinated, and unvaccinated among the 123 deaths from smallpox in Denver from September, 1921, to November, 1922.

SIDELIGHTS

Recently, in southern California, several chiropractors who undertook to control the disease by their system of therapeutics were responsible for fifteen cases, and Chiropractor Griswold died of smallpox. In Denver, a chiropractor who publicly attacked vaccination contracted smallpox, fled from the city, and died of smallpox in Biloxi, Miss., after starting an outbreak of smallpox in that state, and perhaps giving the disease to other innocent victims en route. Had they been effectively vaccinated, that accident might have been avoided.

In a serious outbreak of smallpox in Kansas City, all the physicians who attended the cases at the hospitals were vaccinated except one eclectic, and he was the only one to contract the disease. Whenever smallpox appears, the antivaccinationists are usually conspicuous by their absence and are only too willing to leave their unvaccinated brethren, whom they have led into the valley of disfigurement and death, to be cared for by those who believe in vaccination.

PROOF OF EFFICIENCY

As a result of the very general lack of effective vaccination, it is a sad fact that it is no longer necessary to go to the distant past for statistical proof. Recent evidence is abundantly available.

The Philippines, prior to American occupation, had 40,000 deaths a year from smallpox. The disease was brought under control by vaccination. Later, a large number of new-born children were allowed to remain unvaccinated, and when, in 1918, the sparks of smallpox began to fall among them, a huge conflagration started which resulted in more than 50,000 deaths and was halted only when effective vaccination was done in advance of the disease flames.

In Germany, in the early years of the nineteenth century, where sometimes 40,000 deaths a year from smallpox occurred, the disease was brought under complete control and reappeared only when disturbed conditions due to the World War made effective vaccination impracticable.

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* Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

Bulgaria nearly freed itself from smallpox, but war allowed a huge unvaccinated population to come into being, with the inevitable result that a serious smallpox epidemic broke out. Vaccination was again extensively employed, and by 1922 the disease was once more under control.

In Russia, where vaccination never has been widely employed, the disease prevails continuously. From 1890 to 1914 an average of more than 100,000 cases occurred yearly. Reports by the League of Nations indicate that in recent years, with lessened vaccination, the rate has been even higher. For the thirteen-year period from 1902 to 1914, 1,397,338 persons were attacked by smallpox, of whom 542,138, or 38.8 per cent., died.

Before the American occupation, Porto Rico was constantly afflicted with serious outbreaks of smallpox. Thorough vaccination was carried out, and since then the disease has occurred but seldom. In the recent small outbreaks, the disease was mild in character.

Cuba has had a similar history.

In recent years, a disease called alastrim, infecting thousands of persons, has appeared in Jamaica, with practically no mortality. Recent studies indicate that alastrim is nothing more than a mild form of smallpox. This view is strengthened by the fact that during 1922 the disease gradually developed a mortality, and the health department reports that it is now 4 per cent. Vaccination protects against the disease. The "pitting" of alastrim is said to be less permanent than that of smallpox.

Recent information from Denver brings still further evidence of the value of vaccination. In December, 1922, there were twenty-one deaths from smallpox; sixteen of the patients had never been vaccinated, and not one of the remaining five had been vaccinated for twenty-five years. As full immunity after vaccination persists for comparatively few years, this may well be considered a cogent proof of the efficacy of vaccination.

BLINDNESS

Early historical records show that much of the world's blindness was caused by smallpox. In countries in which the disease goes unchecked, this is still painfully evident. The bazaars of India are filled with unfortunate victims. The early records in indigent blind asylums of London show that two thirds of the cases were due to smallpox.

In such countries as the United States, England, Norway and Sweden, where effective vaccination has been carried out, blindness from smallpox has been reduced to very small proportions. In the United States it is a rare occurrence. If this horrible disease is allowed to gain a foothold again, we may yet witness in this land conditions of blindness such as exist in Russia today.

FREEDOM OF ATTENDANTS IN THE LONG HISTORY OF SMALLPOX HOSPITALS

In the history of physicians, nurses and attendants who throughout the years have served the unfortunate victims of smallpox, there is no record of any attendants dying of the disease if properly vaccinated, and there are numerous instances in which the disease would have been contracted if vaccination had not been performed. I well recall the case of a nurse in Manila who was on duty at the smallpox hospital. She did not believe in vaccination, but before permitting her to serve in the hospital, I insisted on vaccination, and was led to believe that it had been properly done. Several weeks later she contracted smallpox. She confessed that after being vaccinated she had immediately rubbed off the virus with alcohol, and consequently had had no protection against the disease. In my experience in dealing with thousands of cases of smallpox, no one connected with their management who was effectively vaccinated ever contracted the disease. Thus history repeats itself under similar circumstances throughout the world. "During an epidemic of smallpox in 1871, out of 100 smallpox attendants at Homerton (England) all but two were revaccinated, and these two took smallpox." Dr. William M. Welch of Philadelphia states that during an experience of thirty-four years at the municipal hospital, in which time some 10,000 cases of smallpox were treated, there was no instance of a physician, nurse or attendant who had been successfully vaccinated contracting the disease.

A DISEASE OF CHILDHOOD

Smallpox occurs most frequently among children under 14 years of age. If all children could be effectively vaccinated, epidemics of smallpox would probably never occur. At present, there is an increasing lack of vaccination among school children, and they constitute a national menace. Is it right to sit complacently by and allow this disease again to gain a foothold, when a very simple weapon is at our disposal which would make the occurrence of such a catastrophe impossible?

Modern safeguards have removed every legitimate objection to vaccination. The virus is made from calves, and consequently is incapable of transmitting human blood diseases. Laboratory tests carried out under the supervision of the United States Public Health Service insure a vaccine free from dangerous impurities. Even under the worst conditions of the past, all the accidents attributed to vaccination would be only a small percentage of ordinary street casualties. Among some 10,000,000 vaccinations performed in the Philippine Islands, there was no loss of life or limb or demonstrable injury to health.

DEPENDENCE OF INCIDENCE ON THE ATTITUDE OF THE PUBLIC

Force and Leake[1] show that the incidence of smallpox in the United States is directly related to the public attitude toward vaccination. In New York, where the sentiment against vaccination is not very strong, the rate is 0.05 per thousand, whereas in Minnesota, where sentiment against vaccination is more pronounced, the rate is 2.46, or nearly fifty times as great. The hope of bringing smallpox under complete control in the United States resides largely in effective vaccination of children. In Minnesota, this is seriously interfered with by law, which decrees that "no law shall compel the vaccination of any child." Briefly, it may be stated as axiomatic that in a country which is exposed to smallpox from without, the incidence will vary in direct proportion to the effectiveness of general vaccination. Every community is in a position to determine the amount of smallpox it wishes to have. Vaccination is an economical measure easily within the reach of all and brings protection.

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[1] Force, J. N., and Leake, J. P.: Pub. Health Rep. **36**: 1975 (Aug. 19) 1921.

WHAT IS EFFECTIVE VACCINATION?

In the past, no doubt, many have been registered as successfully vaccinated when such was not the case. It has happened all too frequently that lymph has lost its potency through age, or that the vaccination was not properly done. No vaccine should be used which has not been recently tested as to its efficacy by a registered laboratory. In the tropics, for instance, where vaccine is very susceptible to deterioration on account of high temperature and other untoward conditions, much time has been lost by using lymph that was not effective. In Java it was found that until the lymph was strengthened by passage through rabbits and water-buffalo, vaccination did not produce good results. It is highly desirable to have information as to what would constitute an effective test of a successful vaccination that would be applicable to field conditions. As Pirquet has shown, there is every reason to believe that whenever the characteristic periodic reactions follow the application of antivariolic lymph, immunity to smallpox follows. But under field conditions, it is not often practicable to follow these reactions. Usually a scar is accepted as satisfactory evidence. Others with larger experience are of the opinion that a "pit" is the only reliable evidence of successful vaccination. If a biologic or other reliable test suitable for use under field conditions could be developed, it is probable that the number of persons who in the past have been regarded as successfully vaccinated and who still have contracted smallpox would be further reduced; and, what is more important, it would serve as a better guide by which to judge whether primary vaccination had been successful and when not successful, to pave the way for immediate revaccination.

PROPER COURSE FOR HEALTH OFFICERS

In the United States, the duties of the health officer are becoming so complex and making such demands on his time and funds that he finds it impracticable to attend to even the important duties. In a recent visit to Holland, I was greatly impressed with the fact that the private practitioner carried out a large part of the responsibilities that here fall on health officers. Much of public health education comes from the physician directly to his patient. Vaccination, for instance, is done entirely by the practitioner. Why should not the American health officer endeavor to avail himself of the assistance which the profession would gladly give? The private practitioner would also have vaccinations under observation more frequently and could note the characteristic successive changes that take place in effective vaccination. I believe that the cause of health would be more effectively served if, in the future, health officers would take the offensive instead of remaining on the defensive. Think of the endless time that is consumed by the profession every year in defending itself against the attacks of the antivaccinationists, antivivisectionists and others. A little more educational effort directed toward legislative bodies would serve to demonstrate that these attacks are endangering the very life of the nation, and legislation should be insisted on which would render propaganda inert. If health officers and the medical profession are faithfully to discharge their obligations to the public, they must be allowed more time to carry out constructive measures, instead of constantly wasting their time in defending themselves. The wanton destruction of life by the actions of those who ignorantly oppose well-authenticated facts must not be tolerated in the future. There is no justification for a condition that will permit fifty times as much smallpox in one state as in another. The disease is within human control, and misguided fanatics should not be allowed to take action that results in the useless destruction and maiming of human beings.

SMALLPOX AND VACCINATION *

J. P. LEAKE, M.D.
AND
JOHN N. FORCE, M.D.
Surgeon and Special Expert, Respectively, U. S. Public Health Service
WASHINGTON, D. C.

Twenty-five years ago, the surgeon general of the U. S. Marine Hospital Service, in his annual report, said:

> Smallpox is a disease so easily prevented by vaccination that the smallpox patient of today is scarcely deserving of sympathy, the improvement in the preparation of pure vaccine lymph having been so great that there is now little cause for fear of untoward results from vaccination. The spread of the disease also is so easily prevented under proper management that it is a disgrace to the sanitary authorities of any state, municipality or locality whenever this disease is permitted to get beyond their control. If the inability to manage the disease is due to a want of funds, then this lack of necessary provision is a disgrace to the state or locality infected.

Unfortunately, we are faced with that disgrace. Smallpox is abroad in the land, and while in general it is milder than when the words just quoted were written, the experience of Kansas City and Denver shows that many of our centers of population are subject to the menace of a very fatal and disastrous invasion.

DIAGNOSIS

The prevention of smallpox is so closely related to vaccination that the one cannot be discussed without the other. We must not, however, neglect a most fundamental part of the campaign, namely, the recognition of the disease. It is not enough that official diagnosticians and experts be familiar with the up-to-date clinical diagnosis of smallpox. Every practitioner should familiarize himself with it sufficiently to suspect smallpox in the atypical case. It was a series of entirely unsuspected mild eruptions among actual hospital patients that gave the virulent Dresden outbreak of 1918-1919 its flying start. One cannot refrain from obtaining the impression in reading the German smallpox literature that in Germany much attention is paid to laboratory methods of diagnosis and too little attention to the prompt clinical methods insisted on by Ricketts [1] and Wanklyn.[2] Thus, perhaps, thorough isolation and vaccination of persons having contact with smallpox patients is somewhat delayed. The average length of time between onset and isolation in hospitals in Germany for 1910, 1911, 1914, 1916, 1917 and 1918 was 5, 5.9, 6.4, 6.1, 5.2 and 6.6 days, respectively[3]; in the Glasgow, 1920, outbreak [4] the average time was 4.7 days. Probably only celerity in diagnosis and emergency vaccination keep smallpox down in the

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* From the Hygienic Laboratory.

* Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

[1] Ricketts and Byles: The Diagnosis of Smallpox, New York, 1908.

[2] Wanklyn, W. M.: How to Diagnose Smallpox, London, 1913.

[3] Breger: Mitt. a. d. Reichsgesund. **20**: 207, 1921; **22**: 5, 1922; Mitt. a. d. k. Gesund. **16**: 1913.

[4] MacGregor, A. S. M.: Proc. Roy. Soc. Med. (Sect. Epidemiology) **14**: 43, 1921.

otherwise largely unvaccinated masses of London. In Germany,[3] for the twenty years before 1916, there were 4,627 cases with a case mortality rate of 13 per cent.; during the five subsequent years there have been 11,180 cases and 15 per cent. fatality. This is not high in a population of 60,000,000 in close touch with such neighbors as Germany has to the east. In Russia,[5] there have been from 55,000 to 165,000 cases each year for the last twenty years. Important as is the proximity to and the communication with thickly settled and poorly vaccinated communities in which rapid diagnosis and isolation are not carried out, even in such a situation the influence of the thoroughgoing vaccination of the community itself is preponderating. For example, the annual number of deaths from smallpox in Germany, which was between 1,251 and 84,885 for the sixty years preceding the vaccination and revaccination law of 1875, has been between five and 1,150 for the forty-five subsequent years. A smallpox incidence rate of 150 cases per hundred thousand during the Dresden outbreak [6] in 1919 may seem high for a community supposedly well protected with obligatory infantile vaccination and revaccination at the age of 12, but this must be called low when compared with the rates of 3,000 and 4,000 per hundred thousand which the same city had during the epidemics of 1863-1864 and 1870-1872 before such vaccination enforcement.

Terms such as alastrim, kaffir milk pox and amaas have lately come into use. Does this mean that we must differentiate a new disease from smallpox? In each case, when such terms as these were originally used, it was the mildness and low fatality of the outbreak which suggested that the disease was a new one. Other supposed differences from smallpox were then picked out, such as a somewhat more superficial location of the lesion, and frequent absence of pitting. Does this mildness constitute a valid difference so that we are justified in calling the milder forms a new disease? It would not be so with other infectious diseases, such as scarlet fever, typhus fever or Rocky Mountain spotted fever. The latter varies in different strains practically from 0 to 100 per cent. fatality, but there is no doubt in the minds of those most familiar with the subject as to the essential identity of the disease. In the case of smallpox there is no point at which one may draw a line, classing as alastrim all outbreaks with a lower fatality, and as true smallpox all with a higher. The original description of alastrim [7] gave its fatality as 0.5 per cent; that of amaas [8] is 3 per cent. or more.

The West Indian disease in Haiti [9] varies in fatality from 0 to 9 per cent. In the United States, outbreaks could be cited having any degree of fatality, from the occurrence of several thousand cases without a death to a rate of from 30 to 40 per cent. In the relatively unvaccinated city of Leicester, England, the 1904 outbreak [10] had a 1 per cent. fatality; in Germany the unvaccinated died at the rate of 40 per hundred cases,[11] and in Japan[12] up to 70 per hundred. There is no characteristic case mortality rate for smallpox, and a mental picture of the disease which fits only one type of epidemic is incomplete. This much is evident; it is also evident that if we admit alastrim as a disease entity we should have to call the greater part of the smallpox occurring in the United States alastrim. But whenever those thoroughly and continuously familiar with smallpox and its modern diagnosis[13] have any experience with these variously called mild types, they have no hesitancy in pronouncing them true smallpox, whether in Australia[14], South Africa[15], Brazil[16], the West Indies[17] or England[18].

The memorandum of the ministry of health for July, 1922, gives the official English conclusion of the matter after a thorough investigation by medical officers of the ministry and other medical experts with exceptionally great experience of smallpox. From their reports it is evident that "the outbreaks of this disease of mild clinical type, without fatalities even in the unvaccinated, have been outbreaks of smallpox and are to be classed with other epidemics of mild clinical type which have frequently occurred in the history of smallpox both in England and abroad."

Unfortunately, the opinion of experienced observers in such matters does not usually attract as much attention as the proclamation of a new disease. It is to the great credit of the medical profession of the United States and Canada that they have generally recognized the mild types as true smallpox. In South Africa, Mitchell [15] records four outbreaks which were mild at first and became virulent. A similar increase in fatality took place in Haiti[9], but, in general, in smallpox, as in other infectious diseases, strains tend to breed true and maintain a fatality rate within one range, at least for the relatively short length of time during which they may be assumed to be unmixed strains.

Aside from the clinical evidence, we have completed some experiments which will soon be published showing the immunologic identity of alastrim with the smallpox of the United States.

VACCINATION

The mild types seem to prevail particularly in poorly vaccinated communities; good vaccination and revaccination will apparently prevent them entirely. Thus, the presence and propagation of a mild strain of smallpox is generally indicative of a very poor vaccinal status of the population. At times, as in Kansas City and Denver, it seems as if the severe form obliterates the mild; measures which are completely successful against the mild form are not successful against the severe; increased contagiousness more or less parallels the increased virulence. If one has to deal with only the mild strains of smallpox, the duration of immunity following vaccination can be taken as much longer than would be safe in a severe epidemic. In Kansas City, two cases occurred in persons vaccinated successfully with good scars, only two and one-half years previously. Birdwood,[19] speaking from his experience with the virulent types of the disease at the London Smallpox Hospital, estimated that a person vaccinated only once, in infancy, has in more than 50 per cent. of the cases lost all his immunity by the time he is 21 years old.

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5. Mühlens: Ztschr. f. Hyg. u. Infectionskrankh. **99**: 1 (Feb. 27) 1923.
6. Einseidel: Zentralbl. f. d. ges. Hyg. **2**: 510 (Dec. 25) 1922.
7. Ribas, E.: Rev. med. S. Paulo **13**: 323 (Sept. 15) 1910.
8. De Korte, W. E.: Lancet **1**: 1273 (May 7) 1904.
9. Melhorn, K. C.: U. S. Nav. M. Bull. **15**: 492 (April) 1921. Brown, C. J.: Ibid. **15**:695 (July) 1921.
10. Millard, C. K.: Proc. Roy. Soc. Med. **8**: 40 (Nov. 27) 1914.
11. Plange, Walter: Ztschr. f. med. Beamte **33**: 112 (March 20) 1920.
12. Kitasato, S.: Vaccination and Smallpox in Japan, J. A. M. A. **56**: 889 (March 25) 1911.
13. Ricketts and Byles (Footnote 1). Wanklyn (Footnote 2).
14. Armstrong, W. G.: Proc. Roy. Soc. Med. **8**: 1 (Nov. 27) 1914.
15. Mitchell, J. A.: Lancet **2**: 808 (Oct. 14) 1922. Walker: Ibid. **1**: 564, 1923.
16. Mariante: Arch. Rio-Grandenses de Med. **3**: 202, 1922.
17. Clark and Low: Brit. M. J. **2**: 713, 1903. Seheult: Proc. Roy. Soc. Med. **1**: 229, 1908. Jones: J. Trop. Med. & Hyg. **25**: 321.
18. McVail: Proc. Roy. Soc. Med. **8**: 33, 1914. Boobbyer: Med. Off. 137, 1922. Wanklyn, quoted in Report of Medical Officer of Health for Essex, p. 14, for 1921.
19. Birdwood: Sixth Report, Royal Vaccination Commission, 1893, p. 592.

The duration of immunity appears to be particularly short in the negro,[20] both as regards protection from smallpox and as regards revaccination reactions. The Glasgow figures of 1901-1904 show[21] that even if as high as 60 per cent. of a population have been recently vaccinated, a smallpox epidemic can prevail among the other 40 per cent. within three years. Kretzer,[22] during the Riga epidemic, which had a fatality rate of 60 per cent., observed a moderately severe attack in a child thoroughly vaccinated within three years. It is to be remembered that these are the unusual cases, but that they do occur; they indicate not only an infection with higher striking power, but also perhaps an individual whose body cells are not susceptible of much defensive education. In general, the only protection to be used is obligatory vaccination at least once in a lifetime, with voluntary vaccination—to secure an immune reaction if possible—from every seven to ten years in the ordinary American community, and this will be ample protection for many persons during the most severe epidemics; but if virulent smallpox breaks out, a revaccination should be performed with potent virus even though the last vaccination was no more than one year previous. While primary vaccination causes a temporary inconvenience of a few days, and is not without the small risk which attaches to any lesion of the skin, the risk is infinitesimal as compared to the safety secured by this simple procedure. As far as any permanent undermining of the health is concerned, such evidence as there is, is all in the other direction. Kinloch,[23] by keeping a record of the vaccination scars on all children under 5 years of age admitted to the Glasgow Fever Hospital, learned that for every disease treated—scarlet fever, diphtheria, measles, whooping cough, erysipelas, bronchopneumonia and typhoid fever, the vaccinated children had a much higher proportion of recoveries than the unvaccinated.

Susceptibility to vaccination is, for all practical purposes, universal, though varying in degree according to acquired immunity and also according to occasional slight natural resistance. In other words, potent vaccine virus always gives a reaction; however, virus which is so inert that primary vaccinia cannot be obtained with it in previously unvaccinated subjects may still give the immediate reaction on immune subjects. The immune reaction or immediate reaction is no criterion of the potency of the virus.

The question has been raised as to whether the slight papule constituting the reaction of immunity in itself increases the immunity of which it is the evidence. This has not been conclusively shown, despite the studies on rabbits and men at Bern;[24] but the German statistics[3] for 1917 and 1918 show that persons giving immune reactions on revaccination with virus of good potency have at least as durable an immunity from death from smallpox, if attacked, as have those giving the more pronounced reactions of vaccinoid or vaccinia.

It is interesting to note that the German officials have recognized that the immediate reaction, which as an administrative criterion of immunity was first used in the United States,[25] does indicate the highest degree of immunity.[26]

In the Kansas City epidemic, three physicians were stricken, all very severely.

One had not believed in vaccination. He contracted the infection in some unknown way, a rapidly fatal purpuric attack. On the evening before he died, though in extreme pain, he arose from his bed and vaccinated his family, thus giving them the protection which he had failed to obtain.

The second physician visited the smallpox hospital in company with a number of other physicians during a medical convention; in spite of his profession he had never had a successful vaccination. His was possibly the most severe case in the city to be followed by recovery.

The third physician had been vaccinated and revaccinated in Germany forty years before, and showed five good pitted scars. Consequently, he did not revaccinate himself until ten days after exposure to a case, and gained no protection. In Germany, too much reliance has been put on the routine revaccination at 12 years of age; for example, during the 1919 smallpox epidemic in Dresden, when there were 865 cases and 122 deaths, less than 15 per cent. of the population could be persuaded to be revaccinated, and the incidence and fatality were consequently high in the older age groups, among whom the protection from childhood revaccination had been largely lost. In Kansas City, more than enough vaccine was distributed to vaccinate each inhabitant, though there was a great waste through poor storage and nonuse of virus, and through repeated revaccination of the same individual instead of use being made of the two-day observation for the reaction of immunity. It is unfortunately true that, in the absence of some such compelling motive as the immediate danger of fatal smallpox, or the required school vaccination, we postpone and neglect these sanitary precautions. It may be too late if one waits until actual exposure takes place.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. HEISER, AND LEAKE AND FORCE

Dr. Hugh S. Cumming, Washington, D. C.: Dr. Heiser has had an experience and an opportunity for observation of smallpox that has perhaps been unexcelled by any medical officer in the world. There is nothing for me to do except to reemphasize, first, the necessity for proper laws regarding vaccination; secondly, the necessity for seeing that those laws are carried out; and thirdly, the importance of the physician's appreciating the operation of vaccination, both as to its technic, and, more, as to the necessity for careful observation as to its result, and recording the observation. I am delighted to have this question of smallpox and vaccination treated by men who have investigated it with such care and thoroughness as Dr. Leake and Dr. Force have.

Dr. G. K. Olmsted, Denver: There is no more potent factor in the broadcasting of a public health program than an epidemic such as we had in Colorado. Unfortunately, but truly, for twenty years the public has had to be reeducated. When there is an epidemic, the health program of preventive medicine can be carried out very successfully. Then comes a period of indifference, and finally of active opposition. In Colorado we had a rather virulent type of smallpox, probably brought into the state by the peon laborers of Mexico, who come into the beet fields of Colorado during the early part of the year, and afterward return to the larger cities to congregate in places where the spread of such diseases is very common. This type was of such a virulent character that in many cases the hemorrhagic form seems to have been the only form, without any apparent eruption. I saw many of the cases myself. The period of attack was very rapid, and the mortality was startling. The public health officers of Denver were unable to cope with the antagonism of the

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20. Becker: Arb. a. d. k. Gesndhtsamte. **14**: 638, 1898.
21. McVail, J. C. Brit. M. J. **1**: 408 (April 5) 1919.
22. Kretzer: Ztschr. f. Hyg. u. Infectionskrankh. **92**: 273, 1921.
23. Kinloch, J. P.: Lancet **1**: 993 (June 30) 1917.
24. Sato: Ztschr. f. Immunol. **32**: 481, 1921. Fugii: Ibid. **33**: 443, 1922.
25. Force: California State J. M. **11**: 290, 1913. Leake, J. P.: Mil. Surgeon, to be published.
26. Gins: Hyg. Rundschau **29**: 384, 1919.

cults, and particularly of the chiropractic cult, so that the vaccination of children was decried by almost every newspaper. The city officials appealed to the state board of health, and we appealed to Surgeon-General Cumming, who sent Dr. Perrin, one of the most efficient of his staff. In less than a week's time the officials of both the state and the city and the physicians were ready to help us, and in a surprisingly short period of time we were able to vaccinate almost the entire school population. Immediately after the school children were vaccinated, the epidemic ceased. Dr. Force brought out some facts in regard to the initial or primary cases that are sometimes not recognized. Out of 1,400 children who had been vaccinated within a period of from three to five years, more than 50 per cent. had a beautiful primary take.

DR. T. B. BEATTY, Salt Lake City: In Utah we have enjoyed the distinction of having had more cases of smallpox in the last twenty years than any other state in the United States. I am not proud of that fact, but there is a reason. When smallpox made its appearance in this country in its mild form, it came to Utah. There occurred an opposition that was extremely effective, propaganda that was far reaching. The result was that the state was thoroughly converted against vaccination, and since that time the disease has gone along on its way practically unresisted. During the first five or six years, the disease prevailed extensively. From 1906 to 1921 we had 25,000 cases, with a mortality of seventy-seven. Last December we had an outbreak that was very severe. It would take one back to the eighteenth century. One could smell it in the hospitals, even if one did not see it. I thought the opportunity excellent to do a little propaganda. I could not get a photographer to take pictures of those patients. I am not much of a photographer, but I had to do it. I took pictures of six or eight cases of that horrible type. We called attention to the fact that this was not the sort of smallpox that people had grown to ignore. Then the first block occurred. The newspapers would not mention it. One newspaper manager told me that he thought the situation was very grave, and added, "But if we mentioned it, the business interests would punish us bitterly." So they did not even mention smallpox in the death notices. That community went about unmindful of what was transpiring. There had been two deaths, and then it got started. An undertaker who scorned vaccination took care of one of the bodies, and he died. A Christian science healer attended a case, and she died. She was sent to cure an inoffensive child who had not been vaccinated. The outbreak did not cease until fifteen people died out of forty who had the disease. Education did not work. We can talk ourselves blind. Dr. Heiser's statistics have been used. They brought up the League for Medical Freedom. They spread broadcast those missionary statistics from the Philippines purporting to show that vaccination was a failure. I had films made, and some moving picture houses agreed to show them. The picture was shown at two shows, and then the Christian scientists and the chiropractors and other cults of that kind appeared in great strength—I think there was a petition of 2,500 names—and threatened to boycott the theater if it did not instantly withdraw the film. It was withdrawn. The manager was sympathetic, although the owner was not. Then I had these photographs made into slides, and we exhibited these horrible cases of smallpox on the screen. Those people went away, and they spread the news, and the result of the circulation of the photographs was that 60,000 people were vaccinated in Salt Lake City. The legislature was then in session. Those pictures were shown to the legislators and frightened them so that they forthwith became vaccinated. But, when we proposed to repeal the law, they would not do so, and it is still on our books. We are still unvaccinated in Utah, outside Salt Lake City.

DR. LOUIS I. DUBLIN, New York: My office has for five years tried to keep in touch with the smallpox situation all over the country. Dr. Heiser has called attention to some figures that we collected for a group of cities in 1920, 1921 and 1922. They tell a striking story. We have also the figures for the same years in a group of states, and they too show not only that smallpox is increasing in virulence, but that the number of cases is very large. The reporting of smallpox is still incomplete, especially in the Western states. Many communities are anxious to keep the occurrence of smallpox cases quiet and unrecorded. The disease is also often difficult to diagnose, especially the milder cases that simulate chickenpox. Many such cases are not reported. It is quite possible that more than 100,000 cases of smallpox are occurring each year in the United States. The great majority of these cases are mild. The severe cases are, for the most part, limited to the Western states. But every now and then fatal cases appear in the Middle Western states, in the Southern states and occasionally in the Eastern states. I believe that, having in mind what has occurred in the Western states during the last ten years, there may well be a virulent outbreak of smallpox in some of the Northern and Eastern states. That is why I would emphasize the tremendous importance of smallpox as a health menace at the present time. Coupled with the spread of the disease and the increasing virulence of the cases, there is also the gradual breakdown of the safeguards against smallpox. Even in such places as Massachusetts, New Hampshire and other Eastern states which have had an admirable record in the past, efforts have recently been made to destroy the compulsory feature of the law requiring vaccination as a condition for the entry of children in school. Bills similar to those that have been enacted in the West have been presented for passage in these Eastern states, and in some of them have actually passed one or another of the houses of the legislature. In other words, the forces opposed to public health are trying out their strength in states where we believed they had absolutely no chance, and every now and then they almost carry their point. There is an insidious campaign against public health going on all over the country. There is strong financial backing for breaking down the laws that protect us against smallpox and other communicable diseases. Wherever one goes, whether California, Oregon, Massachusetts or New Hampshire, the arguments are always the same. The antis have the same literature. They make the same distorted references to the supposed failure of vaccination in the Philippines and in other places. The arguments and the campaign against vaccination originate from one source and are directed from one headquarters. The point to remember is this, that throughout the United States there is a never ending campaign for the destruction of our protective health legislation. I want to emphasize the point made by Dr. Heiser that we are face to face with a most alarming situation. What is needed at present is a militant spirit by the health officers and by the public against these enemies of the public health. We must fight them and defeat them wherever they show their heads, and not merely stay on the defensive.

DR. PAUL A. TURNER, Seattle: I want to inject a little ray of hope into the discussion of the situation by citing what happened in Washington. We have a law that specifically states that we cannot compel vaccination. The board of health, however, wrote a rule that provides that no child, teacher or janitor shall attend school when smallpox exists in a community without presenting satisfactory evidence of having been successfully vaccinated within seven years. Thereafter, when four or five cases were discovered in a certain city we proceeded to vaccinate the school population. We were not compelling vaccination. We merely stated that they would have to stay out of school and isolated at home for eighteen days, unless they were vaccinated. About 90 per cent. of the school children were immunized in four of our large cities. In spite of what Dr. Beatty said, in 1919, Washington, in proportion to population, led the country in the incidence of smallpox, and had a considerable number of deaths. The year after we started our vaccination campaign, our rate dropped 50 per cent., and we had only one death. Of course, there is always a fight, and, when we vaccinate entire cities we are liable to get a certain amount of criticism. They took us to court in Olympia, the capital of the state, and the trial really resolved itself into a question of the power of the state board of health to pass rules and regulations. The court upheld our regulations. It was appealed to the supreme court, and a very sweeping decision was passed down. The supreme court said that the rules and regulations of the state board of health were binding on the people and on the courts as well, and could not be reviewed by the court.

Dr. W. M. Miller, St. Louis: I have very intimate knowledge of legislative work in Missouri, Kansas, Oklahoma and Nebraska. The opposition is not merely opposition in the way of smallpox legislation. It extends to child hygiene and all kinds of health legislation. It is a premeditated, thoroughly worked out and controlled opposition that emanates largely, so far as my observation goes, from Boston. It goes so far, and I am told that in certain states in the farther West they have even gone to the point of attempting to secure the nomination of governors of states, that they have secured the presiding officers of state legislative assemblies and chairmen and members of legislative committees. They seek to control boards of education, and leave nothing undone in a preliminary way to secure their point. In certain volunteer organizations which are quasipublic health institutions, they in one way or another attempt to secure control to attain their point. They are opposed to any progressive health or health educational legislation. I want to say this much emphatically, because I know of what I am speaking.

Dr. M. R. Bren, Palo Alto, Calif.: Dr. Heiser mentioned the smallpox epidemic in the Philippines; having been there during that period, I think my experience may prove of interest. I was in command of a military hospital in one of the mountain provinces, and had a small outbreak of smallpox on the station. The people inhabiting this section were semicivilized, non-Christian tribes, lightly touched by American influence, primitive in their customs and mode of life. The first case was in the child of one of my native sanitary privates. It died of virulent smallpox before I was even informed of its being sick. I decided on immediate vaccination of the entire camp, beginning with the native section, or barrio, where the natives live in houses constructed of any available material, especially the tin from gasoline cans. To accomplish this it was necessary to surround this portion of the reservation with a cordon of soldiers to prevent persons leaving, and to beat the bushes for those hiding when news of the intended vaccination spread. The soldiers were left until the last; they being protected by compulsory vaccination on each reenlistment, which is every three years. With my small force I was able to complete the vaccination of the native population, approximately 1,500, in one day. Ten new cases developing in the following week, and there being comparatively few "takes," I suspected the possibility of loss of potency in the vaccine, owing to the tropical conditions mentioned by Dr. Heiser. Fresh virus was ordered, and all persons not showing an active reaction from the previous vaccination were revaccinated. After that second vaccination, we had no more smallpox. There was no smallpox among the soldiers because they were thoroughly protected. The deaths, three in number, occurred in young children and young adults. The older people, the number of whom I do not quite remember, that had the disease had evidently been protected by Dr. Heiser years ago when he had the job of vaccinating the whole Philippine archipelago, and they had not been revaccinated. Therefore, those that contracted the disease had it in a mild form. But the unvaccinated had a very severe confluent type. This demonstrates that when the conditions existing in a military camp prevail, smallpox is stopped. In cities where we are bothered by the legislatures and what they have decided we can do and what we cannot do, we are confronted by a hard proposition. It is absolutely one of education. We are fighting well organized, evil influences. When this League of Medical Freedom comes out with such distorted statements, that incident in the Philippines will prove just what those statements are worth.

Dr. H. O. Jones, Chicago: The League of Medical Freedom and the Anti-Vaccination Society and the other objectors fight us in Chicago the same as they do elsewhere. We have, fortunately, Dr. Spaulding at the head of our bureau. He is very active in fighting smallpox. The board of education excluded those who had not been vaccinated from the schools, and two of our schools were sued by members of families who had been vaccinated, and the court sustained the board of education and the board of health in their action, excluding from school those who had not been vaccinated. The court further found that one case in a community would be considered as a pending epidemic.

Dr. Victor Heiser, New York: Real danger threatens: Unless we take more effective precautions in this country against smallpox, we are going to be in for a very bad time. Instead of attempting health work that has doubtful value, let us first employ the measures we know will produce beneficial results. Then, if there are funds and time for the other public health activities, let us take those up. Lack of vaccination is heading toward catastrophe. Every health officer ought to consider it his solemn duty to vaccinate those for whom he is responsible. Unless that is done effectively, we are likely to have in the United States the same disaster that happened in the Philippine Islands, where more than 50,000 innocent persons lost their lives.

Dr. John N. Force, Berkeley, Calif.: We hear a great many comparisons nowadays between the legal method and the educational method of getting things done. Dr. Leake and I were very much interested in the question of the relation of state laws to the occurrence of smallpox in these states for a period of years. Accordingly, we selected twenty states in which smallpox had occurred during the five years 1915-1920, and we studied their smallpox morbidity statistics with relation to their laws. We are accustomed to hear the American people spoken of as being somewhat lawless; but our studies showed this relation. In every state where there was a good vaccination law on the books, the smallpox morbidity was correspondingly low. One of the most striking examples of that was the state of South Carolina, which, surrounded by states of high smallpox incidence, had a very low smallpox incidence, comparable to that of the Northwestern states. On reading the law of South Carolina, and on communicating with the health officer of that state, we found that the law was extremely drastic in its compulsory features. There was an infant vaccination, a school vaccination, and another vaccination along about the age of 14 or 15. The result was that South Carolina, surrounded by high incidence states, had a very low smallpox rate. The reason we did not include Utah was that we could not get the figures for the five consecutive years. We wanted these very much, because Utah had an extreme antivaccination law. If there is a good law on the books the American people seem to stand by it, and the smallpox is low in the state where there is a good law on the books.

LOCAL ANESTHESIA IN THE UPPER ABDOMEN

FACTORS ON WHICH SUCCESS DEPENDS *

ROBERT EMMETT FARR, M.D.
MINNEAPOLIS

The preference of local over general anesthesia is predicated on the same factors, regardless of the region of the body on which surgery is to be performed. The upper abdomen, however, often presents pathologic conditions of sufficient gravity to make it desirable for the surgeon to avoid increasing the patient's handicap while the necessary operative procedure is being carried out. The attributes of local anesthesia are such that surgeons have for a long time availed themselves of its advantages in the cases presenting extra hazard. For many years a small number of surgeons have offered the method, not only to their badly handicapped patients, but to those not so greatly handicapped as well, and during recent years a comparatively large number of surgeons have availed themselves of its many advantages when performing upper abdominal surgery. The successful use of local anesthesia in this region has become an accomplished fact in the hands of some

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

surgeons. The position taken by surgeons who have not developed the method sufficiently so that they can use it successfully becomes less tenable every day. While we still find many surgeons of large experience stating that local anesthesia cannot be used with satisfaction in surgery of the upper abdomen, the profession is beginning to realize that these gentlemen are making a confession of their own shortcomings in this regard, and that the opinions of those who have mastered the technic and are therefore able to operate with facility when using the local method must be given the respect they deserve.

The lowered risk to the patient, both immediate and remote, is admitted. The argument that lung complications are as frequent and severe following local as they are when general anesthesia is used, based on the view that most lung complications are of embolic origin, is lacking in statistical proof. Again, the reports from those clinics in which a comparatively large amount of surgery is performed under local anesthesia are showing an extremely low percentage of lung complications. Furthermore, the finding of gastric contents in the lungs postmortem shows that a certain percentage of these complications are not of embolic origin. Finally, if we were to admit that all postoperative lung complications are of embolic origin, it is perfectly obvious that the embolic process would produce a more disastrous effect on lung tissues that are embarrassed by the presence of more or less aspirated material, which is always present following general anesthesia. Finsterer's recent report of 407 major gastric resections without a death from pulmonary complications is extremely significant. Furthermore, the statistics that have appeared from time to time showing that local anesthesia has no effect in reducing postoperative lung complications are vitiated to a certain degree because of the fact that, until recently, local anesthesia has been reserved for the desperate risks only.

The local anesthesia method, contrary to general belief, presents also certain definite advantages in relation to the operation per se. The muscular relaxation, the silent field, the absence of engorgement, the aid offered by the patient's cooperation, the opportunity for avoiding trauma, the absence of postoperative vomiting, the avoidance of depletion through lack of fluids, the opportunity to apply the physiologic test and a host of other factors that act in the patient's interests are all to be considered most desirable attributes of the local anesthesia method.

Unfortunately, a large percentage of the profession is unwilling as yet to admit that this method can be used with satisfaction in this region, and it is for this reason that I wish to enumerate some of the factors which I feel are worthy of consideration by those who are desirous of achieving more or less routine success when operating in the upper abdomen by the use of local anesthesia.

One of the most serious objections, at least in the minds of those who use general anesthesia as a routine, is the alleged impossibility of making wide abdominal explorations when using local anesthesia. My position in relation to this point has not changed. In October, 1920, I[1] remarked, before the Minnesota Medical Association:

> Is the routine general abdominal exploration an ideal and universally desirable procedure? How often do we see the upper abdomen explored during the performance of a pelvic laparotomy, and the kidneys, gallbladder and stomach reported normal after a cursory examination with the gloved hand, while the same surgeon, after opening the upper abdomen of the next patient, spends many minutes in examining the gallbladder and stomach, perhaps opening the latter in search of an ulcer, and finally depends upon the pathologist for the settlement of a question so blithely decided in the case of patient number one. While I would not decry the use of the blind abdominal exploration to a limited extent, where it is strictly indicated, I think it is as used today too frequently a subterfuge for an incomplete diagnosis. Pelvic pathology, although it may defy an exact diagnosis, should usually be recognized sufficiently from the history, combined with vaginal and rectal examination, to allow one to decide upon the necessity of an operation being performed. In the vast majority of cases, upper abdominal pathology which can be diagnosed by the gloved hand of the operator will have the classical earmarks recorded in a properly written history, a thorough examination plus properly coordinated laboratory data. The same is true of lesions of the kidney.

I see no reason to change my opinion; and, indeed, my position, taken many years ago, seems to have anticipated the reaction that is now manifest against too frequent and widespread use of the blind abdominal exploration as a means of arriving at a correct diagnosis. Although prominent surgeons have not, as a rule, admitted the futility of the blind exploration as a means of diagnosis until recently, this futility is now being admitted by our leading abdominal surgeons with sufficient frequency to negative to some degree, at least, the argument that one should not use local anesthesia on this account. The physical conditions found within the abdomen taken alone, without reference to the particular patient's symptoms, can seldom be evaluated with accuracy by the surgeon, especially if these conditions are judged exclusively by the findings of the palpating fingers. It is my belief that the application of the physiologic test may be relied on as a more accurate means of obtaining information.

THE PHYSIOLOGIC TEST

The information to be derived from the patient's sensation during operation, when suspected organs or tissues are being manipulated, is not infrequently of considerable aid. By making traction or tortion or by using varying degrees of pressure on the appendix, gallbladder, duodenum, ovary or fallopian tube, it may be possible for us to duplicate almost exactly the pain or sensation of distress which caused the patient to present himself for examination. Per contra, one may at times eliminate an organ that presents a pathologic appearance as the cause of the patient's symptoms by means of this test. Many years of observation leads me to believe that, as a means of diagnosis, the physiologic test carried out on the conscious patient stands as a most worthy competitor of the time-honored abdominal exploration.

EXPOSURE

The long accepted maxim, that one's ability to acquire knowledge through the sense of vision is many times greater than that of all the other senses combined, applies as truly to the acquisition of knowledge pertaining to pathologic conditions within the abdomen as it does to the general acquisition of knowledge. Its obvious advantages in relation to diagnosis is not by any means the only desirable attribute resulting from a proper exposure of the operative field. It presents advantages of a technical nature that amount practically to the difference between working in the light and working in the dark. It permits tissues to be attacked within the minimum of displacement and distortion, which means a minimum of traction and therefore trauma; and it permits a maximum of deliberation and accuracy.

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[1] Farr, R. E.: Minnesota Med. 4: 209 (April) 1921.

As I consider the obtaining of a proper exposure of the viscera the key to the successful use of local anesthesia in abdominal surgery, the means of obtaining and maintaining this exposure must be considered of prime importance in a discussion of the local anesthesia method. Success depends on a sequence of factors, all of which are interdependent and each one of which is dependent on the successful carrying out of the maneuvers preceding it. These factors are, in the main, a proper mental quiescence on the part of the patient; the painless establishment of perfect anesthesia, thus abolishing the reflexes of the abdominal muscles; elastic continuous retraction; the utilization of the force of gravity to carry movable viscera out of the field; the cooperation of the patient; anterior splanchnic anesthesia, and appropriate surgical strategy.

A thorough discussion of any one of these factors cannot be indulged in now, on account of the lack of time; and yet the importance of each cannot be overestimated. An observance of all the details required to meet the indications amounts to nothing less than what might be designated a system. This system I have chosen to call the "local anesthesia method." A misplay or an overt act committed in relation to any portion of the procedure, or a failure to abide by the fundamentals enumerated above, may, and in fact usually does, forestall a successful issue. Thus, the surgeon who has not given sufficient consideration to the methods of obtaining a proper mental attitude of the patient or has not mastered the technic of painlessly, yet thoroughly anesthetizing the abdominal wall, or one who uses sudden rigid forceful retraction, thereby eliminating the possibility of obtaining a negative intra-abdominal pressure when the abdomen is opened and forfeits that most essential attribute, the utilization of the force of gravity, or who fails to obtain the cooperation of the patient during the important steps of the operation, will be unable to apply anterior splanchnic anesthesia and successfully complete the operation. Furthermore, the surgeon who is unable or unwilling to perfect himself in the application of surgical strategy which is compatible with the use of local anesthesia will find it impossible to carry out operations in the upper abdomen under the use of local anesthesia, even though he adheres to the other portion of the regimen.

Time will not permit a discussion of the details relating to the mental attitude of the patient. Experience shows, however, that with the successful use of the method, combined with the judicious administration of preliminary narcotics and the assistance of a skilled psychanesthetist, psychic incompatibility assumes a minor rôle in the employment of the method.

The method in inducing anesthesia is of extreme importance. In the absence of contraindications, direct infiltration of all layers along or near the line of incision reduces the margin of error to a minimum, does not interfere with wound healing, and, if carried out by the "subdermal" method, is practically painless.

Incisions should be made without making pressure on tender abdominal viscera, and their direction and length should be adequate for the necessary exposure.

Only elastic lateral retraction should be employed. When the abdomen is opened, a negative intra-abdominal pressure must be obtained. Exposure is further facilitated by the employment of the force of gravity to carry movable viscera away from the field. This is accomplished by tilting the operating table by means of the worm drive. In the upper abdomen, the reversed Trendelenburg and the lateral tilts are essential. The stealthy vertical retraction of the abdominal wall and utilization of proper illumination complete the requirements for obtaining the necessary exposure.

The next step, and one which marks a great advance in the use of the method, consists in establishing anterior splanchnic anesthesia, the introduction of which is entirely a matter of proper exposure, which is, as stated, dependent on the successful carrying out of the regimen outlined above. Cholecystostomy, interior and posterior gastro-enterostomy, and the division of visceroparietal and viscerovisceral adhesions may, as a rule, be accomplished without intraperitoneal anesthesia, provided proper surgical strategy is employed. This fact allows one the opportunity of releasing adherent organs by means of sharp dissection, and thus finally obtaining an exposure of the splanchnic area for the purpose of introducing anesthesia when this adjunct is required.

SUMMARY

The use of local anesthesia in surgery of the upper abdomen possesses certain definite advantages. By its use the tendency to postoperative lung complications is reduced. The effects of local anesthesia on the general system and vital organs is more benign than that of general anesthesia.

The use of the blind abdominal exploration should be more limited in the future than it has been in the past.

The physiologic test is one of the most important attributes of the local anesthesia method.

The use of local anesthesia comprehends the mastering of a complete system or method, and success can be expected to follow only the mastery of this method. The important features of the method which demand observance are: attention to the psychic condition of the patient; the establishment of careful preoperative diagnosis; the painless, thorough induction of anesthesia of the abdominal wall; elastic retraction; perfect exposure; the establishment of anterior splanchnic anesthesia, when indicated; the enlistment of the patient's cooperation, and the application of a surgical technic that is compatible with this method of anesthesia and the best interests of the patient. Finally, the best interests of future surgery demand that less credence be extended to the opinions of those who, while possessing great experience with the use of general anesthesia, lack experience with local anesthesia, and that greater credence be given to the opinions of those who, through continuous and extensive application of the local anesthesia method, have developed sufficient experience to justify a proper consideration of their opinions.

Institutional Care of Value in Tuberculosis.—The institutional care of the tuberculous sick has proved its worth and has come to stay. It is yearly rescuing thousands of souls from an early grave or adding to their years. Fundamentally, the principles that gave it birth are sound and will withstand any amount of shallow criticism. It has never yet been given a complete test, for the simple reason that no community has as yet seen fit to appropriate enough money to take care of every one of its tuberculosis patients for a proper length of time.—A. K. Krause: Rest and Other Things, p. 77.

THE VALUE OF SACRAL NERVE BLOCK ANESTHESIA IN OBSTETRICS *

BARNET E. BONAR, M.D.
SALT LAKE CITY, UTAH
AND
WILLIAM R. MEEKER, M.D.
ROCHESTER, MINN.

Anesthesia is as justifiable in all obstetric cases as it s in surgical operations. The fundamental requirenents of an obstetric anesthesia, however, are widely lifferent from those for gynecologic operations, so hat the anesthetics and their administration must likevise vary in order to meet these special requirements. The first consideration should be the general condition of the mother, much the same as of the patient in ynecologic operations. The possible influence of pulnonary, cardiac and renal lesions, as vell as the toxemias of pregnancy, nay determine the question of safety o the mother. The second consideraion must be the influence of the aneshetic on the child, and lastly, the effect n the progress of labor. The employnent of a possible local anesthetic in bstetrics should adequately fulfil the rst and second of these requirements, nd if it does not too greatly retard he progress of labor, its use should rove almost ideal.

Local anesthesia in obstetrics should lso be facilitated by the fact that an nesthetic is rarely necessary before ne second stage. It is certainly well o delay the use of an anesthetic as ong as possible, and many labors may, f course, be easily conducted without n anesthetic. In most cases the denand for anesthesia increases as labor rogresses, although a light anesthesia s usually sufficient until the head passs through the vulva. It is at this oint that the most extreme anguish s experienced, so that anesthesia must e pushed to a true surgical degree, ut stopped as soon as the head is orn. Two degrees of anesthesia are thus required: rst, obstetric anesthesia, in which pain is dulled, or elieved with only a brief or no loss of consciousness, nd second, surgical anesthesia, in which both consciousness and body rigidity are abolished.

But little attention has been paid to the application f a pelvic floor local anesthesia to the field of obstetcs. In fact, most obstetricians regard local anesthesia s of little value in the analgesias of childbirth. Infilation into the perineal tissues has been practiced with ut little benefit. Methods have been devised of blockg the pudic nerve, which, combined with infiltration, ffer a wider area of anesthesia, but still insufficient to ontrol the pain of the second stage. The adequacy of e birth passages is estimated by the various diamers of the bony pelvis, soft tissues being entirely isregarded. The most efficient local anesthetic for ostetrics must then be one that will anesthetize the entire pelvic floor included within the pelvic girdle, since the advancing presentation stretches and tears all of these structures.

Complete anesthesia of the pelvic floor may be obtained by block of the secral nerves before the formation of the plexuses. For an understanding of the possible effect of this procedure on the pelvic floor and powers of labor, a consideration of the nerve supply is valuable. The pelvic floor (Fig. 1) is supplied by the second, third, fourth and fifth sacral nerves and anococygeal filaments passing out directly through the sacral hiatus. The first pair of sacral nerves does not take part in the innervation of the pelvic floor proper, except possibly as a contribution to the sensory innervation of the pelvic peritoneum. Sherrington's law regarding the segmental innervation of the skin probably also holds true with regard to the parietal peritoneum. Sacral sympathetic efferent fibers leave the spinal cord with the anterior roots of the second, third and fourth sacral nerves. These fibers are collected in the pelvis into the nervi erigentes, or pelvic splanchnic nerves, which proceed to the pelvic sympathetic plexuses, from which fibers are distributed to the pelvic viscera. According to Langley, vasodilators are distributed to the blood vessels of these organs, while inhibitory fibers probably pass to the smooth musculature. Afferent sympathetic fibers also conduct impulses from the pelvic viscera to the second, third and fourth sacral nerves.

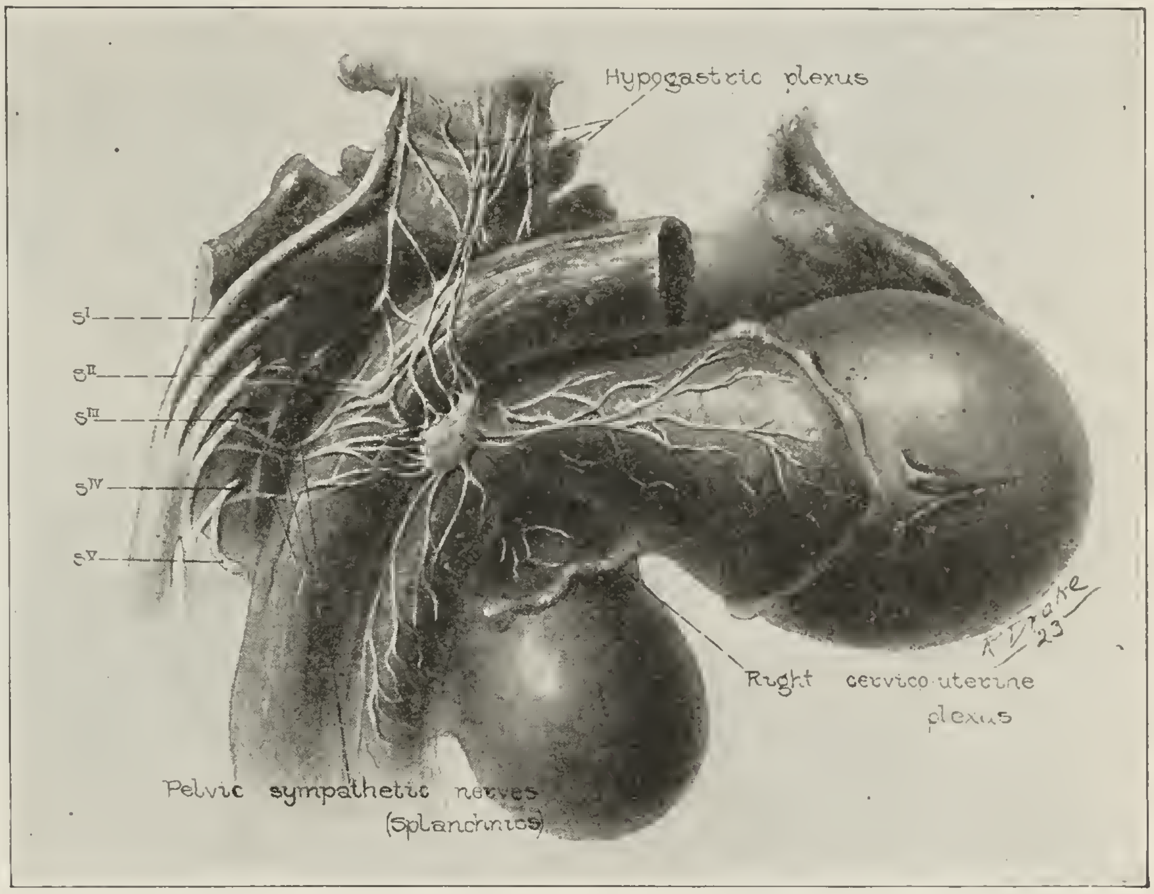
Hypogastric plexus
S^{I}
S^{II}
S^{III}
S^{IV}
S^{V}
Right cervico-uterine plexus
Pelvic sympathetic nerves (Splanchnics)

Fig. 1.—Innervation of the pelvic floor and viscera (modified from Frankenhäuser).

The nerve supply of the uterus is derived partly from the cerebrospinal, and partly from the sympathetic. The cerebrospinal is represented mainly by the third and fourth sacral nerves, mainly sensory. A sympathetic plexus is located on each side of the cervix, and is composed of branches from the sacral sympathetics and hypogastric plexuses.

But little is known of the nervous mechanism of a labor contraction. A nerve center is believed to exist in the cortex, one in the medulla, one in the cerebellum, and one in the lumbar enlargement of the cord, because

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* From the Section on Anesthesia, Mayo Clinic.

* Read before the Section on Obstetrics, Gynecology and Abdominal irgery at the Seventy-Fourth Annual Session of the American Medical ssociation, San Francisco, June, 1923.

irritation at these points causes uterine contractions. Delivery has been shown to occur in animals when the nerves connecting the uterus to the central nervous system have been severed. The primary stimulus to uterine contractions is, therefore, in the uterus itself, although under normal conditions the contractions of this organ are influenced by reflex effects through its extrinsic nerve supply.

On the basis of anatomic and physiologic grounds, block of all nerves below the second sacral, inclusive, should result in loss of sensation of the structures of the pelvic floor, and abolishment of any spasm of the pelvic floor musculature, resulting in complete relaxation; block of the sympathetics distributing to the uterine muscles and vessel walls, by abolishing vasodilator and inhibitory impulses, should result in contraction of the smooth musculature and blood vessels of the uterus. The sacral sympathetics make up but a small part of the sympathetic innervation of the uterus, however, so that the effect of block of the sacral sympathetics alone would be difficult to foretell.

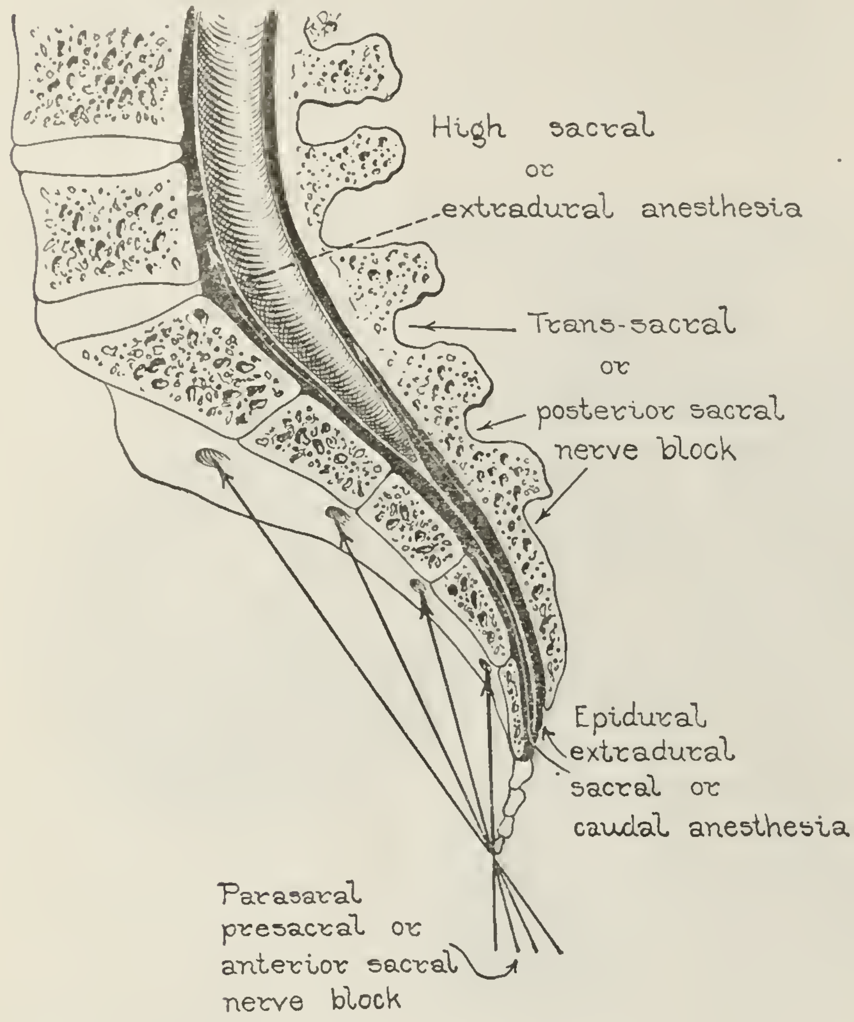

Fig. 2.—The three avenues of approach in block of the sacral nerves.

Anesthesia of the pelvic floor (Fig. 2) may be obtained by block of the sacral nerves before the plexuses are formed, at their exits from the sacrum. In surgery, three methods of approach to these nerves are employed. Unfortunately, a confusion of terminology exists with regard to these three procedures. Blocking at the anterior foramina through the perineum is called the parasacral, presacral or anterior sacral method; injection of an anesthetic solution into the sacral canal is termed epidural, sacral, extradural and caudal anesthesia; and by injections into the posterior sacral foramina, transsacral or posterior sacral nerve block is performed. The first of these methods will not be applicable, since the injections must be made through the perineum into the hollow of the sacrum, and the engaged head would constitute an obstruction.

The following observations were made on ninety parturients from the obstetric wards of the Cook County Hospital in Chicago. The comparative merits of the different methods of approach to sacral nerves were studied, and the values of the different formulas for epidural injections were determined. The value of the anesthetic was studied from two points: first, as an anesthetic for obstetric operations, and, second, as a means of abolishing the pain of normal labor.

Table 1.—*Quality of Anesthesia Resulting from Different Methods*

	Complete Pelvic Floor Anesthesia	Partial Pelvic Floor Anesthesia	Average Duration in Successful Cases		Failure	Cases in Which Labor Outlasted Anesthesia	Cases Reinjected
			Hrs.	Min.			
Formula 1; transsacral method	15	1	2	24	..	4	..
Formula 2; transsacral method	17	..	2	2	..	4	4
Formula 3; epidural injection	19	3	1	57	..	4	4
Formula 4; epidural injection	9	3	1	55	..	1	1
Formula 5; epidural injection	12	..	2	10	1	4	4
Formula 6; epidural injection	9	1	2	7	..	1	..

The first method tried was the association of a low epidural injection with transsacral nerve block of the lower four sacral nerves. In making the epidural injection, one places the patient on the left side in a modified Sims position (Fig. 3), after which the lower four sacral nerves are blocked in the same manner as for surgical work. The anesthesia resulting from block of these nerves is shown, as in the illustration, to include the entire pelvic floor and wall of the uterus, since the pain of labor can be entirely controlled by these injections (Fig. 4).

The first series of sixteen patients was anesthetized in this manner, from 60 to 85 c.c. of 1 per cent. procain solution (Formula 1) being used. Ten minims (0.6 cc.) of epinephrin for each hundred cubic centimeters of solution was added in all cases (Table 1). The average duration of anesthesia was two hours and twenty minutes. In an effort to prolong the duration of anesthesia, 0.4 per cent. sodium bicarbonate was added. According to some authorities, the addition of the alkali potentiates the anesthetic action. Formula 2, then, differs from Formula 1 only in the addition of sodium bicarbonate. In this series of seventeen cases, the average duration of anesthesia was two hours and two minutes, showing no advantage gained by the addition of sodium bicarbonate.

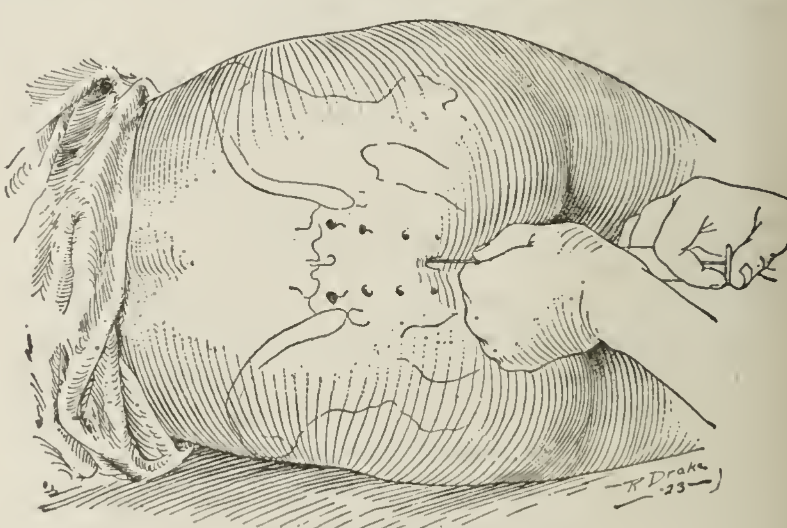

Fig. 3.—Position of parturient for block of the sacral nerves.

These two series of cases serve to emphasize the technical difficulty in performance of transsacral block in parturient women. In the average emaciated man who can lie flat on the abdomen, the injection of these foramina is not difficult. Obesity over the sacrum obscures landmarks and increases the distance from skin to sacrum, thus increasing the difficulty of locating the foramina. When the patient lies on her side, anatomic landmarks are distorted. The soft parts by their own weight fall downward, and the hiatus is not then in the middle line. When, in addition to this distortion, the patient twists and squirms during a labor pain, transsacral nerve block becomes a tedious and aggravating procedure both to the patient and to the operator.

Epidural injections were next tried. The third series of patients was given from 40 to 50 c.c. of 1.5 per cent. procain, with a 0.4 per cent. bicarbonate solution (Formula 3). The average duration of anesthesia was one hour and fifty-seven minutes. The fourth series of twelve patients received from 30 to 35 c.c. of a 2 per cent. procain solution with 0.4 per cent. bicarbonate (Formula 4). The average duration of anesthesia was one hour and fifty-five minutes. The fifth series of thirteen patients received from 40 to 50 c.c. of 1.5 per cent. procain without bicarbonate (Formula 5). The sixth series of ten patients was anesthetized with essentially the same formula as Formula 5, but with epinephrin (Formula 6).

From the standpoint of the anesthetic, better results over a slightly longer period of time were obtained by the transsacral method. The addition of the sodium bicarbonate was of no advantage. The difficulties in execution of transsacral block in the parturient make the epidural method the more practical, even though the height of anesthesia is variable.

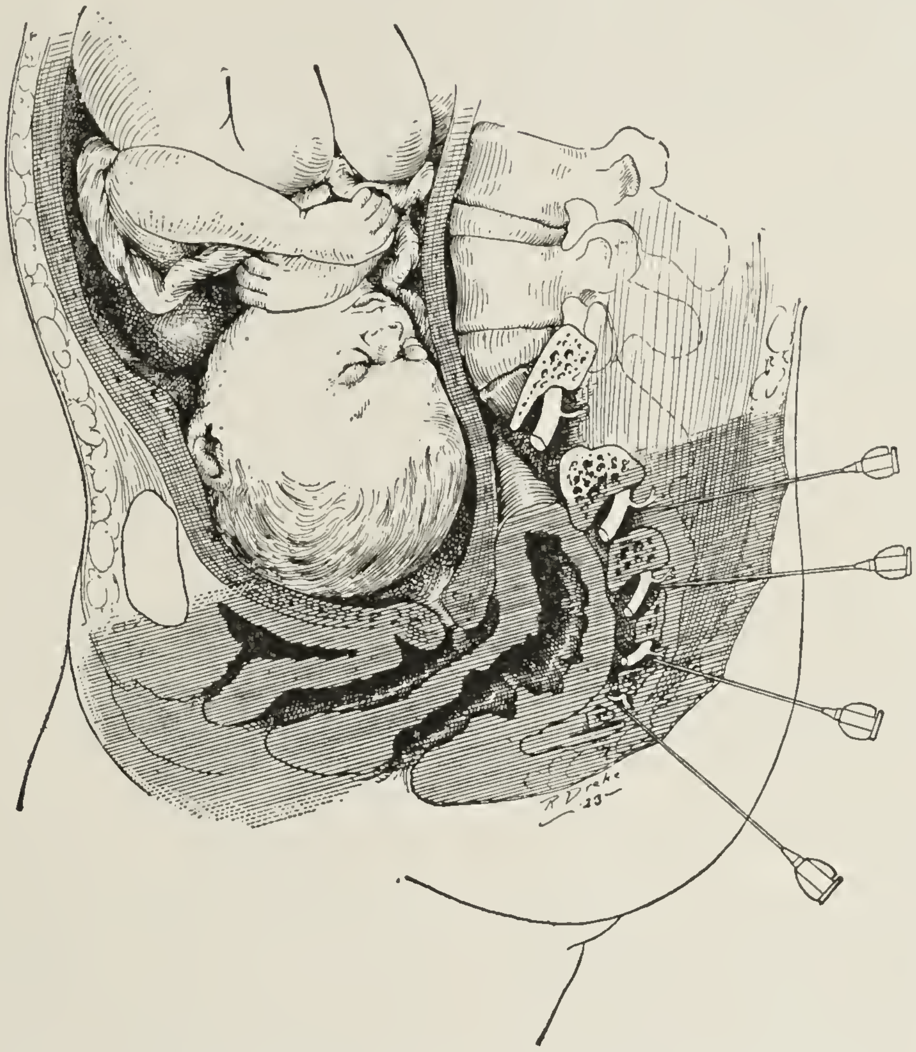

Fig. 4.—Median longitudinal section of the pelvis anterior to the sacrum and oblique longitudinal section through the left sacral foramina. The shaded area represents the extent of anesthesia.

The ninety cases studied were not selected, but taken in succession. Patients not receiving injections were missed, either because they came in too late for an injection, or were delivered in our absence. The total number of patients delivered during this study was 162. Sixty per cent. of the patients were primiparas, a percentage higher than the general average of this institution, which is 45. This increase is due undoubtedly to the fact that the rapid deliveries in multiparas made it difficult to determine when to inject them. Multiparas were also more often admitted to the hospital just in time to be delivered.

Fifty-one per cent. of the patients were colored women, which is about the normal percentage for this hospital. The large number of colored patients naturally increases the frequency of prolonged labor due to contracted pelvis. The average weight of the babies was 7 pounds as compared to 7 pounds and 3 ounces, the average weight of the babies delivered without the injections. The slight difference may be accounted for by the higher percentage of primiparas in the series injected.

OBSTETRIC OPERATIONS

It is obvious that all obstetric operations in which the operative field lies within the area innervated by the sacral nerves can be painlessly performed under sacral nerve block anesthesia. The unmistakable relaxation of the pelvic floor facilitates any operation attempted by way of the genital tract (Table 2). Twenty-one forceps operations were performed, of which ten were low, eight middle, and three high forceps deliveries. In only three instances was any other anesthetic employed. Ether was administered to one patient before the possibilities of block anesthesia were appreciated. In another, ether was necessary because the block anesthesia began to wear off before the forceps delivery was completed. The perineal relaxation not only facilitates the application of the blades, but shortens the duration of the operation and reduces the number of perineal tears. The patient continues to have good uterine contractions, unless operated on immediately after the injections, and the operator not only can apply traction during each contraction of the uterus, but also can induce the patient to cooperate by bringing her abdominal muscles into action. Another argument for the method is the absence of harm to the baby from the anesthetic In difficult forceps cases the operator is often hurried because of the danger of anesthetizing the child. Many of the operations were performed immediately after the injection, a few at the end of two hours, and one at the end of three hours. In two instances the scanzonian maneuver was performed for persistent occipitoposterior positions. In other instances the head was delivered as a posterior, because the relaxation was such that it was deemed unnecessary to rotate. The three high forceps operations were performed very slowly, one taking an hour, and it was exceedingly satisfactory not to be worried about the possible effects of ether on the baby.

The operation of version and extraction may also be performed, the relaxation of the pelvic floor being advantageous here. A few might question the advisability of this anesthesia in version; but when one bears in mind that there is usually a temporary cessation of uterine contractions, performance of version is facilitated. In such cases it is necessary to obtain relaxation of the abdominal walls of the parturient, and too much pressure on the abdomen may result in pain.

Repair of perineal tears was painlessly performed in twenty-one cases, and episiotomy and repair in six. The method has also been used in incomplete abortions, uterine packs, and in the giving of an intra-uterine douche in patients not included in this list. Decapitation was performed once.

It was hoped in the beginning that, in cases of rigid cervix, this anesthesia might relax the cervix also. Further studies should be conducted on this point before a definite statement can be made. In one case because of a delay during the first stage of labor, evidently caused by a rigid cervix, and because of the poor general condition of the patient, it was decided to dilate the cervix manually and do a version and extraction. The evidence in this case seemed to speak for a partial relaxation of the cervix. The intense pain usually associated with dilatation of the cervix was entirely absent.

Table 2.—*Presentation, Position and Operative Procedures* *

	Primiparas	Multiparas	Occipito-anterior	Persistent Occipito-posterior	Breech	Face	Transverse	Operative Delivery: Forceps: Low	Middle	High	Decapitation	Version	Insertion of Bag	Manual Dilation of Cervix	Episiotomy	Lacerations
Formula 1; transsacral method..	10	6	14	1	1	..	..	2	..	..	..	..	..	..	2	5
Formula 2; transsacral method..	10	7	13	4	..	..	..	..	3	..	..	..	..	1	1	5
Formula 3; epidural injection..	13	9	15	3	3	1	1	2	3	..	1	2	..	..	2	4
Formula 4; epidural injection..	6	6	10	1	..	1	..	1	..	1	..	..	..	..	1	2
Formula 5; epidural injection..	6	7	11	2	..	..	..	3	2	..	..	..	..	..	..	3
Formula 6; epidural injection..	9	1	7†	2	2†	..	..	2	..	2	..	1	1	2	..	2
Total.........	54	36	70	13	6	2	1	10	8	3	1	3	1	3	6	21

* Under lacerations are included tears requiring stitches. Episiotomy was not performed unless it was apparent that severe gross perineal injury was inevitable.

† Twin birth, occipito-anterior and breech.

Normal Delivery.—The value of this means of anesthesia in spontaneous delivery will, of course, depend on its influence on the progress of labor. Whenever a method of relieving the pains of labor greatly retards or stops the progress of birth, its use should be employed with caution. This drawback will obtain to a certain degree with all methods of anesthesia, because there is usually a direct relation between the amount of pain and the rapidity of progress. The parturient bears down the harder as the pains increase in intensity, finally causing the act of bearing down to become entirely involuntary. The pains, therefore, serve as the regulating mechanism for the necessary increase in the intensity of expulsive powers. If this influence is not experienced during the course of labor, it must be compensated for by other means. This fact was not realized in our earlier work, and several of the patients were left to their own resources and allowed to procrastinate until anesthesia had subsided. Much better progress was noted after we began instructing the patient how to bear down, and urging her to greater voluntary effort during the uterine contractions. In the absence of proper instruction and encouragement, the parturient is likely to rest and delay the progress of birth until the pains are again felt. It is thus paramount that the continual attendance and encouragement of the obstetrician, or his aids, be maintained at this juncture.

The effect on uterine contractions was inconstant. In the majority of cases there was nearly complete cessation of contractions within ten minutes after the injection was completed. This diminution rarely lasted more than twenty minutes, after which the contractions gradually increased in frequency and duration until, after a short time, they proceeded normally. Unless the abdomen was palpated, however, one would not know whether the contractions were continuing or not. Because of the comparatively sudden transition from a condition of extreme anguish to one of ease, there was a tendency to rest or doze in comfort. Feeling no pain, it was difficult for the patients to appreciate the fact that they were in labor, and to realize the necessity of voluntary bearing down in order that labor might progress.

The feature of greatest difficulty was the selection of the proper time to induce anesthesia. There was a tendency to apply it too early in primiparas and too late in multiparas. At first a considerable number received the injections too early to obtain the benefits of the anesthesia during the actual expulsion. In many cases also the time of delivery could not be accurately foretold. However, it was soon found that the injections could be repeated so that a second injection could be given; in three cases a third injection was given. The injections should not be repeated needlessly. Ability to judge the proper time for injection is absolutely necessary, if the best results are to be obtained; hence the necessity of having the patient under close surveillance and of having correct knowledge of position, dilatation, station and progress. The duration of anesthesia in our cases averaged approximately two hours. If it could be determined with certainty that labor would terminate within an hour, sacral nerve block anesthesia would be much more easy to employ.

As a result of our experiences, it was decided that the maximum benefit from the injections, in average cases, was obtained when dilatation of the os had reached at least 7 cm. in primiparas and 4 cm. in multiparas.

When, as a result of the patient's cooperation, labor terminated during the period of anesthesia, it was without the usual noisy outcry, and often the patient was surprised that the baby had been born. Others felt dull pressure as the head slipped over the perineum. The perineum slides back from the head in most cases with such ease that the obstetrician is surprised, because a tear seems inevitable. The fact that the parturient does not lose consciousness enables her to appreciate the progress of labor step by step. Under these conditions the opinion of the patient is of great value, and it is within the power of the obstetrician and others to impress her with the advantages of the procedure. Most patients who had experienced previous labors without anesthesia expressed profund appreciation of the freedom from pain by the present method.

Following delivery, no tendency toward atonicity of the uterus was noted. The placenta separated normally, and there was no tendency toward hemorrhage, as far as could be estimated grossly. Involution of the uterus occurred normally, and there were no postpartum hemorrhages, or alarming hemorrhages following expulsion of the placenta.

COMMENT

While the period of most extreme anguish in spontaneous delivery may be controlled by present methods of block anesthesia, the field of usefulness will greatly increase when a means has been devised to prolong the action of an epidural injection. Of the many methods devised to potentiate local anesthetic solutions, the addition of sodium bicarbonate has been given widest publicity, but this method in our hands was of no value. Other chemicals have been used, as calcium chlorid and potassium sulphate. Clinical experience, however, indicates that the potentiation attributed to these drugs is greatly overestimated. Allen suggests the addition of 5 per cent. gelation to the solution, in order to delay absorption from the site of injection and prolong the action. This method would seem to possess advantages, and should be given a thorough trial in obstetrics. Of all local anesthetic substances, the duration of anesthesia is longest with quinin and urea hydrochlorid solutions. Anesthesia may last from several hours to five or six days in infiltration anesthesia. The injection of a solution stronger than 0.25 per cent. produces marked induration of the tissues, which may end in sloughing. The induration is due principally to fibrinous exudate, indicating a local irritant action on the tissues. For this reason, its use has been largely abandoned in infiltration anesthesia, and it was never popular for nerve block methods. No record of its use in epidural injections is available; but, because of the local disturbance within the sacral canal that a solution of sufficient strength to block sacral nerves might produce, its use here is not to be recommended. A small amount of this drug, from 0.1 to 0.2 per cent., is still occasionally added to other local anesthetic solutions, for the purpose of prolonging the anesthesia. This strength might prove harmless in the sacral canal when added to the usual procain formula.

Further investigation is necessary on the whole subject of epidural injections as applied to obstetrics. It is possible that the drugs are already at hand which, by proper combination and use, will produce a perfectly safe local anesthesia of the entire pelvic floor and viscera for from five to six hours without repetition. Such a procedure should find immediate widespread use in obstetrics, and prove to be the anesthetic of choice in normal delivery.

CONCLUSIONS

1. The pains of labor may be entirely controlled by block of the second, third, fourth and fifth sacral and the anococcygeal nerves.

2. Block of these nerves by the transsacral method, plus a low epidural injection, gives satisfactory anesthesia, but the epidural method alone is the more practical. The relaxation of the pelvic floor produced by these methods is a distinct advantage.

3. Most operative and manipulative obstetric procedures may be painlessly performed under sacral nerve block anesthesia.

4. In normal delivery, the abolition of the pain reflex also takes away the voluntary effort of bearing down, which loss must be compensated for by other means.

5. The feature of greatest difficulty is the selection of the proper time to induce anesthesia. In our series, the maximum benefit was obtained by induction when dilatation of the os had reached at least 7 cm. in primiparas and at least 4 cm. in multiparas.

6. The field of usefulness of this means of anesthesia in normal delivery will greatly increase when a means has been devised to prolong the anesthetic action of an epidural injection for at least six or seven hours. Such an anesthesia should find widespread use, and might become the anesthetic of choice in normal delivery.

SCOPOLAMIN-MORPHIN SEMINARCOSIS

REPORT OF ITS USE IN THE THIRD THOUSAND DELIVERIES IN BARNES HOSPITAL *

O. H. SCHWARZ, M.D.
AND
O. S. KREBS, M.D.
ST. LOUIS

In 1906, the original publication by Gauss appeared, and he reported his series of 500 cases. In studying these he had encountered and carefully recorded most of the difficulties and most of the objectionable features about which many who took up this method of relieving the pain of child-bearing complained, and he had overcome and avoided these difficulties and by-effects in his later series of cases. This is particularly true of the administration of morphin, which Gauss held responsible for the delayed respiration in some "twilight babies," and which he restricts to one-sixth grain (0.0108 gm.) to be given once, and once only, with the initial dose of scopolamin.

In 1915, the investigation and employment of Gauss' method was taken up by Dr. Henry Schwarz, then chief of the obstetric department of the Washington University Medical School. Animal experimentation was carried on in the pharmacologic laboratories by Dr. Otto H. Schwarz under the supervision of Dr. Dennis E. Jackson, then professor of pharmacology, to determine the effects of the various opium alkaloids and scopolamin on heart and respiration, before employing the drugs in a routine clinical way.

The experiments proved to the satisfaction of the investigators that scopolamin in doses much larger than were ever recommended for "twilight sleep" has no material effect on blood pressure or on respiration. The paralyzing action of scopolamin on the peripheral nerve endings was illustrated by its action on the endings of the vagi in the bronchioles, its action on their inhibitory terminals in the heart, and its action on the

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* From the Department of Obstetrics, Washington University Medical School.

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terminals of the third nerve in the iris. Experiments on spinal dogs with morphin, narcotin and morphin-narcotin meconate[1] showed that their alkaloids act directly on the muscle fibers of the bronchioles, causing bronchoconstriction. This action was most pronounced in morphin, less so in narcotin, and least in morphin-narcotin meconate. The interference of these opium alkaloids with the respirations of the new-born child is, therefore, twofold. In the first place, the respiratory center is depressed so that it requires a greater degree of stimulation to be set in motion; in the second place, there is bronchoconstriction.

Opitz,[2] in 1922, published the most recent report from the Freiburg clinic. He stated that among 4,279 births, 2,242 of which were effected under "twilight sleep," only 2.1 per cent. of the children born in "twilight sleep" died during the first nine days, while the mortality among children delivered without the use of "twilight sleep" reached 3.75 per cent. He said that the danger in "twilight sleep" depended on the amount of morphin used. He felt that if "twilight sleep" causes any injuries to mother or infant, these are due exclusively to the method employed and to improper drugs. Good results can be obtained only by operators who have a perfect command of the technic, which requires careful study.

Table 1.—*Types of Anesthetic; Infant Mortality*

Anesthetic	Number	Still-Born	Died	Total Dead	
				Number	Per Cent.
Scopolamin-morphin......	393	15	3	18	4.58
Chloroform................	377	11	6	17	4.51
Nitrous oxid...............	69	4	0	4	5.80
Ether........................	54	7	2	9	16.66
Miscellaneous..............	4	0	0	0	0.00
None.........................	103	7	1	8	7.76
Total......................	1,000	44	12	56	5.60

In our first series of cases we used scopolamin stable "Roche" and morphin-narcotin meconate; later scopolamin (hyoscin) hydrobromid in ampule form as prepared by Burroughs Wellcome & Co., was substituted. We have also used the tablet form of scopolamin put up by Sharpe & Dohme, with very satisfactory results. Quite early in the use of the method we substituted morphin for morphin-narcotin meconate. The advantage of the latter over morphin is not as great as it might appear. While morphin undoubtedly has the more harmful influence on fetal respiration, morphin-narcotin meconate is administered in doses three times larger, and thus the advantage is in great measure lost. We use morphin-narcotin meconate in one-half grain (0.0324 gm.) doses, or morphin in one-sixth grain (0.0108 gm.) doses.

We use scopolamin-morphin seminarcosis as a first stage measure. When the uterine contractions are strong and occur at regular intervals, and usually when there is at least two fingers' dilatation in the primiparous patient, seminarcosis is begun. In the multiparas the procedure is usually begun with the first regular contractions that are painful.

The patient is always prepared for delivery before seminarcosis is begun and, after the usual preparation, is sent to one of the delivery rooms. Her ears are stuffed with cotton moistened with oil, and her eyes are covered with gauze held in place by adhesive strips. The initial dose of scopolamin is $\frac{1}{133}$ grain, or 1.5 c.c. of the scopolamin stable-Roche. The scopolamin hydrobromid contains $\frac{1}{133}$ grain to the cubic centimeter, and we use it in the same dosage: $\frac{1}{133}$ grain for the average woman. With the first injection, separately or combined, is given one-half grain of morphin-narcotin meconate, or one-sixth grain of morphin sulphate. These injections are given subcutaneously. This point is very important, as it is not desirable to get the scopolamin to act quickly; on the contrary, one wishes it to take possession of the patient very slowly. The first injection usually causes dryness of the mouth and throat, and a flushed condition of the face. The patient is encouraged to drink water freely at this stage.

The second injection is given usually forty-five minutes after the first one. This injection is usually as large as the first injection—the morphin-narcotin meconate or morphin is never repeated after the first injection. We test the degree to which the patients are under the influence of the drug by a very simple yet accurate method. Before the second injection and before each contemplated subsequent injection, the patient is requested to put the index finger to the tip of the nose, the eyes being covered. If she succeeds in doing this promptly, she still retains locomotor coordination and the contemplated injection is given; however, if she moves her finger around vaguely and misses the mark, she has lost locomotor coordination and the injection is omitted, or the dose is reduced, for the patient has the desired amount of the drug. In most cases this stage is reached shortly after the third injection, but in not a small number before the time of the third injection.

The third injection is usually given forty-five minutes after the second one. If the patient at this time shows signs of going under the influence of the drug, such as drowsiness or sleeping between pains, but still manifests locomotor coordination, the third injection is reduced to $\frac{1}{200}$ grain or less for the average woman. If no such signs are present, the original full dose of $\frac{1}{133}$ grain is given.

After the third injection, most patients remain sufficiently scopolaminized for two hours or longer. At the expiration of this period, full cervical dilatation has taken place in most cases and further injections are unnecessary and are to be avoided. The first stage of labor is over, or nearly so, and the time is close at hand at which the seminarcosis should be deepened to complete anesthesia by one of the general anesthetics.

There are, however, numerous cases in which the first stage of labor is protracted for many hours, and even for a day or two. This condition is especially true in some primiparous women in whom the membranes have ruptured before the onset of labor, and some multiparous women in whom thorough repair of cervical lacerations, together with fixation of the uterus forward by some abdominal operation, has been performed. Some of these women suffer intensely and for many hours during the first stage of labor, until dilatation is at last complete and final delivery is possible. It is in these cases that the scopolamin method has proved itself so valuable; it is in these cases, likewise, that the administration of the drug must be watched most carefully. The amount of scopolamin given and the time of the injections depend entirely on the degree to which the patient appears to be under the influence of the drug. The administration of the drug should be continued until the patient has lost locomotor coordination; when this stage is reached, it should be maintained by small and infrequent doses.

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[1] Morphin-narcotin meconate (a double salt) contains: morphin, 29.4 per cent.; narcotin, 42.6 per cent.; meconic acid, 20.6 per cent., and water of hydration, 7.4 per cent.

[2] Opitz, Erich: München. med. Wchnschr. **69**: 261 (Feb. 24) 1922.

The loss of locomotor coordination marks the one boundary of seminarcosis. The patient must cross this boundary, which is "just enough," and she must be kept from crossing the other boundary, which is "too much." This other boundary is reached when, during a labor pain, the patient's pupils no longer show the usual dilatation at the height of the contraction, because they are already dilated to the maximum by the action of the scopolamin on the terminals of the third nerve in the iris. These are the two boundaries which we watch by frequent tests during the administration of scopolamin for seminarcosis. We test for the presence or absence of locomotor coordination until we know that the patient has crossed the first boundary, and we test the pupils from time to time during a contraction to assure us they are still capable of dilatation, and that the patient has not crossed the second boundary. Keeping the patient on this narrow strip constitutes scientific seminarcosis.

Table 2.—*Distribution of Cases and Fetal Mortality of Infants Weighing 2,500 Gm. or More*

Class	Scopolamin Seminarcosis	Number	Still-Born		Macerated		Died		Immediate Mortality		Total Deaths	
			Number	Per Cent.	Number	Per Cent.	Number	Per Cent.	Number	Per Cent.	Number	Per Cent.
White primiparas	Yes	312	2	0.6	0	0.0	6	1.8	2	0.6	8	2.5
Black primiparas	Yes	23	2	8.7	1	4.3	0	0.0	3	13.04	3	13.04
White multiparas	Yes	172	1	0.5	0	0.0	0	0.0	1	0.5	1	0.5
Black multiparas	Yes	12	0	0.0	1	8.3	0	0.0	1	8.3	1	8.3
Total	Yes	519	5	0.96	2	0.38	6	1.15	7	1.34	13	2.5
White primiparas	No	57	2	3.5	0	0.0	0	0.0	2	3.5	2	3.5
Black primiparas	No	19	0	0.0	1	5.2	0	0.0	1	5.2	1	5.2
White multiparas	No	279	1	0.35	2	0.71	1	0.35	3	1.07	4	1.43
Black multiparas	No	28	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Total	No	383	3	0.78	3	0.78	1	0.26	6	1.56	7	1.82
White primiparas	Atypical	28	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Black primiparas	Atypical	2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
White multiparas	Atypical	35	0	0.0	0	0.0	1	2.8	0	0.0	1	2.8
Black multiparas	Atypical	3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Total	Atypical	68	0	0.0	0	0.0	1	1.4	0	0.0	1	1.4
Grand total	All types	970	8	0.82	5	0.51	8	0.82	13	1.34	21	2.16

When the seminarcosis is intensified to general anesthesia by a general anesthetic at the time of delivery, great care must be exercised that not too much anesthetic is given. Several cubic centimeters of chloroform, given by the drop method, on a thin gauze mask are usually sufficient to render the patient completely relaxed. There is an inclination toward giving too much chloroform, and by so doing the mother is not only chloroformed to a much deeper degree than the occasion demands, but the fetus is also chloroformed so deeply that it is bound to be born apneic, to become asphyxiated, and to require resuscitation.

Table 3.—*Mortality in Private Pavilion Cases—2,500 Gm. and Over*

Type	Number	Still-Born		Macerated		Died		Immediate Mortality		Total Deaths	
		Number	Per Cent.	Number	Per Cent.	Number	Per Cent.	Number	Per Cent.	Number	Per Cent.
Seminarcosis	275	1	0.36	0	0.0	1	0.36	1	0.36	2	0.72
No seminarcosis	97	0	0.0	1	1.03	0	0.0	1	1.03	1	1.03
Atypical	34	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Total	406	1	0.24	1	0.24	1	0.24	2	0.49	3	0.73

Scopolamin seminarcosis is most applicable during the first stage of labor, particularly in the primiparous patient, or in the multiparous patient in whom previous repair work has been done on the cervix, or when the first stage is protracted and painful, owing to premature rupture of the membranes. In cases of delivery through the natural passages in women, who, on a previous occasion, have been delivered by abdominal cesarean section, it is of the greatest importance to prevent all straining on the part of the parturient woman and to extract the child as soon as dilatation is complete, so as to keep strain as far as possible from the uterine scar. It also finds a field of usefulness in cases of eclampsia when the patient is having convulsions, when the patient is in active labor, and when forced delivery is not indicated. In these cases it seems to aid in combating successfully the convulsions, and renders the patient less sensitive to external stimuli which frequently excite convulsions. In cases of pulmonary tuberculosis and in cardiac disease, seminarcosis is also successfully used.

The contraindications to the use of scopolamin-morphin seminarcosis are more imaginary than real; however, we feel that it should be used with hesitancy in premature deliveries because of the incompletely developed respiratory apparatus and the lessened irritability of its regulating center. In cases of primary uterine inertia, it probably is contraindicated because the drugs frequently stop the contractions entirely. In cases of eclampsia, placenta praevia, and heart disease complicating pregnancy, it must be used with great care because the patient is a poor risk, the prognosis for the fetus is bad, and, whatever the outcome may be, the cause of it is sure to be laid to the seminarcosis.

In the first thousand deliveries in Barnes Hospital[3] there were 393 deliveries in which scopolamin-morphin was used. The mortality was based on all viable children of twenty-eight weeks gestation or above. Table

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[3] Schwarz, Henry: Am. J. Obst. **79**: 46 (Jan.) 1919.

1 gives the types of anesthetic employed and the infant mortality in each group.

The fifteen stillbirths included one case of hydrocephalus, one case of anencephalus with spina bifida, one 11-pound brow presentation with meningocele, one craniotomy of the dead child in the narrow pelvis, one child with congenital syphilis, and five cases brought to the hospital after protracted labor, in two of which the fetal heart beat could no longer be heard, and all of which required difficult instrumental delivery (on account of the mechanical disproportion between the pelvis and the fetal head).

Table 4.—*Infant Mortality in Third Thousand Deliveries in Entire Service*

Class	Number	Seminarcosis	Still-Born		Macerated		Died		Immediate Mortality		Total Deaths	
			Number	Per Cent.	Number	Per Cent.	Number	Per Cent.	Number	Per Cent.	Number	Per Cent.
White primiparas	348	With and without	6	1.7	0	0.0	4	1.1	6	1.7	10	2.8
Black primiparas	69	With and without	6	8.6	0	0.0	1	1.4	6	8.6	7	10.1
White multiparas	508	With and without	5	0.98	2	0.39	6	1.1	7	1.3	13	2.5
Black multiparas	75	With and without	4	5.3	3	4.0	1	1.3	7	9.3	8	10.6
Total	1,000	With and without	21	2.1	5	0.5	12	1.2	26	2.6	38	3.8
White primiparas	293	With	4	1.3	0	0.0	4	1.3	4	1.3	8	2.7
Black primiparas	46	With	4	8.6	0	0.0	0	0.0	4	8.6	4	8.6
White multiparas	251	With	4	1.6	0	0.0	2	0.8	4	1.6	6	2.4
Black multiparas	26	With	2	7.6	0	0.0	1	3.8	2	7.6	3	11.5
Total	616	With	14	2.2	0	0.0	7	1.1	14	2.2	21	3.4
White primiparas	55	Without	2	3.6	0	0.0	0	0.0	2	3.6	2	3.6
Black primiparas	22	Without	2	9.09	0	0.0	1	4.5	2	9.09	3	13.6
White multiparas	258	Without	1	0.38	2	0.77	4	1.5	3	1.1	7	2.7
Black multiparas	49	Without	2	4.08	3	6.1	0	0.0	5	10.2	5	10.2
Total	384	Without	7	1.8	5	1.3	5	1.3	12	3.1	17	4.4

In the second thousand cases,[4] there were 519 cases in which the seminarcosis was used. Table 2 shows the distribution of the cases and the fetal mortality based on all infants weighing 2,500 gm. or over.

Table 3 shows the mortality in private pavilion cases, based on infants weighing 2,500 gm. or over, in the series of the second thousand cases.

Among the scopolamin-morphin cases in which there were stillbirths, we found the following to explain the cause of death: one case of toxemia in the mother, child born with coils of cord tightly drawn about the neck; one brow presentation with intracranial birth injury; one case of prolapsed cord with traumatic injury to brain at delivery; one face presentation; in one stillbirth the cause of death was undetermined—there was no necropsy. Of the two macerated infants, there was cancer of the cervix uteri and pyelitis in the mother in one case, and a prolapsed cord with maceration and general vascular congestion in the other instance. In the cases in which the infants died before leaving the hospital, there was one death following operation for congenital atresia of the pharynx, with opening of the esophagus into the bifurcation of the trachea; two cases of spina bifida with congenital anomalies of the lower extremities; one death by choking while the infant was nursing, and one case of probable birth injury following prolonged effort at induction of labor, followed by difficult forceps delivery.

Table 5.—*Infant Mortality in Third Thousand Deliveries in the Wards*

Class	Number	Seminarcosis	Still-Born		Macerated		Died		Immediate Mortality		Total Deaths	
			Number	Per Cent.	Number	Per Cent.	Number	Per Cent.	Number	Per Cent.	Number	Per Cent.
White primiparas	139	With and without	2	1.4	0	0.0	1	0.7	2	1.4	3	2.1
Black primiparas	69	With and without	6	8.6	0	0.0	1	1.4	6	8.5	7	10.1
White multiparas	266	With and without	2	0.75	2	0.75	2	0.75	4	1.5	6	2.2
Black multiparas	75	With and without	4	5.3	3	4.0	1	1.3	7	9.3	8	10.6
Total	549	With and without	14	2.5	5	0.9	5	0.9	19	3.4	24	4.3
White primiparas	114	With	1	0.8	0	0.0	1	0.8	1	0.8	2	1.7
Black primiparas	47	With	4	8.5	0	0.0	0	0.0	4	8.5	4	8.5
White multiparas	94	With	1	1.06	0	0.0	0	0.0	1	1.06	1	1.06
Black multiparas	26	With	2	7.6	0	0.0	1	3.8	2	7.6	3	11.5
Total	281	With	8	2.8	0	0.0	2	0.7	8	2.8	10	3.5
White primiparas	25	Without	1	4.0	0	0.0	0	0.0	1	4.0	1	4.0
Black primiparas	22	Without	2	9.09	0	0.0	1	4.5	2	9.09	3	13.6
White multiparas	172	Without	1	0.58	2	1.1	2	1.1	3	1.7	5	2.9
Black multiparas	49	Without	2	4.08	3	6.1	0	0.0	5	10.2	5	10.2
Total	268	Without	6	2.2	5	1.8	3	1.1	11	4.1	14	5.2

The infant mortality in the third thousand deliveries, with and without scopolamin-morphin seminarcosis, is presented in Tables 4, 5 and 6; only cases in which the infant weighed 2,500 gm. or more are included.

In addition to the mortality reports for the individual series of 1,000 cases each, we have completed the mortality statistics in the second and third thousand deliveries combined, because both of these series have been figured on the basis of infants weighing 2,500 gm. or more. Table 7 shows that mortality study.

Some of the opponents of scopolamin-morphin seminarcosis feel that it prolongs labor unduly. We do not feel that, using it as we do, in labor managed as we manage it, it has any appreciable effect in lengthening the stages of labor. The apparent lengthening described in detail in the preceding report from this clinic is chiefly due to the fact that it is in the labor of longer duration that the method is particularly applicable. Others feel that it requires more instrumental deliveries than in cases in which the seminarcosis is not employed. We do not feel that there is any particular end to be gained in permitting spontaneous delivery. In fact, when there is complete cervical dilatation, when the head is completely rotated, and when there is considerable crowning so that an area of scalp about 4 cm. in diameter is visible at the vulval ring, we believe in making episiotomy incisions and applying the forceps and lifting the head over the perineum. This perineal forceps application is in no sense of the word a forceps operation, requires practically no traction, and permits the patient to be delivered under complete anesthesia and under surgical conditions in which there is no struggling of the patient and contamination of the sterile field.

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[4] Krebs, O. S., and Wilson, L. R.: J. Missouri M. A. **20**: 12 (Jan.) 1923.

Table 6.—*Infant Mortality in Third Thousand Deliveries in Private Service*

Class	Number	Seminarcosis	Still-Born		Macerated		Died		Immediate Mortality		Total Deaths	
			Number	Per Cent.	Number	Per Cent.	Number	Per Cent.	Number	Per Cent.	Number	Per Cent.
White primiparas	209	With and without	4	1.9	0	0.0	3	1.4	4	1.9	7	3.3
White multiparas	242	With and without	3	1.2	0	0.0	4	1.6	3	1.2	7	2.8
Total	451	With and without	7	1.5	0	0.0	7	1.5	7	1.5	14	3.1
White primiparas	179	With	3	1.6	0	0.0	3	1.6	3	1.6	6	3.3
White multiparas	156	With	3	1.9	0	0.0	2	1.2	3	1.9	5	3.2
Total	335	With	6	1.7	0	0.0	5	1.4	6	1.7	11	3.2
White primiparas	30	Without	1	3.3	0	0.0	0	0.0	1	3.3	1	3.3
White multiparas	86	Without	0	0.0	0	0.0	2	2.3	0	0.0	2	2.3
Total	116	Without	1	0.86	0	0.0	2	1.7	1	0.86	3	2.5

In the series of the second thousand cases, perineal and low forceps were applied in 77.3 per cent. of the white primiparas, and in 45.4 per cent. of the black primiparas, which is in accord with our teaching. In order to meet the criticism that under scopolamin-morphin seminarcosis more forceps deliveries are necessary, we observed a series of consecutive primiparas, thirty-four in number. During this period of time there were two or three patients delivered instrumentally for definite indications on the part of the mother or child, but such cases will be found in any series regardless of the anesthesia or analgesia employed.

Table 7.—*Mortality in Second and Third Thousand Deliveries Combined*

Service	Class	Number	Seminarcosis	Still-Born	Macerated	Died	Total Deaths	
							Number	Per Cent.
Entire	White primiparas	745	With and without	10	0	10	20	2.6
Entire	Black primiparas	113	With and without	8	2	1	11	9.7
Entire	White multiparas	994	With and without	7	4	8	19	1.9
Entire	Black multiparas	118	With and without	4	4	1	9	7.6
Total		1,970	With and without	29	10	20	59	2.9
Entire	White primiparas	605	With	6	0	10	16	2.6
Entire	Black primiparas	69	With	6	1	0	7	10.1
Entire	White multiparas	422	With	5	0	2	7	1.6
Entire	Black multiparas	38	With	2	1	1	4	10.5
Total		1,134	With	19	2	13	34	2.9
Entire	White primiparas	140	Without	4	0	0	4	2.8
Entire	Black primiparas	43	Without	2	1	1	4	9.3
Entire	White multiparas	572	Without	2	4	6	12	2.09
Entire	Black multiparas	81	Without	2	3	0	5	6.1
Total		836	Without	10	8	7	25	2.9
Pavilion	White primiparas, white multiparas	857*	With and without	8	1	8	17	1.9
Pavilion	White primiparas, white multiparas	610	With	7	0	6	13	2.1
Pavilion	White primiparas, white multiparas	213	Without	1	1	2	4	1.8

* Thirty-four atypical cases included in total.

Table 8 gives a review of this series of spontaneous deliveries under scopolamin-morphin seminarcosis.

Table 9 shows a comparison of the stages of labor of the scopolamin cases in the second thousand deliveries with the recent series of spontaneous deliveries. In the cases represented in the first half of the chart, no particular effort was made to allow the patients to deliver spontaneously, or, in other words, quite a large percentage of these labors were terminated with forceps, which is in line with our teaching.

We see that in the white primiparas the average lengths of the first stage of labor varied slightly more than one hour, the shorter time being on the side of the spontaneous cases. No definite deductions can be made from this figure, however, because the series are so vastly different in point of number. In the first series one would expect a longer first stage because it included the abnormal cases that were eventually terminated by forceps, which cases the second series excluded. There is a wide difference in the lengths of the first stages of labor in the black primiparas, but this difference is explained, too, by the fact that the first series included the cases that were of necessity delivered instrumentally.

A comparison of the second stages of labor shows the figures approach one another very closely. With the first series, including the hard labors in which instrumental deliveries were indicated, one might expect a longer second stage average as compared with the spontaneous cases, were it not for the fact that forceps frequently terminated the labor and slightly decreased that period of labor.

CLINICAL AND PATHOLOGIC FINDINGS IN CASES OF FETAL DEATH

Scopolamin-Morphin

Still-Born:

Case 1.—Weight, 3,450 gm. Frank breech. Labor, twenty hours; difficult extraction. No necropsy.

Case 2.—Weight, 2,880 gm. Pelvis normal. S. L. A. Prolapsed cord. Difficult extraction. No necropsy.

Case 3.—Weight, 3,120 gm. Pelvis, normal; spines prominent. L. O. P. Labor, twenty hours. Fetal heart became poor in rate and character. No necropsy.

Table 8.—*Spontaneous Deliveries Under Scopolamin-Morphin Seminarcosis*

Color	White	Black
Number	26	8
Average age	20.5 yrs.	18.6 yrs.
Position:		
L. O. A.	15	..
L. O. P.	3	..
R. O. A.	1	1
R. O. P.	6	7
L. S. A.	1	..
Pelvis:		
Normal	24	3
Funnel	1	..
Simple flat	..	1
Generally contracted	1	3
Flat, rachitic	..	1
Average gestation	39.3 weeks	39.1 weeks
Perineum:		
Right episiotomy	12	4
Left episiotomy	1	..
Double episiotomy	2	..
First degree tear	7	2
Second degree tear	2	..
No injury	2	2
Labor:		
First stage	13.48 hrs.	10.21 hrs.
Second stage	1.72	2.31
Third stage	0.32	0.19
Anesthetic:		
Nitrous oxid	9	1
Chloroform	16	6
Ether	0	1
No anesthesia	1	..
Child:		
Spontaneous respiration	21	5
Asphyxiated	5	3
Average weight	3,362 gm.	3,115 gm.
Mortality	0	0
Pituitary:		
Number of cases	6	3
Time	Expulsion	Expulsion
Amount	3 min.	3 min.
Twilight:		
Average duration	7.05 hrs.	7.44 hrs.
Began at 3 finger-breadths dilatation		

Table 9.—*Stages of Labor*

Class	Number	First Stage	Second Stage	Third Stage	Total Labor Average
W 1	349	14 hrs., 37 min.	2 hours	18 minutes	16 hrs., 33 min.
B 1	25	20 hrs., 15 min.	3 hrs., 9 min.	21 minutes	21 hrs., 15 min.
W 1	26	13 hrs., 29 min.	1 hr., 43 min.	19 minutes	15 hrs., 31 min.
B 1	8	10 hrs., 13 min.	2 hrs., 19 min.	12 minutes	12 hrs., 44 min.

Case 4.—Weight, 3,480 gm. Labor, fifty hours. R. O. P. Midforceps. Necropsy: defect in left parietal bone.

Case 5.—Weight, 3,360 gm. Placenta praevia centralis. No necropsy.

Case 6.—Weight, 3,820 gm. Labor, twenty-six and a half hours. S. L. A. Pelvis generally contracted. Difficult extraction. No necropsy.

Case 7.—Weight, 3,430 gm. Pelvis, normal. Labor, ten hours. O. L. A. Toxemia: intrapartum rupture of uterus. No necropsy.

Case 8.—Weight, 3,050 gm. Pelvis, normal. Labor, seven hours. O. L. A. Spontaneous. No necropsy. Probably concealed prolapsed cord.

Case 9.—Weight, 3,100 gm. Pregnancy with myoma. Labor, fifty-six hours. Version and extraction. Fetal heart beat, 210. Necropsy: patent foramen ovale; caput succedaneum.

Case 10.—Weight, 3,050 gm. Labor, sixty-eight hours. R. O. P. Difficult rotation. Necropsy: atelactasis, caput, excoriations about head and face.

Case 11.—Weight, 3,450 gm. Labor, seventy-seven hours. R. O. P. Low forceps. Fetal heart irregular and slow. No necropsy.

Case 12.—Weight, 2,820 gm. S. L. A.; footling. Breech extraction. Cervix clamped around neck. Necropsy: stillborn, full-term infant.

Case 13.—Weight, 3,650 gm. Pelvis generally contracted, rachitic. Labor, twenty-eight hours. High forceps. Necropsy: birth hemorrhage over cortex of cerebrum and into posterior fossa in region of cervical cord.

Case 14.—Weight, 2,600 gm. Pregnancy with syphilis. Pelvis, simple flat. O. L. A. Labor, eighteen hours. Necropsy: premature; congenital syphilis.

Macerated:

None.

Died Before Leaving Hospital:

Case 15.—Weight, 3,435 gm. (4⅓ days old). R. O. P. Difficult delivery. Rotation. Necropsy: intracranial injury; pneumonia.

Case 16.—Weight, 3,025 gm. (19 hours old). R. O. P. Fetal heart, 100. Necropsy: birth hemorrhage over cerebral cortex into posterior fossa and into both lateral ventricles.

Case 17.—Weight, 2,670 gm. Pelvis normal. R. O. P. Labor, ten hours. Perineal forceps. Died in three hours. Prematurity; congenital malformation of heart. No necropsy.

Case 18.—Weight, 3,540 gm. Pelvis, flat rachitic. Wassermann reaction negative. Labor, twelve hours. Perineal forceps. Died in one and a half days. Necropsy: indeterminate. Clinical, birth hemorrhage.

Case 19.—Weight, 4,030 gm. Pregnancy with myoma. Pelvis normal. Labor, seven hours. O. L. A. Midforceps. Necropsy: hemorrhagic disease of new-born; intracranial injury; icterus.

Case 20.—Weight, 3,200 gm. Died fourth day. Icterus. Blood smear raised question of leukemia. Necropsy: congenital icterus; hemorrhagic erosion of gastric mucosa; hyperplasia of spleen with phagocytosis of red blood corpuscles; accessory spleen.

Case 21.—Weight, 2,840 gm. Pelvis generally contracted. R. O. P. Labor, nineteen hours. Podalic version. Died in two and one-fourth hours. Necropsy: congenital syphilis; fracture of clavicle.

Without Seminarcosis

Still-Born:

Case 22.—Weight, 2,710 gm. Toxemia of pregnancy. Placenta praevia marginalis. No necropsy.

Case 23.—Pregnancy with carcinoma of ovary. Dead on admission. Cesarean section. Wassermann test not made. Necropsy: atelactasis.

Case 24.—Weight, 3,750 gm. Pelvis normal. Prolapsed cord. No necropsy.

Case 25.—Weight, 3,520 gm. Pelvis generally contracted. O. L. A. Labor, fifty-seven hours. Necropsy: overlapping cranial bones; caput; atelectasis.

Case 26.—Weight, 3,963 gm. Pelvis atypical, left half flat. Test of labor. Cesarean section. Necropsy: partial atelectasis.

Case 27.—Weight, 2,500 gm. Pelvis generally contracted. Rupture of uterus through old scar. Cesarean section. Necropsy: atelectasis.

Case 28.—Weight, 2,680 gm. First of twins. Prolapsed cord. Valvular disease, chronic cardiac; toxemia of pregnancy. Wassermann reaction negative. Necopsy: osteochondritis; atelectasis; prematurity.

Macerated:

Case 29.—Weight, 2,625 gm. Toxemia of pregnancy. Wassermann reaction negative. Breech extraction. Necropsy: osteogenesis imperfecta; interstitial hepatitis; pancreatitis; nephritis.

CASE 30.—Weight, 2,870 gm. Labor, three hours. Premature delivery. Brought to hospital following automobile accident. No fetal movement. Premature detachment of placenta. Necropsy: still-born, macerated.

CASE 31.—Weight, 4,120 gm. Dead on admission. S. D. A. Breech extraction. Wassermann reaction negative. Necropsy: enlarged thymus; hemorrhages into medulla of kidney.

CASE 32.—Pelvis normal. Dead on admission. Pregnancy with acute nephritis, hydronephrosis, acute hemorrhagic cystitis, contraction ring of Bandl. No necropsy.

CASE 33.—Weight, 3,980 gm. Pelvis normal. Labor, sixty-eight hours. Pregnancy with syphilis, hydronephrosis, general arteriosclerosis, myoma, chronic pleurisy. Necropsy: atelectasis; maceration.

Died Before Leaving Hospital:

CASE 34.—Weight, 3,640 gm. Wassermann reaction negative. Spontaneous delivery. Died in two days. Necropsy: congenital defect of hepatic flexure of colon, with communication between lumen of colon and peritoneal cavity; rupture of umbilical vein in falciform ligament; necrosis of convoluted tubules of kidney; general peritonitis.

CASE 35.—Weight, 3,890 gm. Wassermann reaction negative. Normal pelvis. O. L. A. Perineal forceps. Died in two days. Intracranial injury. No necropsy.

CASE 36.—Weight, 3,175 gm. Small pelvis. Spontaneous delivery. Died two days after birth. Intracranial hemorrhage. No necropsy.

CASE 37.—Weight, 2,850 gm. Died fifty-five minutes after birth. Foot, hand and breech presented. Difficult extraction. Head hung within cervical ring. No necropsy.

CASE 38.—Weight, 3,205 gm. Funnel pelvis. L. S. A. Labor, nine and a half hours. Breech extraction. Died four hours after birth. Necropsy: subtemporal and subdural hemorrhage (Rt.).

COMMENT

We feel that scopolamin-morphin seminarcosis is the most effective method of relieving the first stage pain of childbirth. In the first thousand cases reported, amnesia and otherwise perfect results were present in 80 per cent. of the cases. In the series of the second thousand deliveries, perfect results were present in 85.3 per cent. of the cases, with no success obtained in 5.07 per cent.

Although some of the patients were not relieved of their pain and remembered more or less of what transpired, the fatigue and exhaustion following delivery were in most instances absent.

In many of the multiparas we use nitrous oxid analgesia quite extensively. On some of the longer and harder multiparous labors we use the regular scopolamin-morphin method; in still others we combine the administration of nitrous oxid with a modified scopolamin seminarcosis, in which the scopolamin is complemented from the beginning with nitrous oxid or in which, after the patient is lightly under the influence of scopolamin, she is kept at that level and her pain controlled until delivery by nitrous oxid inhalations.

In October, 1921, a new-born service was created in Barnes Hospital, the Obstetrical Service of Washington University Medical School. This was a combined obstetric and pediatric service. A member of the staff who is a resident pediatrician of the St. Louis Children's Hospital, and a full-time member of the obstetric staff are in supervision of the service. These two men meet daily, go over the new-born infants completely, and supervise their feeding. By this method, many of the problems that arise in a nursery can be intelligently handled because the mother's and child's interests are both represented by men who are conversant with such work.

Since this service has been in operation, the pediatrician in charge has noted nothing unusual in the children born in scopolamin-morphin seminarcosis, nor has there been any way at all of recognizing these children by their behavior. The pediatricians who follow most of the children of the private patients and also those of the ward mothers reporting to regional well babies' and feeding clinics have never expressed themselves adversely in regard to the method of seminarcosis.

CONCLUSIONS

1. We feel that the methods for the conduct of labor as we use them can be carried out only by trained obstetricians in a maternity of moderate size, and that they are not to be attempted in poorly appointed homes by any one, or under any circumstances by the average general practitioner. These individuals do not do operative surgery under the same conditions that they do their obstetrics, and the responsibility is as great in obstetrics as in operative surgery. Furthermore, it is to be used only by those who are willing to watch the patient closely from the onset of labor until it is terminated, or by those who have an organized hospital staff or trained assistants at their command.

2. The method is particularly applicable to the primiparous patient, but can be used very successfully in many multiparas, or also in multiparas in a modified way.

3. The method cannot be used to the exclusion of the other methods of analgesia and anesthesia, but should be used in combination with these other means. The method in no way displaces anesthesia at the time of expulsion; chloroform in very small amounts, or nitrous oxid or ether are used at this time, making any operative procedure readily carried out without resistance on the part of the patient and under strictly surgical conditions.

4. In primiparas, when seminarcosis is employed labor is best terminated by episiotomy and a perineal forceps delivery; this procedure, however, is by no means necessary, as many of the patients will deliver spontaneously.

5. That the pains of the first labor remain indelibly fixed in the minds of many mothers is undisputed, and is perhaps chiefly responsible for many one-child marriages, and is evidenced by the fact that many patients seek relief in subsequent pregnancies. This merely emphasizes one field of its usefulness.

6. Asphyxia is not increased in frequency, although slight oligopnea is sometimes seen

7. The chief disadvantage of the method is that it is time consuming, and that the patient must be constantly watched throughout labor by those who are familiar with the method; few busy obstetricians are willing to give the required amount of time and individual attention to one patient.

Problems of Conduct.—The fully equipped physician must know more than disease and drugs; he must know human urges, fundamental and acquired, and their dominion over men. The lives of really great physicians from Hippocrates to Osler testify to this. Only too true is Mathew Arnold's oft quoted statement to the effect that two thirds of human life has to do with problems of conduct; so in medicine, we might agree with Danna, when he says that Arnold's statement is even more true in medical practice, that two thirds of efficiency and success depend on conduct and character and only one third on technic.—Pollak, B. S.: *J. M. Soc. New Jersey* **20**:289 (Sept.) 1923.

OBSTETRIC ANALGESIA AND ANESTHESIA

A CONSIDERATION OF NITROUS OXID-OXYGEN AND VARIOUS COMBINED METHODS *

W. C. DANFORTH, M.D.
EVANSTON, ILL.
AND
C. HENRY DAVIS, M.D.
MILWAUKEE

There can be no controversy at the present time as to the desirability of relief of pain in labor, provided relief may be had with safety. We believe that our experience during the last ten years has shown that a high degree of relief may be obtained without sacrificing the safety that should be the physician's first concern.

We wish to place ourselves on record as stating that in our opinion chloroform has today no place in obstetric practice. Experimentally, it has been abundantly shown by Graham, Woodyatt and by one of us (C. H. D.) that definite degenerative changes occur in the young in utero, these changes being present and demonstrable after subjecting the pregnant animal not only to complete anesthesia comparable to that used in surgical procedures, but also after intermittent and very light anesthesia, such as would be administered to a woman in the second stage of labor. The work of these different investigators has also shown a marked variation in the extent of tissue damage found in the young of pregnant animals subjected to chloroform and ether, the degeneration being far less with ether than with chloroform. The administration of nitrous oxid to pregnant animals has shown less tissue damage than either chloroform or ether. In those cases in which considerable doses were given and changes were demonstrable, they were more nearly comparable to those produced by asphyxiation than to the degenerative changes typically found after the use of chloroform, and, to a less degree, after ether.

Clinically, we must admit the likelihood of the production of degenerative processes in the organs of the parturient woman similar to those known to occur in laboratory animals, and evidence of this has not been lacking on the necropsy table. In addition to this very real and adequate reason for its rejection, we may add its known effect, when used in sufficient quantity and over a sufficient length of time to afford an appreciable relief, of slowing the labor by lessening the force and frequency of the uterine contractions.

This leads to efforts to stimulate the flagging uterine musculature, which means usually that pituitary extract is administered, a practice which, with infrequent exceptions, can only be condemned. One writer, indeed, recommends the combination of chloroform and pituitary extract, in order that pain might be relieved and at the same time the labor not delayed, a practice which, we are assured, would not be favored by the majority of careful obstetricians. We rarely use pituitary extract until after the second stage of labor.

Our measures for pain relief must be divided into those which are applicable in the first stage and those which may be used in the second stage. The use of inhalation anesthetics during most of the first stage is not recommended. Nitrous oxid may be begun late in the first stage, as we shall indicate later. Our chief reliance for relief during the first stage must be in drugs administered hypodermically, by mouth or by rectum. The drug chosen may be one of the opiates, morphin, codein, heroin or pantopon, alone or combined with scopolamin (hyoscin) and given hypodermically, or chloral by mouth or rectally. Our preference is for one of the opiates, usually in combination with scopolamin, as morphin-scopolamin or pantopon-scopolamin, the scopolamin being repeated if needed. In a long first stage it has seemed quite clear to us that the parturient went through long hours of dilatation with less fatigue and nervous wear and tear, and approached the second stage with her physical powers more nearly intact, than if the first stage had been without relief. In our use of these drugs we have made no attempt to approach the so-called twilight sleep, or to produce amnesia. Our only desire has been to dull somewhat the severity of the pain, to "take the edge off," and perhaps to produce a light degree of somnolence between pains. This may usually be accomplished with morphin, one-sixth grain (0.0108 gm.), and scopolamin, one one-hundredth grain (0.00065 gm.), given in two parts, from fifteen to thirty minutes apart. Should by any chance a woman whose susceptibility to opium is above the average cease to have contractions after the administration of hypodermic medication, we do not resort to the giving of pituitary extract, but patiently await the spontaneous resumption of labor. However, this is not a frequent occurrence. We would emphasize the caution already given by others that no opiate be given within three or at least two hours of delivery, because of the possible effect in narcotizing the child, which may render it slow to breathe. It has seemed to us that pantopon is less likely to produce this result than the other alkaloids of opium. This makes it necessary for the physician to note carefully the apparent rapidity with which the labor is proceeding and the progress already made. Experience here is of decided value. Cautiously used, we have seen no unfavorable results; and we have come to believe that hypodermic medication is a valuable addition to our means of lessening suffering in labor.

At the end of the first stage or, in some cases, when the first stage is nearing its end, it is necessary to add some form of inhalation anesthetic, and, in our experience, nitrous oxid or the combination of nitrous oxid and oxygen has been by all means the most satisfactory. We desire that the labor, which at this stage is ordinarily in active progress, shall not be delayed, and still we desire to relieve the mother of the severe pain she would otherwise experience during the remaining hour or two which the second stage will consume.

Nitrous oxid is the one thing yet thoroughly tested which will relieve the pain of labor without at the same time diminishing the force and frequency of the uterine contractions, and which may be used for periods up to several hours without appreciable loss in the force of the uterine contraction.

We have felt that, as a general thing, it is wise to restrict the giving of gas to periods not exceeding three hours. We have both, on rare occasions, extended its use over much longer periods without untoward result, but believe that very extended periods of administration may produce some fetal asphyxiation. A two-hour period will include the great majority of cases.

The gas may be given pure or mixed with oxygen. In cases in which a small number of breaths suffice to

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control the pain of a contraction, the nitrous oxid alone will do. In others, oxygen may be combined in varying proportion as the individual patient may need.

One most essential point to which we have both drawn attention in previous communications is the necessity of commencing the giving of gas for each pain immediately on the onset of the contraction. When it is not begun till after the pain is well started, it is not possible to obtain the maximum relief, and in many cases there is but little or no benefit. Failure to pay attention to this point has been responsible for most poor results.

The number of breaths of the gas or mixture varies from three to six in the majority of cases. It is necessary to ascertain in each case what dosage is needed, and to increase it as needed. This is not difficult, and a little experience renders it easy. We may mention also that use of hypodermic medication in the first stage often renders the giving of gas in the second stage easier.

The intermittent administration of gas may be continued, as we have indicated, through the second stage till near its end, when light anesthesia is needed. As the head distends the perineum and delivery is evidently at hand, we have found it to be of decided advantage in most cases to add a little ether, which may be done by means of the ether attachment with which most gas machines are equipped. As delivery is actually to be accomplished, the patient is told to breathe rapidly and deeply so that a brief unconsciousness is produced, during which delivery occurs. A method which in our work has been very satisfactory is as follows: After the head has advanced till delivery is imminent and the woman is taking the gas-ether combination, we rapidly deepen the anesthesia to unconsciousness, and then by a Kristeller expression cause the child to be delivered. As the head emerges, the ether is turned off, and, as the delivery is completed, the anesthetist rapidly empties the bag of the gas apparatus, and then allows the mother to breathe pure oxygen. This, we have thought, helps the child rapidly to attain a normal pinkness. If the cord is not pulsating, oxygen may be given directly to the baby by means of the ordinary nasal inhaler. This is very important in all cases in which there is any evidence of fetal asphyxia or delayed breathing. In many cases the mother will be wholly unaware of the delivery.

When it is desired to do an episiotomy, if the gas is continued from one pain through the interval between pains and into the next pain, as a rule the incision may be made without pain and often without the mother's knowledge.

While we desire particularly to emphasize the value of this mode of pain relief in spontaneous labor, as it is in these that effective analgesia is most frequently lacking, we have found that nitrous oxid-oxygen is applicable to the majority of obstetric operations. Here, however, the problem becomes one of proper administration of surgical anesthesia. This is a little more difficult, but is entirely possible and practicable and quite within the power of any reasonably well trained anesthetist.

The most frequent obstetric operation is the outlet forceps operation. This, in the majority of cases, may be done under gas-oxygen with entire satisfaction. The anesthetic is carried to the point at which voluntary motion does not occur when instrumentation is begun, but it is not necessary or desirable to push it to the point of complete relaxation. The operation is then carried out in the usual way. We have found that with an anesthesia so light that uterine contractions continue, the expenditure of tractive force on the forceps is less than is otherwise needed, with a correspondingly lessened amount of operative trauma on the fetal head. The amount of tractive force needed may be still further reduced by using (Kristeller) pressure on the fundus of the uterus.

The ordinary perineal repair is done with ease under a properly given gas anesthetic. There is usually no objection to ether for the repair.

The more difficult forceps extractions, those done on the head lying in the midplane or engaged in the pelvic inlet, may also be carried out satisfactorily under gas. We would here, however, voice the caution that when deep narcosis is to be maintained for a protracted period prior to delivery, ether be used, as prolonged administration of gas experimentally has been shown to produce tissue change in the young of laboratory animals, comparable to asphyxiation.

Cesarean section is perfectly feasible under gas, provided an anesthetist is at hand of the degree of skill that should be required of one who is to anesthetize any patient who is to have a laparotomy.

A very definite advantage which the use of gas for operative work possesses is the increased activity of the uterine muscle after anesthesia. This to a considerable degree diminishes bleeding, and measures for the control of blood loss are needed much less frequently than when working with anesthetics which cause a more marked muscular relaxation.

This fact places the only real limitation on the use of gas for operative work that we have found. Operations that require marked uterine relaxation for their safe carrying out are better done under ether. Version and manual rotation of the head are the outstanding exceptions to the use of gas. Those who desire to use the method described by Kielland for the introduction of his forceps on a head in the transverse or occiput posterior position, with the intrauterine rotation of the anterior forceps blade, should use ether to avoid wounding the unrelaxed uterine wall. We believe, therefore, that nitrous oxid-oxygen may be applied to almost all obstetric operations, the only exceptions being those requiring marked uterine relaxation. During analgesia while the child is in the uterus we believe that rebreathing should be avoided, and it is better that the intermittent administration of gas should not exceed three hours.

In the experience of both of us, the use of nitrous oxid and oxygen has proved safe. In support of this statement we may give the results of our own experience.

We are quite certain that neither our maternal nor our fetal mortality has been unfavorably influenced by our use of nitrous oxid. The maternal mortality in a recent series of 1,029 cases, as observed by one of us (W. C. D.), comprising the work of the Evanston Hospital Maternity for 1921-1922, was 0.39 per cent. This series includes a considerable number of cases in which pathologic conditions were present. Of the patients, 447 were primiparas and 582 were multiparas. Our fetal death rate for the same series of cases, excluding premature babies under eight months and including all infants dying between the admission of the mother to the hospital and her discharge, usually on the twelfth day, was 3.5 per cent. Including all premature babies, it was 4.6 per cent. Some of these were cases of six months' gestation, in which the child perished almost at once. Certainly, these figures do not show the operation of any factor which increases danger to either mother or child.

We believe, on the contrary, that the safety of both mother and child is increased by proper pain relief.

Table 1.—*Deaths from Unavoidable Causes*

Condition	Number
Small twin (weaker one of pair)	1
Atelectasis	3
Spina bifida	1
Congenital heart disease	3
Hemorrhage of new-born	3
Toxemia of pregnancy (dead before delivery)	1
Anencephalus	1
Prematurity	3
Dead in utero before induction of labor	1
Total	17

Not seldom, in long labors, as, for example, in cases of a relative disproportion, the woman may be carried through the first stage with the help of morphin, possibly with the addition of scopolamin, so that she may approach the second stage with her physical forces as nearly intact as possible. Then, with analgesia, she may go through a tedious second stage, aiding herself by voluntary effort, when, were she left without relief, as under older methods she usually was, she might soon become discouraged from the combination of pain, fatigue and apparent lack of progress. Under gas, however, such cases may often be carried on till, after two or three hours, a comparatively easy low or midforceps operation may suffice to terminate a labor which, had we been compelled to intervene earlier, would have required a more formidable operation. This cannot be without a favorable effect on maternal morbidity and fetal mortality.

Another factor which has seemed to us of value is that our patients after labor are far less exhausted physically and mentally than when they are permitted to pass through the second stage without adequate relief. We believe that this factor has a favorable influence on the puerperium.

As to the causes of the fetal mortality and their possible relationship to anesthesia, it may be instructive to review the fetal deaths in the series of 1,029 cases to which we have referred. There were 1,046 infants born in this series. Of these, forty-nine were lost at some time between the admission of the mother and her discharge, a total mortality of 4.68 per cent. Excluding fourteen premature babies, prior to the eighth month, we have a mortality of 3.5 per cent. Of these, seventeen were lost from causes which could not be ascribed to faulty obstetric technic or to anesthesia. These causes appear in Table 1.

Table 2.—*Deaths from Obstetric Causes*

Condition	Number
Breech extraction in primipara	2
Cervical cesarean section after forty-eight hours labor before admission (ether anesthetic)	1
High forceps	4
Flat pelvis; arm and cord prolapse	1
Asphyxia; cord about neck and arm	1
Breech with cord prolapse	2
Version and extraction	1
Placenta praevia (two treated by version)	3
Transverse arrest; delayed extraction	1
Total	16

We have been able to secure necropsies in the majority of our cases of fetal death. In the cases of atelectasis and congenital heart disease appearing in Table 1, the diagnosis was substantiated by necropsy.

In addition to these, there were sixteen other fetal deaths in which obstetric causes are found sufficient to cause death. These causes are shown in Table 2.

It would seem obvious that in these cases we have indicated an adequate cause for each death, and that none of these can fairly be called an anesthetic death. In approximately 2,000 cases preceding those which make up the series from which these figures are taken, we had no fetal death which could be regarded as caused by the anesthetic. We believe, therefore, that we are fairly entitled to state that a proper use of nitrous oxid does not carry with it a risk to the child.

The figures just given show the work of a number of persons, not only the obstetric attending staff but also cases delivered by interns, and a moderate number under the care of physicians who are given the facilities of the hospital and who are careful and conscientious men, although not all of comprehensive obstetric experience.

Table 3.—*Analgesia Cases* *

		Primiparas	Multiparas
Chicago deliveries	109	67	42
Milwaukee deliveries	296	179	117
Total in series	405	246, or 60%	159, or 40%

METHOD OF DELIVERY AND MATERNAL MORTALITY

Total deliveries	405
Spontaneous (vertex)	242
Low forceps	61
Midforceps	62
High forceps	8
Forceps to after-coming head	2
Breech extraction (includes eight versions)	23
Vaginal hysterotomy before forceps	2
Cesarean sections	7
Maternal deaths (eclampsia)	1

* Series 1 (C. H. D.)

Table 4.—*Morphin-Scopolamin Analgesia in First Stage* *

	Number
Total cases	123
Maternal mortality	0
Fetal deaths (hemorrhagic disease)	1
Primiparas	84
Multiparas	39
Spontaneous deliveries	60
Low forceps (primiparas)	29
Midforceps { primiparas	22
Midforceps { multiparas	10
High forceps (primiparas)	2

ANALYSIS OF PRIVATE CASES

The results obtained in a smaller series, all of which were under the observation of men of experience and training greater than the average for the preceding series, may be shown by a tabulation of our own recent results.

Of the deaths shown in Table 8, only two followed operative delivery, one a version done for placenta praevia, the woman having been sent into the hospital after considerable hemorrhage outside, and one in which death occurred one day after high forceps following a long labor. Necropsy showed no cerebral injury.

The figures given in both the individual series do not show the operation of any factor that increases fetal danger. On the contrary, they would seem to indicate that operative work under gas anesthesia in experienced hands is quite safe. The character of the anesthetic cannot lessen danger from improperly done operative procedures, but an unsafe anesthetic may increase the operative risk. That danger to the child is not increased, we believe, is evidenced by the results we have given.

We wish strongly to emphasize our belief that proper anesthesia is an important thing. In obstetrics, as in any other branch of surgery, a competent anesthetist is indispensable. The importance of the anesthetist as a member of the surgical team has of late years been insisted on more and more. The obstetrician, who is the only surgeon who is responsible for two lives at once, certainly should demand at least as adequate service as is given to patients of other sorts. The practice in some institutions, too, of providing trained service for the drunken vagrant with a scalp wound, while permitting parturient women to undergo major operations with anesthetics given by inexperienced interns or others, merely because the operation occurs at night or "because it always has been so," is little short of criminal.

TABLE 5.—*Fetal Mortality in 405 Deliveries (411 Babies)**

CAUSES OF STILLBIRTH	
Macerated	4
Ablatio placentae and true knot of cord	1
Anencephalus	1
Concealed prolapse of cord	1
Version after attempted forceps	2
Total	9
CAUSES OF POSTNATAL DEATHS	
Premature, seven months	1
Premature, blue baby (one of triplets)	1
Erysipelas after circumcision	1
Congenital heart defects	3
Hemorrhagic disease of new-born	1
Total	7
Total fetal mortality, 3.9 per cent.	

* Series 1 (C. H. D.).

Were it possible for every patient to have the services of a physiciain who has devoted especial attention to anesthesia, we should be very fortunate. This is not possible, first, because there are far too few of them to go round, and, secondly, because it is economically impossible to provide such service. Not all patients can afford the extra cost, and few hospitals can pay the salaries needed to command the time of really expert medical anesthetists. Specialists in anesthesia are as generous with their time as those who work in other fields of medicine; but to expect them to provide service for the great numbers of part pay patients, to say nothing of free patients, would be to impose an impossible burden. The nurse anesthetist, however, fills a valuable place and makes it possible and practicable to give all patients a far higher average quality of service than is otherwise possible.

TABLE 6.—*Private Cases, Jan. 1, 1921, to March 31, 1923**

Total number		400
Primiparas (40 per cent.)	160	
Multiparas (60 per cent.)	240	
Spontaneous deliveries		265
Low forceps		85
Midforceps		18
High forceps		6
Breech extraction (including four versions)		13
Cesarean sections		13

* Series 2 (W. C. D.).

We believe that chloroform has been demonstrated experimentally and clinically to be toxic, even when given in small amounts. It should be completely discarded.

Ether may be used as a routine anesthetic by those who cannot, for any reason, make use of gas. Ether is of value, when gas analgesia is given at the time of delivery, to promote relaxation of the pelvic floor muscles and to aid in producing a brief complete anesthesia. It should be used as the anesthetic of choice in operations requiring marked relaxation of the uterine muscle.

We wish to state that we have found no theoretical or clinical evidence to indicate that a properly given gas analgesia or short anesthesia carries with it any risk to mother or child.

We believe that a careful use of some one of the opium derivatives is of value during the first stage, and that the action of these may be in many cases advantageously supplemented by scopolamin.

Because of the danger of some reduction of the oxygen content of the fetal blood, gas should not be used when fetal asphyxia is feared; and when anesthesia to the surgical degree is to be maintained over long periods of time, ether should be chosen. The latter contingency does not arise often with the experienced obstetrician.

We also feel that analgesia is best restricted to periods of three hours or less, as a rule.

One of us (C. H. D.) has observed that after deep gas anesthesia the fetal heart shows changes which, noted by auscultation, resemble those heard in asphyxia. This would seem to agree with the experimental observation already noted of visceral changes similar to those of asphyxia which were found in laboratory animals after prolonged and deep gas anesthesia.

TABLE 7.—*Fetal Mortality in Private Cases**

Total number of infants lost	14
Premature (prior to 8 months)	7
At term	7
Total fetal mortality (including premature infants)	3.5 per cent.
Mortality infants at term (all deaths—admission to discharge of mothers)	1.75 per cent.

* Series 2 (W. C. D.).

TABLE 8.—*Causes of Death in Infants at Term**

Ablatio placentae	3
Atalectasis (placenta praevia at 8 months; child lived one day)	1
Asphyxia (cord about neck and arm)	1
Hemorrhage (placenta praevia; child lived one hour)	1
Atelectasis (after high forceps); necropsy	1

* Series 2, private cases (W. C. D.).

CONCLUSION

We would urge that obstetric patients be thought of as individuals. The analgesic or the anesthetic should be chosen for the operation and the particular needs of the patient. An opiate alone or in combination with scopolamin is often indicated for the long first stage of labor. Ether, unless contraindicated, is the inhalation anesthetic of choice for the longer operations during pregnancy and labor. Nitrous oxid-oxygen may be used for examinations and short operations, as well as for intermittent analgesia during the second stage of labor.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. FARR; BONAR AND MEEKER; SCHWARZ AND KREBS, AND DANFORTH AND DAVIS

DR. H. A. STEPHENSON, San Francisco: Regarding the first two papers read, I think that, perhaps, the difficulties of giving an anesthetic were probably not stressed as much as those of us who are not familiar with the technic would desire. The difficulty of Dr. Meeker's injection seems to be rather excessive. Certainly, unless the method becomes more widespread, we cannot accept it at present as a procedure that may be applied to cases in general. Dr. Krebs' paper on scopolamin-morphin seminarcosis is most conservative, and, in the main, I agree with most of the things he has to say. There are certain difficulties to be met, and it can be used only in selected cases. In the cases at Stanford University Hospital in which this treatment has been used, we have felt that the drug is somewhat difficult to control. Once given, its action cannot be influenced, and one must wait for the effect to wear off before declaring the patient out of danger, provided untoward effects arise. There does seem to be certain danger to the mother in scopolamin-morphin seminarcosis as well as to the child, and as a result of some of these difficulties we have not followed the use of scopolamin-morphin seminarcosis, particularly the method as given in the Freiburg clinic. In the last five years we have used nitrous oxid and oxygen analgesia in practically all cases. I agree absolutely with Dr. Davis in his contraindications to nitrous oxid and oxygen, but I think that in the majority of cases we can give it without particular danger to the patient or to the child. It is a method that can be controlled almost at will, almost instantly, and the anesthetic can be discontinued promptly, should occasion arise. The advantages in the second stage, I think, are without question. In the first stage we have not used scopolamin, but we have depended almost entirely on chloral hydrate or potassium bromid by mouth or by rectum, depending on the patient, and occasionally, in selected cases, by hypodermic injection of some of the morphin derivatives. It seems to me that in the majority of cases the pain of the first stage can be controlled almost completely by this procedure, and in the second stage we use the nitrous oxid and oxygen technic, as described by Dr. Davis. Our results have been almost parallel with his. In the last 1,760 patients at the Stanford University Hospital in which the gas was used in the second stage, we have had about 8 per cent. of fetal mortality; a rather interesting thing is that among these dead babies 68 per cent. of the mothers showed signs of syphilis either by a positive Wassermann reaction, by findings in the baby at necropsy, or by characteristic placental histologic findings.

Dr. W. Francis B. Wakefield, San Francisco: It is highly gratifying that efforts of one kind or another are being made by obstetricians to ameliorate the tortures of childbirth. I think that out of the chaos some method will eventually be found that will be satisfactory to us all. For several years, in my private work, I have been using scopolamin-morphin anesthesia in the first stage of labor. During most of the second stage it holds, but I have been using gas-oxygen for the stage of delivery. I have yet to see any ill effects in either mother or infant. The chief criticism seems to be that scopolamin is apt to asphyxiate the child and to increase the fetal death rate. My work is entirely private and, therefore, the class of cases is much superior to that encountered in ordinary clinical work. In 1,000 cases, four mothers went into labor with dead babies. They were recognized as being dead before labor commenced. Of the remaining 996 who went into labor with live babies, we had eight stillbirths, a mortality of slightly less than 1 per cent. I have never seen any effect at all from scopolamin on the child. I have never seen a child asphyxiated from the use of scopolamin. The use of gas-oxygen, however, seems necessary during the stage of expulsion. I have seen asphyxiation occur at this stage if gas-oxygen is not used very carefully. The asphyxiation is only a temporary affair, however. I believe in the judicious use of scopolamin-morphin in the first stage and in the use of nitrous-oxid and oxygen in the second stage, ordinarily at the end of the second stage. By this means I believe we have a most perfect obstetric anesthetic. My technic is practically the same as Dr. Schwarz's.

Dr. Rudolph W. Holmes, Chicago: I was one of the first to employ scopolamin as an obstetric analgesic in this country. While in Europe, in 1900-1901, it was incidentally told me that Steinbuckel had thought it could be advantageously used for that purpose, so I brought some tubes of the drug back with me. I have had every accident from its use which has been declared to be deleterious to mother and baby, with the exception of death of the mother. From 1901 I have used scopolamin-morphin as an analgesic intermittently. I have never used it as a routine. We hear much of the relative merits of scopolamin and hyoscin, and many believe there are radical differences between them. The fact is, however, that they necessarily must be identical in that practically all these drugs are marketed by one firm. Knowing that the two are isomers, have identical spectroscopic deflection, and are physiologically the same in action, this firm produces alone hyoscin from hyocyamus, and disposes of the product under the two labels as the buyer may desire. The allegation that "scopolamin" is alone safe and efficient is pure commercial propaganda. At least 25 per cent. of patients given "twilight sleep" have more or less nervous excitement; 10 per cent. will have very active delirium, to the few who will be actually maniacal. Ever since Karl Braun recommended opium for obstetric uses, about 1840, there have been reiterated spells of enthusiasm for morphin, alone, or with some adjuvant, as an obstetric analgesic; and, promptly, others have shown the dangers of giving morphin to the woman in advanced labor. The members of the New York Obstetrical Society, many years ago were enthusiastic over morphin as an analgesic until the rapidly accumulating evidence showed its malign influence, on the baby especially. Large doses of morphin may be exhibited to a pregnant woman with relative immunity from harm. Small doses given shortly before delivery (an hour or two) may be followed by a deeply narcotized child that will not survive. Scopolamin (hyoscin), being a synergist to morphin, merely accentuates this danger, as both paralyze the respiratory center. As I see it, sacral analgesia has one great advantage—it has such technical difficulties of administration that it will not be popular. The great disadvantage is that its efficiency endures about two hours. Who will be able to predict the appropriate time for its administration to be within this limit? I cannot agree with Dr. Schwarz that chloroform is a safe anesthetic. On the contrary, I substantiate Dr. Davis' statement that it is a very dangerous method of securing anesthesia.

Dr. W. D. Haggard, Nashville, Tenn.: I have been greatly interested in the subject of anesthesia. In 1908, I presented to this section the first report of the Anesthetic Commission, in which we condemned the use of chloroform as a routine anesthetic in general surgery. Chloroform is a dangerous drug, and, perhaps, in obstetrics it is more dangerous. There was a time when we thought it was not dangerous in obstetrics; that it was antidoted by the pain and was not as dangerous a drug as in other types of surgery; but the papers today show that there are some definite dangers in its use in obstetrics. In that report we advocated for the first time the use of nitrous oxid as an agent with increasing possibilities as an anesthetic in general surgery. I have used it continuously since, and find that it can be used as the routine anesthetic in surgery and in obstetric work. We are indebted to Dr. Farr for the interesting studies he has made and for his enthusiasm and persistence in calling attention to the importance of local anesthesia. In general surgery we are coming to use more and more local anesthesia. He is perfectly right when he says that we should never operate for strangulated hernia under general anesthesia. In pyloric stenosis, a local anesthetic is infinitely preferable. In 1910, I made a recommendation to the Section on General Surgery that from the standpoint of increased safety we should never use a general anesthetic in congenital pyloric stenosis. We have no more trouble with these babies than if the mother was making the toilet. I recall with interest that twenty years ago, when the first era of spinal anesthesia was introduced in this country, I delivered a few cases under this anesthesia. It was surprising to see parturient women having contractions of the uterine musculature lying placidly and having no pain. If it were only safe, it could be used as a routine in obstetrics. A trial should be given sacral anesthesia in obstetrics. It is very satisfactory in prostatic and rectal work. If it is possible, and it certainly is, to use local anesthesia in general surgery, there is no reason why it should not be used in obstetrics. I feel that the era of local anesthesia has dawned and that we are going to do more and more perfect work, and that we are going to follow the rule of greater gentleness in surgery. We have learned that we cannot use "a hand of iron in a glove of rubber" with success.

Dr. Henry Parker Newman, San Diego, Calif.: I should condemn this work, as every obstetrician should, when we remember that obstetrics is being done by every one who has a diploma. This subject is most important; it permeates the entire social fabric of this country and in all countries, and we must do our best to see that the proper type of mothers is brought before us. They are not the type of a few decades ago. They require the assistance of a trained obstetrician. I am free to say that the methods here offered are comparatively safe and, in the main, will check that extreme morbidity, if not mortality, in child-bearing of a few decades ago. We still have too much morbidity. Sixty-five per cent. of womankind are maimed more or less by child-bearing. That is a conservative estimate. It ought not to be. It will not be if we give it the attention that the present day obstetricians advocate.

Dr. Frank W. Lynch, San Francisco: The discussion brings out clearly that there is some danger attending any method aiming to relieve the pains attending labor, yet I am perfectly convinced that the endeavor is well worth while and that there is a field for application in childbirth of all the methods that have been brought forward today. It is twenty-two years since Corning, in New York, started in this country the movement for epidural and intradural anesthesia. Soon afterward I used spinal anesthesia in a series of nearly a hundred cases, as a result of which I feel that this present modification (its granddaughter), sacral anesthesia, has a certain place, a limited but a certain place in obstetrics. For instance, in labor complicated by pneumonia or heart disease, when it is necessary to hasten labor or to deliver with instruments, sacral anesthesia is the method of choice. The great objection to the method is that a drug given in this manner cannot be recalled. I also feel that scopolamin-morphin has an undoubted field, since certain women become nervous wrecks as a result of labor. Such a catastrophe could be avoided if the need for scopolamin-morphin had been recognized before labor. Fortunately, this nervous complication is not often seen; but no one can practice obstetrics as a specialist and not know that it is true. Gas-oxygen has a great place and a very wide field, yet after an experience of more than 3,500 cases of gas-oxygen anesthesia in labor, and being largely responsible for its introduction into this country, I feel that this drug as ordinarily given has its dangers. We must insist on analgesia rather than anesthesia. Our secretary called attention to the fact that any inhalation anesthetic now in use may produce liver changes. The entire discussion calls attention to the fact that it is a very difficult matter to train an obstetrician.

Dr. Robert E. Farr, Minneapolis: The discussion, which centered largely about obstetrics, is what we may expect in this organization. We are, however, all aiming at the same goal. I regret that some of the speakers took such a radical position. Having been considered a radical myself, I feel that I am in a position to criticize. I do not believe one should condemn scopolamin any more than I believe one should use local anesthesia exclusively. I left out one point during my discussion, which is the use of the physiologic test in abdominal surgery when using local anesthesia. You will remember what I said in regard to abdominal exploration. I believe that one can learn more in abdominal surgery when operating on a conscious patient and applying the physiologic test of attempting to reproduce the patient's symptoms by irritation of the suspected viscus than one can learn by making a blind exploration. The use of local anesthesia and the carrying out of the technic it requires demand careful training. I would suggest that one may much more quickly learn to use local anesthesia, provided its use precedes the use of general anesthesia in every instance, so that the conscious patient may aid one in estimating the degree of anesthesia present. It will be much more difficult for an individual to learn to use local anesthesia, provided the patient is under general anesthesia before the local anesthesia is begun.

Dr. W. R. Meeker, Rochester, Minn.: I regret that time did not permit me to show more slides illustrating the technic of the epidural and the transsacral methods of sacral nerve block. The technical difficulty of these procedures has been greatly exaggerated by the discussers of this paper. These methods are no more difficult to perform than lumbar puncture, the two being more difficult in the obese individual for similar reasons. The whole question is that of safety to mother and child. In the field of general surgery, patients are often encountered in whom the added load of a general anesthetic is regarded as too great for the patient to withstand. There are those, today, no doubt, who owe their lives to the employment of local anesthesia in surgical procedures in cases of decided contraindications to the employment of general anesthesia. Similar contraindications, in addition to complications of pregnancy, may exist in the parturient. Is not the technic of a life saving procedure worth while mastering, even though it is a bit difficult to perform? It is true that there are many disadvantages in the employment of sacral nerve block anesthesia in spontaneous delivery. The short duration of anesthesia is admittedly one of the greatest; but in operative and manipulative obstetrics, an hour and a half to two hours' anesthesia should be sufficient for almost any of these procedures. We do not advocate the supplanting of general anesthesia by sacral nerve block methods as an anesthetic of choice by any means. The indications and value of the method will be established in the future when obstetricians employ it more generally. The results obtained in surgery indicate that it should also be valuable in obstetrics. Our experiences have shown that sacral nerve block anesthesia has very definite indications in operative obstetrics in the presence of contraindications to general anesthesia, and that its use may even be life saving.

Dr. O. S. Krebs, St. Louis: There is a great deal of unjust criticism with regard to scopolamin-morphin seminarcosis. I think that in many cases any anesthetic, opiate, analgesic or other hypodermic injection given during labor is incorrectly spoken of as "twilight sleep." With regard to scopolamin and hyoscin being identical in action and in chemical formula, I agree. Scopolamin hydrobromid was used by us for a while. During the war we were no longer able to get it, but we were able to get hyoscin hydrobromid and we have used them interchangeably since. The babies have been followed by the pediatric service at the Children's Hospital very carefully. We have instituted a combined service in which the resident pediatrician and one of the members of the obstetric staff examine all the infants in the nursery daily. Any feeding problems that arise are taken care of and the welfare of the infants is generally supervised. It has been particularly noticeable that the men who handle most of the babies in St. Louis pediatric circles are not finding any untoward effects from the scopolamin-morphin seminarcosis. Those who do not see the cases are the ones who speak most loudly against the method. Dr. Haggard spoke of the murderous drug—scopolamin. That is speaking in rather strong terms. I am not here to make a plea for scopolamin. I am merely reporting 3,000 deliveries in Barnes' Hospital in which scopolamin was used 1,572 times, and I submit our mortality statistics. I think they compare favorably with any in this country.

Dr. Carl Henry Davis, Milwaukee: I want to second the remarks of Dr. Krebs because, after critically and cautiously using scopolamin in small amounts, for analgesic purposes only, I had only one patient who became excited in 130 cases. I never had a patient who had to be restrained. Dr. Holmes has been unfortunate in the use of this drug. Dr. Haggard's experience has also been unfortunate. Dr. Emil Ries has for years used morphin and scopolamin preliminary to operative work. He uses about half the quantity of ether he would otherwise require. I formerly administered morphin and atropin previous to operation. I now prefer to use morphin and a small amount of scopolamin. It cuts down the amount of ether needed. Relative to asphyxia being charged to the anesthetic, we should speak cautiously because we all know that, whether we give an anesthetic or not, from time to time we shall have a badly asphyxiated baby, owing to birth pressure. The perineal stage of labor is to the baby probably the most dangerous time. As we watch the fetal heart during the second stage we shall find not infrequently that it becomes irregular. Many disregard this danger sign and trust that everything will be all right. Others prefer to do a perineal forceps delivery because they do not know whether there is a prolapsed cord, a cord with a true knot, or some other complication. I have had three true knots in less than 200 cases. We have at present a new gas ethylene. I have used it only twice in normal labor; but, as might be expected from the results reported in abdominal surgery, it does seem to shorten the contractions and to lengthen the interval between contractions. I do not believe that ethylene will replace nitrous oxid as an analgesic during the second stage of labor. We are going to undertake experiments showing whether ethylene can be given in preference to ether for such operations as version, in which we feel that nitrous oxid is contraindicated. It behooves us as physicians to put forth our strongest efforts to make labor less of a burden for the average woman. We should make it as painless as we can, so long as we do not increase the danger to mother and fetus. You and I, in making the effort to make it painless, are going to spend more time with our patients. We are going to watch the fetal heart very carefully. We are going to detect the signs of impending danger. As a result, we are going to have a lowered infant mortality, and the tremendous morbidity that Dr. Newman speaks of will gradually be eliminated.

PERICOLIC MEMBRANES SIMULATING CARCINOMA OF THE COLON *

ARTHUR GOETSCH, M.D.
BROOKLYN

In the past year, we have operated in two cases in which the clinical diagnosis of carcinoma of the ascending colon had been made. At operation, the true condition was found to be partial obstruction due to unusually peculiar vascular adhesions. The reason for our mistakes in diagnosis may be apparent from the following case reports.

REPORT OF CASES

Case 1.—*History.*—L. A. S., a woman, aged 60, white, American, married, complained of weakness, anemia, loss of weight, constipation and nervousness. She was referred to the surgical service, Dec. 21, 1920, by Dr. William Lintz of the department of medicine. The family and personal history had no essential bearing on the present illness.

About eight weeks before admission, the patient first noticed vertigo on getting up in the morning. Since that time, she had been getting progressively weaker; had noticed that she became fatigued on slight exertion, and had had to spend a good deal of her time resting. In the last four months, there had been a gradual decline in weight, the total loss being 34 pounds (15.5 kg.). The present weight was 150 pounds (68 kg.). Until the onset of the present illness, the bowels have usually been regular, with an occasional slight tendency to constipation. During the last eight weeks, she had noticed an increasing tendency to constipation. Associated with the constipation, there had been general abdominal discomfort with occasional nausea and vomiting. At times, she had had to resort to free use of mineral oil by mouth and enemas to relieve the increasing constipation. There has been a gradually increasing anemia, according to the family physician. The patient had not noticed any hematemesis or any blood in the stools. She had had some belching after meals and had noticed occasional "rolling" of gas in the abdomen.

Examination.—On admission, the temperature was 97.4 F.; pulse, 95; respiration rate, 20. The patient was fairly obese and well developed. She was suffering no apparent present pain or discomfort. The skin was rather loose and flabby. The pupils reacted to light and in accommodation. There was a slight systolic murmur at the apex and also in the pulmonic area. The abdomen was large and well rounded, with a large panniculus. There were no tender areas, and no masses were felt. The white blood count was 9,040; hemoglobin, 80 per cent. Urinalysis revealed nothing abnormal. The Wassermann reaction was negative.

Previous roentgen-ray examination by Dr. A. L. L. Bell revealed a definite constriction in the upper ascending colon, which had caused a marked narrowing of the bowel lumen and distention of the cecum and terminal ileum. The cecum communicated with the upper ascending colon through a narrow "tunnel."

December 22, an exploratory laparotomy was performed.

Operation.—The abdomen was entered through a right rectus incision. The cecum was found covered with fine filmlike membranes. At a level of about 7 cm. above the ileocecal valve, there was a marked constriction of the bowel lumen, causing a definite hour-glass appearance. A band of adhesions ran from within outward and practically encircled the colon. The adhesions were hyperemic owing to direct communication with the arterial circulation of the colon by means of definite independent blood vessels. The lumen was narrowed to about 2 cm. by these formations. There was nothing to account satisfactorily for this rather unusual picture. The appendix, pelvic organs and other viscera appeared quite normal. On incision of the membranous adhesions in the long axis of the colon, the circulation being controlled with clamps, the colon was easily made to resume its natural shape and the bowel lumen was widened to its normal caliber. The abdomen was closed in layers without drainage.

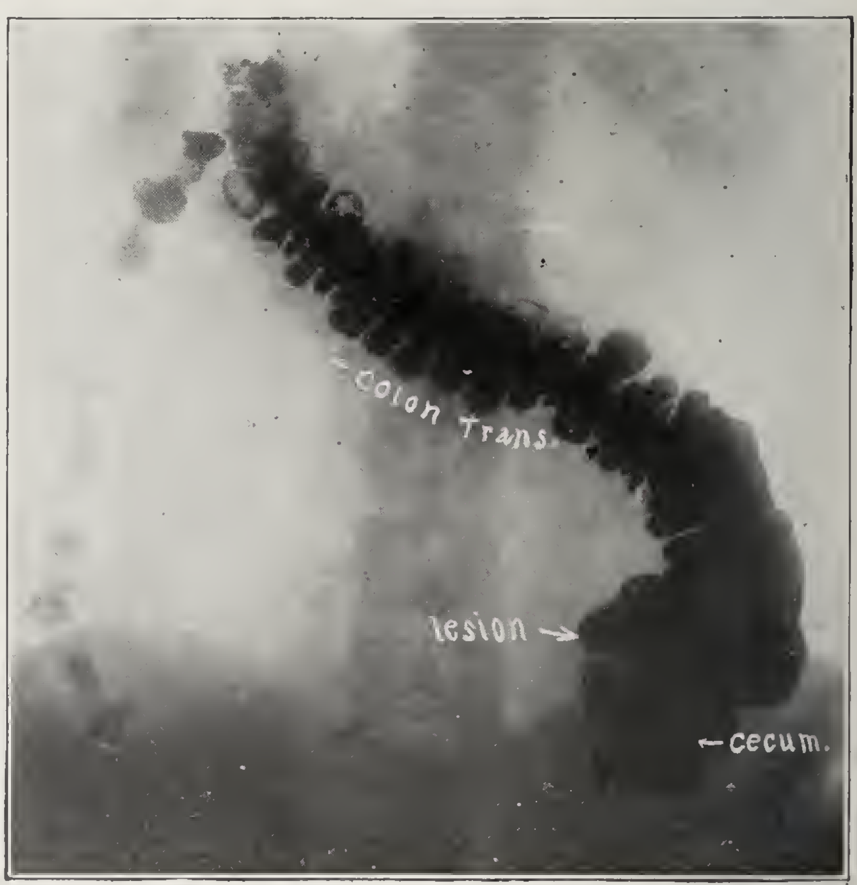

Fig. 1 (Case 1).—Twenty-four hour plate: The lesion was due to a definite vascular band. This illustrates how markedly constricted the lumen of the colon may become without causing complete intestinal obstruction. This is a common observation in carcinoma of the colon. On release of the vascular band causing the lesion, the bowel resumed its normal caliber.

Case 2.—*History.*—B. B., a woman, aged 42, Jewish, married, admitted to the medical service, Sept. 26, 1921, complained of epigastric distress, dizziness, constipation, loss of weight, loss of appetite and nervousness. The family and personal history was unimportant. She had always been irregular in eating habits and was given to indiscretions as to both quality of food and time of eating. Three years previously, she was placed on a diet consisting mainly of eggs and milk, for reasons not known to her. The history by systems had no apparent bearing on the present condition.

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* Read before the Clinical Society of the Long Island College Hospital, Feb. 1, 1922.

The onset of the present illness was indefinite, approximately two and a half years previously. Since that time, she has complained of occasional attacks of epigastric distress and a sense of fulness. During these attacks, she frequently felt dizzy and faint. Occasional tingling and numbness in the fingers and legs were noted. During the year before admission, she had been more or less obstinately constipated, the bowels not moving for two or three days except by catharsis. Constipation has been progressive and increasingly difficult to relieve, vigorous catharsis—castor oil, salts, etc.—being necessary at times. About nine months previously, the patient had an attack of diarrhea lasting about three days. She had frequently noticed mucus but never any blood in the stools. The appetite had decreased steadily during the last year, and there had been a loss of 52 pounds (23.6 kg.) in weight.

Examination.—The admission temperature was 98.6 F.; pulse, 64; respiration rate, 20. The skin was loose over the body and the patient showed evidence of considerable loss of weight. The mucous membranes were pale. The eyes reacted to light and in accommodation. The tongue was slightly coated. A soft systolic murmur at the mitral area was poorly transmitted. The blood pressure was 140 systolic; 88 diastolic. The abdomen showed a rather thick panniculus. The abdominal walls were loose and atonic. There were no areas of tenderness or palpable masses. The blood examinations revealed an anemia, the red blood cells averaging about 3,150,000, and the white blood cells, 8,000. The hemoglobin was as low as 55 per cent. on one occasion. The urinalysis and Wassermann test were negative. The gastric analysis was not indicative of ulcer or carcinoma of the stomach. The stool gave a positive benzidin reaction but a negative guaiac.

Roentgen-Ray Examination (Dr. A. L. L. Bell).—The upper gastro-intestinal tract was negative. There was a filling defect in the distal portion of the ascending colon, which was constant and was obtained on all plates. The colon enema revealed partial fixation in the upper ascending colon with a markedly distended cecum. Diagnosis was: chronic obstruction of the upper ascending colon.

October 18, the patient was transferred from the medical service to the surgical service by Dr. A. F. R. Andresen.

Operation.—October 19, an exploratory laparotomy was performed. A right rectus incision was made, with a view to determining the nature and extent of a probable carcinomatous stenosis of the upper ascending colon. The cecum and ascending colon were found enormously dilated, as indicated by roentgen ray. Just below the hepatic flexure, there was a definite band of highly vascular, dense membranes, commencing laterally, encircling the bowel and fusing with the omentum. These membranes were contracted, and hence had caused the lumen to be definitely constricted, possibly to a diameter of 1 or 2 cm. On either side of this dense band, there were numerous smaller and less dense films. All these new formations were divided, and numerous bleeding points were secured. When the dense vascular band just referred to was divided, bleeding was quite as brisk as though definite mesenteric branches had been cut, showing the abnormal extent of the vascularity. Following division of the bands, the bowel lumen ballooned up to its normal configuration and size. Further exploration showed a negative abdomen. There was nothing to indicate that the appendix, gallbladder, duodenum or any other viscera had ever been so diseased as to present a possible etiologic factor in the production of these rather unusual vascular bands. The cecum contained a definite mesentery and was of the mobile type, but was not otherwise remarkable. The appendix was well away from the field of operation and there was nothing, regional or otherwise, to account for the constricting membranes. The abdomen was closed without drainage.

COMMENT

These cases are interesting in that both clinically and by roentgen-ray examination, they presented clinical syndromes similar to those of carcinoma of the colon. In the first place, both cases were in elderly women. The history of progressive constipation with increasing necessity for cathartics is the usual complaint of the patient suffering from carcinoma of the colon. The vague abdominal pains and discomfort are common complaints in the carcinoma case with partial obstruction. In a series of cases of obstruction of the colon due to carcinoma, we have found progressive anemia common. In Case 2, the hemoglobin on one occasion was as low as 55 per cent., which is even lower than that observed in any of our cases of carcinoma of the colon.

The great loss of weight in both cases was indicative of a serious nutritional disturbance and could well have been caused by carcinoma of the colon. The anemia evidently was not due to frank hemorrhage, as there was no history of hemorrhages from the bowel in either case. This finding is not uncommon with carcinoma. In the majority of our carcinoma cases, we were not able to get a history of blood in the stools, which is not surprising when one realizes that pathologically the lesion is usually scirrhous in character, and the fibrosis prevents frank hemorrhage. Anemia and resultant neuromuscular symptoms of dizziness, faintness, tingling and occasional headache may possibly have been due to stasis, with absorption and intoxication such as one finds so general in patients suffering from carcinoma of the colon. The temperature and pulse findings, respiration and normal leukocyte counts are not unlike the findings of carcinoma without acute abdominal symptoms. In our series of carcinoma cases we have been impressed with the practically normal findings in these particulars, that is, before complete obstruction and serious complications have arisen. Finally, the roentgen-ray diagnosis of obstruction below the hepatic flexure, with marked dilatation and retention in the cecum and ascending colon, fits very well into the conception of malignancy of the colon. (Compare especially Fig. 2.)

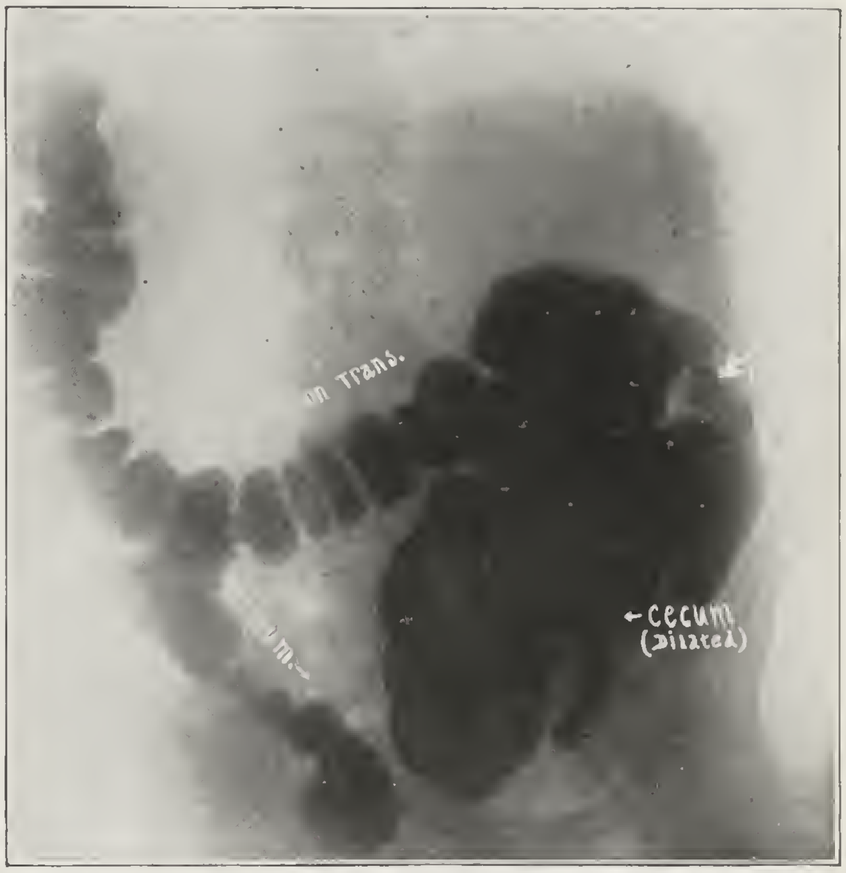

Fig. 2 (Case 2).—Barium enema (after evacuation): The plate was taken after first evacuation of the bowels following the enema. The enormous dilatation and hypertrophy of the colon proximal to the lesion may be noticed. This finding is very common in carcinoma of the colon with partial obstruction. This case, like the first, also shows to what proportions the lumen of the colon may be reduced without causing complete intestinal obstruction.

In reference to a possible cause for these unusual formations, we may say that, in general, an etiology of adhesions is quite apparent, particularly at operation, in the majority of instances. Ordinarily, one considers peritoneal adhesions as the result of peritoneal inflammation or definite trauma. The cause may be mechanical, toxic or the result of bacterial or other influences in neighboring viscera.

The peculiar membranes present in our two cases could not be explained on ordinary grounds. A consideration of embryologic malformations might offer an explanation. For a complete presentation, reference should be made to the excellent monograph by Harvey.[1]

Riedel first called attention to the fact that omental, appendical, colonic and ileac membranes occurring from primary developmental errors might cause colicky pain and other symptoms of partial obstruction. He suggested that such membranes might be due to dragging of the colon on the mesentery, with rupture of the supporting fibers and their accentuation by subsequent repair. Lane, in 1905, discussed the presence of membranes about the cecum and ileum—the so-called Lane "kinks"—and their significance in chronic intestinal stasis, and conceived the idea that these structures arose in response to the erect posture.

Jackson, in 1908, described a case of chronic appendicitis with a veillike membrane over the ascending colon, and since then the observation of the so-called Jackson's membrane has become common.

Some observers assume that both the Jackson membrane and the Lane band are congenital structures.

Toldt and others have shown that the omentum, at about the sixth month of fetal life, may extend as far down as the cecum. The normal extent of the omentum on the right is approximately to the hepatic flexure provided the omentum has involuted properly. In rare instances, an omental process may extend well over and down the ascending colon and may even fuse with the right parietocolic peritoneum; and it is thought by some that the persistence of the omental process and its fusion with the parietal peritoneum accounts for the so-called Jackson membranes and kindred abnormalities. Through failure of the omental process to keep pace with the descent and growth of the colon, angulation and kinking may occur, with resultant bands and adhesions.

One explanation of the formation of abnormal membranes over the ascending colon is based on the idea that in some instances the colon is prematurely fixed and continues to grow and burrow under the peritoneum, dragging it downward, with resultant formation of membranous folds.

It is believed that the unusual vascular bands described in the accompanying case reports were due to developmental defects that were capable, in themselves, of causing partial obstruction, with the clinical picture of carcinoma of the colon.

Both patients have been under periodic observation. They have regained their normal weight and are generally free from their preoperative complaints.

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[1] Harvey, S. C.: Congenital Variations in the Peritoneal Relations of the Ascending Colon, Caecum, Appendix and Terminal Ileum, Ann. Surg. (June) 1918.

Rest the Restorer.—Experience will prove to any one that, except in cases of acute disease and very ill patients, there is no appetizer for the consumptive like rest; there is no restorer of aching, tired limbs like rest; there is no fever-reducer like rest.—A. K. Krause: Rest and Other Things, p. 15.

Clinical Notes, Suggestions, and New Instruments

A NEW OPERATION TABLE, DESIGNED TO AVOID ALL LIFTING OF THE PATIENT

John Cooke Hirst, M.D., and W. W. Van Dolsen, M.D.,
Philadelphia

One of the great faults in technic of all operating rooms has been the necessity of lifting a patient from the bed to the ward carriage, thence to the operating table, thence back to the carriage, and back to bed again. This involves an entirely needless amount of work and energy on the part of the operating room personnel, and, besides, is deleterious to both the patient and the nurses, on whom most of the burden falls. It is always desirable to avoid unnecessary disturbance of the patient before and after any operation, but especially after such operations as bone plating, fracture, upper abdominal surgery, and any operation requiring drainage.

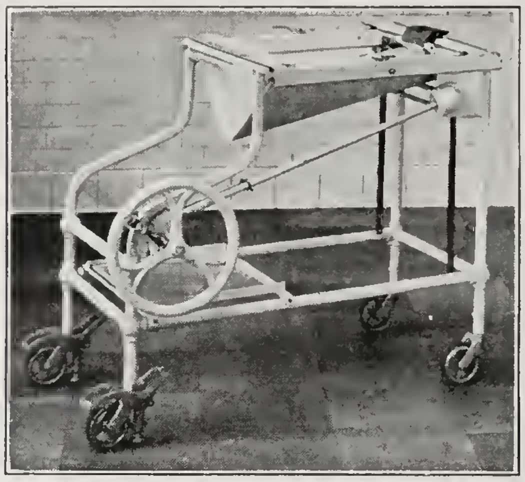

Fig. 1.—Table frame without top; the top is on the trolley frame, on which the patient is brought to the etherizing room.

All this cumbersome method of repeated lifting is necessitated by every form of operating table in use today. These methods have in no way changed since the beginning of operating room technic, and we felt that such medieval methods should not prevail in the otherwise up-to-date modern operating room.

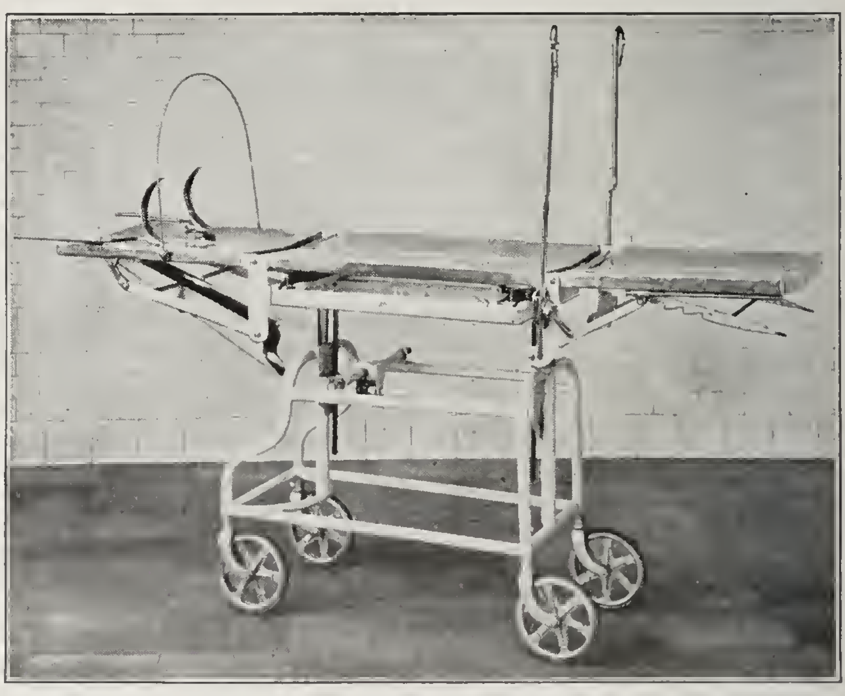

Fig. 2.—Adjustable trolley, on which rests the table top.

After having experimented with various means of moving the unconscious patient from the carriage to the table, some of our experiments having taken us into the realm of cranes and derricks and other engineering paraphernalia, we at last hit on what seemed to us the simpler and more practical solution of making the operating table top removable and have it serve alternately as the top of the carriage and the top of the table. To do this, we placed on the central section of the table our operating table controls, such as the ability to move the table into the Trendelenburg position.

Having made the operating table top removable, on its under surface we affixed two tracks an equal distance apart, both tracks fitted with flanges at each end of the central section of the under side of the table top. These slides or tracks engage with corresponding slides or tracks affixed to the central section of the operating table. The central section of the carriage frame is also fitted with the same type of track; thus, when the ward carriage is placed alongside the table frame, the four sections of tracks come into apposition. By an interlocking device consisting of a pin on the table frame and a grooved arm on the frame of the carriage, the carriage is held immovably against the table frame. When a small lever is depressed, a spring is tensed, thereby releasing a catch which holds the table top in position on the carriage frame.

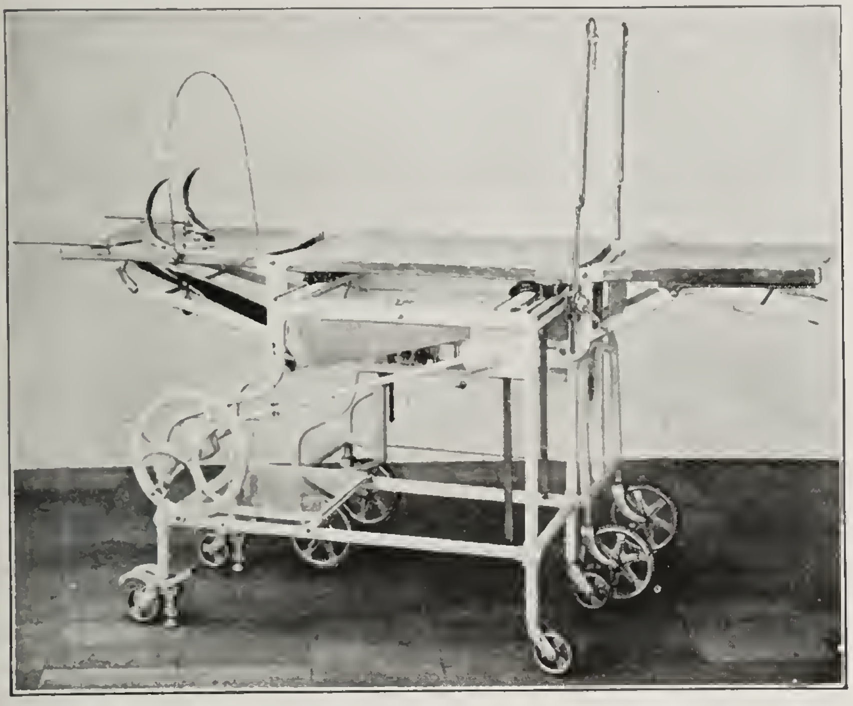

Fig. 3.—Trolley and table frames locked together, and the top in process of sliding from the trolley to the table frame; it is shown half way across.

By a slight physical exertion (an exertion within the capabilities of a child), a patient of 150 pounds or more lying on the operating table top can be moved over the tracks from the carriage frame to the table frame, where the table top automatically locks. The transfer may be made from either side of the table. The interlocking device between the table and the end of the carriage is then released, and the ward carriage is wheeled to one side until ready for the return of the patient, when the procedure is reversed.

The table top is in no way hampered from being placed in any position which may be obtained with the ordinary table used at the present time. A further advantage is that if it is desired to perform certain types of operative procedure, such as a dilation and curettement or plastic operation, the patient's feet may be placed in stirrups and the patient properly draped, scrubbed or otherwise prepared and brought directly from the anesthetizing room into the operating room, thus conserving the time and energy of the surgeon on a busy operating day.

The ward carriage has been made adjustable as to height, so that there is no need of even lifting a patient from the carriage back to her own bed. The top of the ward carriage can be lowered level with the bed—by a system of worm gears at each end of the frame—and the patient can be drawn into bed by a blanket or sheet with a minimum of exertion on the nurses' part and a minimum of disturbance to the patient. The value of this feature in handling a shocked patient can easily be appreciated.

The accompanying illustrations reveal the method of handling the table more clearly than any written description can be expected to do. We feel that in this table we have attained the following results:

We have lessened the shock to our patient by increasing the ease of movement, and we have eliminated her being carried in the arms of nurses who are physically unequal to the strain, or in the arms of orderlies.

We have obviated the possibility of injury to the patient through being dropped on the floor or of sustaining a fractured arm through her arm striking between the edge of the table and the bodies of the persons carrying her. All rough handling has been eliminated.

Because of the device locking the carriage and the table together while the patient is being transferred, and because the top automatically locks in position on both the carriage and the table frames, it is utterly impossible for the patient to drop to the floor on either side of the frames.

To save waiting for the return of the carriage from the ward, it is advisable to have a second carriage and top on which a second patient can be arranged and anesthetized while the first operation is completed and the patient returned to bed. This obviates all delay in the sequence of patients, and is a necessity in busy clinics.

Those whose work lies in the operating room are only too familiar with the injuries of nurses on whom most of the handling of the patients themselves devolves, injuries including strains, rupture and backward displacement of the uterus, which are entirely avoided by the device here described.

We feel that this table is a distinct advance over any previously existing model, and that the advantage of lack of strain to patient and personnel should entitle it to consideration.

1823 Pine Street—1923 Spruce Street.

FOUR OPEN SAFETY-PINS IN THE ESOPHAGUS

Chevalier Jackson, M.D., Sc.D., Philadelphia

The problems of the quick and safe peroral, esophagoscopic removal of a safety-pin in the esophagus have been well worked out and established on a sound basis. The case here reported, however, presented heretofore unrecorded difficulties:

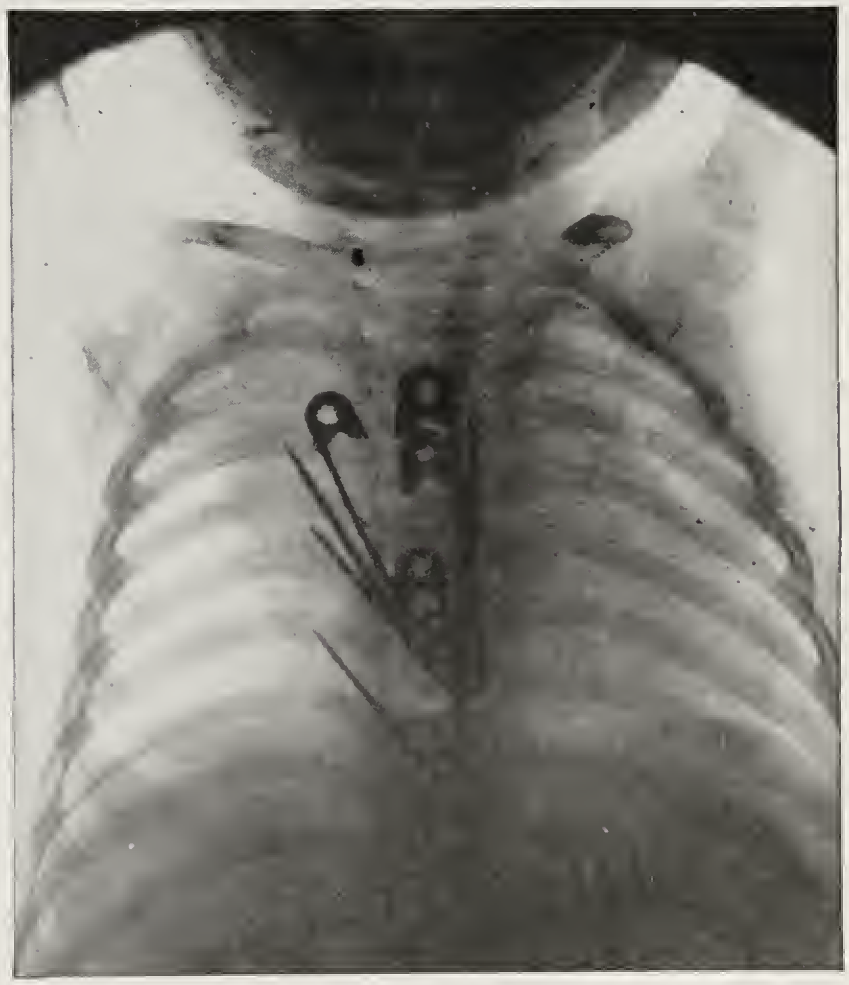

Fig. 1.—Four large, stiff, interlocked safety-pins impacted in the esophagus of a child, aged 9 months.

REPORT OF CASE

A boy, aged 9 months, was referred to Drs. Cornelius Coakley and W. F. Cunningham, with the history that on admission to the Southampton Hospital for a phimosis operation an open safety-pin had been found in the stools by the nurse. The mother stated that an older child had put a safety-pin in the patient's mouth. Roentgen-ray examination was promptly made for other safety-pins, and four, all open and all of a very large size, were found lodged in the esophagus (Figs. 1 and 2). They had probably been present for nearly two months.

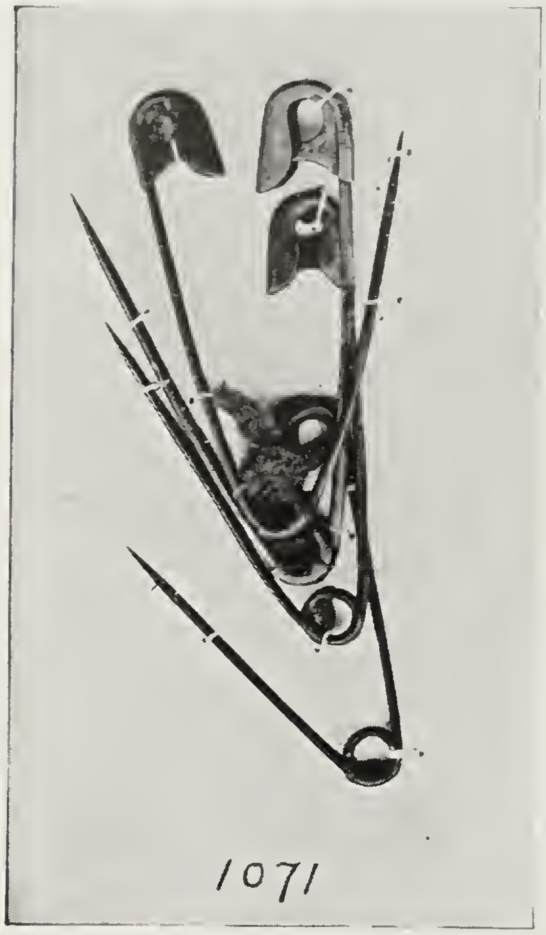

Fig. 2.—Safety-pins, actual size, reassembled in the interlocked position. The wool came with the first pin removed.

Esophagoscopy revealed that the pins were interlocked so that when the point of one was brought into the esophagoscopic tube-mouth, traction could not safely be made because all the pins were dragged on, which would have caused the other three points to perforate. With the help of Dr. Willis F. Manges, it was discovered that the Gordian knot could be untied (not cut) by disentangling the two lower pins downward, one at a time. These two smaller pins were carefully guided under direct vision into the stomach, with the gastroscope. The two remaining very large and very stiff pins were removed through the mouth by the esophagoscopic, point-protected method of the author, the Tucker forceps being employed.

It was intended to remove the other two pins from the stomach through the mouth, with the gastroscope at a subsequent sitting, but an unusually large pylorus permitted them to pass into the intestinal tract, and they passed out safely with the stools.

The patient was discharged cured.

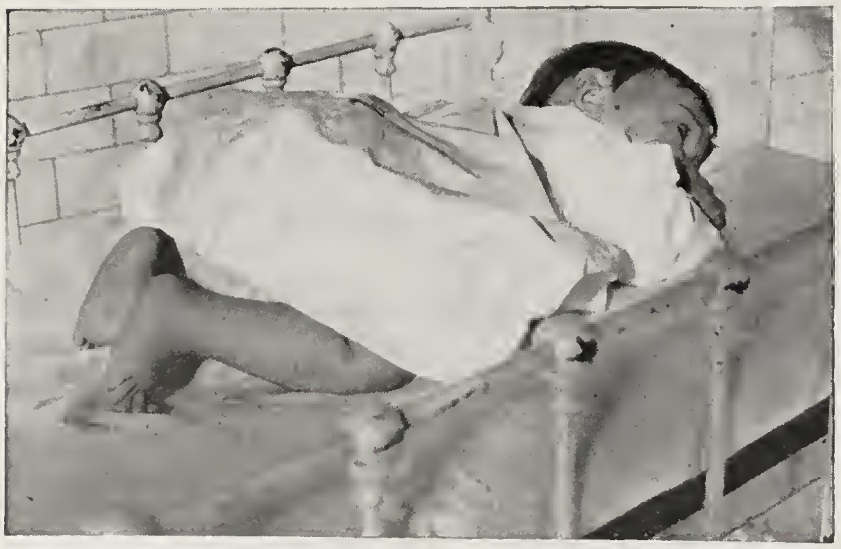

Fig. 3.—Prone position, preference for which has been frequently noted as a symptom of foreign body in the esophagus.

COMMENT

Apart from the mechanical problem of the interlocked pins, the case is interesting as beautifully illustrating a heretofore unrecorded symptom of esophageal foreign body in children first noted by Miss Frances Grove, R.N., and since so often seen at the Bronchoscopic Clinic in other cases as to preclude mere coincidence. The symptom consists in the preference for lying in the prone position (Fig. 3). After the pins were out, the child preferred the dorsal position (Fig. 4).

As a matter of prophylaxis, safety pins should be kept out of the reach of children, and parents and nurses should not set a bad example by holding pins in their own mouths while dressing children.

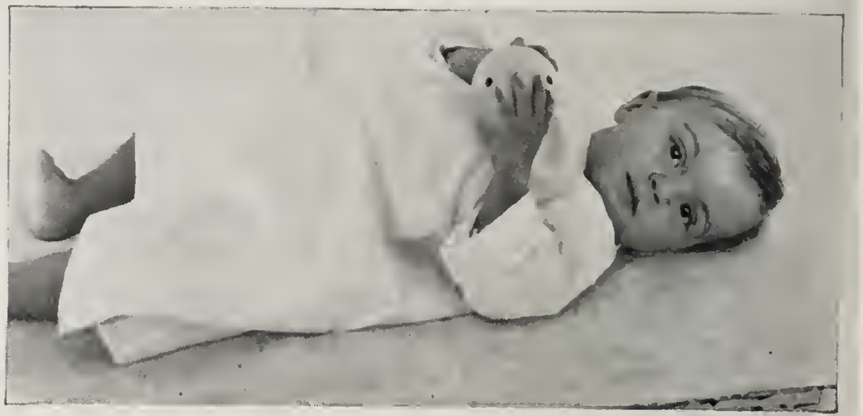

Fig. 4.—Child after the pins were out: dorsal decubitus preferred.

128 South Tenth Street.

A SIMPLE, INEXPENSIVE POWER UNIT FOR ELECTRICALLY LIGHTED SURGICAL INSTRUMENTS

Arthur D. Gray, Topeka, Kan.

That most of the transformers and current controllers designed for use with electrosurgical instruments have some unsatisfactory features is a fact well known to every one who has occasion to use them. Most of these appliances, constructed on the resistance principle, are subject to fluctuations in the main power line, which are proportionately reflected in the instrument circuit and often result in the

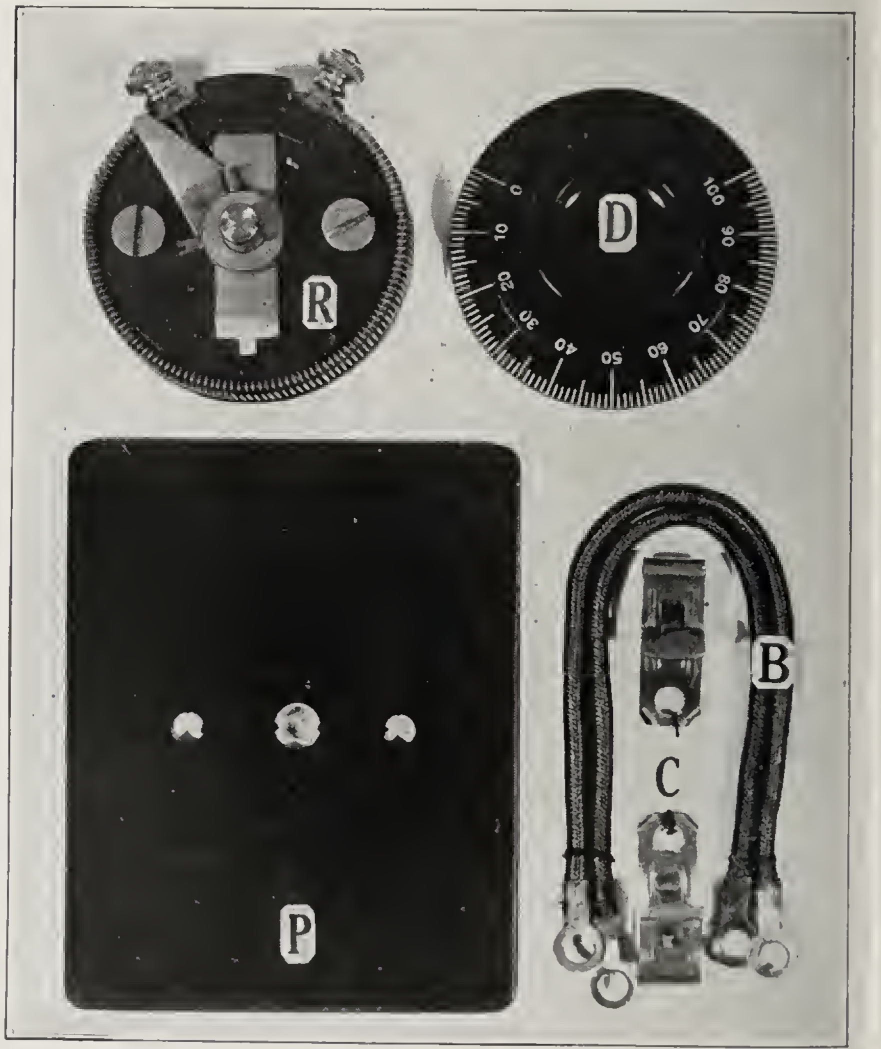

Fig. 1.—Parts required to make the unit: *R*, an ordinary radio rheostat; *D*, hard rubber or composition radio dial; *B*, "pigtail" battery connections; *C*, radio binding-post clips; *P*, thin panel of hard rubber or composition; wood or thick cardboard may be substituted if desired.

burning out of a lamp. On a wet operating room floor they may "ground," to the extreme discomfort of the patient and the annoyance of the surgeon.

Although I designed the apparatus described here for use primarily with urologic instruments, it serves equally well for any of the small diagnostic lamps. It is made up from ordinary dry batteries and stock radio parts that can be purchased anywhere.

After the rheostat has been mounted on the panel, the latter is fastened to the dry cells with strips of adhesive tape, which also serve to hold the batteries together.

The various parts of the apparatus are assembled as shown in Figure 2, and no tools are necessary, with the exception of a screw-driver.

Although two cells are adequate for most purposes, a few foreign-made instruments, such as the Koehler modification of the Bruening bronchoscope, require three or four.

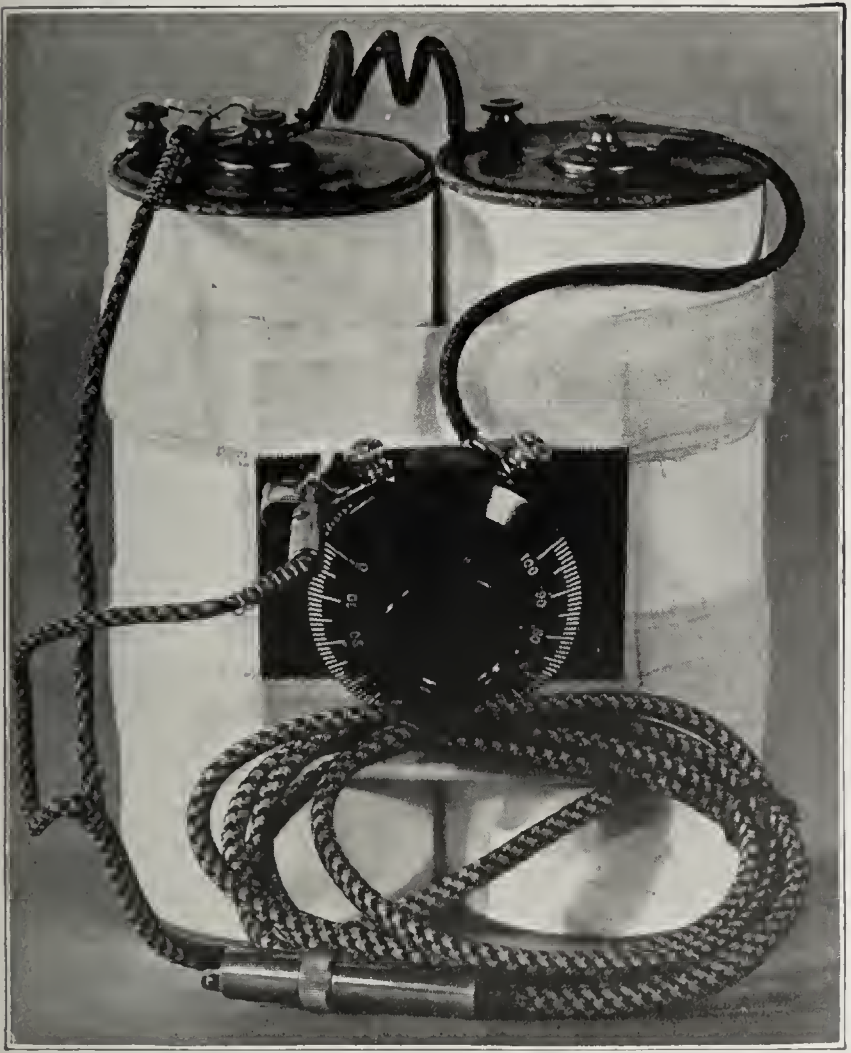

Fig. 2.—Unit assembled; the small binding-post clips are especially well adapted to holding the cord tips.

ADVANTAGES

This apparatus is an inexpensive, portable unit adaptable to bedside use or in localities not supplied with commercial electric service.

The current fed to the instrument is delicately and accurately controlled.

It is simple, and is easily constructed from stock material obtainable almost anywhere.

721 Mills Building.

Reflex Phenomena Due to Irritation of Sympathetic Nerves.—The vagus, glossopharyngeal and sympathetic nerves form the pharyngeal plexus, which is closely related to the tonsils and vessels which form Waldeyer's lymphatic ring. The reflex phenomena which are present in adenoids are probably due to irritation of the nerves forming the plexus. Moreover, it has recently been shown that infection from the appendix produces lymphangitis in the plexus of lymph vessels surrounding the solar nerve plexus, and induces various reflex phenomena.—C. F. Sonntag: *Proc. Roy. Soc. Med.* **16**:9 (Aug.) 1923.

MITRAL STENOSIS AS REVEALED BY THE ROENTGENOGRAM AND THE ELECTROCARDIOGRAM

Louis Faugeres Bishop, M.D., New York

The roentgenogram of the heart, taken with the tube 6 feet behind the chest, shows the left border so straight that it is almost like a line drawn with a ruler. This straight sided heart is due, of course, to the relatively poor development of the ventricle and the large auricle. It is very typical of mitral stenosis.

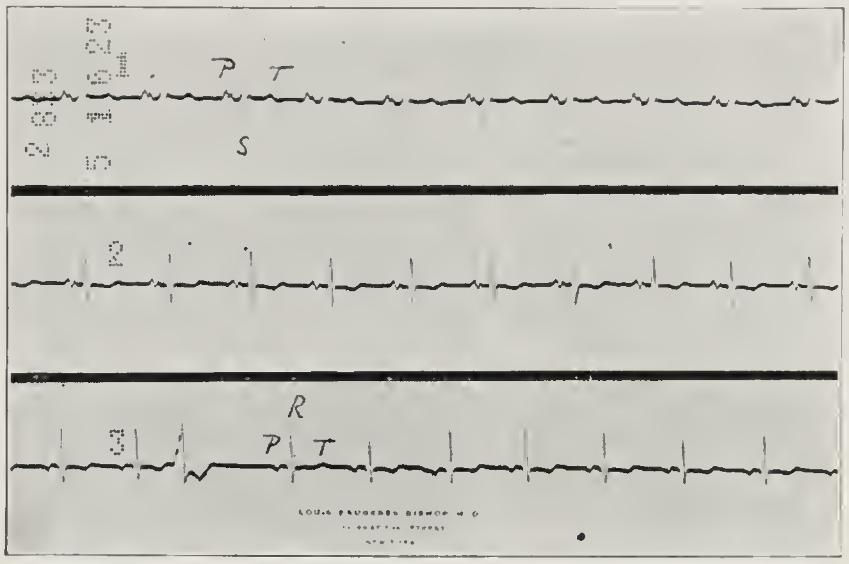

Fig. 1.—Electrocardiogram showing the downward S wave in the first lead and the upward R wave in the third lead, proving right predominance in a case of mitral stenosis.

The electrocardiogram shows a right predominance. The primary activity of the ventricle is down in the first lead and up in the third. The wave representing the auricle is atypical in shape, consisting of two summits instead of one.

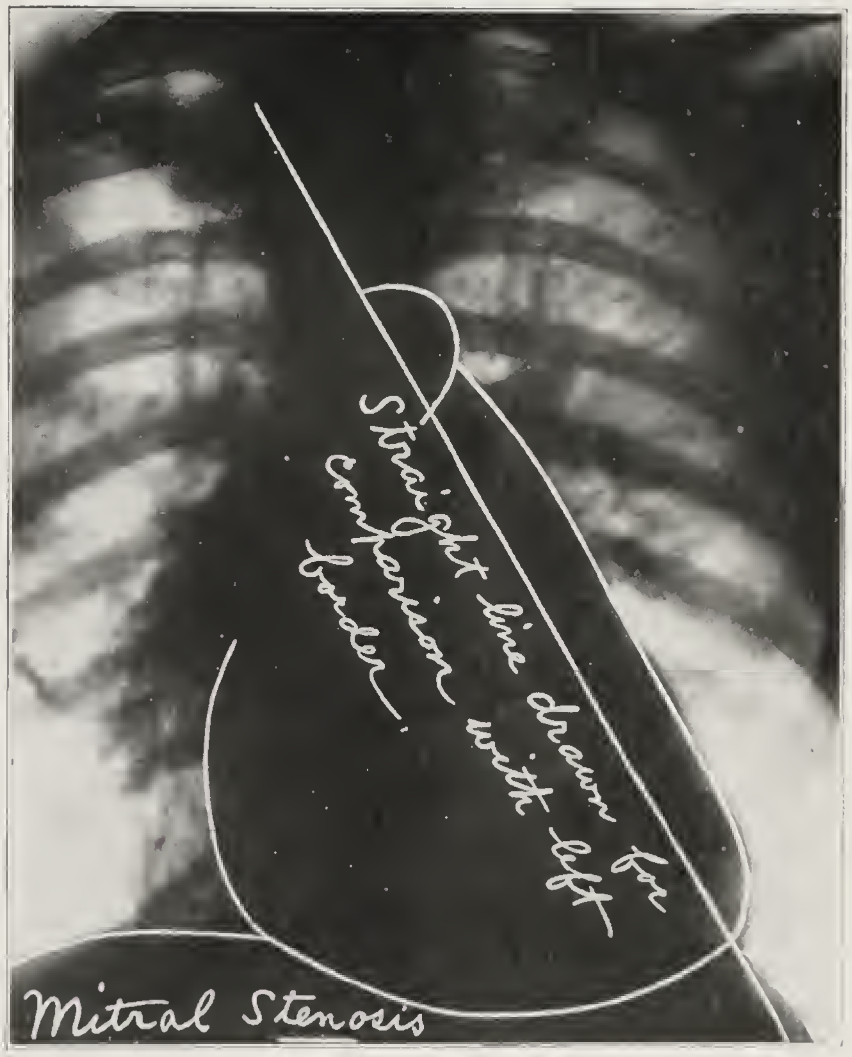

Fig. 2.—Orthodiagram in a case of mitral stenosis, showing the characteristic straight left border of the heart.

This particular person had a loud presystolic murmur, but many times the murmur is obscure, and findings such as these make the diagnosis of mitral stenosis easy.

Any one who has lived in the pretechnical days of cardiology can recall the acrimonious controversy that arose as to the existence or nonexistence of mitral stenosis in some special person who sought the opinion of several physicians. With the roentgen ray and the electrocardiograph, it is now possible to settle definitely this question.

109 East Sixty-First Street.

Special Articles

VACCINATION IN JAPAN

In this issue of The Journal appear two articles [1] of great significance in respect to the control of smallpox. Jenner announced, 127 years ago, the discovery which, if effectively applied, would have unquestionably abolished this disease from the face of the earth. That this statement is not too strong is supported by the results obtained by vaccination in various civilized countries. As a simple example, we may cite the experience of Germany, where in the early years of the nineteenth century, sometimes 40,000 deaths occurred in a year from smallpox. The disease was brought under complete control by vaccination, and reappeared, in a few localities, only under disturbed conditions due to the World War. The opponents of this well-established scientific method of prophylaxis are wont to support their arguments by reference to the statistics of such far-off countries as the Philippines and Japan, not taking into account the fact that the Philippines, prior to American occupation, had 40,000 deaths a year from smallpox; that adequate control succeeded in eliminating gradually the number of cases of the disease, and that only carelessness in the vaccination of the new-born permitted the conflagration of smallpox in 1918, which resulted in more than 50,000 deaths. Actually, this experience in the Philippines is an excellent argument for vaccination. It is only misinterpretation that permits the Philippine record to be used by antivaccinationists.

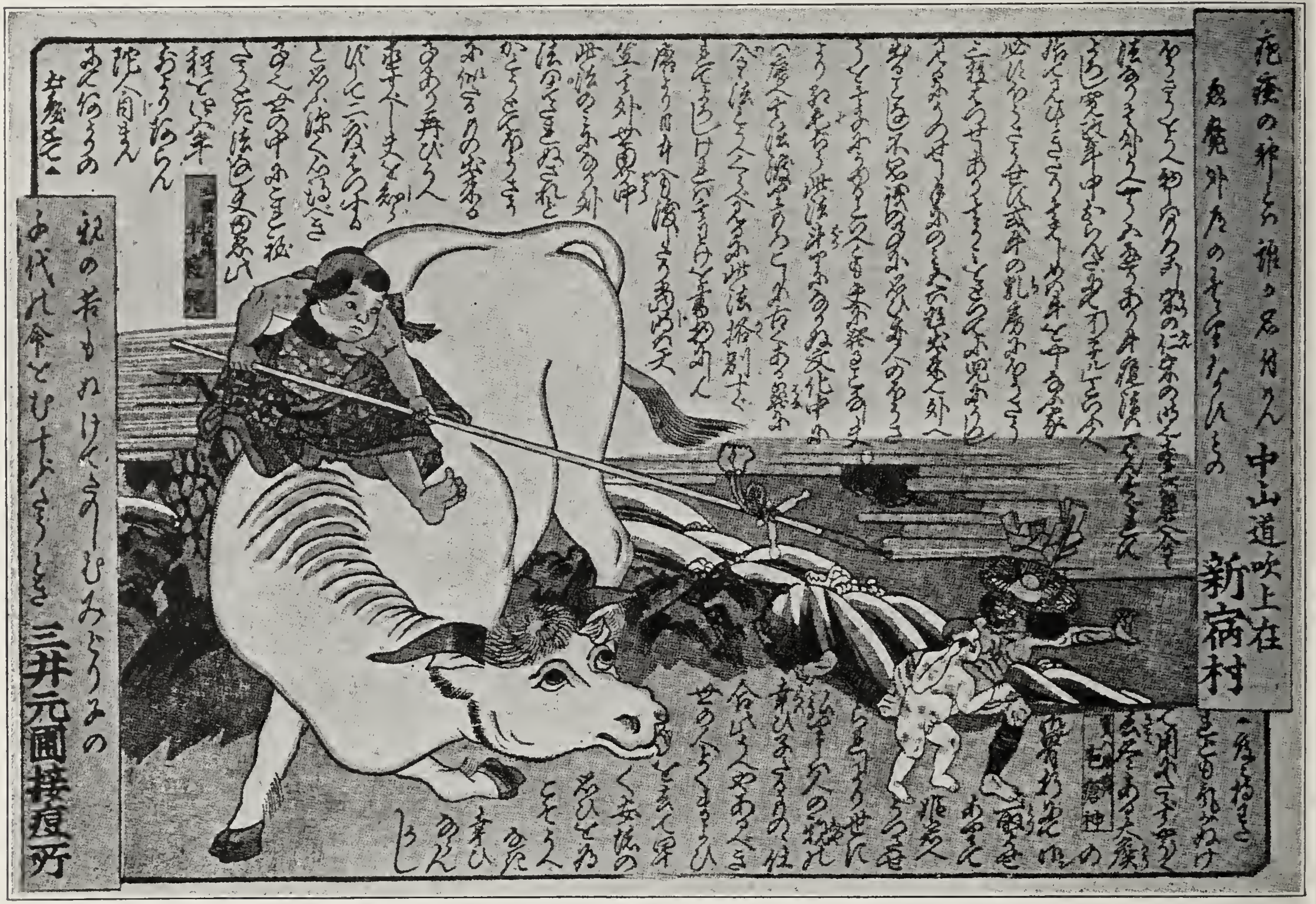
中山道吹上在
新宿村
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Fig. 1.—Poster used in vaccination campaign in 1850.

Translation of the first poem on the right: Who ever called him the "God" of smallpox—
The incarnation of a demon accursed?

Translation of the second poem on the left: Blessed be (the vaccine) that relieves the parent from anxiety and brings to the happy babe the fruit of long life.

The writing in the picture is an account of the introduction of vaccine from Holland into Japan. It advises every parent who has a child to ignore his superstition and accept the treatment which will bring happiness to the family. The picture represents a child being tormented by the Demon of smallpox. A healthy vaccinated child is riding to his rescue on the cow which gave the vaccine.

It is interesting, in this connection, to read the history of vaccination in Japan, recently presented to the Royal Society of Medicine.[2] It was written by Professor Miyajima of the Kitasato Institute in Tokio, and read to the society by Sir George Buchanan of the Ministry of Health. According to Professor Miyajima in 1820 a Dutch scientist, Siebold, brought some vaccine lymph from Java to Nagasaki. The people were ignorant, however, and refused to give it a trial. Twenty years later a description of Jenner's method appeared in Japanese literature and numerous attempts were made at vaccination. Most of these failed, because the vaccine lost its potency during the long voyage to Japan. Between 1845 and 1850 a feudal lord named Nabeshima Kanso became an enthusiastic supporter of vaccination and, through the agency of his court physician, many persons were vaccinated successfully. A pamphlet was prepared by this physician at the request of Lord Nabeshima Kanso and widely distributed. It was called "A Brief Account of Calf Vaccine." The movement spread to various provinces, and within a few years vaccination became a general practice in many parts of the country. However, in Japan and elsewhere, the established school of practitioners, who at that time followed the teaching of the ancient Chinese schools of medicine, objected to the introduction of vaccination, and their objections were so successful that in 1848 a decree was issued prohibiting the translation and publication of all medical and scientific works in the Dutch language. At that time the Dutch language was the only medium through which Western knowledge reached Japan. However, vaccination had already proved its virtues sufficiently to permit the government to urge vaccination regardless of its edict against Western science. In fact, Professor Miyajima gives the efficiency of vaccination the credit for mitigating the severity of measures against Western learning.

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[1] Heiser, V. G.: Menace of the Unvaccinated, this issue, p. 1070. Leake, J. P., and Force, J. N.: Smallpox and Vaccination, this issue, p. 1072.

[2] Miyajima, M.: History of Vaccination in Japan, Proc. Royal Soc. Med. **16**: 23 (Sept.) 1923.

In this connection, it is interesting to observe how, even at that period, seventy-five years ago, pictures and text were used to urge this health measure upon the public. The accompanying illustration is a poster, published and distributed by Kuwada Rissai, a vaccinator in Yeddo.

From 1850 on, many clinics were established in which vaccination was practiced. One of these, established at Yeddo in 1859, was brought under government control as a central vaccination institution in 1860 and later became the chief educational institute for the study of Western scientific medicine. Eventually, it resulted in the present medical faculty of the Imperial University of Tokyo. In 1875 regulations were passed making compulsory the vaccination of all new-born babies and revaccination between 5 and 7 years of age. In 1896 the central government undertook the manufacture of vaccine, with the result that the two institutions created for this purpose became centers of medical research. How efficient vaccination has been in Japan is evidenced by the words of Professor Miyajima:

> The widespread employment of vaccination in Japan has brought about a great diminution in the prevalence and severity of smallpox. History tells us that during ten centuries prior to the introduction of vaccination there were sixty-five great epidemics of smallpox and that five emperors died from it. There have been epidemics since vaccination was begun, particularly between 1886-1891 and in 1896-1897, but they have been less frequent and less severe; and it has been possible, especially in recent years, to bring them quickly under control by measures for compulsory vaccination. This was exemplified in 1907, when the importation of smallpox into Kobe seemed likely to lead to an epidemic comparable in severity with the epidemics of prevaccination days. I must add, however, that despite the existence for many years of a compulsory vaccination law in Japan, the people in general are still very neglectful of the measure, and it is easy to find among the poorer classes many unvaccinated children. For this reason, as well as because Japan is situated near countries where smallpox epidemics are frequent, it is highly important for us to enforce the law relating to compulsory vaccination as strictly as possible.

THE INFLUENCE OF HEREDITY ON THE OCCURRENCE OF CANCER

H. GIDEON WELLS, M.D.
CHICAGO

Concluded from page 1021

B. *ANIMAL EXPERIMENTATION*

TRANSPLANTED TUMORS

In the period of active investigation of transplantable tumors in animals that followed the demonstration by Leo Loeb and by Jensen that series inoculation of rat and mouse tumors is readily carried out, there was naturally not a little study of the influence of heredity on the inoculated tumors. At this time it was not so fully appreciated as it now is that an inoculated tumor is something quite different from a spontaneous tumor. A transplanted tumor differs from a spontaneous tumor fundamentally in that it is never a growth of the cells of the inoculated animal, but it is a growth of the cells descended from the mouse that furnished the original spontaneous tumor from which the transplanted growth was obtained. For example, a mouse inoculated with a strain of the Jensen carcinoma, which has been carried through myriads of generations of transplants during the twenty and more years since Jensen first started the transplantation, is growing a tumor composed of cells derived from Jensen's original tumor mouse and not from its own tissues. The mouse bearing an engrafted tumor is merely furnishing the soil on which some grafted tissue is growing, exactly as a culture tube furnishes a soil on which bacteria are growing.

That the inoculated cancer is fundamentally different from the spontaneous cancer is shown by the fact that successfully inoculated growths often disappear spontaneously, and that protection may be furnished by various procedures of immunization, phenomena which are never seen in spontaneous tumors. Furthermore, animals that are immune to tumor inoculation may develop spontaneous tumors,[40] and by painting the skin with tar, true carcinomas may be produced in mice immune to grafts of the same sort of tumors.[41]

Therefore observations on the influence of heredity on the susceptibility of animals to transplanted tumors can have no direct bearing on the question of susceptibility to spontaneous tumors, since the resistance to one bears no direct relation to the resistance against the other. The chief things of interest learned from the inoculated tumors in respect to heredity are the following:

1. Close relationship of animals is favorable for inoculation. An animal inoculated with its own spontaneous tumor is more likely to develop growths from the inoculation than any other animal of the same species;[42] its close relatives are more likely to give positive results than unrelated mice, and the likelihood of successful inoculation becomes more and more remote, the more

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40. Thorel: Verhandl. d. deutsch. path. Gesellsch. **12**: 60, 1908. Clunet: Recherches expérimentales sur tumeurs malignes, Paris, 1910, p. 24. Bashford, E. F.: Fourth Sc. Rep. Imp. Cancer Res. Fund, 1911, p. 19.

41. Fibiger: Act. chir. scand. **55**: 343, 1922.

42. Loeb and Leopold: J. M. Res. **17**: 299, 1908.

different in origin and in character the inoculated mice are from the originator of the tumor. Growing a transplantable tumor for several generations in a particular strain of animals may enhance its virulence for that particular strain of animals and not for others. These and other related facts indicate that even with transplantable tumors there are differences in susceptibility that are connected with the heredity of the animals, a point recognized in the pioneer investigations of Morau.[43]

2. Certain strains of animals are insusceptible to tumor grafts to which other strains of the same species are susceptible. This has been frequently observed, and the differences in susceptibility may be either absolute or only quantitative. For example, Haaland[44] found that a certain tumor grew in nearly 100 per cent. of Berlin mice, in 24 per cent. of Hamburg mice, and was practically innocuous to Christiania mice. Again, Loeb has described a tumor originating in a Japanese waltzing mouse, which grew in nearly 100 per cent. of this sort of mice but not at all in common laboratory mice. Many other similar instances have been reported.

3. Heredity influences in a constant manner the susceptibility of a given strain of animals to inoculation with cancer. For example, Tyzzer[45] studied a carcinoma which arose in a Japanese waltzing mouse and which could be inoculated into mice of the same type with a large percentage of success, but which did not grow in certain "common" strains of mice. When Japanese waltzers were bred with these common mice the mice of the first hybrid generation were all susceptible, but the second and third hybrid generations made by cross breeding the first generation hybrids were insusceptible. The mice of the first hybrid generation, although susceptible to tumor inoculation, did not show the waltzing character of the susceptible parent strain, whereas the waltzing mice (recessives) that appeared in the second and third hybrid generation were not susceptible to inoculation with the dancing mouse tumor. Further studies carried out with numerous back crosses gave results that indicate that susceptibility to *grafted* tumors is not inherited as a single mendelizing factor, for they do not furnish a ratio characteristic of a single factor inheritance. Tyzzer and Little believe that both susceptibility and nonsusceptibility are inherited as a complex of mendelizing factors, perhaps as many as twelve or fourteen in number.[46] Susceptibility to this tumor might seem to be a dominant character, since it appears in the first hybrid generation; but its failure to appear in the subsequent hybrid generations does not conform with the behavior of a dominant unit character.

Loeb and Fleisher[47] have experimented with crosses of strains of domestic mice with differing susceptibility to transplantable cancer and obtained results not altogether in agreement with those of Tyzzer. For example, in the first hybrid generation the susceptibility to inoculation was intermediate between that of the two ancestors, and not as high as in the more susceptible. The second and third hybrid generations showed very little susceptibility, but in the fourth and fifth generations there was increased susceptibility. They agree with Tyzzer and Little in believing that, if susceptibility to these inoculated tumors is a mendelian process, it must depend on multiple factors. In later experiments,[48] using different strains of animals, they obtained entirely different results, indicating the lack of fixed principles applicable to all transplanted tumors, and all strains of animals. In one strain a pure line was extracted with a susceptibility different from that of the rest of the strain.

In rats also the transplantability of tumors has been observed to be influenced by heredity; but in Roffo's[49] experience this behaved more like a simple mendelian character than in the observation of Tyzzer and Loeb with mice. On the other hand, Morpurgo and Donati[50] were unable to demonstrate that twenty-nine offspring of rats bearing inoculated tumors were more or less susceptible to inoculation than the twenty-eight offspring of rats of the same strains that were immune to inoculation. This again disagrees with the observations of Levin and Sittenfield,[51] who found also in a relatively small number of animals (twenty) that a transplantable rat sarcoma that gave 86 per cent. of takes gave but 25 per cent. in the offspring of immune rats, a figure indicating that resistance to this transplantable tumor behaves as a dominant character. The number of animals used in these two last sets of experiments is so small, however, that the results have little if any value.

SPONTANEOUS ANIMAL TUMORS

Except for the extensive studies of Loeb and Lathrop and of Maud Slye, which will be considered later, most of the evidence as to inheritance of a tendency to spontaneous tumor development in animals is of a somewhat casual nature. However, there are several interesting observations on this point. Perhaps the oldest record of this sort appears in the classical treatise on tumors by Virchow, "Die krankhaften Geschwülste," published in 1864. Here, in discussing the melanosarcomas of horses, Virchow[52] says:

> Brugnone, who first seems to have described this disease of horses, although under the name of hemorrhoids, reported that a white stallion introduced this disease into the animals of a herd in Sardinia, and that his progeny developed melanosarcoma, whether male or female. Gohier has told of a report by Gallety-Latournalle that a young white stallion affected with black growths transmitted this condition to all its white progeny, while all those that were not white remained free. As a result, the disease spread itself over the entire province of Bresse and its vicinity.

Coming to more modern times and experimental methods, in 1898 we find Eberth and Spude[53] describing the occurrence of a family of mice with mammary gland tumors. In 1907, Tyzzer[54] made observations on a number of mice in respect to the occurrence of spontaneous tumors in the offspring of tumorous and nontumorous ancestors; but the breeding was not followed through generations enough to establish any basis for deduction as to how any possible hereditary influences might work. One family of mice (C), descended from a mouse with a papillary cystadenoma of the lung, exhibited three similar tumors among twenty-four offspring, none of which lived over fourteen months. Family B, consisting of twenty-nine offspring of a mouse with a lymphoma, produced one lymphoma and one lung tumor, but only seven of these twenty-nine lived to be 1 year of age. Family A continued ninety-eight offspring of a mouse with a lung cystadenoma, of which sixty-five lived more than six months, and of these twenty (32 per cent.) presented tumors, of which seventeen were tumors of the lung.

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[43] Morau: Arch. med. exper. u. anat. Path. **6**: 677, 1894.

[44] Haaland, cited by Tyzzer, E. E.: J. M. Res. **21**: 519, 1909.

[45] Tyzzer, E. E.: J. M. Res. **16**: 519, 1909; J. Cancer Res. **1**: 125 (April) 1916.

[46] This conclusion has been reinforced by Little in a subsequent communication on the same material (J. Cancer Res. **6**: 106, 1921).

[47] Loeb, Leo, and Fleischer, M. S.: Centralbl. f. Bakt. u. Parasitenk. **67**: 135, 1912.

[48] Loeb, Leo, and Fleisher, M. S.: J. Cancer Res. **1**: 331 (April) 1916.

[49] Roffo, A. H.: Rev. d. Inst. Bact. Buenos Aires **1**: 445, 1918.

[50] Morpurgo, B., and Donati, A.: München. med. Wchnschr. **60**: 626, 1913.

[51] Levin, I., and Sittenfield, M.: Proc. New York Path. Soc. **10**: 119, 1910.

[52] Virchow, Rudolf: Die krankhaften Geschwülste **2**: 241, 1864.

[53] Eberth and Spude: Virchows Arch. f. path. Anat. **153**: 60, 1898.

[54] Tyzzer, E. E.: J. M. Res. **17**: 199, 1907; **21**: 479, 1909.

The conclusion was reached from these observations that they "indicate that one of the factors in the development of tumors is to be found in an inherited character or peculiarity." Still earlier, Leo Loeb[55] had suggested heredity as an explanation of so-called cage epidemics in laboratory animals and the occurrence of "epidemic" conjunctival carcinoma in cattle.

Murray[56] investigated the influence of heredity on the occurrence of spontaneous tumors by breeding together animals descended from cancerous females, or by breeding cancerous females with males descended from cancerous females, and by breeding together the offspring of such matings. Among 340 female mice so obtained, which reached an age of 6 months or over, sixty-nine, or 18.2 per cent., had some form of tumor (sixty-two being of the mammary gland), whereas in 223 females without known tumors in either their mothers or grandmothers, only twenty-three, or 8.6 per cent., had tumors. The value of this study is limited by the fact that the ancestry of these mice is known for such a short distance; but as far as it goes it indicates, says Murray, that:

> Female mice in whose ancestry cancer of the mamma has occurred not farther back than the grandmothers are distinctly more liable to develop the disease spontaneously in this organ than those in whose ancestry cancer is more remote. The increased liability is probably of the nature of a predisposition of one particular tissue or organ system to undergo cancerous transformation under the wear and tear of life. The differences between the two groups are apparent at all ages, and the age of maximum incidence does not appear to have been lowered in the predisposed group. The magnitude of the difference is such that it cannot be accounted for by the chances of random sampling.

In such a method of selection as employed by Murray, however, there exists a fundamental source of error, for selecting merely cancerous and noncancerous *individuals* it was perfectly possible for some of the cancerous mice to have been members of strains or families in which the tumor rate was low, the cancerous individuals having been exceptional members of these strains; equally well, the noncancerous individuals might have been exceptional members of strains or families in which the cancer rate was high. It is of interest to note that among the mice of immediate cancerous ancestry in Murray's experiment were eight cases of lymphoma, all occurring in the descendants of two mice with mammary gland carcinoma. Although there were but four squamous cell carcinomas, three of them occurred in sisters in a single litter. These two last observations, together with those of Tyzzer, suggest that type and location of spontaneous tumors may be influenced by heredity; but the number of cases and character of control does not by any means establish this as a general law.

Another item bearing on this subject is given by Creighton,[57] unfortunately without sufficient details, in these words:

> I was enabled, by the kindness of Mr. F. W. Twort, to use a whole series of microscopic specimens from thirty cases of mouse-cancer, female and male, which came all from one or two cages in the following circumstances: A breed had been started two years before in the country as a pastime. Cases of tumor occurred from time to time, of which the animals died, microscopic specimens being made from each of them as they occurred. The fatalities continued, no new blood was introduced, and at length the whole of the mice, males as well as females, died of one kind of cancer or another, so that the family was literally exterminated in the space of two years.

A much more extensive series of observations than any of the foregoing has been reported by Leo Loeb and Abbie Lathrop,[58] based on the existence in the stock of mice bred by Miss Lathrop, for commercial purposes, of strains in which subcutaneous (presumably chiefly mammary gland) tumors were found with almost constant frequency, the rate varying widely in different strains. Only females over 6 months of age were considered. Unfortunately, these tumors were not all examined microscopically, nor was there systematic necropsy investigation of mice in which no external cancer occurred; but it is understood that the figures are based solely on the presence or absence of visible or palpable mammary gland tumors, diagnosed often only by observation of the gross appearances. If so, this fact needs to be kept in mind in analyzing the results, which should be considered as applying exclusively to macroscopically recognizable mammary gland tumors. Just how much of an error this will introduce into the figures is uncertain, and we cannot be sure that the proportion of error will be approximately the same in different series, since it would be possible for one series to have a considerable proportion of internal neoplasms not present in another strain. Loeb is of the opinion, however, that omitted internal tumors could not have been sufficiently numerous to modify their statistics seriously.

The main points developed by Loeb and Lathrop are these: Heredity undoubtedly is an important factor in determining the incidence of cancer, for strains can be established which run an almost constant proportion of subcutaneous cancer for several generations. These rates may be as high as from 58 to 65 per cent. They also found that a certain relationship exists between tumor frequency and tumor age, the latter seeming to be as characteristic for a certain strain as the tumor rate, or perhaps more so. When strains known to differ in their tumor rates were crossed, it was found that the hybrids might show tumor rates corresponding to those of either parent, or intermediate between the rates of the parents. Even when the two parents have a similar rate, the offspring may have a different rate, although in such a hybrid cross the rate is usually similar to that of the parents.

The relations between tumor age and tumor rate, previously mentioned, are interpreted by Loeb and Lathrop as best explained "if we assume that the hereditarily transmitted constitution, so far as it represents the tendency of the organism to develop tumors, depends on the cooperation of multiple factors. These multiple factors determine the intensity in the tendency to tumor development in a certain individual. In general, the greater is this intensity, the earlier do the tumors appear, and the greater is the probability that in related individuals there exists likewise a tendency to the development of tumors. It is furthermore probable that in addition to the general factors determining the intensity toward the development of cancer, there exist factors which determine specifically the tumor age in certain individuals and strains."

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[55] Loeb, Leo: Centralbl. f. Bakteriol., I, Orig. **37**: 236, 1904.

[56] Murray, J. A.: Fourth Sc. Rep. Imp. Cancer Res. Fund, 1911, p. 114.

[57] Creighton, Charles: Some Conclusions on Cancer, London, Williams and Norgate, 1920, p. 27.

[58] Loeb, Leo; and Lathrop, Abbie: J. Exper. Med. **22**: 646, 713, 1915; **28**: 475 (Oct.) 1918; J. Cancer Res. **4**: 137 (April) 1919; **6**: 197, 1921.

A most extensive and carefully controlled investigation on the influence of heredity in the incidence of tumors in mice has been conducted by Maud Slye[59] under the auspices of the Otho S. A. Sprague Memorial Institute. This work has continued for more than twelve years, being the continuation of a study in genetics begun under the direction of Prof. C. O. Whitman, and has been carried out with a stock of mice of known ancestry for many generations. These mice are all the descendants of a limited and carefully selected stock, bred together according to definite plans designed to give evidence as to the influence of heredity on the incidence of spontaneous tumors in mice, and hence including strains of highly cancerous ancestry and strains with ancestry free from cancer. They represent strains in which cancer is very common, strains in which it never occurs, and strains of intermediate character. It must also be emphasized that not one of these mice has been subjected to any artificial influences that might modify its life. In no case is a spontaneous tumor used for inoculation, or operated on, and no mouse born in this laboratory is ever used for any experimental work whatever. From the moment of its birth, every effort is directed to the one object of permitting each mouse to reach a maximum age. Long experience and great care have made it possible to limit to a large extent the epidemic infections that constantly threaten such large colonies of mice under even the best of conditions. Up to the present time more than 40,000 mice have been examined postmortem, and all lesions that might possibly be cancer, or concerning which there was any doubt whatever, have been examined microscopically by Miss Harriet Holmes and myself. For example, every pneumonic lung is sectioned, no matter how obvious the pneumonia, since the inflammatory lesion might possibly conceal a lung tumor. All told, there have been at least 5,000 spontaneous tumors, mostly malignant, observed in this stock; and as all the mice, whether evidently cancerous or not, have been submitted to necropsy, the material is adequate in amount and quality to furnish evidence against which the question of chance or inadequate controls cannot be raised. Were it not that every dead mouse is thus thoroughly investigated, and that the average age at death is, for a mouse community, very high, there would not be nearly so much cancer material.

Out of this work many facts have come and much has been learned concerning the influence of heredity not only on the occurrence of cancer, but also on its behavior. Some of the outstanding results are the following:

1. *Cancer in mice appears in most of the forms seen in man, and in far greater variety than had previously been supposed.* Since most of the mouse tumors that have been studied elsewhere were those observed by animal breeders, and generally in comparatively young mice, almost the only mouse tumors that were known for some time were mammary gland tumors. Only when large numbers of mice were kept to a maximum age, permitted to die a natural death, and then studied carefully by necropsy, did the great variety and abundance of mouse tumors outside the mammary gland became known. Although mammary gland carcinoma is by far the commonest growth, nevertheless not a few other growths are found. Thus, in the first 6,000 mice were 160 with primary tumors of the lung, chiefly papillary adenomas and carcinomas; in the first 10,000 mice there were twenty-eight primary liver tumors, this number having been greatly increased since that time; in 12,000 necropsies, no less than eighty-seven unquestionable sarcomas were found; in 19,000 mice there were twenty-eight cases of tumor of the testis; in 28,000 mice there were seventy-one cases of squamous carcinoma of the skin or mouth, fifteen cases of typical basal cell carcinoma of the head, four squamous cell carcinomas in the stomach, and several others in different locations; in 22,000 mice there were forty-four with ovarian tumors, mostly solid papillary adenomas; in 33,000 mice there were sixteen primary renal and four suprarenal tumors; in 39,000 necropsies were found twenty-two uterine tumors, eleven of which were leiomyomas, and no unquestionable carcinomas. Not a few other tumors have been observed in these mice, which will be reported later. The importance of the demonstration of this abundant variety of tumors in mice lies in the fact that it adds greatly to the existing evidence of a fundamental similarity in neoplastic disease of mice and that in man. Nearly all tumors found behave in much the same way, occur at a corresponding period of life, in response to similar conditions, and present exactly the same histologic structure as similar tumors in man. The chief difference lies in distribution, the mammary gland carcinomas being by far the most frequent, whereas carcinomas of the stomach and uterus are almost unknown in mice, the same being true for nearly all animals except man.

2. *The tendency to develop cancer, or the capacity to resist cancer, is unquestionably influenced by heredity.* Strains have been established in which, among many hundreds of individuals, through as long a period of observation as twenty-five or thirty generations, not a single case of tumor growth has been seen. Also, strains have been established in which the occurrence of cancer is so common that it becomes the sole cause of the natural death of the animals. Since every mouse that dies of anything except senility might possibly have developed cancer had it lived out its maximum possible span of life, it is difficult to secure 100 per cent. cancer strains; yet families have frequently been obtianed in which all the deaths for one or more generations have been from cancer, and strains with figures approaching 100 per cent. tumor incidence for several generations have been obtained.

Since cancer is a disease developing late in life, what is transmitted is merely the tendency, or resistance to the tendency, to acquire cancer, never the disease itself. But, of course, it is true of all characters that only the tendency to them is inherited, since in the fertilized ovum which carries the tendency none of the characters in which it is manifested have yet appeared; some of the characters appear in fetal life, some not until after birth.

3. *The resistance to cancer in these mice behaves in breeding, in Slye's experience, like a typical mendelian*

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[59] A review with full bibliography is given by Slye in the Journal of Cancer Research 7: 107, 1922.

dominant character. The susceptibility to cancer behaves as a mendelian recessive. When a cancer mouse, derived from the crossing of cancer mice is crossed with a mouse free from cancer and derived from ancestors that never have shown cancer for many generations, the *resulting hybrids of the first generation never show cancer.* If such hybrids are bred together or with other hybrids of similar ancestry, cancer will appear in the offspring in mendelian proportions, and strains of (1) pure cancer mice, (2) pure cancer resistant strains, and (3) heterozygous strains can be extracted, exactly as with any other inheritable "unit character." To quote from Slye:

> Cancer and noncancer tendencies segregate out and are transmitted as such. They are therefore unit characters. A specificity of tissue type in specific organs from ancestor to offspring segregates out and is transmitted as such. It is therefore a unit character. Since these things are unit characters, it is possible to manipulate them by selective breeding and thereby to implant them indelibly in any species, *or to eliminate them permanently and completely from any species.* Cancer and noncancer behave like the absence and presence, respectively, of a mechanism fitted to control proliferation and differentiation in regenerative processes; and an animal either has this mechanism or lacks it, no matter to what species he may belong.

This fact has been observed so many times and with such constancy that Slye feels certain that her work establishes her conclusions beyond any doubt. It is, of course, quite to be expected that susceptibility to cancer should be a recessive character; for, if susceptibility were dominant, cancer would be far more prevalent than it is. The usual statement that a deleterious dominant factor eliminates itself by destroying the species in which it occurs does not hold for cancer, since this disease does not usually manifest itself until after the reproductive period is almost or entirely completed.

4. *Not only the incidence of cancer is influenced by heredity, but also its site and its character.* For example, in certain strains, sarcoma is very common; in others it is seen rarely or never. In some strains one seldom sees any form of malignancy except mammary gland cancer. Miss Slye has developed one strain of mice whose inbred and hybrid derivatives have yielded more than a hundred primary liver tumors, although in all the other mice examined postmortem in her laboratory not a single liver tumor has been found, and only two other cases have been reported from the thousands of mice examined in other laboratories. Another strain has yielded a considerable number of tumors of the testis, although not a single case has ever been reported from other laboratories. A similar tendency for other tumors to appear chiefly or exclusively in certain tissues in certain strains has been observed by Slye. It may be recalled that Loeb reports that the tumors of the Lathrop stock are mostly mammary gland carcinomas, whereas Tyzzer[60] had a remarkably high proportion of lung tumors and a low proportion of mammary gland tumors among his cases of spontaneous tumors, and Murray observed lymphomas in a certain strain of mice. Indeed, the difference in location of neoplasms in respect to organs in different species is of itself an hereditary character, for in the cow we find the mammary gland immune, the suprarenal and liver susceptible; in swine, the embryonal adenosarcoma of the kidney is the prevailing tumor; in rats, sarcomas are more numerous than carcinomas; in negroes, uterine leiomyomas seem to be exceptionally common.

5. *Behavior of tumors is influenced by heredity.* This statement is based on the observation that the localization of secondary tumors seems to be determined largely by heredity. Similar types of mammary gland tumors in mice have been found to produce many pulmonary metastases in some strains, and none or few in other strains. Furthermore, the strains in which secondary tumors occur frequently in the lungs are also the strains in which primary pulmonary tumors are common. A similar observation has also been made for the primary and secondary liver tumors. It may be mentioned that Wood[61] has observed in rats that in some strains a transplanted tumor produced many more instances of lung metastasis than in other strains inoculated with the same tumor.

6. *Inbreeding is not, of itself, responsible for an increased susceptibility to cancer.* I make this statement in this way because it has been suggested that Slye's high cancer rates were the result of inbreeding, a statement that is not warranted in the light of any appreciation of the principles of inheritance. Inbreeding merely concentrates existing characters, but does not produce new characters. Therefore, inbreeding of cancer-resistant strains produces cancer-resistant strains, while outbreeding of cancer-susceptible strains with other susceptible strains produced cancer susceptible strains. An inbred strain may produce 100 per cent. of cancer or 0 per cent. of cancer, depending on the character of the strains that are inbred.

While we have no similar material to compare with Slye's, in which the complete ancestry for many generations is known, all animals are permitted to reach a maximum age, and every dead animal for from twenty to thirty-five generations has been submitted to careful postmortem study, yet such study as others have made of the influence of heredity on spontaneous cancer serves to corroborate at least the *fundamental* point—that heredity is a most important factor in determining the absence or occurrence of cancer.

I have previously referred to the evidence produced by Virchow, Tyzzer, Loeb and Murray in respect to spontaneous tumors in animals, which agrees in indicating the importance of heredity in determining the occurrence of cancer, and also to some extent in determining the site and character of the neoplasm. To this list may be added two more recent contributions which bear directly on the latter point.

A Swiss investigator, Stilling, had been carrying on transplantation experiments, using a definite strain of rabbits which he raised himself. During these experiments he found tumors in the uterus of several animals. He waited years until he had accumulated thirteen such animals and carried out a series of inoculation experiments with them. His death interrupted these experiments before he had given more than a few short communications concerning transplantable tumors before a local medical society. A pathologist, Beitzke,[62] examined the records Stilling left behind him and reports the results. Beitzke says:

> He [Stilling] bought almost no rabbits, but raised his own stock, which not only permitted him to control the relation of his experimental animals, but in a certain sense to raise a

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[60] Tyzzer, E. E.: J. M. Res. **18**: 155, 1908.

[61] Wood: J. Cancer Res. **4**: 63, 1919.

[62] Beitzke: Virchows Arch. f. path. Anat. **214**: 358, 1913.

whole tumor race. Unfortunately, no mention was found in his records that he had undertaken an exhaustive investigation concerning the influence of heredity.

Stilling attributed his success to the fact that he kept his animals until they were old, the youngest tumor being in a 4 year, the oldest in a 7 year rabbit. He also laid weight on the fact that most of the cases occur in rabbits of the same strain. This contribution is especially valuable because rabbits seldom exhibit spontaneous tumors, for we can find in the literature records of but twenty-eight cases of rabbits with tumor growth, all told,[63] exclusive of the thirteen found by Stilling in one small strain of rabbits. Therefore, the element of chance may be entirely excluded as accounting for the occurrence of Stilling's cases.

Equally true is this of the experience with rat sarcomas in the Crocker Fund Laboratory of Columbia University.[64] Here numerous experiments have been carried out with rats infected with a certain tapeworm, *Taenia crassicollis,* which passes its encysted stage in the liver. In some of the infected rats, sarcomas develop in the liver as a result of the irritation or growth stimulation. It has been found that different strains of rats differ greatly in their tendency to develop sarcomas in response to this common stimulation of the liver tissues, some giving a high percentage and some a low percentage of positive results. At the 1923 meeting of the American Association for Cancer Research, Wood reported that when rats that developed sarcoma were bred together, much higher rates were obtained in the offspring, such families sometimes giving 100 per cent. of positive results.

Another piece of work which may bear on the subject of heredity and tumor formation is that of Stark,[65] on the lethal neoplastic process discovered by Bridges in a fruit fly, *Drosophila melanogaster* (amelophila). This appears in the form of black granules in the bodies of the larvae, affecting males only, although not attacking sex structures, and causing death of all the affected larvae. The growth consists of a solid mass of large cells, producing much pigment which resembles melanin. Unfortunately, we know so little about the pathologic anatomy of insects that it is not possible to prove that these growths are true malignant neoplasms identical with mammalian cancer; but this much is in favor of such a conclusion: (1) the tumors consist of atypical cellular growths; (2) they invariably kill the organism they attack; (3) bacteria cannot be cultivated from them; (4) sterile eggs raised under aseptic conditions may produce larvae exhibiting these growths; (5) the growths may be transplanted into other larvae, and into adult flies; (6) metastases may form consisting of cells identical with those of the original growth; (7) irregular mitotic figures have been noted in rapidly growing tumors, and (8) the tumors develop in embryonic rudiments, destined to develop the adult organs during the pupa stage.

If this growth of the fruit fly larvae is a true tumor, it furnishes a remarkably clear instance of a neoplasm that occurs solely on a basis of heredity which has been worked out conclusively. In the affected strains it is found that one fourth of the larvae die, and these are all males; i. e., one half of all the males die. Therefore, this inherited lethal growth behaves in inheritance as a sex-linked recessive factor.

MECHANISM OF THE HEREDITARY INFLUENCE

In view of all the experimental evidence cited above, and the absence of any experimental evidence that contradicts it, the conclusion seems inevitable that the incidence, character, location and behavior of tumors depend to some extent, at least, on the inherited qualities of the animal and of its tissues. This being granted, the next question is, How does heredity determine susceptibility or resistance to tumor formation?

Apparently this may be answered as follows: Tumor formation is the result of stimulation of the tissues to growth, the stimuli being of various sorts and nonspecific. Some stimuli produce marked proliferative effects in proportion to the retrogressive effects, and such stimuli are particularly capable of leading to neoplastic proliferation, e. g., roentgen rays, coal tar. The same amount of stimulation does not produce equal amounts of proliferative reaction in all individuals, even when of the same species; e. g., negroes are more likely to develop excessive amounts of connective tissue growth (keloids) in response to cutaneous injuries than are white men, and some white men develop more scar tissue than others from similar wounds. Not all roentgen-ray workers develop the same degree of hyperkeratosis from the same amount of exposure, and some develop roentgen-ray cancer much sooner than others. Hence there are individual variations in both amount and character of proliferative reaction to a common stimulus, and these variations undoubtedly rest on an hereditary basis, in part if not wholly.

Evidently, then, heredity may determine whether the proliferative reaction that follows injury assumes a neoplastic character or not, just as the Crocker Laboratory rats do or do not develop sarcoma in the liver tissues about the encysted tenia, according to their ancestry. This has been pointed out especially in connection with the study of the lung tumors in Slye's mice, which show that mice with cancer heredity react to nonspecific inflammatory conditions in the lungs more often with excessive proliferation which leads to malignancy than do mice of noncancerous ancestry. All mice of tumor age have suffered more or less from inflammatory conditions in the lungs, with proliferative reactions. In some of the mice of cancer ancestry, but only in about 10 per cent. of those involved in this study, the proliferation assumed a definitely neoplastic character. On the other hand, mice not of cancer ancestry subjected to corresponding lung injury very rarely, if ever, reacted with proliferation to a degree even suggesting tumor formation. Nor is this all of the story. Since this study was made, we have learned more of organ specificity in cancer heredity, and we now know that if certain strains are selected it is possible to secure a breed of mice nearly all of which develop lung tumors, and others which never develop lung tumors in response to exactly similar conditions of lung injury.

A nicely comparable instance is cited by Bateson,[66] who, speaking on observations on inherited deformities of the feet in chickens says: "When the incubators are not running uniformly, many of the chickens are born with deformed feet. Such abnormality, however, is found with especial frequency in particular strains of birds, though eggs from other strains exposed to the same conditions may give perfectly normal results. The *liability* is the thing transmitted, but without the appropriate conditions the effect is not produced." That is to say, it is not the characters themselves that are inherited but the tendency to develop them. For example, we have the following example from plant genetics: Red and white primroses breed true;[67] but if red primroses are raised in a greenhouse at from 30 to 35 C., the blossoms are all white and in appearance they differ not at all from white primroses. If after many generations of growing white flowers they are transplanted outdoors, they again breed red blossoms as before. Therefore, the red primrose cannot be said, when growing in hothouses, to transmit redness, but only the capacity to react to a certain environment by producing red pigment.

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[63] Slye, Maud; Holmes, H. F., and Wells, H. G.: Cancer Res., to be published.

[64] Bullock and Curtis: Proc. New York Path. Soc. **20**: 149, 1920.

[65] Stark, Mary B.: J. Cancer Res. **3**: 279, 1918; J. Exper. Zool. **27**: 509, 1919.

[66] Bateson: Lancet **2**: 453 (Aug. 16) 1913.

A striking illustration of what seems to be an example of another disease in mice that behaves exactly as if determined by a mendelian unit factor has been furnished by Hagedoorn-La Brand.[68] A breeding experiment was under way in which a colony of mice, composed of Japanese mice, large albinos, and hybrids of these two, was under observation. This colony was attacked by an epidemic staphylococcus infection, which killed all the Japanese mice but attacked none of the albinos, although the latter often ate the dead infected Japanese mice. No animals attacked by the infection recovered. *In the first hybrid generation, no mice died,* although quite as much exposed as the others, thus indicating that the resistance of the albinos depended on a single dominant genetic factor. This was further corroborated by the observation in the other generations of hybrid crossings. In the second hybrid (F 2) generation, of 125 animals ninety-one lived and thirty-four died, the theoretical expectation on the foregoing assumption being 93.75 to 31.25. Of crosses between F 1 and Japanese, of fifty-seven animals twenty-five lived and thirty-two died (theory, 28.5 to 28.5). Of crosses between F 1 and albinos, of fifty-one only one died (theory, no deaths). These results correspond remarkably well with the assumption that the albino mice possess one gene, the presence of which protects them against death from this infection, and which is lacking in the Japanese mice.

Presumably related to this sort of inheritable predisposition to an infectious disease is the inheritable deficiency in complement observed by Moore.[69] This deficiency is associated with a lack of resistance to infection, and it behaves as a simple mendelian recessive, hybrids of the first generation having as active complement as that of the normal parent.[70]

In Slye's experience, the hereditary factor of resistance to cancer may become so high in pure strains of selected mice that no ordinary amount of proliferative stimulus ever overcomes it, for strains of cancer-resisting mice have been developed which have never shown cancer during at least thirty generations, which would correspond in human life to close on a thousand years. Conversely, the capacity to resist cancer may be so effectively bred out of mice that virtually all of a selected strain develop malignant neoplasms from the ordinary proliferative stimuli occurring under even the best of living conditions. Only experiments, as yet not performed, will show whether the maximum experimental proliferative stimulation may overcome the resistance of pure noncancer strains of animals. Evidently in the heterozygous human race, maximum stimulation is almost always capable of overcoming such resistance as exists, since so large a proportion of people exposed to excessive amounts of roentgen rays have developed cutaneous cancer, but even so, we do not know of any particular form of tissue stimulation in man that leads to 100 per cent. cancer production. Conversely, cancer often develops in tissues in which there has apparently been no unusual amount of injury or stimulation; e. g., in man, cerebral gliomas occasionally develop after a definite trauma as an apparent sequel, but in most cases of cerebral glioma there is no history of trauma to the head, and in retinal glioma we see many cases occurring in a single family with no suspicion of any injury whatever to the retina. In this last case the hereditary influence is so great that merely the ordinary physiologic wear and tear seems to be sufficient to lead to malignancy.

C. *RELATION OF ANIMAL EXPERIMENTS TO HUMAN DISEASE*

As to the bearing of the experimental evidence on the problems of human cancer, the following facts must be considered:

1. Cancer in animals is, in all essential respects, the same disease as cancer in man.

2. The laws of heredity are fundamental biologic laws applicable to every living thing, whether plant or animal. Mendel worked out the principles of inheritance with garden peas, and these principles have been found to hold good for all multicellular living things, whether plants or animals, whether peas or mice, insects or cows. This must inevitably be so, since all multicellular creatures take origin through fertilization of one cell by another, and since the fertilized cell produces quite the same sort of being as the one from which it came. If the laws of heredity established with peas hold good for mice, they should hold for men, for there is far less difference between mice and men than between mice and peas.

3. We have, furthermore, found that these mendelian principles do appear in human inheritance, although as yet we have no completely satisfactory evidence of mendelian inheritance in human cancer. Because man is a slow-breeding animal with very small families, it is not possible to study all sorts of inheritance in the human species, but there are some striking pathologic conditions which may be followed. For example, in hereditary hemophilia and in color blindness we find perfect illustrations of an inherited sex-linked recessive unit character. While we cannot usually secure sufficient data to test out the mechanism of human inheritance, Eugen Fischer[71] reports that in the crossing of Europeans with Hottentots, transmission of characters occurs in accordance with mendelian expectations.

Another illustration of human heredity conforming to the mendelian principles is seen in the separation into four groups of the human red corpuscles in respect to iso-agglutination.[72] Fischer, indeed, says that "all known normal and pathological characteristics that are transmitted by heredity follow the mendelian laws."

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[67] Siemens: Deutsch. med. Wchnschr. **45**: 1302, 1919.

[68] Hagedoorn-La Brand: Am. Naturalist **54**: 363, 1920.

[69] Moore, H. D.: J. Immunol. **4**: 425, 1919.

[70] Hyde: J. Immunol. **8**: 267, 1923.

[71] Fischer, Eugen: Naturwissensch. **10**: 640, 1922.

[72] Ottenberg, Reuben: J. Immunol. **8**: 11 (Jan.) 1923.

Therefore, if it is accepted that an important element in the occurrence of cancer in mice or other animals is the inherited character of the tissues, the same thing in all reasonable probability must be accepted for man. Furthermore, as pointed out previously, we do undoubtedly have instances in which the tendency to cancer has been inherited in man.

Thus, among Warthin's carefully studied material appear families in which the cancer occurrence corresponds beautifully to the mendelian expectation, and in Levin's analysis of human cancer from a geneticist's point of view, the evidence led him to interpret it as indicating that resistance to cancer behaves as a dominant, susceptibility as a recessive character.

If we accept Maud Slye's contention that resistance to cancer behaves as a dominant character, and susceptibility as a recessive, we can understand the fact that human cancer commonly appears as an isolated condition in only a few members of a family, is often entirely absent in families of large numbers, and occasionally appears in a large proportion of the members of another family. As shown by the typical mendelian chart (Fig. 2), a recessive character does not appear in the first hybrid generation formed by crossing a recessive with a dominant character. If the heterozygous and dominant offspring of this generation are bred with dominant, the recessive never appears (Fig. 4). When heterozygous individuals are bred together (Fig. 3), the recessive character does appear, but only in the ratio of one in four of the offspring. If two recessives are bred together, however, then the offspring all show the recessive character. If herterozygous offspring are bred with pure recessives, half the offspring exhibit the recessive character (Fig. 5).

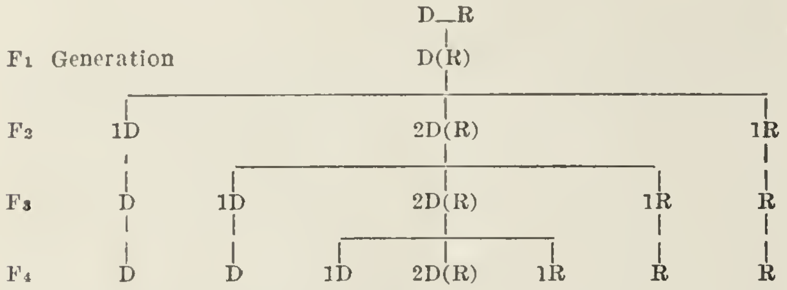

Fig. 2.—Typical mendelian inheritance: *D*, dominant; *R*, recessive; *D (R)*, presence of both factors, or heterozygous.

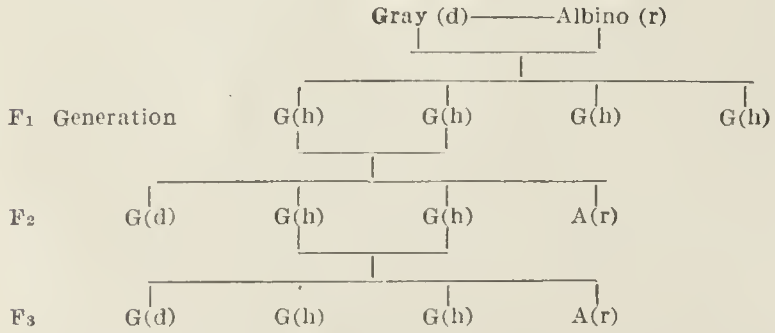

Fig. 3.—Typical mendelian inheritance in crossing gray and albino mice.

Grayness is dominant, albinism is recessive. In the first hybrid generation the offspring will appear gray, but all still carry the recessive gene, i. e., they are heterozygous. When these are bred together, the mice of the F_2 generation yield offspring in the following proportions: one pure (dominant) gray which does not carry the gene for albinism, two heterozygous grays carying both genes, and one albino (pure recessive) which does not carry the gene for grayness.

In Figure 4, dominant mice are bred with heterozygous mice (derived from the crossing of gray and albino mice). As the dominant gray gene is always present in the offspring, they always appear gray, although half of them have the capacity to transmit albinism when mated either with albinos or with heterozygous grays, as shown in Figure 5.

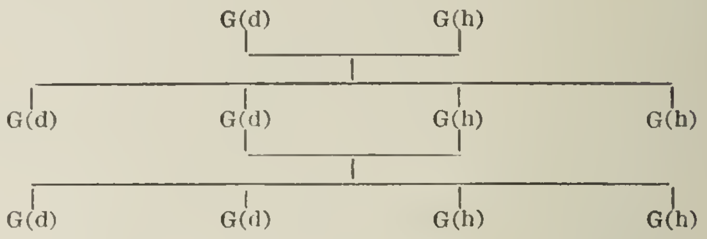

Fig. 4.—Inheritance in dominant mice bred with heterozygous mice.

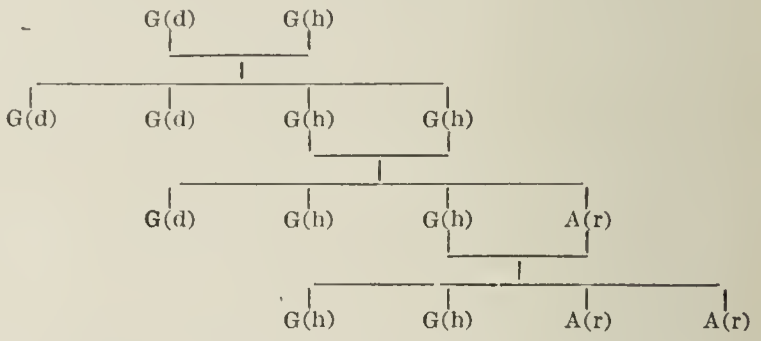

Fig. 5.—Way in which a recessive character reappears when heterozygous offspring are bred together, or when bred with recessives.

Transferred to the terms of human cancer, if this is a condition determined by a recessive unit character, then we should expect that in the heterozygous human race, breeding indiscriminately in respect to cancer ancestry, the recessive character of tumor susceptibility might crop out almost anywhere in a given family group, and ordinarily involve only a small proportion of the entire family. If, through chance, two individuals who inherited the tendency to cancer, which ordinarily would not manifest itself until after the reproductive period is over, should mate and bring forth offspring, it might be expected that these would all inherit the cancer susceptibility, and the demonstrated existence of "cancer families" agrees with this hypothesis. Equally well does the more common occurrence of families that show no cancer correspond to the expectations of this hypothesis.

The fact that either, but not both, of two parents had cancer, would not require that the offspring should develop cancer, since the other parent might be resistant (and dominant) to cancer (even if he or she had cancerous relatives), and the offspring might correspond to a first hybrid generation, none of whom have cancer. If one parent has cancer and the other parent is heterozygous to cancer, which should be the usual situation in the family history of descendants of a single cancerous ancestor, then the first generation should show some cancer cases (pure recessives) and some heterozygous offspring which do not have cancer themselves, but all of which may transmit the tendency to cancer. It is also perfectly possible for heterozygous and dominant resistant individuals to mate with one another for several generations without the recessive (cancer) appearing; but, when heterozygous offspring of such unions mate, cases of cancer might appear. This is illustrated by Slye in such a chart as the one here reproduced (Fig. 6). Here pure noncancerous (dominant), pure cancerous (recessive) and mixed (heterozygous) strains are shown extracted from common ancestors. Note how in the heterozygous strains (*C*), cancer crops out at intervals (16321, 20803) after three generations of direct ancestors with no cancer. This heterozygous strain continued through (Fig. 7) exhibited in the thirteenth generation a mouse (30908) with lung tumor despite the fact that its direct ancestors had shown no tumors for eight generations. On the other hand, none of the mice of the dominant, cancer-resistant strain (*A*) ever exhibited cancer during fifteen generations for which they were followed, whereas the recessive, tumor-bearing strain (*B*) continued to produce mice succumbing to neoplasms in every generation.

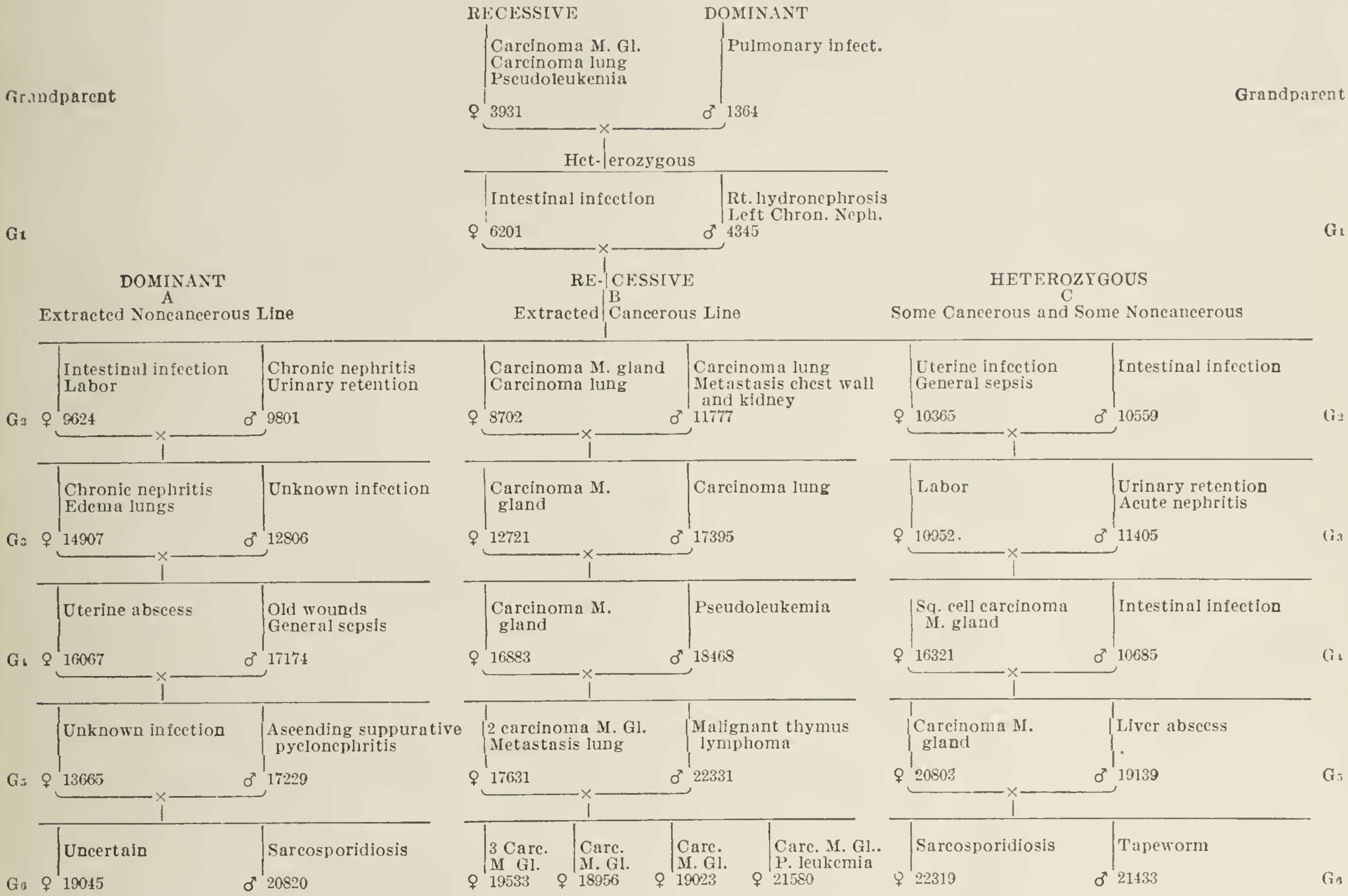

Fig. 6.—The segregating out of the noncancerous and the cancer tendencies, and their perfectly typical mendelian behavior in heredity; Strain 84, Br. II (Slye).

With human families, cancer appearing at long intervals in such a strain as *C* would ordinarily be interpreted as an example of cancer appearing in an individual without cancer ancestry, which is entirely contrary to the fact. The heterozygous human being could transmit cancer tendencies unrevealed through an indefinite number of generations, provided it failed to mate with recessives or other heterozygotes; but when cancer did come out it would be as definitely inherited as if each ancestor for several generations back had had cancer. Failure to appreciate the manner in which inherited characters are transmitted has caused most of the confusion resulting from the impossible attempt to learn the hereditary relation of cancer by analyzing mass human statistics.

Certainly these considerations fit well with what we do know of human cancer. Until some one has carried out the arduous studies necessary to confirm or refute Slye's conclusions, as to the exact way in which the demonstrated influence of heredity is transmitted, it may be fair to consider them as at least offering a reasonable explanation of the influence of heredity on human cancer. It probably will be a long time before we shall have enough reliable information, controlled by necropsy records, to determine the influence of heredity on human cancer by direct observation. Perhaps the easiest way to test the validity of the hypothesis that in man, as in mice, resistance behaves as a dominant inheritable character and susceptibility to cancer as a recessive, will be by securing records of the offspring of matings in which both parents had cancer. Here we should expect that all, or, allowing for premature death, nearly all, of the offspring of such a union that reach advanced age would develop cancer. Such statistics should not be impossible to secure, since they involve only two generations. But as yet, at least in America, we probably cannot find two generations in which we can be sure of all the final diagnoses. Possibly in some more advanced country, such as Switzerland, where necropsies are more usual, the necessary data can be obtained.

SUMMARY

The coincident development of the sciences of genetics and experimental cancer research has begun to yield evidence bearing on the relation of hereditary influences to cancer occurrence. Human statistical evidence is not of sufficient accuracy or extent to render it of any value in the study of this subject. The occurrence of cancer families is unquestionable, but of doubtful value because of the possibility that such occurrences may depend solely on chance. Family occurrence of rare neoplasms, such as glioma of the retina, multiple neurofibromatosis, and multiple cartilagenous exostoses, cannot be dismissed as depending on chance. Human evidence being inadequate, we are compelled to rely on evidence from observations on animals. It is known that the principles of inheritance are the same in all species of animals as well as in plants, and that cancer, in its fundamental respects, is the same in man as in other mammals; therefore the drawing of conclusions in respect to heredity and human cancer from observations on experimental animals is justifiable. Such observations have shown repeatedly that an important element in the occurrence of spontaneous tumors in animals is determined by the heredity of the animals under study. Maud Slye has produced, solely through breeding, strains of mice that have never developed tumors in twenty and more generations, strains of mice in which the natural death of the adults is by cancer, and strains with less degrees of frequency of cancer occurring according to the mendelian expectation. In these animals the capacity to resist cancer behaves as a dominant character, the susceptibility to cancer as a recessive. There is evidence available which supports the inference that in man also the susceptibility to cancer behaves as an inherited recessive character.

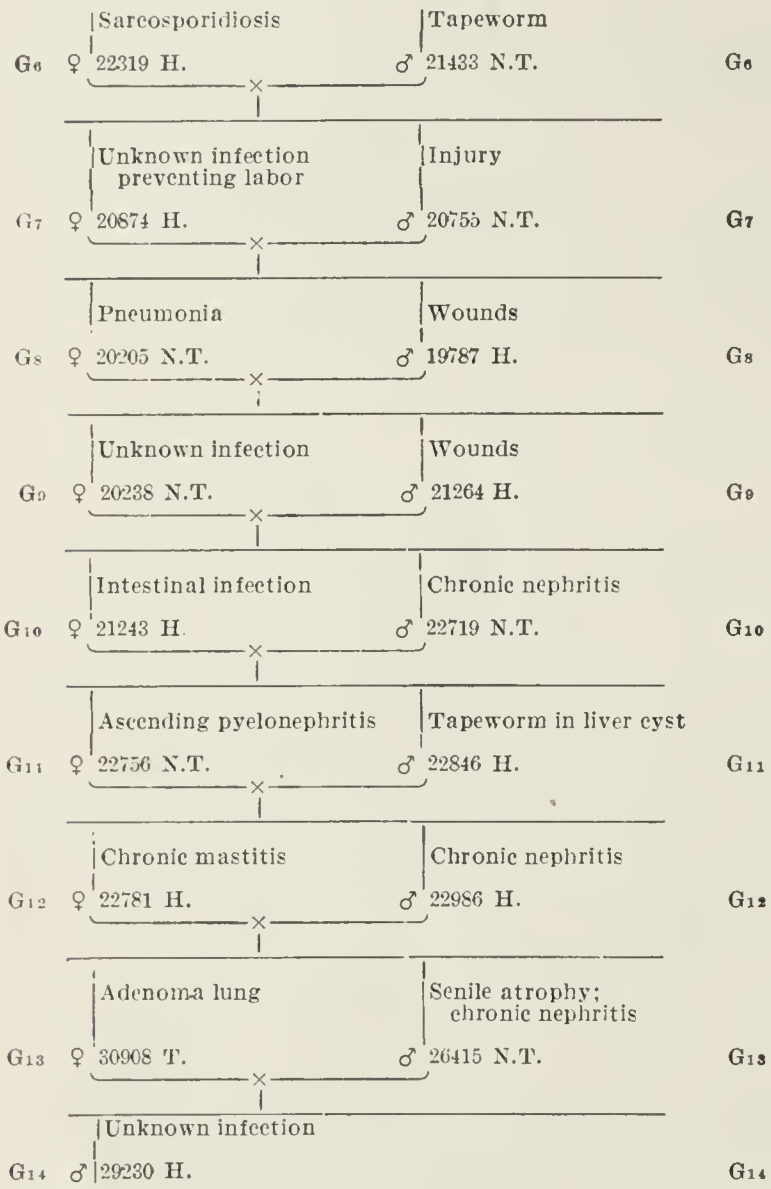

Fig. 7.—Heterozygous branch continued through the fourteenth generation; Strain 84, Br. C. (Slye): *H*, heterozygous; *T*, tumorous; *N.T.*, nontumorous; *G*, generation.

REPORT OF THE COMMITTEE ON ESTIMATING COMPENSATION FOR EYE INJURIES *

To the Chairman and Members of the Section on Ophthalmology of the American Medical Association:

Your committee, after careful consideration of numerous legal opinions relative to compensation for eye injuries, and after consultation with various industrial engineers and members of industrial commissions, has arrived at the conclusion that there is much research work needed to establish certain values mentioned in the reports heretofore presented. This research work has been inaugurated, and the committee wishes to report progress and requests its continuance in order to complete the work before submitting a final report.

The following is an outline of the work undertaken:

1. The question as to what percentage of average normal visual acuity and field of vision constitutes industrial blindness must first be settled. Then the industrial visual efficiency rating of the injured eye may be determined as the product of the industrial visual acuity rating by the industrial visual field rating.

2. The rating expressing the visual acuity of a single eye must be a weighted value, at least twice as great importance being assigned to the visual acuity for near vision as that for distance, the weighted value to be determined by experimental work.

3. The industrial zero for the field of vision shall be a field representing in weighted value a certain percentage of the weighted value of the entire field, to be determined by research.

4. Depth perception through binocular single vision and single image vision is either present or completely absent. This factor, therefore, admits of no percentage rating; the amount to be deducted from the visual efficiency *of the individual* for loss of depth perception or diplopia to be determined as a result of the research work.

5. Compensation will be computed on the industrial *visual efficiency of the individual:* not, as heretofore, on the industrial efficiency of the injured eye. The industrial efficiency of the two eyes will be expressed by a weighted average of the industrial visual efficiency of each eye, modified or otherwise as the circumstances dictate by the presence or absence of depth perception and binocular single vision. Some research by the committee has established that a weighting factor of three applied to the uninjured eye gives an efficiency rating in substantial agreement with the consensus of technical judgment as to correct visual rating of the individual; this possibly to be modified as the result of more extended research.

The final report will recommend that: "Compensation for loss in industrial visual efficiency shall be that percentage of the compensation provided by law for total permanent disability of both eyes equal to the percentage loss in industrial visual efficiency of the individual." This, it will be noted, suggests change by legal enactment to establish the compensation figure for total permanent disability of both eyes. In the committee's opinion, such change in legislation will result in far greater justice to all concerned.

6. Considerations frequently will require that the compensation to be paid for total permanent disability of both eyes shall vary with the probable future earning power and with the age of the individual. Part of the research work inaugurated in collaboration with the Wisconsin Industrial Commission and the United States Department of Labor is the compilation of a table which will afford an approximate but equitable basis for computing average future earning power in terms of current earning power. A little consideration will convince one of the indisputable character of the principle here stated. The financial loss of the individual and his dependents is clearly greater in the case of an individual of large earning power than in the case of an individual of limited earning power. So, too, the financial loss is much greater

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* Read before the Section on Ophthalmology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

when the injury is experienced early in life than when the injury is experienced late in life. Both these factors are of such magnitude that they cannot be ignored without a gross inequity.

It is hoped that, at the next meeting of the section, sufficient research will have been completed as to allow a final report to be submitted.

Nelson M. Black, Chairman,
Harry S. Gradle,
James M. Patton.

New and Nonofficial Remedies

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application. W. A. Puckner, Secretary.

POLLEN ALLERGEN SOLUTIONS-SQUIBB.—Solutions containing the sodium chloride-soluble protein from the isolated pollen of various species of plants. Pollen Allergen Solutions-Squibb are intended for the prevention and treatment of hay fever.

Actions and Uses.—See Pollen and Epidermal Extract Preparations and Biologically Reactive Food Proteins, New and Nonofficial Remedies, 1923, p. 234.

Dosage.—See Pollen and Epidermal Extract Preparations and Biologically Reactive Food Proteins, New and Nonofficial Remedies, 1923, p. 234.

Pollen Allergen Solutions-Squibb are marketed in the following forms:

Set A: ten vials containing for each consecutive dose (Nos. 1 to 10, inclusive) 0.00005, 0.0001, 0.0002, 0.0004, 0.0008, 0.0016, 0.0032, 0.0064, 0.0128 and 0.025 Mg. of pollen nitrogen respectively, ten vials of sterile diluent with which to make the proper dilution of each dose, 1 tube of pollen allergen for diagnosis only, and a syringe.

Set B: five vials containing for each consecutive dose (Nos. 1 to 5, inclusive) 0.00005, 0.0001, 0.0002, 0.0004 and 0.0008 Mg. of pollen nitrogen respectively, five vials of sterile diluent with which to make the proper dilution of each dose, 1 tube of pollen allergen for diagnosis only, and a syringe.

Set C: five vials containing for each consecutive dose (Nos. 6 to 10, inclusive) 0.0016, 0.0032, 0.0064, 0.0128 and 0.025 Mg. of pollen nitrogen respectively, five vials of sterile diluent with which to make the proper dilution of each dose, and a syringe.

Set D: five vials (dose No. 10) each containing 0.025 Mg. of pollen nitrogen, five vials of sterile diluent with which to make the proper dilution of each dose, and a syringe.

Set E: five vials (dose No. 11) each containing 0.05 Mg. of pollen nitrogen, five vials of sterile diluent with which to make a proper dilution of each dose, and a syringe.

Manufactured by E. R. Squibb & Sons, New York. No U. S. patent or trademark.

The following products have been accepted:

Timothy Pollen Allergen Solution-Squibb.
Ragweed Pollen Allergen Solution-Squibb.

Pollen Allergen Solutions-Squibb are prepared by the following method: The pollen is weighed, extracted with ether, the residue dried and ground in a ball mill with 1 per cent. sodium chloride solution for from 12 to 24 hours. The nitrogen in the extract is determined by the Kjeldahl method and the extract diluted with glycerin and 1 per cent. sodium chloride solution until the final volume contains 60 per cent. of glycerin. The solution is then filtered through a Berkefeld filter, the filtrate tested for sterility and diluted so that each dosage form contains the declared quantity of pollen nitrogen.

RAGWEED POLLEN EXTRACT-SWAN-MYERS.—A liquid obtained by extracting the dried pollen of ragweed with a liquid consisting of 67 per cent. glycerin and 33 per cent. saturated solution of sodium chloride.

Actions and Uses.—See Pollen and Epidermal Extract Preparations and Biologically Reactive Food Proteins, New and Nonofficial Remedies, 1923, page 234.

Dosage.—See Pollen and Epidermal Extract Preparations and Biologically Reactive Food Proteins, New and Nonofficial Remedies, 1923, page 234.

Ragweed Pollen Extract-Swan-Myers is marketed in the following forms:

Series I: five vials containing for each consecutive dose (Nos. 1 to 5, inclusive) 2.5, 5, 10, 20 and 35 pollen units respectively, and five vials of sterile diluent with which to make the proper dilution of each dose.

Series II: five vials containing for each consecutive dose (Nos. 6 to 10, inclusive) 50, 70, 100, 150 and 240 pollen units, respectively, and five vials of sterile diluent with which to make the proper dilution of each dose.

Series III: five vials containing for each consecutive dose (Nos. 11 to 15, inclusive) 350, 500, 700, 1000 and 1000 pollen units, respectively, and five vials of sterile diluent with which to make the proper dilution of each dose.

Complete Series: packages containing the 15 doses, described in Series I, II and III.

Manufactured by Swan-Myers Company, Indianapolis, Ind. No U. S. patent or trademark.

Ragweed Pollen Extract-Swan-Myers is prepared by grinding the dried pollen of ragweed in a ball mill with a liquid, using a menstruum composed of 67 per cent. of glycerin and 33 per cent. of saturated sodium chloride solution to moisten the pollen. Then sufficient of the glycerin-sodium chloride solution is added so that the total volume is such that each Cc. represents 10,000 units; 1 unit corresponding to .00001 mg. of dried pollen. This mixture is filtered through paper pulp and then through a Berkefeld filter. It is tested for sterility before diluting, after dilution and after filling.

LUMINAL (See New and Nonofficial Remedies, 1923, p. 63).

The following dosage form has been accepted:

Luminal Tablets, ½ grain.

EXTRACT OF MALT (See New and Nonofficial Remedies, 1923, p. 177).

Malt Extract (Unmedicated)-P. D. & Co.—A preparation essentially similar to extract of malt, U. S. P., but containing 10 per cent. of glycerin. One grain of Malt Extract (Unmedicated)-P. D. & Co. converts 5 to 7 Gm. of starch to maltose and dextrin in thirty minutes at 40 C. by the assay method of the U. S. Pharmacopeia for Diastase.

Actions and Uses.—See article on Extract of Malt (New and Nonofficial Remedies, 1923, p. 177).

Manufactured by Parke, Davis & Co., Detroit. No U. S. patent or trademark.

Malt Extract with Cod Liver Oil-P. D. & Co.: Each 100 Cc. contains Norwegian cod liver oil, 25 Cc. and malt extract (unmedicated)-P. D. & Co., 75 Cc. with chocolate and extract of vanilla as flavoring agents.

ARGYN (See New and Nonofficial Remedies, 1923, p. 330).

The following dosage form has been accepted:

Argyn Tablets, 6 grains.

OVARIAN SUBSTANCE-WILSON (See New and Nonofficial Remedies, 1923, p. 212).

The following dosage forms have been accepted:

Tablets Ovarian Substance-Wilson, 2 grains.
Tablets Ovarian Substance-Wilson, 5 grains.
Capsules Ovarian Substance-Wilson, 2 grains.
Capsules Ovarian Substance-Wilson, 5 grains.

OVARIAN RESIDUE-WILSON (See New and Nonofficial Remedies, 1923, p. 212).

The following dosage forms have been accepted:

Tablets Ovarian Residue-Wilson, 2 grains.
Tablets Ovarian Residue-Wilson, 5 grains.
Capsules Ovarian Residue-Wilson, 5 grains.

The Weight of Bacteria.—Knowing the measurements of bacteria, it follows that the volume may be computed; knowing the volume and the weight of the substance of the microbe as compared with an equal volume of water, the weight of the organism can be arrived at. A cylinder the size of the typhoid bacillus and 1.2 times as heavy as water would weigh almost exactly 0.000,000,002 milligram. Five hundred millions of them, in other words, would weigh a milligram. A milligram is one thousandth of a gram, and a gram in turn is approximately one thirtieth of an ordinary ounce. Fifteen millions of millions of typhoid bacilli, therefore, would be required to balance an ounce weight. Viewed from this standpoint, it is not difficult to believe that bacteria are in reality about the smallest of known living things.—Kendall, A. I.: Civilization and the Microbe.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, SEPTEMBER 29, 1923

THE STATUS OF BLOOD TRANSFUSION

Novel procedures in medical practice find application so promptly in these days that the scientific progress that they represent is all too often soon forgotten. There is another aspect to the employment of new methods and new drugs that cannot always be so easily dismissed. Few innovations have been so thoroughly studied or so satisfactorily standardized and controlled at the time of their introduction into practical medicine as to render them perfect or even fool-proof in the hands of the uncritical practitioner. Consequently, the newest acquisitions to the healing art may sometimes become potential menaces until their limitations have been made clear. The use of the roentgen rays in the period following their discovery was attended by many serious accidents. New chemical compounds that give great promise of unusual potencies are sometimes found to have limitations in their usefulness represented by unexpected idiosyncrasy in patients, or occasional "side-reactions" that limit their usefulness. It is largely for this reason that the "ideal" antiseptic, laxative, anesthetic or analgesic remains to be discovered. Only a survey over a longer experience enables the clinician to balance advantages against disadvantages and thus learn the method of choice in a given emergency.

Something of this sort is now encountered in the consideration of blood transfusion, a procedure that belongs to the newer triumphs of medicine. Nothing seems to surpass the efficacy of blood in replacing loss of the circulating medium of the body. A physiologist established a standard hemorrhage in dogs by bleeding the animals systematically until the blood pressure was 28 mm.: a state in which the dog was about as likely to live as it was to die. He then administered sodium citrate solution, and the dogs died in every instance. He gave saline solution intravenously, but, after a temporary improvement, the mortality was increased; and, after injection of acacia solution, much the same result was observed. When compatible whole blood was given, all animals recovered. Clinical experience with man practically substantiates this experimental finding.

Transfusion in man no longer is primarily a problem of blood vessel surgery, as it was fifteen years ago. The indirect method of transferring blood from one person to another has come into deserved vogue. A surgeon has remarked that the practice of entering the vessels with needles instead of using the scalpel has removed much of the danger of infection and injury to both the donor and the recipient. When blood vessel surgery was resorted to, the number of times an individual could give or receive blood was limited. Aside from the difficulties of instrumental technic, two outstanding factors have interfered with universal success: first, the tendency of the blood to clot rapidly, and second, the hemolysis produced because of the incompatibility of bloods. The latter difficulty must be met at present by special care in the choice of the donor of the blood. The serologic aspects of transfusion have been studied assiduously in recent years after the discovery of the unlike agglutinating reactions of the bloods of different persons. Blood incompatibilities between donor and recipient can now be largely avoided. The "typing" of serums has become well standardized so that professional or semiprofessional donors can be satisfactorily "listed" for prompt use. An hour's preparation or less may then suffice for an emergency transfusion.

The problem of clotting has not been so satisfactorily solved. The citrate method has, it is true, had large success, and has until recently been the procedure of choice. Unfortunately, the coagulation of blood cannot be retarded by chemical agents without alteration of some of its biochemical and biologic properties. For example, sodium citrate leads to destruction of the blood platelets, which apparently play an important part in the coagulation of the blood. The hemostatic properties of the circulation thus become impaired. The added chemical also develops anticomplementary properties in the plasma, and reduces the phagocytic and opsonic powers of the blood. These facts would naturally argue against the use of the citrate method in the general infections when a resistance action is sought. The corpuscles are said to become more friable—a result particularly undesirable in combating certain types of anemia. There are other occasional systemic "reactions," varying from slight malaise to severe chills and febrile symptoms, that may give the operator considerable concern.

Much effort is being expended to learn how to avert or combat such untoward phenomena. This has led to improvement in the transfusion of whole blood without the use of an added anticoagulant. The procedure has recently been enthusiastically lauded by Brines,[1] as the result of his experience. The reactions following the use of unmodified blood are said to be fewer and milder than those following the citrate method. Brines remarks that while the latter should not be abandoned, the whole blood method should, whenever possible, be substituted for it; however, there is never a time when citrated blood is as good as whole blood.

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[1] Brines, O. A.: The Transfusing of Unmodified Blood, Arch. Surg. 7: 306 (Sept.) 1923.

The indications for transfusion have become so varied and numerous, and its usefulness so gratifying that it seems worth while to remind our readers of how much this helpful procedure really may mean to a patient. As Brines has succinctly stated the effects:

> Transfusion corrects disturbed circulatory balance; provides increased oxygen transportation to the tissues; increases, to a greater extent than do lactates, calcium salts or any other substances, the coagulability of the blood, and tides the patient over a critical period, until his blood-forming centers can take up their burden or he acquires the proper resistance. It combats infection by increasing the general resistance and by the bactericidal action of the whole blood. It restores the bulk of the blood, but more especially the red corpuscles; and it is important to note that young erythrocytes are better oxygen carriers than old ones.

PATHOLOGIC MANIFESTATION OF LACK OF VITAMIN A IN THE DIET

Precise explanations of the nutritive disasters that ensue when experimental animals are subjected to a dietary deficient in one or more of the known vitamins have not yet been forthcoming. Little is gained from a strictly scientific standpoint by announcing that the organism needs an antiscorbutic or an antineuritic substance to insure well-being. Mere statements of observed facts, however cogent they may be, do not necessarily furnish a clue to the etiology of disease. In the case of the so-called avitaminoses, the utmost uncertainty as to their respective specific causes still prevails. Each new clue, however, affords a possible step to a better understanding. Scurvy and rickets leave manifestations that present themselves to the pathologist in clear-cut fashion. The lesions of these diseases are characteristic. When the nutritive failure is due to a lack of vitamin B there is not always a comparable manifestation of pathologic tissues. The same has been true in general of the upsets in bodily welfare attributable to a shortage of vitamin A in the diet; consequently it has been difficult to point out just what the significance of this food factor is. Since vitamin A is commonly associated with fats, the assumption was early made that it is concerned with the metabolism of these foodstuffs. No such relationship has been demonstrated.

It is known, however, that lack of vitamin A may be associated with the appearance of ophthalmia as well as with the occurrence of phosphatic urinary calculi. Daniels, Armstrong and Hutton[1] of the State University of Iowa College of Medicine recently described the frequent occurrence of nasal sinusitis as the result of a diet poor in vitamin A, the middle ear also being involved. The nasal passages and sinuses were filled with pus cells; the mucosa was also infiltrated with polymorphonuclear cells. The epithelium was ragged, and in some areas desquamated. The middle ears were examined microscopically, and the exudate that filled them was found to consist largely of polymorphonuclear cells. Such results were averted by the mere addition of a source of vitamin A to the otherwise unchanged ration. Consequently, the Iowa investigators argue that this vitamin must be an important factor in the immunity of the organism to pyogenic infections, and that the general breakdown of the organism following the ingestion of diets low in the fat-soluble vitamin is secondary to such infection. A diet lacking in fat-soluble A makes possible the bacterial invasion of the mucous membranes of the ear and nasal cavities.

One outcome of such studies is the conclusion, advanced by Daniels and her co-workers, that the aspect of faulty nutrition most commonly observed in such avitaminosis, namely, loss of weight or failure to gain, is in reality due to infection in an individual whose resistance is lowered by faulty diet. If this is tenable, the curative effects of cod liver oil, milk-fats and egg-fats may in some measure be due to their influence on factors of immunity as well as the more commonly alleged restoration of a physiologic substance specifically required for certain nutritive functions.

WATER

Water has been the subject of various statements of both a conflicting and a misleading character in popular physiologic and medical literature. On the one hand, under the indefinite exhortation of "water internally, externally, eternally," the use of the universal solvent has been hailed as a panacea for various ailments. The prominent underlying hope in this advice seems to lie in the expectation that somehow and somewhere water can "flush out the system" almost as readily as one can clean the gutter with a hose from the hydrant. On the other hand, there has developed a suspicion in many cases that water may be a detriment to health unless it is drunk in definite ways or at definite times. Thus, the problem of the ingestion of water with meals has been vigorously debated, largely on the basis of untested hypotheses. The use of water has been made a factor in "reduction" treatments of obesity. Again, opinions have varied with respect to the allowance of water for patients suffering from a diversity of renal and cardiac disorders in which the elimination or transport of fluid is rendered more difficult. These instances are in striking contrast to the unquestioned desirability of increasing the water intake under circumstances in which anhydremia is threatened. Illustrations of the latter were recently discussed in these columns in connection with the systemic treatment of extensive superficial burns.[1]

A somewhat different conception has been broadcast as the result of Rowntree's studies at the Mayo Foundation on the subject of water intoxication. He has clearly demonstrated, in numerous careful experiments on both man and animals, that water ingested in excess of the ability of the organism to excrete it leads to the exhibition of toxic symptoms. According to Rowntree,[2] water intoxication of this sort is manifested by "restlessness, asthenia, polyuria, frequency of urination, diarrhea, salivation, nausea, retching, vomiting, muscle tremor and twitching, ataxia, tonic and clonic convulsions, frothing at the mouth, helplessness, stupor and coma." The gamut of possibilities is thus so large that the suggestion of harm from water has loomed large in the minds of the uncritical. Consequently, the press of late has occasionally disseminated the supposedly scientific doctrine that "pure water is poisonous" to man.

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[1] Daniels, Amy L.; Armstrong, Margaret E., and Hutton, Mary K.: Nasal Sinusitis Produced by Diets Deficient in Fat-Soluble A Vitamin, J. A. M. A. **81**: 828 (Sept. 8) 1923.

[1] The Systemic Treatment of Extensive Superficial Burns, editorial, J. A. M. A. **81**: 663 (Aug. 25) 1923.

It would be a mistake to allow such a ridiculous and unwarranted conclusion to gain any credence among the readers of popular scientific literature. Emphasis should be given to the fact that, to produce symptoms of "water poisoning," quantities greatly in excess of those taken voluntarily are necessary. Rowntree himself has clearly pointed out the ways in which Nature has provided adequately against the possibility of water intoxication. The sensation of satiety following the drinking of small or moderate quantities of water renders subsequent ingestion of larger amounts increasingly difficult. The pylorus prevents the sudden or immediate egress of large volumes of water, and consequently excessive ingestion results in gastric distention, which is followed in man by regurgitation and vomiting. Sometimes diarrhea helps to dispose of the excess. Furthermore, water is an effective diuretic so that accumulation in the body tends to be prevented after the absorption of large quantities.

How effective the factors of safety are is seen in many cases of chronic polyuria or diabetes insipidus in which the patients sometimes consume inordinate quantities of water without eliciting any symptoms of water intoxication, probably because of the very prompt elimination. Instances have been recorded, however, in patients suffering from chronic nephritis and hypertension in whom administration of water up to 10 liters a day provoked untoward results.[3] These are the cases that demonstrate the importance of convincing experimental information on the subject. Whether the effects are due merely to the inability of the body to excrete the surplus of water promptly, or whether the latter robs the organism of salt and thus starts a train of pathologic effects, remains to be learned. The rare clinical picture of forced excessive fluid intake, however, should not be made the basis of statements that cause utterly unwarranted fears lest the world be poisoned with water.

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[2] Rowntree, L. G.: Water Intoxication, Arch. Int. Med. **32**: 157 (Aug.) 1923.

[3] Miller, J. L., and Williams, J. L.: The Effect on Blood Pressure and Nonprotein Nitrogen in the Blood of Excessive Fluid Intake, Am. J. M. Sc. **161**: 327-334 (March) 1921.

SALT INTAKE AND VASCULAR HYPERTENSION

There are few problems in practical medicine that can be solved by some extremely simple therapeutic formula. Whenever a physician reads of short-cut cures, it behooves him to be on his guard against the danger of error or the possibility of misunderstanding. By this we do not mean those flagrant instances of deception such as are practiced by the medical quack or the charlatan, but rather the mistakes concealed in unbounded enthusiasm or uncritical confidence in something novel. Every one who has occasion to deal with human patients soon learns that coincidence counts for many experiences that a less tutored person might put in the relation of cause and effect. The academicians have long warned against the fallacy of *post hoc ergo propter hoc,* and even the scientist needs to be reminded of it now and then.

Something of this sort seems to be called for in connection with the advocacy of an extremely low salt intake for the treatment of vascular hypertension. The limiting of the intake of sodium chlorid to 0.5 gm. daily for this purpose was championed by Allen [1] a few years ago. It was asserted that such therapy would produce a much greater reduction in pressure, a greater relief of symptoms, a speedier clearing up of retinal hemorrhages, and certain other beneficial results more effectively without further restriction in diet or change of exercise than would other methods of treatment. The recent experiences at the Medical Clinic of the Peter Bent Brigham Hospital in Boston have not been in accord with this prediction. O'Hare and Walker,[2] who have investigated the problem there, point out that if salt is such a determining factor, one should expect to find the blood chlorid increased in cases of hypertension, and to observe a definite relation between the level of this substance and that of the blood pressure. Yet the clinical observations demonstrate that "hypertension is compatible with normal blood chlorid," "normal tension is compatible with high blood chlorid," and "there is no relation between the height of the blood pressure and that of the blood chlorid."

The greatest salt retention in the body is observed in cases of nephritis with edema, and yet these usually show a comparatively low arterial tension. Furthermore, O'Hare and Walker find it difficult to imagine that changes in the salt metabolism of the body could occur rapidly enough to bring about the sudden and often marked changes that take place in the blood pressure from second to second and from minute to minute. The burden of proof thus seems to be placed on the protagonists of the new treatment. Meanwhile there will be a feeling of relief on the part of those who have found a truly salt-free regimen to represent a disagreeable if not an actually arduous undertaking.

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[1] Allen, F. M.: Arterial Hypertension, J. A. M. A. **74**: 652 (March 6) 1920.

[2] O'Hare, J. P., and Walker, W. G.: Observations on Salt in Vascular Hypertension, Arch. Int. Med. **32**: 283 (Aug.) 1923.

Current Comment

SOME FACTORS PROMOTING HEALTH

Charitable institutions are not usually looked on as models for the formulation of plans or proposals involving hygienic reforms. There is a widespread belief that children, for example, who are under institutional management in orphanages and elsewhere are likely to suffer with respect to their rate of growth, nutritional condition and the incidence of disease. It would not be difficult to present evidence in support of this conclusion. Extreme generalizations, like extreme standardization, however, are all too often unwarranted. With respect to the health and growth of adolescents, this fact has recently been emphasized by a report of Holt and Fales[1] of New York on the growth and general condition of the boys and girls in a semicharitable home and school for poor children in that city. The inmates were housed in the heart of a business section cut off from that generous supply of light and fresh air so widely lauded. There they lived and played and studied during all but a few weeks of each year; yet, a careful survey showed that, despite the enforced restrictions of the environment and the admittedly simple regimen, strikingly good health and nutrition were maintained. The distribution of nutrients in the limited dietary showed considerable deviation from what the "experts" might designate as the optimum; yet health and digestion remained excellent and—most important—the gains in weight were satisfactory. In commenting on the outcome, Holt and Fales emphasize the important but often overlooked consideration that a wide deviation from prescribed standards may be consistent with health, provided certain essentials in the diet are furnished, and regularity of habits is maintained. Physicians and parents will do well to note the factors that contributed, even under supposedly unideal conditions, to a successful outcome. They were adjudged to be: (1) regularity in habits of eating and in sleep, rest and exercise; (2) a liberal but simple diet, and (3) freedom from contact infections.

THE NATURE OF INSULIN

The artificial synthesis of products of great physiologic potency is always a fascinating goal of biochemistry. This is particularly true in the case of hormones, such as those produced in the endocrine structures, which are present in extremely small concentration and therefore require large quantities of tissue material for their separation in any considerable amount. The suprarenal, thyroid and pituitary, for example, are being used commercially on a large scale for the manufacture of the desired pharmacologic agents that they contain. The latest addition to the list of useful depots of hormones is the pancreas, the source of the already highly valued insulin. The demand is large, and the isolation of a potent product is a laborious and costly undertaking. Before the prospect of a synthesis of the active substance can be entertained, its chemical structure must be ascertained. Consequently, considerable energy has already been devoted to this problem. The earlier indications[1] that insulin may be protein in nature have recently been supported by the investigations of Dudley[2] at the National Institute for Medical Research in England. He points out that its ready absorption, its failure to pass through an ultrafilter, and its rapid digestion by trypsin, particularly by pepsin, all indicate that it is most probably a substance having a very complex structure and protein-like in its nature. Consequently, Dudley points out that the hope of its isolation as a chemically pure substance becomes slender, and of its synthesis very remote, by methods at present at our disposal. Furthermore, we are reminded that the administration of insulin by mouth is not feasible on account of its rapid destruction by the digestive enzymes, and the relatively large size of its molecule makes it unlikely that absorption from mucous surfaces, such as those of the nasal passages, a method that has recently proved useful in controlling diabetes insipidus with pituitary extract, will be practically useful in the case of insulin.

THE DEVOLUTION OF ADVERTISING

As our readers probably know, "patent medicine" advertising is as old as, or perhaps older than, the newspaper itself. The history of the newspaper dates back only about three hundred years, whereas circulars vaunting the merits of proprietary preparations can be found in the records of antiquity. In the recent survey of the development of the newspaper, Miss Lucy M. Salmon,[3] professor of history in Vassar College, calls attention to the development of "patent medicine" advertising:

> The early commercial advertisements were largely haphazard in their form and hence in their appeal. In the middle of the last century, Hayward noted that pain or the fear of pain was the most active stimulant to advertising and that this resulted in the supremacy of patent medicine advertising. Since vanity made the next strongest appeal, the advertisers of beauty producers followed hard after quack doctors. But anaesthetics and science have found "a better way" for the relief of suffering, while the balance has been shifted from interest in personal beauty to the more vital things in life.

Perhaps in crediting the new point of view she would have done better to give some of the credit to an awakened moral sense, which was responsible for the development of truth in advertising campaigns and for the purging of the press of this type of advertising. She calls attention, however, to one point that has not been given adequate consideration in the discussion of this problem. Probably few readers realize that the advertising pages of our periodicals will be taken by the historian of the future as an adequate picture of the civilization of the period. Of this, Miss Salmon says:

> The numerous advertisements of patent medicines, for example, that were announced as cures for every ill known to the body or the mind are to the historian in themselves wilful

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[1] Holt, L. E., and Fales, H. L.: Observations on the Health and Growth of Children in an Institution, Am. J. Dis. Child. **26**: 1 (July) 1923.

[1] Doisy, E. A.; Somogyi, M., and Shaffer, P. A.: Some Properties of an Active Constituent of Pancreas (Insulin), J. Biol. Chem. **55**: 31 (Feb.) 1923.

[2] Dudley, H. W.: The Purification of Insulin, and Some of Its Properties, Biochem. J. **17**: 376, 1923.

[3] Salmon, Lucy M.: The Newspaper and the Historian, Oxford University Press, 1923.

attempts to deceive an ignorant public, and while obviously false they are records of the baser elements in men; of the proneness of the ignorant to grasp at straws; of the general lack of information in regard to hygiene, sanitation, and the general welfare of the human body, and of right living; of the low standards of the press that lends itself to such advertising, and of the low standards of a community that tolerates such advertising in its press. Advertisements giving fictitious valuations of articles that their owners desire to sell are, for the historian, unimpeachable records of prevailing low business standards.

No doubt the present epoch in advertising will be known as the period of the advertising blurb. Never before has the public been regaled with such an assortment of high flown, exuberant, exotic and exaggerated language. It is apparently not sufficient to exploit the most useful or desirable device, food substance or vehicle, particularly the automobile, purely on its merits. All of the mythology of antiquity, the mysteries of science and the hypothesis of fiction are called on to make a sale. The trend has been away from the pushing of the pernicious with false and fraudulent claims and toward the urging of the useful with exaggerated, misleading hokum.

A SIDE LIGHT FROM THE SOURCE ON OSTEOPATHY

In 1874, Andrew T. Still founded osteopathy. He tells about it in his autobiography. He tried to get started in Kansas, but the powers at Baldwin University refused to permit him to expound his doctrines at that institution. In May, 1875, he was in Kirksville, Mo. It appears that he rather anticipated having a hard time, and he tells that his wife promised to stand by him and help him fight his battle. At this point in his story he presents a little incident which we have thought worth quoting:

> I did not tell her [his wife] that when I came to Missouri I found a letter addressed to my brother Edward, from brother Rev. James M. Still, of Eudora, Kans., stating that I was crazy, had lost my mind and supply of truth-loving manhood. I read it and thought, as the eagle stirreth up her nest, so stir away, Jim, till your head lets down some of the milk of reason into some of the starved lobes of your brain. I believed Jim's brain would ripen in time, so I let him pray, until at the end of eighteen years he said:
>
> "Hallelujah, Drew, you are right; *there is money in it,* and I want to study 'Osteopathy.'"

We acknowledge that we are responsible for the italics.

The Chastisement.—Harsh punishment inflicted in anger relieves the parent's overcharged mind, but in most cases it serves no other useful purpose, and, in the last analysis, often does irremediable harm. Spanking and whipping are the easiest forms of punishment and the least intelligent. The parent, angered by something the child has or has not done, vents his own fury in this way. There is little logic in such punishment, and less justice. The chastisement is not measured to fit the scale of the offense; its severity depends largely on the physical strength of the parent and the degree to which he is incensed. The animal rage which it creates in the parent weakens his self-respect, and the majority of parents are heartily ashamed of themselves after such scenes with a child. It is not conducive to comfort to know that simply because one is larger and stronger one has permitted himself to inflict brute force on a child.—Brown, Alan: The Normal Child, New York, the Century Company, 1923.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Chiropractors Move.—From three to eight true bills have been returned in circuit court by the last three grand juries against J. A. Robinson, D. C. Thompson and G. R. Ashworth, chiropractors of Selma, for practicing medicine without a license. Trials on from one to three of these indictments have been held, resulting in a uniform verdict of guilty and fines varying from $50 to $100. Judge Hobbs has imposed an additional penalty of thirty days' hard labor against each of the defendants. An appeal to the supreme court in one of the eight cases against Robinson confirmed the fine but changed the hard labor sentence to thirty days in jail. Robinson has left for Tuscaloosa, and Ashworth for Eufaula, it is reported.

Health Work Endangered.—In a bill introduced in the senate, September 6, abolition of the antituberculosis commission created in 1915, and entailing an annual appropriation of $6,000, is sought.——The time limits on appropriations from national funds for county health work expires this fall, and it is feared that some of the departments may have to be closed. The counties and state are expected to maintain such departments after that time. Dr. W. K. Sharpe, Jr., Florence, federal sanitary official for the Tennessee Valley, is urging members of the state general assembly to vote funds for health work in the counties.

CALIFORNIA

Personal.—Dr. Albert K. Dunlap has been appointed superintendent of the Sacramento County Hospital to succeed Dr. H. E. Morrison, who resigned recently.——Drs. Robert Hector, John W. Peck and William R. Boone have resigned as members of the board of health of Berkeley.——Dr. Paul Bresee, Los Angeles, missing for nearly a week, was recently found in the mountains near Mojave, where he had fallen into a crevice from which he could not get out.——Dr. Luther M. Powers has been reappointed health commissioner of Los Angeles.——Dr. Milo B. Pond, Napa, has resigned as a member of the board of pension examiners for the county. Dr. Laurence Welti, Napa, will succeed him.

Hospital News.—The New Community Hospital, San Mateo, was opened for public inspection, September 8.——The new maternity building for Fabiola Hospital, Oakland, will be opened to the public, November 1, according to reports. This wing having fifty beds and a roentgen-ray department, was erected at an approximate cost of $250,000.——The Napa General Hospital is to continue under new management, it is announced.——The new addition to the Pasadena Hospital, known as the West Wing, and having a capacity of 104 beds, was formally opened to the public, August 23.——The contract has been let for the new St. Joseph's Hospital, San Diego, for $650,000. Two additional 125-foot wings will be erected at a cost of $400,000.——Dr. Thomas J. DeVaughn, city health officer of Huntington Park, and Dr. Anderson E. McDowell, Los Angeles, have become joint owners of the South Side Hospital, Huntington Park, having purchased the property of J. W. McKenney. Several additions will be made. The renovated institution will be known as the "Mission Hospital."

COLORADO

Personal.—Dr. William S. Prout, M. C., U. S. Army, has returned from a tour of service in the Philippine Islands, and is now stationed at Denver.——Dr. John W. O'Connor, for many years chief surgeon of the Denver and Rio Grande Railroad Company, has resigned under the pension plan of the road, and has been succeeded by Dr. John F. Roe, Denver.

GEORGIA

Five-Year Clinic to Be at Athens.—Athens has been selected by the National Child Health Association for a five-year child health demonstration; $250,000 has been set aside from the Commonwealth Fund for conducting this center, which will be established in about a month with a maternity clinic as the first step. The association will also send experts in physical education, a specialist in children's diseases and others.

IDAHO

State Sanatorium Bill Defeated.—At the last session of the Idaho legislature, a bill to provide two state sanatoriums, was defeated. The sanatorium fund of $160,000, collected by special tax, reverted to the state treasury.

ILLINOIS

Physician Fined.—According to reports, Dr. Alexander L. Brobeck, Hoopeston, was fined $200 and costs by Judge Watkins in the court at Milford, September 13, on a charge of selling intoxicating liquor.

Hospital News.—A large addition and a new nurses' home is planned for the Methodist Hospital, Peoria.——The Illinois State Association of Graduate Nurses, Chicago, will erect a cottage for tuberculous patients at the Naperville (Ill.) Sanatorium.——It is planned to close the Detention Hospital, Mill Street, Rock Island, and to have St. Anthony's Hospital take care of patients having contagious disease.

Health News.—The Vermillion County Medical Society went on record as opposing the establishment of a venereal disease clinic in Danville, at a meeting, September 4.——Nearly 1,500 babies were registered at the State Fair Babies' Conference, it was announced by the state health department, September 8.——At a meeting of the school board of East St. Louis, September 11, $5,000 was appropriated to the health supervising committee for attention to the school children of the city this year.——In passing a new health ordinance, September 7, the Bloomington City Council left to the discretion of the city health director the best means of disinfection after contagious diseases. This was a debated subject last summer when a committee of the Association of Commerce sought to have the city continue fumigation. Dr. H. B. Wood, health director, said that he would abandon fumigation after using the formaldehyd he now has on hand.——At a conference in the offices of the state department of health, Springfield, September 5, the establishment of "Live a Little Longer" clubs throughout the state was urged. A complete physical examination on the birthday of the applicant will be the initiation requirement for membership. The conference was an outcome of the health examination campaign movement initiated in Illinois by the state department of public health, the American Red Cross, the Illinois Tuberculosis Association, the Illinois Federation of Women's Clubs and the Illinois League of Women Voters.

Chicago

Memorial to Dean Salisbury.—The board of trustees of the University of Chicago have recommended the establishment of a memorial at the university to the late Dean Rolin D. Salisbury.

Less Bone Tuberculosis.—The superintendent of the Spalding School, Chicago, which takes care of 400 crippled children, announced, September 18, that tuberculosis of the bone has greatly decreased in the school since 1918. Whereas five years ago 33 per cent. of the pupils in the school had bone tuberculosis, now only 18 per cent. are so affected.

Testimonial Dinner to Dr. Pusey.—A testimonial dinner will be given to Dr. William A. Pusey, President-Elect of the American Medical Association, at the first meeting of the year of the North Side Branch of the Chicago Medical Society, October 3. Dr. Pusey will give an illustrated lecture on "A Study of the Wilderness Road to Kentucky—A Doctor's Diversion."

Hospital News.—Approximately $58,000 was collected in Chicago, September 18, by the Federated Charities, which comprises twenty-nine organizations. This is $24,000 more than was collected in 1922.——The Evangelical Deaconess Hospital will soon start a campaign for $500,000 for a 150-bed hospital, research laboratory and dispensary on the north side. The hospital will be nonsectarian.

Illinois Society for the Prevention of Blindness.—Last year, for the first time, it is alleged, this society was able to report that not one case of total blindness from ophthalmia neonatorum was reported in Chicago. This fall the society, in conjunction with the state and city health departments, will conduct a special educational campaign among midwives. Special nurses have been put in this field by the board of education.

Help for the Hard of Hearing.—According to the latest statistics compiled by the University of Chicago, there are approximately 17,000 men and women in Chicago who are totally deaf. For six years the Chicago League for the Hard of Hearing has offered free employment service, education and recreation to hundreds of these people. A campaign to increase these activities and double the service was started, September 20. Lip reading classes have been formed, to be held Monday and Friday evenings, and afternoon classes on Tuesdays and Fridays.

Contraception Clinic Again Denied.—A second application for permission to establish a birth control clinic in Chicago (The Journal, August 4, p. 398) was presented, September 17, by the president of the Parents' Clinic Association. In this petition, attention was drawn to a recent opinion of the corporation counsel in which it was held that since the state statutes did not prohibit contraception teaching, the city health commissioner was not justified in refusing to issue a license if other provisions of the laws governing clinics or dispensaries had been complied with. The application which stated that the clinic was planned to "furnish free medical advice to needy parents with regard to limiting and spacing procreation according to the health and welfare of the individual and family," was denied. The American Birth Control League will hold a convention in Chicago, October 29-31.

INDIANA

Rabies Prevalent in Indianapolis.—This city is in the midst of an outbreak of rabies more serious than at any time in recent years, according to the board of health. Orders have been issued for every dog in the city to be immunized against the disease, which service will be given without cost to the owners, other than the actual cost of the serum. Thirty rabid dogs have been reported to the health department in forty days.

Health Board Demands Increase.—Decision to mandate the city council to increase the total tax levies for 1924 of the department of public health and charities, Indianapolis, from 8 cents on each $100 of taxables to 14.5 cents, was announced, September 12, by members of the health board, following a conference with city finance officials and councilmen. This course is necessary, it was said, in order to keep the department in operation.

IOWA

Special County Medical Meeting.—The Dubuque County Medical Society held a special meeting in Dubuque, September 19-20. Representatives from Northwestern University Medical School and Rush Medical College, Chicago; Johns Hopkins University Medical Department, Baltimore; Washington University Medical School, St. Louis, and the medical departments of state universities of Iowa, Nebraska, Minnesota, Wisconsin and Illinois, read papers. An open forum was held, September 19.

KENTUCKY

Hospital News.—Plans are being made for a new hospital and cottage building for the Kentucky Children's Home, Lyndon. The cost will be about half a million dollars.——A new three-story and basement hospital will be erected at Harlan at a cost of $60,000.

LOUISIANA

Segregation of Lepers.—Following the discovery of three lepers in New Orleans, Dr. Oscar Dowling, state health officer, ordered the houses segregated, guarded and placarded at the expense of the city. The city health officer declared that the city had not the means nor the money to care for the lepers and that the erection of a city leprosarium was not advisable. Dr. Dowling has requested a ruling of the attorney general on the question of whether lepers can be forced to furnish bond against escape. The erection of buildings to house 300 more lepers will be started about October 1 from the $650,000 appropriation from Congress for this purpose.

MARYLAND

Freshman Class at Johns Hopkins.—The freshman class at Johns Hopkins University Medical School, Baltimore, which begins work, October 1, will be composed of sixty-seven men and eight women. Limited accommodations necessitated refusing 190 students admission to the school. The freshmen come from sixty-eight different colleges and universities, three of them from Oxford University, England.

Scope of New Laws of City Health Department.— Four health protective ordinances will be presented to the Baltimore city council by the health department for adoption, which will place Baltimore in the front rank of American cities in regard to public health. Two of the proposed ordinances are complete and ready for introduction to the city council.

1. Meat inspection ordinance, which provides city inspection of the meat industry from the time the cattle reach the slaughter house until the meat is offered to the consumer.
2. Cold storage ordinance requiring the stamping of each article of food preserved by this means.
3. General food ordinance: A measure to safeguard the handling of foodstuffs by wholesalers, market and store dealers and the public. Licenses will be required for all food dealers.
4. Gas safety measure, to control the sale of gas tubing and other appliances.

Personal.—Dr. Karl Imhoff, in charge of the sanitary district of the Ruhr section of Germany, was recently the guest of Dr. John H. Gregory of Johns Hopkins University. Dr. Imhoff has been in the United States several weeks inspecting sewage disposal plants.——Dr. William H. Welch, director of the school of hygiene and public health, Johns Hopkins University, and Dr. William S. Thayer, who resigned, July 1, 1921, as professor of medicine and physician-in-chief of the Johns Hopkins Hospital, have been made officers of the Legion of Honor by the French government. The honors were conferred by the French consul at Baltimore, Mr. Leonce Rabillon, for contributions to medical science rendered France during the war and as American representatives at the Pasteur Centennial in France several months ago.——Dr. Ralph E. Barnes, medical consultant to the Maryland Tuberculosis Association, has resigned to accept the post of executive secretary of the Public Health Association of Jacksonville, Florida.——Dr. Waitman F. Zinn has opened a bronchoscopic clinic at the Mercy Hospital, Baltimore, the first of its kind in the city.

MASSACHUSETTS

Medical Examinations at the Boston Health Show.—A meeting of representatives of various medical societies, hospitals and the Boston Health Show was held at the medical library, August 23. It was voted that in the opinion of those present the medical profession should cooperate with the executive committee of the health show in bringing to the attention of the public the importance and benefits of periodic physical examinations as a health measure. It was also voted to request the president of the Suffolk District Medical Society, who called the meeting, to appoint a representative committee to act in cooperation with the committee of the health show to carry into effect the preceding vote. The following representatives were named: Dr. Gerald Blake, Massachusetts General Hospital; Dr. William H. Robey, Jr., Boston City Hospital; Dr. Channing Frothingham, Peter Bent Brigham Hospital; Dr. Loretta J. O. Cummins, New England Hospital for Women and Children; Dr. Wilson F. Phillips, Massachusetts Homeopathic Hospital; Dr. Hilbert F. Day, Boston Dispensary; Dr. George S. Derby, Massachusetts Charitable Eye and Ear Infirmary; Harold DeW. Cross, D.D.S., Forsyth Dental Infirmary; Dr. Karlton G. Percy, New England Pediatric Society; Dr. Frederick C. Irving, Boston Lying-In Hospital; Dr. Boris E. Greenberg, Beth Israel Hospital; Dr. Richard G. Walsworth, Free Hospital for Women; Dr. Henry S. Rowen, St. Elizabeth's Hospital; Dr. John F. Fennessey, Carney Hospital; Dr. Cleaveland Floyd, Boston Tuberculosis Association, and Dr. George A. Leland, Jr., Huntington Hospital. The action taken at this meeting does not conflict with the decision at a previous meeting that it is not wise to undertake a public demonstration of such a personal and confidential matter as a physical examination.

MICHIGAN

Food Poisoning at Hospital.—Dr. Thomas Gruber, superintendent of the Detroit Receiving Hospital, has ordered an investigation into the cause of the illness of twenty-five nurses and six physicians, who were taken ill, September 9, after eating food served at the noonday meal.

Aid for the Tuberculous.—The state legislature has passed a bill providing for the extension of the Mother's Pension to families in which the father is suffering from tuberculosis to such a degree that he cannot pursue a gainful occupation.——The state tuberculosis association, in cooperation with the State Sanatorium for Tuberculosis, Howell, has inaugurated a system of follow-up work of patients discharged from the sanatorium. The work is carried on by correspondence and by visits of nurses. There are now on the list 426 names of persons in all parts of the state.

MINNESOTA

Research Fellowship Awarded.—The tuberculosis research fellowship maintained by the Hennepin County Tuberculosis Association at the Graduate School of Medicine of the University of Minnesota, Minneapolis, has been awarded to Frederick Eberson, Ph.D., formerly research bacteriologist for the Manchuria Plague Service, China, and associate in the research department of the Mayo Clinic, Rochester. This fellowship was founded two years ago for research on the detection, prevention and cure of tuberculosis.

Students' Health Service Enlarged.—The director of the students' health service at the University of Minnesota, Minneapolis, which attends to the medical needs of more than 10,000 students and faculty members annually, has asked that the present quarters be enlarged to meet increasing demands. The director's report shows that 60,463 medical services were rendered during the year. Seven full-time and fifteen part-time physicians are on the staff of the health service, in which four stations are maintained as dispensaries. The service is operated on a self-supporting basis, the income coming from a $2 fee per quarter levied against each student each quarter, and from charges made for hospital and dental service. The cost of operating the two main stations during last year was more than $57,000.

MISSISSIPPI

Personal.—Dr. James B. Black, Jr., Tupelo, for several years health officer of Lee County, has resigned to take a year's work in Johns Hopkins University, Baltimore.——Dr. Louis R. Brown, chief of staff of the Mississippi State Insane Hospital, Jackson, has resigned to accept the superintendency of the Arkansas State Hospital for Nervous Diseases, Little Rock.——Dr. Leonidas S. Brown, Water Valley, has been appointed health officer to succeed Dr. Hilton R. Carr, who resigned recently.

MISSOURI

St. Louis Medical Society.—At a meeting of the society, September 25, Sir Thomas Oliver, professor of medicine, University of Durham, England, gave an address on "Some Medical Observations on Industrial and Social Conditions in America."

Standard Sanitary Code Adopted.—Dr. Cortez E. Enloe, of the state board of health, has announced that the board has adopted the standard railway sanitary code of health of the American Railroad Association, and recommended the same to the railroad companies operating in Missouri. Twenty-three other states have adopted this code, which aims to protect the health of the traveling public and employees of the railroad.

NEBRASKA

Hospital Superintendents Appointed.—Dr. James A. Burford, assistant superintendent at the Nebraska Institution for the Feebleminded, Beatrice, has been appointed superintendent of the Nebraska State Sanatorium, Kearney, to succeed Dr. Lawrence T. Sidwell, who has accepted the position of superintendent at the Nebraska Institution for the Feebleminded, Beatrice, to succeed Dr. Samuel J. Stewart.

NEVADA

State Medical Meeting.—The twentieth annual meeting of the Nevada State Medical Association will be held at Reno, September 28-30, under the presidency of Dr. John LaRue Robinson, Reno. Dr. Ray Lyman Wilbur, San Francisco, President of the American Medical Association, will address the meeting. September 30 will be given over to a barbecue picnic.

NEW YORK

Personal.—Dr. Robert C. Woodman has been appointed superintendent of the Middletown State Homeopathic Hospital to succeed Dr. Maurice C. Ashley who resigned. Dr. Arthur S. Moore has been appointed first assistant physician.——Dr. Jonathan Pearson, Schenectady, has been appointed director of the division of tuberculosis of the state department of health.

"Well" Children to Be Examined.—The children's health consultations unit of the division of maternity, infancy and child hygiene of the state department of health are holding examinations of "well" children between the ages of 6 months and 6 years in Clinton County. The first examination was at

Ellenburg, September 5. Mothers were instructed concerning the value of proper diet, fresh air and hygienic living conditions. The family physician is at once notified of the findings at the examination.

Public Health Meeting.—A mass meeting pertaining to public health was held in New York, September 21, under the auspices of the National Health Council. Dr. Frank Vanderlip presided. Senator Copeland was the principal speaker. Dr. Livingston Farrand, president of Cornell University and head of the American Red Cross, spoke on the health examination campaign now being conducted throughout the country, and Honore Willslie, author, pointed out the health duty which the women of America owe to the nation. Organizations represented at the meeting included the American Child Health Association, American Public Health Association, American Red Cross, American Social Hygiene Association, American Society for the Control of Cancer, Conference of State and Provincial Health Authorities of North America, National Committee for Mental Hygiene, Life Extension Institute, National Organization for Public Health Nursing, National Tuberculosis Association, the U. S. Public Health Service and the American Medical Association.

New York City

Building Delayed.—Columbia University's $10,000,000 building program will be suspended because of the excessive building costs, it is reported.

Health Department Eye Clinics.—A recent survey of the work of the bureau of child hygiene of the department of health states that this bureau operated ten eye clinics which gave 85,000 treatments to 25,000 school children last year. This included 10,000 examinations and treatments at sight conservation clinics to candidates for sight conservation classes. In 1922, 36,000 refractions were performed by ten oculists, who wrote 11,000 prescriptions for glasses.

Decrease in New Health Budget.—The health department has asked for less money with which to run its affairs next year than it received this year. The amount allowed for 1923 was $5,474,483, while that for 1924 shows a reduction of $4,358. In its estimate, the health department asks for $4,281,384 for personal services. This is an increase of $23,320 over the present allowance. For other than personal service, the amount requested is $1,193,099, a decrease of $27,678. The tentative budget must be adopted before October 10.

Unsolved Hospital Problems.—In the annual report of the United Hospital Fund of New York, it is stated that there are more than 180 hospitals, containing 32,000 beds, in New York City. Twenty of these institutions are supported by the city; the rest are independent in their management, but are largely supported by voluntary gifts and legacies. All these hospitals are exempt from taxation on the ground that they promote the common good. If any hospital has a surplus at the end of the year, it is used to improve or to enlarge the service. Not less than $80,000,000 is invested in the land and buildings of New York hospitals, and it costs about $35,000,000 a year to run them. The following questions have been listed:

1. Does New York need more hospitals at present or not?
2. If needed, in what sections and for what service should new hospitals be started?
3. What can be done to insure a larger utilization both of the municipal and of the nonmunicipal hospitals?
4. What can be done to put hospital facilities within the reach of the middle-class which cannot pay private room rates and is unwilling to accept the free professional care of the wards?
5. Are more convalescent institutions needed to which hospital cases could be discharged earlier and cared for more cheaply, thus releasing hospital beds?
6. Would more visiting nurses and more home treatment be able to meet the wants at less cost of many who now are taken to hospitals?
7. Is the most crying need at present the improvement of outpatient service? Would such improvement benefit great numbers of incipient cases which are not now reached or properly handled, and thus save them from becoming hospital cases?

NORTH CAROLINA

Bill to Limit Drug Sales to Pharmacists.—The bill to limit the sale of medicines to drug stores will be reintroduced at the next session of the North Carolina general assembly, it was announced by J. G. Beard, professor of pharmacy at the University of North Carolina, before the members of the American Pharmaceutical Association, recently.

Baptist Hospital Opens.—A banquet was held, September 4, at the Baptist Hospital, Charlotte, at which 500 physicians and 300 Baptist ministers were present, preceding the official opening of the institution, October 1. The contract for the building of a 100-room annex to the present property of the hospital, which formerly was known as Tranquil Park Sanatorium, has been let, and construction work will start in the near future.

OHIO

Birth Records for School Children.—The school board of Akron has ruled that all children starting their first year in the public schools must submit their birth certificates. The city health department is cooperating with the city schools in issuing birth certificates, in which more than 100 errors have been found to date, it is stated.

Dr. Wilkes to Represent Commonwealth Fund Abroad.—With the return of Dr. Walter H. Brown, director of the child health demonstration, Mansfield, Dr. Leroy A. Wilkes, acting director, will leave for a three-year stay in Austria as representative of the Commonwealth Fund of New York. He will establish five health demonstrations in Austria which will be financed by the fund. During the first two years Austrian physicians will be sent to the United States to study the child health projects here and nurses will be sent to London to learn modern international methods of nursing. At the end of the two years these workers will return to Austria and assume control of the established and working demonstrations until they are completely taken over by the Austrian directors. Dr. Wilkes will leave for Austria, October 15.

Nursing School at Western Reserve University.—Miss Caroline E. Gray, professor of nursing education of Western Reserve University College for Women, has been elected dean of the newly endowed school of nursing to be known as the School of Nursing of Western Reserve University, Cleveland, which was established by a vote of the board of trustees, June 13, 1923. The new school is an outgrowth of the department of nursing education in the college for women and will be financed by a fund of $500,000 from Mrs. Chester C. Bolton of Cleveland. A five-year course for undergraduate nurses leading to the degree of bachelor of science will be offered. This will include two years at school, in both technical and academic studies; two years in one of the hospitals affiliated with the university, and a fifth year of special training along the line of the student's choice. At present three choices are open to the student: public health nursing, the teaching of nursing, and hospital administration. The second type of work includes the establishment of a preliminary course in the basic sciences in any of the hospitals connected with the university. This course is for those entering directly from high school. The work for graduate nurses will be organized by Miss Gray this fall.

OREGON

Appointments on Health Board.—Dr. Frederick D. Stricker, state health officer, has appointed Dr. Henry S. Capps, Portland, assistant state health officer, to succeed Dr. Andrew J. Warren of the International Health Board of the Rockefeller Foundation, who filled that position pending the regular appointment. Dr. William Levin, formerly bacteriologist for the New York State Department of Health, has been placed in charge of laboratory work for the board.

PENNSYLVANIA

Medical Meeting. — At the Crawford County Medical Society meeting, Saegerstown, September 12, Dr. Charles Gordon Heyd, New York, read a paper on "A Résumé of Our Clinical Knowledge of the Gallbladder, Stomach and Appendix." A committee was appointed to consider reorganizing the Northwestern Medical Association with the secretaries of the different county medical societies of northwestern Pennsylvania.

Philadelphia

Personal.—Dr. John W. Bransfield, formerly medical director of St. Agnes Hospital, Philadelphia, has been appointed clinical professor of surgery at the Woman's Medical College of Pennsylvania, Philadelphia, and a member of the surgical staff of the College Hospital.——Dr. William Cole Davis has been appointed medical director of the Philadelphia Hospital for Mental Diseases, Byberry, to fill the vacancy caused by the resignation of Dr. E. S. Blair, who has accepted the directorship of the Highland Hospital, Asheville, N. C.

Philadelphia College of Pharmacy and Science.—The free popular science lectures at the Philadelphia College of Pharmacy and Science will commence October 11. Fourteen lectures will be given. Among the speakers will be Dr. Henry

Leffmann, Dr. Horatio C. Wood, David Wilbur Horn, Ph.D., and George Rosengarten, Ph.D., all of the college.——The chair of biology and pharmacognosy, recently vacated by Prof. Heber W. Youngken, has been filled by the appointment of Arno Viehoever, Ph.D., lately of the U. S. Department of Agriculture, Bureau of Chemistry.

SOUTH CAROLINA

Hospital News.—A roentgen-ray and physiotherapy department was opened at the South Carolina Baptist Hospital, Columbia, August 15, with Drs. Arthur E. Shaw and Thomas A. Pitts in charge.——At a meeting of physicians interested in the Pryor Hospital and the Chester Sanatorium, Chester, September 6, it was decided to terminate the merger arrangement that has been in effect since May and operate the institutions separately as formerly (The Journal, May 26, p. 1528).

TENNESSEE

Commonwealth Fund Health Clinic.—Rutherford County has been chosen by the National Child Health Association as the rural community where a five-year health clinic will be conducted on about the same lines as the one in Georgia (this issue, p. 1118).

TEXAS

State President Entertained.—At a special meeting and banquet of the El Paso County Medical Society at El Paso, August 18, Dr. Arthur C. Scott, Temple, president of the State Medical Association of Texas, was the guest of honor. Dr. Scott spoke on "Certain Problems of the State Medical Association."

VERMONT

Personal.—Dr. William Lloyd Aycock, Burlington, connected with the research department of the Vermont State Board of Health, has been appointed associate professor of preventive medicine and hygiene at Harvard Medical School, Boston.

VIRGINIA

Richmond Academy of Medicine and Surgery.—At a meeting of the academy in 1922, it was announced that an anonymous friend had offered prizes of $100 and $50 for the two best original papers read before the academy during the year. A committee has made the awards to Dr. Joseph F. Geisinger for a paper on "Reduplication of the Ureter," and to Dr. Wyndham B. Blanton for a paper on "The Clinical Significance of Reductions in the White Cells of the Human Blood."

WISCONSIN

Health Board Cannot Close Schools.—According to an opinion by S. C. Siebold, assistant attorney general, to Dr. C. A. Harper, state health officer, the state board of health cannot condemn and close school buildings regardless of their condition. If, on examination, the board finds that a school building is a menace to the children, and the school authorities refuse to take action to better conditions, the state board of health is powerless to close the school, Mr. Siebold held.

PORTO RICO

Personal.—The *Bulletin* of the Porto Rico Medical Association states that Dr. Pedro N. Ortiz has been appointed director of the public health service of Porto Rico. He is to be assisted by the subdirector, Dr. Fernós Isern. Dr. Ruíz Nazario has been appointed assistant in the biologic laboratory of the service.——Dr. J. Avilés, now residing in New York, recently visited the island with the Veterans of Ohio party. He is the treasurer of the Porto Rico Medical Association.——Dr. Pedro Gutiérrez Igaravidez has returned to Porto Rico from a trip to the United States, as has also Dr. Mario Juliá, who has been investigating the latest methods for the care of mental disease.

CANADA

Tuberculosis Agencies in Canada.—In the new directory of Canadian agencies for the diagnosis and treatment of tuberculosis, there are included the following figures relative to the incidence of tuberculosis in Canada:

Total population of Canada (1921 census), 8,788,483.
Total population of the nine provinces of Canada, 8,755,853.
Total deaths from tuberculosis in the nine provinces of Canada, 1921, 7,694.
Approximate death rate from tuberculosis per hundred thousand, 1921, 87.
Total tuberculosis sanatorium beds, 4,103 (1923).
Beds per 10,000 people, 4.6.
Total Provincial Government grants for upkeep in 1922 covering 721,235 hospital days in 3,359 tuberculosis beds was $1,011,079.
Twenty-five sanatoriums report for 1922 a total of 1,016,774 days of treatment in 3,456 beds. The average per caput cost is $3.09 daily.

Similar information is given for each of the nine provinces, together with a list of the sanatoriums and clinics in each province.

Alberta Physicians and Surgeons.—The College of Physicians and Surgeons of the Province of Alberta in 1922 provided for an annual meeting of its members at which the president would review the work of the council and receive any comment or suggestions that members of the college might offer. At the meeting of the college in Calgary, September 6, contract practice, the workmen's compensation act, hospital interns and registration fees were discussed. A committee was appointed to investigate the question of using hospital interns (they are not used in western Canada) with the university, the Alberta Hospitals Association and the Medical Council of Canada. The council of the college agreed that pressure should be brought on the Medical Council of Canada to reduce the fees for registration from $100 to $25 to all members of the profession who were entitled to registration without examination by virtue of the ten years' practice clause. A physician who has his provincial license by examination is able to get a British registration for $25, which gives him access to every province in Canada, barring British Columbia, as well as other parts of the British empire. To obtain a Dominion of Canada license, which includes only Canada, a $100 fee is required.

GENERAL

American Receives Duncan Medal.—Dr. Edwin Peterson, Lieut. M. C., U. S. Navy, was awarded the Duncan medal of the London (England) School of Tropical Medicine, in July.

Medical Association of the Southwest.—The annual meeting of the association will be held in Kansas City, Mo., October 8-13, in conjunction with the annual fall clinical conference of the Kansas City Clinical Society.

New England Tuberculosis Conference.—The New England Tuberculosis Conference opened at Worcester, Mass., September 12, and continued at Rutland, Mass., September 13, on which day the anniversary of the establishment of the sanatorium at Rutland was celebrated.

National Fire Prevention Week.—The Chamber of Commerce of the United States has announced that October 7-13 will be National Fire Prevention Week. During the year, it is stated by the National Fire Protection Association, Boston, seventeen fires occurred in hospitals and allied institutions, fifty-three patients and employees were killed and the property loss was $1,614,000.

The Largest Universities.—The *American Educational Digest* states that the largest university in the United States in number of full-time students is the University of California, San Francisco, with 14,061, of which 249 are medical students; Columbia University, New York, is second, with 10,308, of which 381 are medical; the University of Illinois is third, with 9,285, of which 436 are medical; Michigan, fourth, 8,103, with 642 medical, and Minnesota, fifth, 8,586, with 474 medical.

Hospital Directory.—The National Tuberculosis Association has compiled a 126-page book containing a list of 662 sanatoriums, hospitals, day camps and preventoriums for the treatment of tuberculosis in the United States, together with a list of government hospitals in which special provision is made for tuberculous patients. The location, date of opening, capacity, rates and superintendent in charge are given in each case.

American Roentgen Ray Society.—At the twenty-fourth annual meeting of the society in Chicago, September 18-21, the following officers were elected for the ensuing year: president-elect, Dr. George Winslow Holmes, Boston; secretary, Dr. William W. Watkins, Phoenix, Ariz., and treasurer, Dr. William A. Evans, Detroit. The next annual meeting will be held in Boston, September, 1924. Dr. Hollis E. Potter, Chicago, was installed as president of the society for this year.

Dental Publication Will Elect New Board of Editors.—The work of editing the *Journal of Dental Research* will be wholly in the hands of the board of editors as soon as a self-supporting status has been attained. Editors of the journal in the future will be recurrently selected in recognition of distinguished active service in the promotion of dental research and the sciences and arts on which dentistry is based. The present board of editors has sixty-eight members, which will be reduced to sixty, beginning with the volume to be issued in 1924.

American Association of Obstetricians, Gynecologists and Abdominal Surgeons.—At the annual meeting of the association in Philadelphia, September 19-21, the following officers were elected for the ensuing year: president, Dr. James F. Baldwin, Columbus, Ohio; vice presidents, Drs. J. Wilson Poucher, Poughkeepsie, N. Y., and George C. Mosher, Kansas City, Mo.; secretary, Dr. James E. Davis, Detroit, and treasurer, Dr. William G. Dice, Toledo, Ohio. Drs. Frederick A. Cleland, Toronto, Ont., Canada; Walter T. Danreuther, New York; Foster S. Kellog, Boston, and Thew Wright, Buffalo, were made fellows of the association, bringing the membership up to 139.

Hygeia Praised.—While addressing the Michigan State Medical Society at its annual meeting, Grand Rapids, September 11-13, U. S. Senator Woodbridge N. Ferris, Big Rapids, Mich., said:

"I cannot leave the hall without emphasizing the idea I had about education. I want you to know what the teacher thinks about it. To my mind the one great thing that has come out in regard to education of the public is the new journal called *Hygeia*. I know you are familiar with it, but can't you do something to get this into the hands of teachers and brothers who know nothing about it? To my mind it is the greatest step forward that has been taken in the last twenty years. I know you all love that great journal, but let us help it by getting it into the hands of our fellow-workers."

Stricter Examinations of Aliens.—Stricter medical examinations for aliens entering the United States are recommended by Assistant Secretary of the Treasury Wadsworth, who, accompanied by Surg.-Gen. Hugh S. Cumming, has made an inspection of Ellis Island. The assistant secretary, who has charge of the U. S. Public Health Service, urged the application of an intensive examination of every immigrant rather than merely of those who, from a superficial examination, require a physical survey. He characterized the medical examination to be of vital importance to the country and said that the facilities at Ellis Island were inadequate. He proposed that the hospital at Ellis Island be improved; that additional housing space be made available, and that steamship companies be penalized for transporting to this country persons clearly barred by the law.

Society News.—The thirty-ninth annual convention of the Association of Official Agricultural Chemists will be held in Washington, D. C., November 19.——The eighth annual meeting of the Optical Society of America will be held at Cleveland, October 25-27. Prof. A. A. Michelson, head of the department of physics, University of Chicago, will read a paper on "The Limit of Accuracy in Optical Measurement."——At the seventy-first annual meeting of the American Pharmaceutical Association, the Ebert prize, in memory of the late Albert E. Ebert of Chicago, was awarded to Paul S. Pittenger, Philadelphia, for his paper on "Biological Standards of Local Anesthetics." Henry V. Arny, Ph.D., New York, was elected president of the association for the ensuing year. It was voted that the association affiliate with the International Pharmaceutical Federation. The 1924 meeting will be held at Buffalo.

The World's Dairy Congress.—Among the first representatives from foreign countries to arrive at Washington, D. C., to attend the World's Dairy Congress to be held, October 2, is Dr. A. J. Swaving of Holland. He is chief inspector of dairying, and chief of the division of the Ministry of the Interior of Holland. In discussing the inspection of milk in the United States, Dr. Swaving said that America has so many laws that it is difficult to enforce them, especially among farmers. "We, in Holland, do not have so many laws, but what we have are very stringent, especially as to the adulteration of milk." The government stamp is placed on every pound of cheese or butter sold in Holland, showing the purity and percentage of fat. Dr. Swaving brings proposals bearing on the commerce of dairying products of Norway, Denmark, Switzerland and Holland. The World's Dairy Congress was held in Brussels, in 1903; Paris, in 1905; the Hague, in 1907; Budapest, in 1909; Stockholm, in 1911; Berne, in 1914. The congress this year was scheduled for Copenhagen, but it was decided to hold it in the United States. Interests of world concern are to be discussed, and those who constitute the congress wished to have the force of the United States back of their projects. Besides the meetings of the congress in Washington, there will be meetings in Philadelphia, October 4, with dairy councils cooperating; and in Syracuse, N. Y., October 5-10, with the National Dairy Exposition cooperating.

Resolutions on Dangerous Drugs Traffic.—The text of three resolutions adopted by the Fifth Committee of the League of Nations at Geneva, dealing with the suppression of traffic in dangerous drugs, has been cabled to the state department at Washington by Representative Porter, the American delegate to the advisory committee. The resolutions are:

1. The assembly of the League of Nations expresses its deep appreciation for the very valuable work done by the advisory committee on traffic in opium and other dangerous drugs, adopts its reports and resolutions, taking note of the reservations contained therein, and asks the council to take the necessary steps to put these resolutions into effect.

2. The assembly approves the proposal of the advisory committee that the governments concerned should be invited to enter into negotiations with a view to the conclusion of an agreement as to a reduction of the amount of raw opium to be imported for the purpose of smoking into those territories where it is temporarily continued, and as to the measures which should be taken by the government of the Republic of China to bring about the suppression of the illegal production and use of opium in China, and requests the council to invite those governments to a conference for the purpose and to report to the council at the earliest possible date.

3. The assembly, having noted with satisfaction that in accordance with the hope expressed in the fourth resolution adopted by the assembly in 1922, the advisory committee has reported that the information now available makes it possible for the governments concerned to examine with a view to the conclusion of an agreement the question of the limitation of the amounts of morphin, heroin or cocain and their respective salts to be manufactured, of the limitation of the amounts of raw opium and the cocoa leaf to be imported for that purpose and for other medicinal and scientific purposes, and of the limitation of production of raw opium and the cocoa leaf for export to the amount required for such medicinal and scientific purposes, requests the council, as a means of giving effect to the principles submitted to the representatives of the United States of America, and the policy which the League, on the recommendation of the committee, had adopted, to invite the governments concerned for a conference for this purpose to be held, if possible, immediately after the conference mentioned in Resolution 1.

The assembly also suggests for the consideration of the council the advisability of enlarging this conference so as to include within its scope all countries which are members of the League of Nations or parties to the Convention of 1912, with a view to securing their adhesion to the principles that may be embodied in any agreement arrived at.

LATIN AMERICA

In Honor of Prof. Miguel Couto of Rio de Janeiro.—A committee composed of Professors Aloysio de Castro, Oswaldo de Oliveira, Henrique Duque, Moreira da Fonseca and Bastos Netto has been appointed to make arrangements for honoring Prof. Miguel Couto on his professional jubilee, October 25.

Research on Ticks in Mexico.—Dr. F. Ocaranza, the director of the division on parasitology of the Institute of Hygiene, Mexico, has requested scientists of the country to send him specimens of ticks. The classification of ticks found in various parts of Mexico will be part of the work of that institute during the coming year.

Personals.—Dr. Miguel A. Lengua has been appointed on the staff of the Caño de Loro Hospital, Cartagena, Colombia.——Dr. Antonio Diaz Granados has been appointed director general of public instruction of the district of Bolivar, Colombia.——Prof. Luis Patrón Rosano has been appointed president of the University of Cartagena, Colombia.——Dr. H. Roger, dean of the medical faculty of Paris, August 20, was the guest of honor at a reception given by the medical faculty of the University of Rio de Janeiro.——Dr. Desmarest, assistant professor of the medical faculty, Paris, is at present in Rio de Janeiro.——Dr. Carlos Chagas, director of the national department of public health, arrived in Rio de Janeiro, August 20, on his return from Europe.——Dr. A. Lustig, professor of pathology at Florence, and senator, arrived in Buenos Aires, August 16. This is his second visit to Argentina.——Dr. Sebastián Recasens, dean of the faculty of Madrid, who is in Argentina to lecture, is inviting Argentine and other South American physicians to take part in the Spanish-American medical congress which will be held in Seville, in October next year, under his presidency.

FOREIGN

The Jacksonian Prize.—The council of the Royal College of Surgeons of England has selected, as the subject for the Jacksonian Prize Essay for 1924, "The Pathology, Diagnosis and Treatment of Esophageal Obstruction."

Valuable Instruments Destroyed in Earthquake.—A dispatch from Tokyo states that the loss to Japanese science by the fire and earthquake is enormous. The collection of scientific instruments at the Imperial University was destroyed by the fire. It will take years to replace them.

Improved Living Conditions in Austria. — Our exchanges state that Austria's living conditions are reflected in the birth and death rates of the country. In 1919 the number of births reported was 110,822, as against 141,728 in 1921. The deaths in 1919 numbered 125,449, as against 104,599 in 1921.

Fellowship for Study of Radioactivity. — A society of Bologna has founded an endowment representing a stipend of 6,000 francs a year for an Italian student of physics and chemistry who desires to do research work in the Curie Laboratory, Paris. The fellowship is endowed for ten years.

Pneumonic Bubonic Plague in Russia.—Dr. Gaiski, director of the plague laboratory at Alexandrowgai, on a side-line from the main Astrakhan railroad, reports ninety-five deaths from pneumonic plague in the last few months in his district, the Kirghiz steppe. No case of plague has been reported from the German colonies on the Volga not far from this region.

Medical Representation in Ireland.—The elections in Ireland have resulted in the return of a larger number of medical men than ever before sat in the Dail. Among these are Sir James Craig, Dr. Myles Keogh and Dr. R. Hayes. The republican, or Sinn Fein, party contains five physicians—Drs. J. Crowley, P. McCarville, O'Byrne, J. Ryan and Kathleen Lynn. The last named is the first woman physician elected to any parliament in the British Islands.

The Policlinic, Vienna, Invites Danish Physicians.—Professor Mannaberg, medical director of the Policlinic, has invited three young Danish physicians to be the guests of that institution while studying in Vienna for one year from Oct. 1, 1923. The Danish committee has accepted the invitation, and Professor Rovsing is in charge of the matter. The invitation is an expression of gratitude to Danish physicians for their financial assistance to the Policlinic which rendered possible the heating of the institution last winter.

New Medical Colleges in India.—The new Lady Willingdon Medical School for Women, Madras, was recently opened by Lady Willingdon, who was received by the Surgeon-General and the Rajah of Panagal. Dr. Mary O'Brien Beadon is superintendent of the school.——The new medical college and King George's Hospital, Vizagapatam, India, was opened recently. During the opening ceremonies, the chief minister stated that there were only 20,000 medical practitioners in Madras, while there were more than 45,000 in England and Wales.

Typhoid in Tokyo.—According to a cable from Governor General Wood of the Philippine Islands, an epidemic of typhoid fever has broken out in Japan. Six emergency crematories have been established, and the cremation of victims of the earthquake and fire is proceeding day and night. Under the auspices of the American Red Cross, relief parties consisting of physicians and nurses have sailed for the earthquake zone, and subscriptions of nearly $8,000,000 have been collected for the relief of the Japanese. More medical and food supplies than are necessary for the current needs have already been supplied, it is announced.

International Relations Between Universities.—The subcommittee on international relations between universities met at Geneva, August 24, under the presidency of Mr. Bergueson. Its work commenced with an examination of Mr. Reynold's report on international exchanges of students and the standardization of studies and diplomas of universities. Mr. Reynold proposed an international university information bureau, to facilitate intercourse between existing university bureaus. The subcommittee also examined suggestions on international vacation courses and various other plans, among them the publication of a manual of history and a project for the foundation of an international university.

An Institute for the Study and Cure of Cancer in Madrid.—Under the direction of the national public health service and under the auspices of the Spanish Cancer Research Society, an institution has been opened for the study of cancer at Madrid. The clinical section includes twenty-eight beds, with rooms for operations and medical treatment, and a free outpatient service. There is a complete installation for radiotherapy and radiologic diagnosis. The section of anatomy, pathology and bacteriology includes several laboratories, as also the chemical section. The institution is mainly supported by the government, but part of the running expenses is paid by the patients and private donations. Dr. J. Goyanés is medical director.

Educational Number of British Medical Journal.—Listing the medical schools and hospitals of the British Isles, with descriptions of their activities, practically the entire September 1 number of the *British Medical Journal* is devoted to medical education. Sir George Newman, chief medical officer of the board of education and ministry of health, states that the medical curriculum in Great Britain, by a resolution of the General Medical Council, was completely revised in 1922, in such a way as to make it more preventive in purpose. The English, Irish and Scottish corporations are listed, as are also the medical degrees given and the fees charged for examinations. Graduate studies, tropical medicine, the facilities for women in medicine, the public health services and the army, navy and air forces are also cited.

Personal.—Dr. MacDonald Wilson, superintendent of the hospitals of Wellington, New Zealand, is touring the United States to get ideas for proposed hospital construction in Wellington. Dr. Wilson has visited Vancouver, Toronto, Montreal, Boston, New York, Cincinnati, Cleveland, Philadelphia, Baltimore and Chicago.——Dr. Clemens Pirquet, Vienna, will arrive at the University of Minnesota, Minneapolis, October 1, to take up his work as professor of pediatrics in the medical school.——Dr. Sarajam Khan, of the medical department of North West Frontier Province, Peshawar, India, and Capt. H. C. D. Mathur, Rajputana, are in this country to study methods that promote better health conditions among children. Dr. Khan is attending the Harvard School of Public Health, Boston, and Dr. Mathur is enrolled at the Johns Hopkins School of Public Health, Baltimore, under the auspices of the Indian government.——Dr. T. Duepetersen, Danish physician, has received official permission to wear the decoration of the order of the Crown of Siam.——Dr. Aage O. Wolff has been appointed roentgenologist at the Oresund and Sundby hospitals, Denmark.——Dr. Fibiger, Copenhagen, has been elected foreign honorary member of the Académie Royale de Médecine of Belgium.——Dr. Salvador Pascual, the noted urologist and writer of Madrid, will be the guest of honor at a public banquet, Sept. 9.——Dr. Gallástegui has been appointed surgeon of the Sociedad Filantrópica, Madrid.——Dr. Gimeno has by royal order been appointed delegate from Spain to the session of the League of Nations which opened in Geneva, Sept. 3, 1923.——Professor André, of Nancy, will preside at the Congress of Urology which will open in Paris, Oct. 4, 1923.——Dr. Calatayud Costa, professor of electrology and radiology of the University of Madrid, has been invited to lecture at the Battle Creek Sanitarium and at certain universities in this country.——Dr. Chagas, of Rio de Janeiro, has been elected foreign correspondent of the Académie Royale de Médecine of Belgium.——A bust of Dr. Martin Salazar, chief of the public health service in Spain, was recently unveiled in the Oza Sanatorium.——Prof. Charles Nicolle, chief of the Pasteur Institute, Tunis; Prof. Josef Kyrle, University of Vienna; Prof. Louis Bolk, director of the International Institute of Brain Research, Amsterdam; Dr. C. U. Ariens Kappers and Dr. Adrian de Kleijn, Utrecht, were elected foreign members of the Swedish Medical Association at the meeting, May 8, 1923.——Dr. P. Pampoukis has been elected president of the Medico-Surgical Society of Athens.

Deaths in Other Countries

Dr. **Alan E. Taylor**, former ophthalmogist to Leeds (Eng.) Infirmary; from heart disease.——Dr. **David Imrie**, resident medical officer, Western District Hospital, Glasgow, Scotland, was drowned, August 27.——Dr. **Ernest F. Bashford**, suddenly of heart disease, August 23, at Manderscheid, Eifel, Germany, aged 49. Dr. Bashford was formerly director of the Cancer Research Fund and made contributions on the zoologic and ethnologic distribution of cancer. He had served as assistant to Professor Liebreich in the Pharmacological Institute in Berlin; was an officer in the Royal Army Medical Corps during the World War, and until recently served with the army of occupation on the Rhine. ——Dr. **Ramón Cañadas**, professor of dermatology at the medical school of Cadiz, connected with the University of Seville.——Dr. **Luigi Corti**, member of the Italian mission to Greece, that was massacred at Jannina. Major Corti had been a member of the international commission settling the boundaries of Albania.——Dr. **Arthur Souza** of S. Christovão, Brazil.——Dr. **Adriano Duque Estrada Azevedo**, sanitary inspector of the port of Rio de Janeiro.——Dr. **Juan Carlos Dighiero**, professor of clinical medicine at the University of Montevideo, president of the Sociedad de Medicina, aged 43.——Dr. **Francisco S. Soler**, dean of the profession in Argentina. Representative of Paraná in the national legislature.——Dr. **Luis A. Vila**, dean of the physicians of Rosario. ——Dr. **Rafael Gonzalez Pardo**, of Bogota, formerly secretary of the faculty of the national university.

Government Services

Addition to Hospital

Plans are being made for an addition to the Army and Navy General Hospital, Hot Springs, Ark. It will be of brick construction, with concrete and hardwood floors. The new institution will have a capacity for 206 patients.

Veterans' Bureau Helps Narcotic Forces

General Frank T. Hines, director of the U. S. Veterans' Bureau, has instructed all employees of the U. S. Veterans' Bureau to give every assistance to the narcotic forces of the government in running down members of "dope" gangs who are living off the compensation received by disabled ex-service men. During the last forty days more dope pedlers and dealers have been apprehended in the San Francisco district than during the previous six months, due to the cooperation of the officials of the Twelfth District of the U. S. Veterans' Bureau, according to the narcotic agent in charge of the California district. Since opening this drive in August, thirty-five pedlers, including four dealers, and more than $12,000 worth of narcotics, have been discovered. A dealer has been sentenced to seven years on McNeil's Island; two pedlers have been given smaller sentences, and thirty-seven cases are now on the docket with the accused either in jail or out on bonds ranging from $5,000 to $15,000. The medical personnel of the U. S. Veterans' Bureau, throughout the country, realizes that among its worst foes are those who sell narcotics to patients. There is probably no hospital in the country that has not its gang of "dope" pedlers and dealers, who can destroy months of medical treatment in a single day's contact with patients. The Veterans' Bureau officials are not duty-bound to assist the federal narcotic forces, but have undertaken to aid in the battle for health. The manager of the One Hundred and Twelfth District, U. S. Veterans' Bureau, believes that a moral obligation rests on officials of the bureau to protect ex-service people from "dope," regardless of whether they are in government hospitals, receiving vocational training or receiving compensation. It is our business, he said, to see that assistance provided by the taxpayer for disabled veterans is not appropriated by drug pedlers.

Budget Reduced

At a conference between the directors of the budget bureau, and of the Veterans' Bureau, at Washington, D. C., September 14, it was announced that the budget can be reduced between $40,000,000 and $50,000,000, instead of $25,500,000, as formerly announced. These additional reductions, it was stated, are possible because of the rehabilitation of World War veterans. The cost of the bureau for the last fiscal year was $461,000,000, of which $16,000,000 was returned to the treasury as savings. A committee of merchants of New York has voluntarily offered to assist Veterans' Bureau officials in selecting positions for veterans, and has spent fifteen thousand hours interviewing veterans, and advising them as to the pursuits which they are fitted to follow.——Bids were opened, September 17, for the construction of a mess hall, kitchen and nurses' quarters for the U. S. Veterans' Bureau Hospital at Rutland, Mass., at an estimated cost of $150,000.

Hospitalization of Veterans

The director of the Veterans' Bureau has announced that he will enlarge the membership of the Central Board of Appeals of the bureau by adding a specialist in neuropsychiatry and tuberculosis. The names of the additional members will be announced shortly. There are now 9,100 vacant beds in government hospitals, an indication that the need for additional hospitals has passed, and that with proper distribution of patients there is abundant provision for their care. An investigation disclosed that it costs the government $5.78 daily per man for general hospital treatment, $5.30 for tuberculous treatment and $3.75 for neuropsychiatric treatment. Of these amounts 53 cents is expended from every dollar for salaries, 27 cents for food, 7 cents for material and supplies and the remainder for such items as fuel, light and rent.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Sept. 10, 1923.

The Purity of Food

The existing laws for insuring the purity of food leave much to be desired. The ministry of health has appointed a departmental committee to inquire into the use of chemicals as preservatives and coloring matter. Adulteration for the purpose of making illegitimate profits developed with the growth of science until 1899, when it was checked by the Sale of Food and Drugs Act of 1899. This act prohibits the debasing of articles of food and the substitution of inferior for genuine commodities. Samples of food are purchased and examined by public analysts. Last year 113,860 samples were examined, and 7,106 of these were reported as not genuine or up to the standard. Thus, of 1,968 samples of vinegar examined, 110 were found adulterated. The adulteration consisted mainly of dilution and the substitution of acetic acid. But, though the act mentioned has been very successful in suppressing gross adulteration, it fails to protect the public against the abuse of preservatives. In a letter to the *Times*, Dr. James Oliver calls attention to the anomaly that, while cream containing boric acid or hydrogen peroxid as a preservative must bear, on the label, "Not suitable for invalids," butter containing boric acid can be sold without any such warning. Evidently invalids are supposed not to take butter. We have no general standards as regards the purity of food, such as exist in the United States. The result is that we suffer not only in regard to home produce but also in regard to the large supplies imported from that country. For the law of the United States extends to every country to which food is exported exactly the same protection concerning purity as its own citizens receive, but only provided that the food laws of the importing country are as rigidly enforced as are the federal food laws.

A Criticism of Vaccination

Dr. C. K. Millard, health officer for Leicester, occupies a peculiar position. He is the one well informed critic of vaccination in this country, and therefore a very different person from the ordinary antivaccinationist, who simply repeats over and over the same exploded fallacies. In an address delivered at the recent congress of the Institute of Public Health, entitled "Smallpox, Jenner and Vaccination," Dr. Millard exhausted his ingenuity in stating everything possible with regard to the limitations of vaccination. While admitting the greatness of Jenner's discovery, he considered that some of the claims put forward on behalf of vaccination were exaggerated, and to this he attributed much of the strength of the antivaccination movement. At the outset, Jenner fell into the error of supposing that the protection conferred by vaccination was lifelong—a natural mistake in the enthusiasm of such a great discovery. It has to be remembered that only recent vaccination can be relied on. In the Middlesborough outbreak of 1897, the proportion of unvaccinated persons in the population was only 2 per cent. Yet there was an outbreak of 1,411 cases, and 108 vaccinated persons died. The next exaggeration was the assertion that the whole of the great reduction in smallpox mortality is due to vaccination. But since the neglect of vaccination, the smallpox mortality per million has declined. Dr. Millard contends that vaccination only assisted a fall in mortality which has taken place in the case of other infectious diseases, and has been due to the same causes. A third exaggeration was in connection with the risk which unvaccinated persons ran of contracting smallpox. Dr. Millard admitted that in the days of Jenner the risk was a real one. At that time no attempt was made to prevent the spread of infection by sanitation, including under that all the methods of modern preventive medicine. There was no notification, no isolation, no disinfection, no surveillance of contacts, and the standard of life among the poor was deplorably low. Today the position was entirely changed. Moreover, smallpox was now one of the rarest diseases instead of the commonest. Of course, if the disappearance of smallpox were due to vaccination, this would not be a valid argument—but was it? He did not think so, as smallpox and vaccination were simultaneously disappearing. But surely this acute critic has here tripped. All that can be said is that under modern hygiene plus help from vaccination the disease continues to decline. He seems to forget that, notwithstanding the widespread neglect of vaccination, the scare created by an outbreak leads, in the affected locality, to a large amount of vaccination not only of contacts but also of others, including antivaccinationists. Furthermore, the Augean task of converting a malady which was so common in the time of Jenner that nearly every one was attacked into a rare disease was brought about by vaccination long before the development of modern hygiene. His fourth example of exaggeration was that an unvaccinated person was a great danger to the community. He considered a vaccinated person whose vaccination had lapsed a greater danger because the vaccinated person was liable to contract smallpox in a modified form and to go about his business as usual with the disease unrecognized. What benefits the individual may be bad for the community. But surely the remedy for this evil is revaccination and better training in the art of diagnosis. One might similarly argue that the decline of smallpox brought about by vaccination was an evil because it prevented physicians from getting the necessary experience of the disease. This is undoubtedly true, for many outbreaks in recent years have not been recognized at the onset because of the physician's lack of experience. To the objection that slight cases of smallpox occur in unvaccinated persons, which the recent Gloucester epidemic illustrates, Dr. Millard replied that cases of naturally mild smallpox rarely, if ever, spread a fatal strain of the disease. On the other hand, a mild attack in a vaccinated person may mean a most virulent strain. Dr. Millard concluded with the suggestion that smallpox can be controlled without the universal vaccination of infants, who do not run a very serious risk as long as smallpox is kept reasonably under control. But vaccination applied discriminately, he considered, would ever remain of the utmost value. What exactly he meant by discriminately he did not define. It need scarcely be said that this ingenious pleading does not carry conviction among health officers. It certainly is cold comfort for the antivaccinationists, though they may make capital out of it by means of garbled extracts. It will serve a useful purpose if it teaches accuracy in the defense of vaccination.

The Sigma Reaction for Syphilis

In 1921, Professor Dreyer of Oxford and Dr. H. K. Ward described a flocculation test for syphilis which they termed the sigma reaction. They claimed that it was at least as sensitive and as trustworthy as the Wassermann reaction, and that it had the advantage over the latter in that it could be standardized and the results expressed in a definite unit system. The Medical Research Council has put these claims to the test by arranging for trials by workers who were kept in ignorance of the fact whether the samples of blood came from normal persons, from patients with syphilis or persons with other diseases. Their results were then compared with the clinical notes of those who took the blood samples. In a report just issued, these workers bear out the claims of Dreyer and Ward. The sigma test seldom or never gave a positive reaction in nonsyphilitic serums, while the Wassermann test occasionally did. The sigma reaction seems sufficiently accurate for all clinical purposes, and corresponds remarkably with the intensity of the clinical features. It provides a valuable method of determining the progress of a case under treatment and the effect of various remedies. But when large numbers of specimens had to be examined, the Wassermann test, as usually carried out, occupied less time. But if only a small number of serums had to be examined, the time occupied in making the sigma test was much reduced and was less than that required for the Wassermann test. Once the apparatus had been obtained, the sigma method was the more economical, since no purchase or upkeep of animals was necessary. Other advantages of the sigma test were that only two reagents had to be employed instead of five; that much information may be obtained by a quantitative expression of results, and that since the reagents can be standardized, comparable results can be obtained by different workers. A report is also submitted by Professor Dreyer, and Drs. Ward and James McIntosh and P. G. Fildes on comparison of the results obtained from the same serum. An approximately equal number of positive results were given by the two reactions in untreated cases of manifest syphilis, but in treated cases the sigma gave a larger number of reactions than the Wassermann test.

Outbreak of Smallpox in London

Following the serious Gloucester epidemic of smallpox, with outbreaks of the disease in other parts of the country, which have now subsided, the news of an outbreak in London has caused some disquietude. It corresponds closely in time with an outbreak last year. Since September 7, five cases have occurred in London. One patient, the first reported, is a woman who was employed at a hotel in the Strand. Her employment suggests the possibility of spread of the infection. A second case has occurred at the same hotel, and three other cases in various parts of London. Last year the outbreak was quickly stamped out by a vigorous vaccination campaign.

PARIS

(From Our Regular Correspondent)

Sept. 7, 1923.

A Charlatan's Advertisement Furthered by the Postal Authorities

In the United States, the Post Office Department forbids the use of the mails for fake advertisements, against which it employs the weapon known as the "fraud order." From a recent incident in France it would seem that the postal administration unwittingly favors the propagation of such advertisements. Dr. L. Cheinisse called attention recently in the *Presse médicale* to an advertisement of this nature emanating from an enterprise that bore the modest title "l'Institut Paris-France," which was displayed on the covers of stamp books sold by the postoffice. The postal authorities had sold the concession for the advertising and had retained no control whatever over the nature of the advertisements. Official carelessness of scandalous degree is certainly betrayed when a public administration thus promotes an enterprise that, under the false pretext of propagating "truths on public health questions," promotes the sale of a pseudomedical work bearing the suggestive title: "How to get cured."

The Twenty-Seventh Congress of Alienists and Neurologists

The twenty-seventh Congress of Alienists and Neurologists of France and French-speaking countries was held at Besançon, August 2-7, under the chairmanship of Dr. Henri Colin, the successor of Magnan in the admission service of the Sainte-Anne Asylum, Paris. A large number of alienists, not only from France but also from Belgium, Luxemburg, Switzerland, Denmark, Spain and Poland participated. At this session, and possibly for the last time, by reason of the probable split in the congress (The Journal, Aug. 4, 1923, p. 403), in addition to a psychiatric subject (psychanalysis) and a medicolegal subject (criminal tendencies of drug addicts), the agenda of the congress included also a neurologic topic (nervous and circulatory affections caused by cervical ribs).

Psychanalysis, toward which French psychiatrists have always assumed a somewhat refractory attitude, awakened a lively discussion. A paper on the subject was presented by Dr. A. Hesnard, professor of the Ecole de médecine navale at Bordeaux, who, in collaboration with the late Professor Régis, published, in 1914, a book on psychanalysis in the neuroses and psychoses.

PSYCHANALYSIS

Professor Hesnard sought to evaluate the theory of psychanalysis from the etiologic, methodologic and therapeutic points of view.

Freud attributes neuroses and psychoses to sexual causes. Hesnard admits that some patients present symptoms that may properly be referred to the genital sphere: masturbation, lack of physical sexual gratification and perverse sexual instincts (auto-erotism or hetero-erotism). But these are the exception; in the majority of cases they are lacking. Asthenics are by no means all suffering from sexual debility. A great many persons suffer from anxieties or fears who do not lack normal sexual gratification. Most hysterics are not the subjects of thwarted sexual desires. Many psychopaths, whether they have passed the period of sexual activity or not, are no more affected by sex impulses than are many normal persons. The most frequent cause of these affections is some event in the patient's past life, which made a deep impression but which had no sexual bearing; for example, disappointed ambition, painful or incapacitating infirmity, poverty or financial ruin, misfortunes in the struggle for existence, and finally the deep emotions arising out of war conditions.

The question then arises: What is the practical value of psychanalysis? Its technic, it is true, is ingenious, but it presents many uncertainties, not so much because it has not been perfected, but because, in principle, it is open to mistakes, especially as regards the pansexual symbolism. It reveals complexes, the clinical nature of which is such that it is difficult or impossible to differentiate the pathologic from the normal. It often succeeds in unearthing emotions that are directly associated with organic life, which cannot be connected with any real mental or moral cause except on the assumption of a fantasy of consciousness on the part of the subject. Then again, it can never be more than a supplementary means of exploration, never constantly indicated nor in any wise sufficient for diagnosis.

On the other hand, it may, at times, even be dangerous. It may favor or consolidate the development of symptoms of hysteria or of other affections in weakminded persons who are already disoriented in their imaginations. It may suggest ideas of unworthiness to those who are already potentially self-accusatory. It may exaggerate the doubts and fears of persons suffering from obsessions, and lead to excitement in subjects previously calm and resigned. It would be particularly dangerous to allow teachers and other nonmedical advisers to meddle with the plastic and uncontaminated moral nature of adolescents. Hesnard even supports the view that the practice of psychanalysis must eventually claim the attention of legislators for the protection of public health.

Finally, as to the therapeutic value of psychanalysis, it was emphasized that the examples of really indisputable cures that have been published concern only special cases, the etiology of which is truly sexual in the common and restricted sense of the term or which are predominantly psychogenic. Psychanalysis has failed utterly in the numerous cases in which an organic basis or factor (alcohol, a persistent infection, traumatism, arteriosclerosis, endocrine affections) was involved. The same is true of the periodic neuropsychopathic affections, which may disappear suddenly at any time, within the space of a few hours, after the "analysis" has long since been abandoned. In the end, it will be found that, when psychanalysis has produced results, the method employed was not essentially different from other psychotherapeutic methods; it appealed to the emotions, inspired confidence, took advantage of suggestibility, and awakened the interest of the patient in realities.

To sum up, Hesnard holds that psychanalysis, being exaggerated or erroneous in all its aspects, should be retained only as a type or specimen, still awaiting perfection, of the methods employable in psychologic investigation, which purposes to discover, through exploration of the intimate relationships of the patient's past life, the emotional causes of psychoneuroses.

During the discussion of this paper, two distinct tendencies could be noted. The Swiss alienists defended vigorously Freud's theory, whereas the French alienists, for the most part, rallied to the support of the writer.

Dr. Schnyder of Bern declared that the theory of psychanalysis, deprived of its excrescences, deserves to be retained, and that it constitutes a legitimate part of psychiatry and clinical psychology. As for its therapeutic application, it should not be regarded as the sole remedy; a large rôle must be left to integrative psychotherapy.

Dr. Boven of Lausanne protested against the term "visionary" as applied to Freud by the author. Freud, he maintained, is not a dreamer; quite the contrary, he is the possessor of a well balanced and scientific mind. It is a misconception to repeat continually that freudism is exclusively sexual. Its founder readily admits the influence of predisposition, along with causes of a sexual nature. As for repression in the symbolic mechanism of the dream, Freud is dealing with realities and not mere fantasies, as Hesnard would have us believe. Dr. de Saussure of Geneva called attention to Freud's recognition of the rôle of egocentricity in association with that of sexuality (libido). According to Dr. Répond of Lausanne, we should be familiar with the pansexualism of Freud, even though we do not accept it. In schizophrenia, he stated, by means of psychanalysis it is possible to comprehend the psychogenesis of mental upsets, archaic symbolism and neologisms, and thus to shorten the stay of patients in psychopathic hospitals. Even from the therapeutic point of view, Répond holds that psychanalysis renders good service if applied according to the views of Bleuler.

Dr. Minkowski of Paris stressed the need of distinguishing between freudism and the Zurich school. Freud took as his point of departure the analysis of neuroses; Bleuler, the study of dementia praecox. Bleuler approaches more and more the classic French school in the importance he ascribes to the idea of the constitution. Dr. Logre (Paris) and Dr. Hartenberg (Paris) accused the freudians of resting content with approximations. In Hartenberg's opinion, the freudian theories are inexact, not only as regards the sexual etiology of psychoneuroses but also with respect to the analysis of dreams, the study of associations, the mechanism of repression and psychanalytic therapy.

Professor Lépine, dean of the medical faculty of the University of Lyons, who in 1913 organized a course of instruction in psychanalysis, is of the opinion that, properly managed, psychanalysis will furnish valuable information in diagnosis. Dr. Laignel-Lavastine, an agrégé professor of the Faculté de médecine of Paris, holds that Freud is entitled to the merit of discovering a method for sounding the depths of the unconscious, and that this method is of considerable value for the analysis of the psychoneuroses. Unfortunately, in its applications Freud betrays a lack of critical insight, accepting as truth gossip, superficial observations and many exaggerations of his original idea. As Laignel-Lavastine views it, freudism is a metaphysical doctrine based on an exaggeration of the influence of libido on the human mind. The question naturally arises why this doctrine has been so widely accepted in Anglo-Saxon countries and encounters so much resistance in Latin countries. Laignel-Lavastine thinks this is because the Latins are more realistic, less mystical, and also because the dominant religion is Roman catholicism, the confessional serving as an outlet, as it were, for unhealthy thoughts. The very defects of freudism: unbridled sensuality and mysticism, have been the cause of its success. It would be well to distinguish between freudians who are direct scientific disciples of Freud, and incompetent propagandists of the excesses of freudian psychology—for the most part not members of the medical profession, but rather popular writers, teachers, masseurs, and others, whose influence on this matter with the public at large should be combated as dangerous. Hartenberg and Logre emphasized also the dangers that would result from the dissemination of freudian theories among the public at large. Logre views this as a real social menace, for psychanalysis, by revealing to the patient sexual motifs tending to cause conjugal disharmony, is likely to break up families.

The Shortage of Nurses

In the *Concours médical,* Dr. J. Noir notes with regret that, in France, physicians, and more particularly surgeons, are obliged to secure foreign nurses for their clinics or sanatoriums. He cites the instance of a surgeon to the hospitals of Paris who recently had great difficulty in obtaining a satisfactory personnel for his surgical service, and was obliged to send to England for a head nurse whom he could trust to sterilize his instruments and manage the operating room.

Experience has shown that persons with mediocre education are not qualified for the profession of nursing. It requires intelligence combined with high ideals. It is because French nurses, or, rather, French would-be nurses, too often lack these qualifications that medical practitioners have opposed the idea of collaboration with nurses. Noir urges practitioners to send their daughters, relatives, and other young women in whom they are interested, to well equipped training schools for nurses. In this way, he thinks, it will be possible to introduce among nurses a feeling of respect for the physician, a willingness to follow his directions, and the discretion that is necessary for good nursing.

Prevention of Infection from Oysters

In order to protect the public against infection from eating contaminated oysters, the president of the republic, at the instance of M. Paul Strauss, minister of health, has issued an order regulating production, transportation, sale and importation of oysters designed for human consumption. This order specifies that henceforth only oyster establishments that furnish evidence of being in a sanitary condition will be permitted to sell oysters for human consumption. Such establishments will be inspected periodically. The order prohibits specifically methods of handling that are liable to cause contamination; for example: (1) flushing or washing oysters with impure sea water, such as the water of harbors, or with nonpotable sweet water, such as that of rivers, canals, or small streams into which sewage is emptied; (2) conservation or freshening with ice unfit for consumption; (3) storage in boxes, sacks or baskets immersed near wharves or piers where the oysters are subject to contamination; (4) the washing of open oysters in any manner; (5) opening oysters with unclean instruments, and (6) preservation in impure water after removal from the shells.

MEXICO CITY

(From Our Regular Correspondent)

Sept. 2, 1923.

Health Week

In connection with the celebration of national independence during the present month, the department of public health has organized a health week. This will be observed throughout the country by popular lecturers on pressing health problems of individual and public bearing, such as birth registration, smallpox vaccination and revaccination, the proper feeding of children and of adults, the safety of water supplies, and the campaign against flies, mosquitoes, lice, fleas and other disease-bearing insects. In addition to the lectures, public parades will be held wherever possible. Several state governors have offered to cooperate in order to make the health week a success in their respective jurisdictions.

American Visitor

After spending a fortnight in Mexico, Dr. F. F. Russell of the Rockefeller Foundation has left for New York. While here Dr. Russell first visited the cities of Tampico and Vera Cruz to inspect the yellow fever work carried on since 1921 by the International Health Board in cooperation with the Mexican health authorities. During his stay in Mexico City, he visited the several departments of the health department and was granted an audience by the president. At a medical meeting, Dr. Russell emphasized the advantages of international cooperation in health matters and stated his belief that health workers should keep aloof from politics, since the best sanitarians are often the poorest politicians, and vice versa. An agreement was apparently reached between Mexican authorities and Dr. Russell, to the effect that when yellow fever work has come to an end there shall be started a campaign against hookworm disease, in accordance with the same cooperative plan now existing. An effort will also be made to increase the number of Mexican physicians now granted postgraduate fellowships in the United States by the Rockefeller Foundation. Dr. Russell was accompanied by his secretary, Dr. Alan Gregg.

New Head of the Medical School

To fill the vacancy created by the resignation of the former incumbent, Dr. Gea González, professor of clinical surgery, has been appointed dean of the medical school. A minority of the students, apparently displeased at the change, tried to have the former dean reinstated, and after failing in this have started a series of attacks against the secretary of education in a journal controlled by them.

Personal

The new rector of the National University is Mr. E. A. Chávez, M.A. He was undersecretary of education under Sierra, and one of his first actions on assuming charge of his new post was a visit to the medical school.——Dr. E. Orvañanos, an ophthalmologist, has been sent to Washington on a special mission by the department of public health.——Dr. R. Granillo, a former pupil of Harvard School of Public

Health, has been appointed an instructor in the Army Medical School.——Dr. J. Velázquez Uriarte, a gynecologist, has returned from a trip to Europe and the United States.——Dr. R. Tapia Hernandez has left for Switzerland.——Dr. F. Echevarriá, formerly of El Oro, has been appointed a member of the superior board of health and placed in charge of the yellow fever and malaria work.

BERLIN

(From Our Regular Correspondent)

Sept. 8, 1923.

Economics, Medical Work and Medical Journals

Thanks to the prolonged and terrible disorganization of the economic situation, medical science, public health administration, social insurance and the work of the medical profession in Germany have been steadily deteriorating. An emergency commission of German scientists, established several years ago, recently had to announce that, in spite of the increase of their funds to 900 billion paper marks by the reichstag, the possibility of supporting scientific enterprises and especially publications has gradually decreased. As short a time as ten days ago the printing of one sheet of scientific literature cost more than 270 million paper marks. The price of paper had then been increased 50 per cent. over the peace price reckoned in gold. The price of printing had been doubled. Since then prices have gone steadily upward. The number of scientific periodicals, consequently, has decreased steadily, and it has been impossible to complete compilations that had been started. Medical science suffers particularly because expensive apparatus and laboratory equipment are of special importance. In the middle of August a good microscope cost six billion paper marks; an incubator or a good galvanometer, one billion paper marks. Roentgen-ray apparatus is hardly obtainable any more by the private physician. The Berlin Medical Society has announced that for the present it must close its library because it can no longer pay the salaries of employees and the cost of binding, although the assessments against members, in paper marks, have been steadily increased. The number of meetings of the medical societies has also been curtailed, if only for the reason that a street car ride at this time costs 100,000 paper marks. Meetings of scientific societies are no longer possible on account of the high railroad fares and enormous hotel rates. Meetings of the National Medical Society have been discontinued. The German dental society, with its clinic, laboratory and graduate school, is forced to close on the first of September. The most lamentable thing is that our greatest medical weeklies are affected by these conditions. Although the subscription price in August was 150,000 marks, yet the publishers of four weeklies of Berlin and Munich have been compelled to suspend publication temporarily. It is to be hoped that it will be possible to lower the demands of the printers sufficiently to end this strike of the publishers, and that the medical weeklies, which are indispensable for medical progress, can again appear, even if the size of the journals is diminished. A reduction in size is a small evil, for overproduction in medical contributions has always been large and, in spite of many attempts on the part of the university professors and editors of the periodicals, it has been difficult to limit their number.

But the physical nutrition of physicians has suffered far more from the financial misery than has their mental nutrition from the temporary suspension of the weeklies. Industrial physicians in particular, who form the largest proportion of German practitioners, are hit by difficulties due to the delayed payments in private and industrial practice. Several days ago the directors of the Leipzig association published a declaration which states that "industrial physicians, in consequence of delayed payment of their fees, are barely able to exist. Many physicians have already found themselves compelled to refuse credit to sick benefit societies and to treat the members of these societies only for cash payment, which means a cessation of their contracts. . . . The medical profession demands immediate governmental regulation and legislation in favor of the industrial benefit societies, which are in such great difficulties. If the inability of the industrial benefit societies to pay is not lessened in the immediate future, the entire medical profession will no longer be able to cooperate in sick insurance, and a total breakdown of social institutions will then be inevitable."

At a mass meeting of the physicians of Munich, it was established that the cost of necessaries was 436,935 times as great as the prewar price, while the "high price" bonus granted by the Prussian government to physicians is only 80,000 times as great. In the concluding sentence of their resolution there is even expressed a threat that in case there is no change in the regulation of fees the "physicians of Munich will not hesitate to use, as a means of desperation, a general strike." Things have indeed gone far when the German medical profession, which has always been distinguished for its idealism, is driven even to express such a threat.

Pharmacists have recently taken the same attitude as the physicians toward the sick benefit societies. Their resolutions state that since the sick benefit societies are unable to pay, the majority of pharmacists are in danger of ruin; in consequence, if this condition continues, they will be compelled to suspend their contracts with the sick societies and to furnish medicines only for cash. In the face of this threat, the treasury department has succeeded in bringing about a temporary agreement. The sick benefit societies have made a monetary advance to the pharmacists with which to renew their stocks, and have further assured them that they will pay the amounts due for medicines more promptly than heretofore.

To complete this sad chronicle, I must report that the existence of private clinics and charity hospitals is also endangered. Many are already closed. In the year 1922, in Prussia, twenty-two public hospitals with 934 beds, and twenty-three private hospitals with 1,525 beds were closed. This number has been increased considerably in the year 1923. All the private bath houses in Prussia with one exception have been closed. It is reported that the same fate has overtaken about 90 per cent. of all private bath establishments in Germany. This is easily understood when one realizes that a simple tub bath at this time costs about three quarters of a million marks.

Marriages Between Blood Relatives

Our present law permits marriage between cousins, uncles and nieces and nephews and aunts, and in Prussia every year a considerable number of marriages between close relatives are consummated. In consequence of the medical objections to this practice, the proportion of such marriages is steadily decreasing. The highest number was reached in 1877, when they constituted 9.47 per cent. of all marriages, while in the years 1914 to 1922 the average was 3.13 per cent. The great majority were marriages between cousins. Marriages between uncle and niece constituted 7.42 per cent., while those between nephew and aunt were only 1.48 per cent., the difference being due to the fact that women seldom marry men younger than themselves.

Death of Professor Rumpel

Several days ago, Professor Rumpel, director of the Barmbecker Hospital in Hamburg, died after a long illness, at the age of 61. In 1888 he became assistant physician, later associate physician in the Eppendorfer Hospital. He achieved a considerable reputation in 1892 during the epidemic of cholera. Later he was entrusted by the senate of Hamburg with the establishment of the Barmbecker Hospital which, under his direction, has become distinguished. Rumpel has published works worthy of recognition in different fields of internal medicine, but especially in the field of infectious diseases.

Relaxation in the Campaign Against Tuberculosis

The German Executive Committee for Combating Tuberculosis met this year, May 12, in Berlin. The transactions and discussions, unfortunately, did not give an encouraging picture of the present status of the crusade against tuberculosis. What had been laboriously built up during the decades of hygienic progress preceding the war had been thrown down during the great conflict, and what has been accomplished during the few years since the close of the war is now being undermined by economic conditions.

In his opening address, Bumm of the Central Health Bureau, the chairman of the executive committee, gave the most recent statistics on tuberculosis, extending into the year 1923. In German cities with more than 100,000 inhabitants, the mortality rate from tuberculosis during the first quarter of 1921 was 18.0 per 10,000 population; in 1922, 18.2; in 1923, 20.8. The comparatively large proportion of children under 15 years of age is disquieting. In the children's clinic of Berlin University, Czerny observed an appalling increase in grave hemoptysis, which became common during the war years. Often infants are now brought to the clinic that have become so weakened through lack of food that they can no longer be saved. Under the increased economic pressure, the health of the whole people is deteriorating. Many of those affected were formerly in fairly good financial circumstances and had no occasion to accept charity; many whose earning capacity under normal conditions would still be good are unable to provide adequately for themselves and their families; but the distress of those without income and of those who, on account of age or sickness, are unable to obtain employment is beginning to appear catastrophic. In spite of the many sacrifices of time and energy by physicians, nurses and others, who take part in the welfare work for the tuberculous, tuberculosis is increasing rapidly. The consultation rooms of the welfare centers are filled with suppliants. The tuberculosis mortality curve is again showing an upward trend, especially in the large cities. Reports from welfare centers refer to the increased incidence and grave course of tuberculous affections. The executive committee has been hampered during the past year in its work, and, until more ample funds can be secured, will be obliged to limit its activities to the most pressing needs. It is hoped, by such curtailment, to prevent the tuberculosis crusade from becoming a dead letter. The funds of the executive committee are at present derived mainly from government appropriations, and include certain allowances from the sum realized from the brandy monopoly and concessions from the federal assurance institute for employees.

A New Federal Law to Check the Abuse of Alcohol

The new federal law against the abuse of alcohol has some effective and welcome features. Before a license is granted for a bar in an inn or a retail liquor store, the question is to be raised whether the number of such places is not already sufficient. The requirements as to the character of the petitioner and the nature and purpose of the rooms have been made much more strict, while the application of the law is extended to include "closed societies" and other clubs. The authorities in each legislative district must issue regulations concerning the hour for closing, which shall apply equally to closed societies and to hotels if there is a bar in connection.

According to the Prussian regulations, as contained in the federal law, guests as well as the proprietor are punishable if the hour for closing, which is midnight, is not rigorously observed. The regulations for all bars within a definite communal district shall be uniform. Furthermore, the authorities having jurisdiction may forcibly close a bar or retail liquor store if it was opened without license or if the license has expired or has been rescinded. If the character of the proprietor is questionable, the operation of his establishment may, at once, be suspended. Of especial importance, though not entirely satisfactory for public health and the common welfare, nor to the peremptory demands of organizations for the protection of juveniles, are the regulations with regard to minors: (1) prohibition of the sale of spirituous liquors or of any article of food containing them to persons under 18 years of age; (2) prohibition of the sale of other alcoholic beverages and tobacco to persons under 16 years of age, unless accompanied by a parent or guardian or his representative. The sale of alcoholic beverages to intoxicated persons is also prohibited. A further section of the law gives to the highest state authorities the power to confiscate rooms or apartments used contrary to law, including rooms of inns, saloons and retail liquor shops, in case it is found necessary to close them or they are needed for residential or industrial purposes. These regulations, if rigorously enforced, will help greatly in the crusade against alcohol, until the bar reform law, which has been under consideration for many years and the draft of which was recently submitted to the reichstag, is passed; this law will, it is hoped, impose other even more radical provisions.

Statistics on Rickets

Wimmenauer, in the *Zeitschrift für Schulgesundheitspflege*, says the reason why the statistics on rickets are not more complete is that rickets is typically a disease of early childhood, and that health and welfare work among young children is still very poorly developed. Then again, there is a lack of uniformity in the methods of investigation, for which reason the reports of school physicians on the incidence of rickets cannot be compared one with another. It is essential that an understanding be reached in regard to the methods of investigation to be employed under given conditions. In children of school age the acute affection has usually subsided, but signs are still present in the bony framework, which the statistician is under obligations to report in detail. Of the signs of previous rickets, the most significant are changes of the thorax, the skull and the spinal column (main symptoms), and secondarily, changes of the spinal column and the jaws (associated symptoms), which serve to divide cases of rickets, according to the degree of severity, into three different groups. By applying the method that has been in use in Mannheim for many years, Wimmenauer reaches the following conclusions: Among the beginners in school in Mannheim in 1913, 64.1 per cent. of the boys and 47.0 per cent. of the girls showed signs of previous rickets. About two thirds of the cases were of the milder type. Changes of the thorax were the most frequent symptoms. Retarded development in rachitic children furnishes evidence that rickets is a general and not a local affection. In Offenbach, in 1921-1922, in children under 1 year of age, symptoms of previous rickets could be noted in 40.3 per cent. of the boys and in 37.0 per cent. of the girls. These are much higher figures than have usually been recorded in school statistics. The number and severity of the affections decrease as one proceeds from the center of the town toward the outskirts, since in the outlying districts the general conditions of hygiene are better. From this it may be concluded that rickets is a degenerative disease. It was noticeable that the boys were more susceptible to rickets than the girls, and that the signs of rickets tend to disappear as the children grow up. He states that an increase of rickets as a consequence of the war could not be proved.

Age Distribution of Prussia's Population

The number of children in the 0-15 age group, in 1910, amounted to 35 per cent. of the population. In 1920 this percentage had decreased to 29, in spite of the loss of men in the war. The number of men in the 20-50 age group was, in 1913, almost 8,500,000, but in 1920 only 7,700,000. The number of children in the 6-15 age group fell from 5,100,000 to 2,770,000. If this rate of decrease continues, five years from now, the percentage of children in the 0-15 age group will scarcely exceed 20, and will doubtless fall below 20 during the years following. On the contrary, as compared with 1917 and 1920, the mortality of children under 6 and of school children has risen for both sexes, and measurements of school children and of minors who have left school prove that there has been a downward trend of bodily health.

The Seventieth Birthday of Albrecht Kossel

Albrecht Kossel, physiologist of the University of Heidelberg, celebrates, September 16, his seventieth birthday. He was a pupil of Hoppe-Seyler and, as his assistant, became an instructor in the University of Strasbourg, in 1881. In 1883 he became the head of the department of physiologic chemistry in the Berlin Physiological Institute, under du Bois-Reymond. He was soon called to a professorial chair in Marburg, and in 1901 he removed to Heidelberg, where he became the successor of Kühne. His principal publications are in the field of cell research. His researches laid the foundation for our knowledge of the chemistry of nucleic acids and cleavage products, and led to exact researches on the protein bodies of the spermatozoa of fish. Through his investigations, the nature of the protein molecule was revealed. It is impossible to mention here all his publications bearing on these subjects. In recognition of his work he has been granted an honorary degree by the universities of Cambridge, Edinburgh, Dublin, Greifswald and Geneva; in 1910 he received the Nobel prize for medicine. He retired from his duties this year by superannuation. He still remains, however, the director of the institute for research on proteins, which was established at his instigation.

Marriages

Joseph Aloysius Conaty, Jr., Los Angeles, to Miss Grace Ranken of San Francisco, June 20.

Walter James Dowswell, Benson, Minn., to Miss Lucille Murphy of Fargo, N. D., recently.

Alfred B. Peacock, Marshfield, Ore., to Miss Anita Schussler of San Diego, Calif., July 14.

Daniel L. Hollis, Panuca, Mexico, to Miss Vola Cummings of Mexico City, June 12.

Benjamin Franklin Royer to Miss Jessie Leona Ross, both of Halifax, N. S., July 19.

Edward G. Joseph, Rochester, Minn., to Miss Louise Fineman of Minneapolis, July 23.

Lucy Davis Cripps to Sir Richard Hopkins, both of London, England, recently.

Harry E. Middleton to Miss Florence Rose, both of Alton, Ill., July 10.

Deaths

Edward William Ryan, Jessup, Pa.; Fordham University School of Medicine, New York, 1912; died, at Teheran, Persia, September 19, of heart disease following malaria, aged 39. Dr. Ryan had served with the American Red Cross in Russia, Serbia and Persia, since 1914. He was a chevalier of the Legion of Honor and had been decorated by Serbia and Montenegro for work in combating typhus fever in those countries.

Frederick Randolph Bailey ⊕ Elizabeth, N. J.; College of Physicians and Surgeons in the City of New York, 1895; formerly instructor in histology of the nervous system, and since 1904 adjunct professor of histology and embryology, at his alma mater; member of the New York Pathological Society; at one time on the staff of the Elizabeth General Hospital; aged 52; died, September 16, following a long illness.

Augustus McShane, New Orleans; Medical Department University of Louisiana, New Orleans, 1882; formerly instructor in hygiene, tropical medicine, otology, rhinology and laryngology at Tulane University of Louisiana School of Medicine; a founder of the New Orleans Polyclinic; on the staff of the Eye, Ear, Nose and Throat Hospital for twelve years; aged 62; died, September 14, following a long illness.

Frank Wallace Patch, Boston; Boston University School of Medicine, 1888; formerly professor of materia medica at his alma mater; member of the New England Society of Psychiatry; proprietor of the Woodside Cottages Sanatorium, Framingham, and consultant to the Westboro State Hospital, Westboro; president of the Framingham Improvement Association; aged 61; died, September 7.

Saxe Whittier Mowers, Tacoma, Wash.; University of Michigan Medical School, Ann Arbor, 1896; member of the Brooklyn Gynecological Society, the Chicago Gynecological Society and past president of the Washington State Medical Association; formerly on the staff of the Northern Pacific Hospital; aged 53; died, September 7, of cerebral hemorrhage.

Gordon Bell, Winnipeg, Manit., Canada; University of Manitoba Faculty of Medicine, Winnipeg, 1890; member of the American Association of Pathologists and Bacteriologists; professor of bacteriology and hygiene at his alma mater; chairman of the Provincial Board of Health; aged 60; died, August 8.

Edward Leroy Napier ⊕ Major, M. C., U. S. Army, Dayton, Ohio; Medical Department of the Tulane University of Louisiana, New Orleans, 1906; flight surgeon at McCook Field; aged 40; was instantly killed, September 15, when the plane he was driving fell from an altitude of 1,500 feet.

Mary Pierson Eddy, Beirut, Syria; Woman's Medical College of the New York Infirmary for Women and Children, New York, 1893; for many years a medical missionary in Syria; formerly a practitioner in Florida; aged 59; died, September 11.

Frederick Ward Seymour, Rochester, N. Y.; Medical School of Harvard University, Boston, 1904; served in the M. C., U. S. Army, during the World War; on the staff of the Rochester General Hospital; aged 43; died suddenly, September 6.

James M. Workman ⊕ Woodward, Okla.; Missouri Medical College, St. Louis, 1879; formerly mayor of Woodward; founder and several times president of the Woodward County Medical Society; aged 66; died, August 26, of carcinoma of the liver.

James P. Taugher ⊕ Milwaukee; Northwestern University Medical School, Chicago, 1893; on the staff of the Trinity Hospital; aged 61; died, September 8, of injuries received when the automobile in which he was driving was struck by a train.

Corydon Revilla Enslow ⊕ Huntington, W. Va.; Medical College of Ohio, Cincinnati, 1877; formerly served as mayor of Huntington; on the staff of the Chesapeake and Ohio Hospital; aged 69; died suddenly, September 2, of heart disease.

Thomas Israel Fox, Franklinville, N. C.; Vanderbilt University Medical Department, Nashville, Tenn., 1894; member of the Medical Society of the State of North Carolina; aged 57; died, September 3, of cerebral hemorrhage.

John Eddy Haskell ⊕ Chicago; College of Physicians and Surgeons, Chicago, 1903; formerly instructor in materia medica at the University of Illinois College of Medicine; aged 48; died, September 16, of cerebral hemorrhage.

Mary Ann Willard, Mannville, Fla.; New York Medical College and Hospital for Women, New York, 1883; formerly on the staff of the Grace Hospital, Detroit; aged 81; died, July 25, of pulmonary tuberculosis.

Simeon Jerome Wilson, Oneida, N. Y.; Medical Department of the University of the City of New York, 1880; member of the Medical Society of the State of New York; aged 67; died, September 11, of paralysis.

George A. Kerling, Pennsburg, Pa.; Jefferson Medical College of Philadelphia, 1887; member of the Medical Society of the State of Pennsylvania; aged 59; died suddenly, August 17, of cerebral hemorrhage.

Oliver P. Daly, Sr., Shuteston, La.; Medical Department University of Louisiana, New Orleans, 1881; formerly president of the school board; aged 61; died, September 12, in New Orleans.

Walter R. Dashiell ⊕ Mission, Texas; Pulte Medical College, Cincinnati, 1895; formerly assistant surgeon in the U. S. Public Health Service; aged 49; died recently, following a long illness.

Everett M. Bowker, Brookline, Mass.; Medical School of Harvard University, Boston, 1891; member of the Massachusetts Medical Society; aged 57; died, September 8, of angina pectoris.

John William Peck, Berkeley, Calif.; Medical Department University of California, San Francisco, 1905; member of the California Medical Association; aged 51; died in July.

Alvin B. Sweet, Guthrie, Okla.; Chicago (Ill.) Homeopathic Medical College, 1888; for many years city health officer; aged 75; died, September 8, following a long illness.

Charles McKinnis, Denver; College of Physicians and Surgeons, Keokuk, Iowa, 1889; member of the Colorado State Medical Society; aged 72; died, August 28.

M. Joseph Ernest Legris, Arctic, R. I.; University of Montreal Medical Faculty, Montreal, Que., Canada, 1879; aged 66; died, September 8, following a long illness.

Frederick George Elliott, Mansfield, Pa.; University of Vermont College of Medicine, Burlington, 1889; aged 73; died, September 6, following a long illness.

Rollin Seward Case, Pasadena, Calif.; University of Michigan Medical School, Ann Arbor, 1865; formerly a practitioner in Cleveland; aged 83; died, July 22.

Frank Babcock, Cumberland, Wis.; Milwaukee Medical College, 1912; aged 38; died, September 5, at St. John's Hospital, St. Paul, following an appendectomy.

William Firth Savage, Guelph, Ont., Canada; Victoria University Medical Department, Toronto, 1866; aged 82; died suddenly, at Vancouver, August 2.

Franz J. Arzt, St. Louis; Humboldt Medical College, St. Louis, 1868; formerly on the staff of the City Hospital; aged 79; died, September 2, of senility.

Leonard E. Warren, Williamstown, W. Va.; Columbus (Ohio) Medical College, 1878; aged 76; died, September 5, of cerebral hemorrhage.

James Phillip McAdams ⊕ Lowell, Mass.; Medical School of Harvard University, Boston, 1894; aged 55; died, August 26, of pernicious anemia.

Adam Galbraith Elliott, Lucknow, Ont., Canada; Trinity Medical College, Toronto, 1883; aged 65; died, suddenly, at Kincardine, August 2.

Elisha Tolman Gould ⊕ Sonora, Calif.; Medical School of Maine, Portland, 1880; aged 67; died, September 8, following a long illness.

Ira B. Lahmer ⊕ Walsenburg, Colo.; University Medical College of Kansas City, Mo., 1898; aged 59; died, September 5, of diabetes.

Albert Von Holt Michell, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, Toronto, 1890; aged 59; died, July 30.

Stephen James Jones, Hamilton, Ont., Canada; Victoria University Medical Department, Toronto, 1886; aged 62; died, August 11.

Richard Grover Jones ⊕ El Paso, Texas; Kansas City (Mo.) College of Medicine and Surgery, 1919; aged 28; died, July 10.

Latimer Pickering, Toronto, Ont., Canada; L.R.C.S., Edinburgh, Scotland, 1880; aged 68; died, August 5.

Correspondence

"CROOKES LENSES"

To the Editor:—I was much interested in the query of J. F. and the reply (The Journal, September 15), on Crookes lenses, particularly as I was a victim of a severe acute solar retinitis in 1911 from overexposure to tropical sunlight in army service, and since then a sufferer from the retinal asthenopia often a permanent sequela of this form of ocular injury.

In my search for relief, I have run the gamut of protective optical lenses and the personal knowledge gained may be of interest.

Crookes glass is now marketed in three shades, Nos. 1, 2 and 3, instead of the former Absorptions "A" and "B." Shade 2 in tint is between the former A and B. This glass is now and has been for some time the object of an intensive advertising propaganda by the optical interests generally; we are told now that American-made Crookes glass is to be had, just as good as that formerly made in England from the formulas of Lord Crookes. It is prescribed quite largely by many oculists, largely because it has been brought to their notice as a result of advertising propaganda; it is also made up almost as a routine by many enterprising opticians and optometrists, simply because they can "get more for" Crookes lenses; of course, prescribed by the last named, with little if any real knowledge or regard for pathologic changes in the eye.

Intense light, sun or artificial, is often the cause of much ocular discomfort and, in certain cases, the cause of organic ocular lesions. India, the home of cataract, is said to be the brightest country on the globe. In a personal communication, Walter of Florida stated that he had never examined the eyes of a native Floridian over 45 years of age which did not show cataractous changes in the lenses. Lord Crookes' intensive research into the causes of glass-blower's cataract showed that the heat or infra-red rays of the spectrum were at the bottom of most of this trouble. For a while we heard a good deal of the deleterious effects of the ultraviolet rays at the other end of the spectrum. In snow-blindness, Klieg eye, etc., the ultraviolet rays are apparently the causative factor; but as a general proposition it may be stated to be a question of intensity of the light, rather than its quality.

My own experience with Crookes glass has been rather disappointing; perhaps I expected too much of it; the "A" shade was worn several years, seemed to have some slight favorable effect under artificial illumination (perhaps this was the psychic element you mention), but against strong sunlight it was of little value. The "B" absorption was given a thorough tryout on a transcontinental motor trip in 1915, and proved disappointing; it did not give much relief against desert glare, and noticeably obstructed vision on dark, cloudy days.

In general, an equally dark shade of common smoked glass seemed as satisfactory, and considerably less expensive.

Because of the claims made for this glass, and because of the further cosmetic value in being practically colorless in the lighter shades, Crookes glass is being prescribed almost as a routine by some oculists.

From study and personal experience with practically every protective glass made today, I believe that glasses of the Fieuzal type—a greenish yellow—will afford the most real relief not only to those who complain of irritation from bright sunlight, but also to those whose vocation compels them to work largely under artificial light. In the darker shades this glass affords much relief to sufferers from photalgia.

I do not believe that any of these protective glasses should be worn except on the prescription of a competent oculist, and then not until careful correction of refractive error fails to afford relief, or a definite pathologic condition is found. The lightest shade found effective should be prescribed made up in patient's correction, and large lenses prescribed so as to afford sufficient eye coverage. Color values in the lighter shades of Crookes and Fieuzal glasses remain unchanged for all practical purposes; I think that the assumed danger of color blindness from the use of tinted or colored lenses is more theoretical than practical.

Glasses of the Fieuzal type may be obtained under various trade names, such as Akopos and Naktic, and in varying shades from practically colorless on up to shades dark enough for even the welder to use. Because of some twelve years' experience, both as a patient and as an oculist, I would unhesitatingly recommend the Fieuzal type glass as far superior to the Lord Crookes type lens.

J. B. H. Waring, M.D., Blanchester, Ohio.

ANESTHETIC FATALITIES

To the Editor:—In Queries and Minor Notes (The Journal, July 28, p. 320), under the caption, "Ethyl Chlorid as a General Anesthetic," there is misinformation concerning the comparative dangers of ethyl chlorid with other anesthetics. If the inquirer does only what he says—uses ethyl chlorid to "produce unconsciousness and then switch to ether"—his present technic as regards *safety* cannot be improved on, as the only deaths recorded under ethyl chlorid have been with the patient in full surgical anesthesia. The inquirer's technic is considered especially safe for children. With adults, the "margin of safety" is increased by preliminary medication (*New York M. J.*, Oct. 28 and Nov. 4, 1916). The answer further states that "the fair comparison for ethyl chlorid is with nitrous oxid. Ethyl chlorid is somewhere between 200 and 66 times more dangerous than nitrous oxid." In 1911, circulars were sent to ninety-nine hospitals widely separated in the United States, Canada and the Canal Zone, which furnished me statistics for 278,945 anesthesias for the years 1906 to 1911 inclusive. The mortality of the ethyl chlorid-ether sequence is there stated as 1 in 4,331, and of the nitrous oxid-ether sequence as 1 in 6,905; according to these statistics, the margin between these two sequences is small, the difference being 0.627 in favor of nitrous oxid. This may be considered fairly accurate for comparative purposes, and these are the only figures available for this special comparison. For ether, drop or vapor, the mortality is 1 in 5,623; for nitrous oxid, 1 in 657; and, from all the information available, this comparison stands today. "Ether" is therefore more than seven times as "safe" as "nitrous oxid," and this margin can be easily demonstrated in the laboratory. Your statement, "The accepted mortality rate from nitrous oxid is about 1 death in 1,000,000 anesthesias" is, in the face of these *facts*, absurd. You do not qualify your statement by saying "nitrous oxid and oxygen." In 1911 statistics are misleading and erroneous as to "nitrous oxid and oxygen—no deaths in 8,585 administrations; local anesthesia, no deaths in 14,878." At this time (1911) nitrous oxid and oxygen and local anesthesia had only begun to be used extensively. Since that time the committee appointed by the American Medical Association has reported forty deaths from the local anesthetics, but in spite of this fact, I believe that "local anesthesia" is safer than any general inhalation anesthesia. "Nitrous oxid and oxygen," unless preceded by preliminary medication of sufficient strength to preclude forcing the gases, or unless supplemented by ether, or preferably by both procedures, is still far more dangerous to life than ether. Such comparisons should not be made today. Proper preliminary medication, sequences and combinations are much safer than any single agent, whether local or general, and all safeguards should be used.

James T. Gwathmey, M.D., New York.

[Comment.—See answer to query, "Deaths from Nitrous Oxid Anesthesia," The Journal, September 15, page 948.—Ed.]

NITROUS OXID-OXYGEN

To the Editor:—In his communication on deaths due to nitrous oxid (The Journal, September 15, p. 948), Dr. J. F. Baldwin moderately confined his attention to two or three cities. To obtain exact and complete figures is impossible simply because too many hospitals and surgeons, even of high reputation, put every obstacle in the way of any person's seeking the truth, and will even deny in the face of witnesses that such deaths ever happened.

In spite of these difficulties, my own investigation gives the following result: In addition to 30 deaths that Dr. J. T. Gwathmey, New York, mentioned in 1914, 26 by Dr. C. K. Teter, Cleveland, where 9 of them occurred, and 18 by A. H. Miller, Providence, there were: in Cincinnati, 7; Detroit, 10; Nashville, 6; Boston, 3; Akron, 8; Toledo, 6; Chicago, 6; Kansas City, 5; Minneapolis, 3; St. Paul, 5; Sioux City, Iowa, 5; Peoria, 3; New York, 3, and one each in Denver; Sheridan, Wyo.; Knoxville, Tenn.; Aurora, Ill.; Salt Lake City; Silver City, N. M.; Indianapolis; Baltimore, and Lisbon, Ohio. This is a rather formidable list of 79 which, with those of Gwathmey, Teter and Miller, make 143. T. Rovsing reported 14 in Copenhagen, Denmark. Baldwin's Columbus figure 20 makes 163 in the United States.

A. S. McCormick, M.D., Akron, Ohio.

"AN OVARIAN HORMONE"

To the Editor:—In The Journal, September 8, appears an article by Allen and Doisy on "An Ovarian Hormone," in which the authors show that the follicle fluid of the pig ovary, when injected into castrated or into immature mice and rats, produces typical estrual hyperemia, growth and hypersecretion in the genital tract and growth in the mammary glands. They mention that I (Frank, R. T.: The Ovary and the Endocrinologist, The Journal, Jan. 21, 1922, p. 181) produced "uterine hyperemia" in two normal virgin rabbits by the injection of liquor folliculi—but "one cannot be quite sure that the changes described were not caused by the activity of the ovaries." The authors, however, misquote me. My statement reads that "well marked hyperplasia" resulted, which signifies that estrual changes had been produced by the injections. In order to avoid the unnecessary amount of labor involved in spaying large series of animals, after innumerable control tests, I have used immature animals, long before estrus could occur under normal conditions, and in that fashion avoided the confusing factor of ovarian activity. The sole difference in my experiments and those performed by Allen and Doisy was that the latter used mice and rats and that I employed rabbits as a test animal.

Their further work on the extraction of the active substance from the liquor folliculi by means of lipoid solvents is also of interest but, unfortunately, has brought them no further than Iscovesco (*Compt. rend. Soc. de biol.* **73**:104, 1912), Aschner (*Arch. f. Gynäk.* **99**:534, 1913), Hermann (*Monatschr. f. Geburtsh. u. Gynäk.* **51**:1, 1915) and Frank (*Surg. Gynec. & Obst.* **21**:646 [Nov.] 1915.) advanced in our search for the ovarian hormone. Their furthest purification resulted in "an oily residue" free from protein but contaminated "with a little fatty material." The sole difference between Allen and Doisy and the authors mentioned is that the former used follicle fluid as the raw material, while we made our extracts from the corpus luteum. Why Allen and Doisy obtained negative results from their "extracts of corpora lutea," I cannot say, unless they used the commercial extracts. Fresh material extracted with alcohol and lipoid solvents gives results identical with those obtained by Allen and Doisy with follicle extracts.

The "few points of chemical interest" mentioned by Allen and Doisy have been antedated by Frank and Rosenbloom (Physiologically Active Substances Contained in the Placenta and in the Corpus Luteum, *Surg. Gynec. & Obst.* **21**:646 [Nov.] 1915) and by Giesy (Chemical Study of the Placental Hormone, Newark, N. J., Loges and Wiener Company, 1920), which was begun, at my suggestion and under my direction, in 1916, and because of delay incident to army service, was not completed or reported in print until 1920.

I must dissent emphatically from a number of statements made by Allen and Doisy:

1. They state that there is no conclusive evidence of a definite localization of the hypothetic hormone. As I emphasized in 1922, and recently at the meeting of the Colorado State Medical Association, Glenwood Springs, September 4, "Pharmacological researches, therefore, show that the follicle as well as the corpus luteum secretion can maintain the growth and nutrition of the uterus. In large dosage, hypertrophy of uterine muscle and mucosa takes place. The external genitalia and mammary glands are also stimulated. These reactions are specific" (Frank: The Ovary and the Endocrinologist). A summary of the detailed analysis of the effects produced appeared in the Proceedings of the American Association for Cancer Research, April 5, 1917 (*J. Cancer Res.* **2**:515, 1917). The researches referred to above conclusively warrant this statement. The sole reaction that I have been unable to reproduce by experimental methods is the production of "deciduomata," which Leo Loeb has shown are due to a function of the corpus luteum. Whether this failure is due to faults of experimentation, or whether the deciduoma forming hormone is not contained in the lipoid fraction, I am unable to state. Furthermore, placental extracts produce a biologic reaction identical with that of the follicle fluid and corpus luteum. Whether the placenta stores up a hormone elaborated by the corpus luteum of pregnancy, or whether it produces a biologically identical body, I have also been unable to determine (Frank, R. T.: The Placenta Regarded as a Gland of Internal Secretion, *Surg. Gynec. & Obst.*, September, 1917, pp. 225-229 and 329-331).

The ovarian hormone, therefore, at the time that Allen and Doisy began their work, was no longer hypothetic, nor was or is it limited to the follicle fluid. It is contained in the follicle fluid and in the corpus luteum, probably also in the placenta.

2. Allen and Doisy state that there is an "absence of any suitable test for the activity of ovarian extracts." This statement, too, must be contradicted. The castrate, or as I have also shown, the immature female animal of any convenient species, is an excellent test object for the activity of ovarian extracts. This has been known for many years and universally employed. That the criteria enumerated by Stockard in guinea-pigs, and by Long, Allen and their collaborators in rats and mice, may prove more convenient may well be true. The method, however, is not new in any sense. The psychic phenomena of rut and the behavior of the animals are too variable to be used as indicators. I have repeatedly seen spayed female rabbits accept the buck, and occasionally pregnant rabbits likewise permit coitus, which then is almost invariably followed by abortion.

Summed up, therefore, the interesting results of Allen and Doisy confirm the positive results obtained by me with follicle fluid in the rabbit, by showing that a similar effect is produced in the mouse and rat. These authors have also shown that the lipoid fraction of the follicle fluid contains the same active substance that has been isolated in an impure state by Iscovesco, Aschner, Hermann and myself from the corpus luteum and placenta. They submit no evidence that their extract is purer than the ones previously obtained.

The biologic significance of all these researches consists in evidence that both the growing follicle and the corpus luteum contain a hormone that produces anabolic phenomena in the genital sphere (including the breasts). The changes produced appear to be quantitative. Withdrawal of the hormone in the prepared genital tract is followed by an abrupt catabolic change, which in the human female shows itself as menstruation.

Robert T. Frank, M.D., Denver.

DEPILATORY AND ANTISEBACEOUS ACTIONS OF BORIC ACID

To the Editor:—In Mathews' widely used textbook, "Physiological Chemistry" (Ed. 3, p. 209) is the following statement regarding boric acid:

> "Now it is found if a glass rod be touched to the skin beside the nose and then touched to the water, it makes the camphor [on the water] still, provided the skin has a normal amount of oil. A quantitative determination of the oiliness of the skin in different localities can be made by this method. It has been found that the ingestion of boric acid in sufficient quantity so completely *prevents the secretion of oil, causing all the hair of the body to come out* [italics ours], that the camphor no longer becomes still if the rod is rubbed by the side of the nose and then touched to the water."

This reference to the depilatory and antisebaceous actions of boric acid is not, however, supported by evidence in the book, and one searches in vain for evidence in the existing scientific and clinical literatures, and in current works on toxicology and therapeutics. Twenty-four years ago, an English physician, Evans, reported a number of cases of poisoning from the use of large doses of boric acid in cystitis over several weeks' duration (*Brit. M. J.*, June 28, 1899, p. 209). However, the report presents no proof or evidence as to the specific action of boric acid on the skin. Evans merely reported that two patients, who had received boric acid, showed a temporary loss of hair. One patient with cystitis received increasing doses of 10 to 20 grains three times daily for three weeks (total, 1,260 grains [?]) and at the end of a fortnight exhibited a dermatitis; eventually the hair on the face and head fell out, and the hair reappeared again six weeks later. In the other patient, the hair fell out to a slight extent, and marked exfoliation of the skin occurred. However, such reports cannot be cited to illustrate the working of a force (surface tension) in physical chemistry. No physician, barber, manicurist or hair-dresser will, of course, be misled as to the alleged depilatory and antisebaceous actions of boric acid, for the matter does not harmonize with every-day experience. It should be emphasized, however, that uncritical statements concerning the actions and therapeutic possibilities of drugs, especially of the new and untried variety, must be particularly deprecated in textbooks devoted to the fundamental medical sciences.

P. J. Hanzlik, M.D., San Francisco.

Dust or Droplet Hypothesis of Childhood Infections.—Closer examination of infection charts serves only to increase our doubts as to the sufficiency or probability of the dust or droplet hypothesis in explaining the generality of childhood infections.—A. K. Krause: Rest and Other Things, p. 30.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

ARSPHENAMIN AND CANCER

To the Editor:—August 7, I wrote in reference to treatment of cancer (tumors) with neo-arsphenamin or arsphenamin. August 16, you enclosed the following reference: "Matzdorff, P.: Treatment of Tumors with Arsphenamine, Especially Brain Tumor, *München. med. Wchnschr.*, Jan. 13, 1922." Can you supply me with the substance of this article, as I cannot locate it?

E. F. SLATER, M.D., U. S. S. *Antares*, Newport, R. I.

ANSWER.—Matzdorff is assistant at the St. George General Hospital at Hamburg, in the neurologic service, and he reports a case of gradually increasing somnolence and left hemiparesis four weeks after an attack of sudden unconsciousness, followed by malaise for a day, in a man, aged 47. The positive Wassermann reaction and the findings in the cerebrospinal fluid led to specific treatment for syphilis. No benefit was observed from inunctions and iodid, but nine days after the first, and four days after the second injection of neo-arsphenamin, marked subjective improvement was observed and no further objective symptoms could be detected. For the following six weeks the patient was free from all symptoms and disturbances. Then the former symptoms returned, and necropsy not long after disclosed a large, soft, gliomatous sarcoma. The prompt benefit from the neo-arsphenamin misled the diagnosis completely. Matzdorff compares this experience with those related by Czerny, Zieler, Noethe and Jooss, in which arsphenamin preparations have been used in treatment of cancer, generally from an erroneous diagnosis, but he adds that roentgen-ray treatment of cancer seems to have crowded it into oblivion.

TREATMENT FOR TAENIA SOLIUM INFESTATION

To the Editor:—What is the best method of treating a child from 3½ to 4 years old infested with *Taenia solium?*

STEPHEN E. CONE, M.D., Cincinnati.

ANSWER.—Pelletierin tannate is probably the best tapeworm remedy for a child, because of the comparative ease of administration. For a 4 year old child, the dose would be from 0.04 to 0.06 gm. This might be administered in a syrup or an aqueous elixir, such as the aqueous elixir of glycyrrhiza. The dose of the oleoresin of aspidium would be from 1 to 2 gm., which might be given in the form of an emulsion or mixed with fruit preserve in an attempt at disguising. Liquid diet, and calomel, saline solution and colonic flushing to cleanse the alimentary canal as much as possible on the day preceding, are desirable. The treatment should be given in the morning on an empty stomach, the patient staying in bed. One or two hours after the dose, the patient may be given a wineglassful of solution of magnesium citrate every hour until profuse evacuation has occurred.

THE DREYER TUBERCULOSIS VACCINE

To the Editor:—I have just read the very interesting article of Dr. Paul H. DeKruif, Ph.D., on "A New Fight Against Tuberculosis," published in *Hearst's International* for October, 1923, page 40. Are the statements he makes true? Has THE JOURNAL published any articles or abstracts or anything at all concerning Dr. Dreyer's work?

WILLIAM CURRY, M.D., Cane Hill, Ark.

ANSWER.—The present status of the Dreyer tuberculosis vaccine was discussed editorially in THE JOURNAL, July 14, p. 138. It was also recently discussed in the following references: "The Dreyer Tuberculosis Vaccine," August 11, p. 495; "Diaplyte Vaccines and Antigens," August 25, p. 694. The editorial concluded with the statement: "It is unnecessary to remind our readers that this work is in the experimental stage, at least so far as it concerns the treatment of tuberculosis. The experiments are scientific and have good theoretical basis; future developments will be observed with great interest." No new evidence has, as yet, been submitted.

CONSTIPATING EFFECT OF MILK

To the Editor:—Please be kind enough to advise me as to the best thing to use in sweet milk to prevent its constipating effect. Please omit name.

M.D., Atlanta, Ga.

ANSWER.—Enriching the milk by the addition of cream or of lactose will probably answer the requirements in most cases. If not, magnesia magma may be resorted to.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARIZONA: Phoenix: October 2-3. Sec., Dr. W. O. Sweek, 404 Heard Bldg., Phoenix.

CALIFORNIA: Sacramento, October 15-18. Sec., Dr. Charles B. Pinkham, 906 Forum Bldg., Sacramento.

COLORADO: Denver, October 2. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

DISTRICT OF COLUMBIA: Washington, October 9. Sec., Dr. Edgar P. Copeland, Stoneleigh Court, Washington.

FLORIDA: Tallahassee, October 9-10. Sec., Dr. W. M. Rowlett, Tampa.

GEORGIA: Atlanta, October 9-11. Sec., Dr. C. T. Nolan, Marietta.

IDAHO: Boise, October 2. Dir., Mr. Charles Laurenson, Boise.

ILLINOIS: Chicago, October 9-11. Supt. Mr. V. C. Michels, Springfield.

KANSAS: Topeka, October 9. Sec., Dr. Albert S. Ross, Sabetha.

MICHIGAN: Lansing, October 9. Sec., Dr. Beverly D. Harison, 707 Stroh Bldg., Detroit.

MINNESOTA: Minneapolis, October 2-4. Sec., Dr. Thomas S. McDavitt, 539 Lowry Bldg., St. Paul.

MISSOURI: Kansas City, October 3-6. Sec., Dr. Cortez F. Enloe, State House, Jefferson City.

MONTANA: Helena, October 2. Sec., Dr. S. A. Cooney, 205 Power Bldg., Helena.

NEVADA: Carson City, November 5. Sec., Dr. Simeon L. Lee, Carson City.

NEW JERSEY: Trenton, October 16-17. Sec., Dr. Alexander MacAlister, State House, Trenton.

NEW MEXICO: Santa Fe, October 8-9. Sec., Dr. W. T. Joyner, Roswell.

OKLAHOMA: Oklahoma City, October 9-10. Sec., Dr. J. M. Byrum, Shawnee.

PORTO RICO: San Juan, October 2. Sec., Dr. Jorge del Toro, 1 Olimpe St., San Juan.

RHODE ISLAND: Providence, October 4-5. Sec., Byron U. Richards, State House, Providence.

SOUTH CAROLINA: Columbia, November 2. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

UTAH: Salt Lake City, October 2. Dir., Mr. J. T. Hammond, Salt Lake City.

WEST VIRGINIA: Charleston, October 23. Sec., Dr. W. T. Henshaw, Frankenberger Bldg., Charleston.

WYOMING: Cheyenne, October 8-10. Sec., Dr. J. D. Shingle, Cheyenne.

Rhode Island January Examination

Dr. Byron U. Richards, secretary of the Rhode Island State Board of Health, reports the written and practical examination held at Providence, Jan. 4-5, 1923. The examination covered 7 subjects and included 70 questions. An average of 80 per cent. was required to pass. Five candidates were examined, all of whom passed. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Medical School of Maine	(1912)	94.2
Tufts College Medical School	(1922, 2)	86.5, 87.8
University of Michigan Medical School	(1921)	93.1
University of Vermont College of Medicine	(1921)	89.1

Iowa May and June Examination

Dr. Rodney P. Fagen, secretary, Iowa State Board of Medical Examiners, reports the written examination held at Iowa City, May 31-June 2, 1923. The examination covered 8 subjects and included 100 questions. An average of 75 per cent. was required to pass. Forty-nine candidates were examined, all of whom passed. Six candidates were licensed by reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
National Medical University, Chicago	(1898)	84.8
Northwestern University Medical School	(1923)*	91.3
Rush Medical College	(1916)	91.8
State University of Iowa College of Medicine	(1923, 44)	86.8, 88.6, 89.2, 89.6, 89.6, 89.7, 89.7, 89.8, 90, 90.1, 90.1, 90.2, 90.3, 90.3, 90.5, 90.5, 90.5, 90.6, 90.6, 90.7, 90.7, 90.7, 90.8, 90.8, 91, 91.1, 91.2, 91.2, 91.6, 91.6, 91.6, 91.7, 91.7, 91.8, 91.8, 91.8, 92, 92.1, 92.2, 92.3, 92.3, 92.5, 92.5, 93
University of Vienna, Austria	(1914)	89.2
University of Budapest, Hungary	(1914)	88.2

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Rush Medical College	(1921) (1922)	Illinois
University of Minnesota Medical School	(1922, 2)	Minnesota
Creighton Medical College	(1920)	Nebraska
University of Oklahoma School of Medicine	(1919)	Oklahoma

* This candidate has finished his medical course and will receive his M.D. degree on completion of a year's internship in a hospital.

Book Notices

Labyrinth and Equilibrium. By Samuel Steen Maxwell, M.S., Ph.D., Professor of Physiology in the University of California. Cloth. Price, $2.50 net. Pp. 163, with 11 illustrations. Philadelphia: J. B. Lippincott Company, 1923.

The nerve mechanism producing the alteration in muscle tension which enables an animal to balance itself in various movements and attitudes has been the subject of experimental investigation by physiologists since the time of Flourens, a hundred years ago. As a result, it has long been known that in these muscular changes, in vertebrates, the labyrinth of the ear plays an important part. Yet the specific value of the part played by the labyrinth, the localization of the separate functions, and the nerve reflexes involved, are still disputed or unknown. One welcomes, therefore, this valuable experimental study of the labyrinth of the ear in the dogfish and ray, vertebrates in which that organ is of considerable size and easily accessible. Two separate functions in this automatic balancing are recognized: the dynamic or kinetic—the adjustment of muscles to changes of attitudes during movement—and the static—the fixation of the posture or attitude arrived at. Part of Maxwell's investigation was directed to determine the localization in the labyrinth of these functions. Since all changes of position except movement in a straight line may be regarded as susceptible of analysis into rotation relative to the three directions of space, and as the canals and ampullae of the labyrinth bear a relatively close relation to these planes, it is of fundamental importance to ascertain the movement of the eyes and the fins during rotation in these plans. Not only was Maxwell able to determine these with accuracy, but he was able by applying direct pressure to the ampullae and the utricular otolith to duplicate these movements and correlate the findings. His result seems definitely to show that in fish the dynamic function of equilibrium lies both in the ampullae and in the otoliths of the utricles, except during rotation in the horizontal plane, in which the function is limited to the horizontal ampullae. Each horizontal canal functions only to turning to its own side. In discussing the results of these rotation movements, Maxwell gives a brief account of the influence on balancing of other sense organs such as arise from contact of the body with solids, for instance, the walls of the tank in which the fish are swimming. Contact with solids in labyrinthless dogfish occupy a subsidiary place in equilibrium, and if one may judge from the results obtained in fish, the retinal stimulation has a relatively negligible part when compared with higher vertebrates.

Maxwell gives details of experiments to test the hypothesis of Breuer, which assigns all the dynamic function to the ampullae and all the static function to the otoliths. This commonly accepted hypothesis is based chiefly on the anatomic structure of the parts, though the recent work of Magnus and de Kleijn offers experimental evidence supporting it. Maxwell shows that Breuer's hypothesis does not hold in fish. He was able to remove completely the canals and ampullae with little or no injury to the utricle and saccule, and found that in absence of the ampullae all compensatory movements, except those in respect to rotation in the horizontal plane, can be brought about through the action of some other part of the labyrinth. By washing out the otoliths in the utricle and saccule with little or no damage to the ampullae, he found that compensatory movements and postures, that is, dynamic and static reactions, are still to be seen differing only from the normal in being slower. They are similar to reactions occurring after removal of ampullae, except that compensatory movements in the plane of the horizontal canal still occur. In short, the ampullae and otoliths reenforce each other except in response to rotation in the horizontal plane. This reaction he found confined to the utricular otolith, so substantiating the findings of Parker that in fish the loss of the saccular otolith produced no noticeable effect on equilibrium. Contrasted with this, Magnus and de Kleijn have shown that, in guinea-pigs, injury to the otolith is followed by loss of static function, while the dynamic remains, pointing to a differentiation of function in mammals.

When a fish with one labyrinth destroyed is rotated in the horizontal plane to the sound side, normal compensatory movements of eyes and fins occur; when rotated to the operated side, no reaction occurs. It would appear, therefore, that in fish one labyrinth functions only for rotation movement in one direction. Maxwell quotes the experiments of Trendelenburg and Kuhn to show that this also holds for lizards and snakes, if retinal effects are excluded. This explanation will not hold for pigeons, as Ewald showed that in blind pigeons after destruction of one labyrinth, compensatory movements are still made to rotation in both directions. Since there is a plus and minus action of each labyrinth in the higher vertebrates, some other explanation than that of retinal stimulation would appear to be required.

There is an interesting discussion on what is the adequate stimulus of the ampullae, pressure or torsion. As the cilia project into the gelatinous mass of the ampullae, the endolymph movements can have no effect on separate cilia. Maxwell shows that torsion and not pressure must be the adequate stimulant, the direction of torsion determining the sense of the compensation. The plane of the canals is not necessary to the dynamic function of the ampullae, for if he ligated the horizontal canal as nearly as possible in its entirety, cutting it and placing it as nearly as possible at right angles to its original position, in this altered position the reaction to rotation in the horizontal plane was normal. As to the purpose of the canals, Maxwell suggests that they may equalize pressure in the ampullae analogous to the eustachian tube equalizing air pressure in the middle ear. The utricular otolith responds to rotation in all planes except the horizontal, and the direction of displacement of the otolith causes the stimulus. The static function is the maintenance of the compensatory position which the dynamic has produced, and is a function of both ampullae and utricular otoliths, though under normal conditions the horizontal canal can give no static effect, as no changed condition relative to gravity can here occur. In the concluding chapter, Maxwell discusses nystagmus and the caloric reaction. He believes that this reaction is more likely to result from heat or cold acting through the larger mass of fluid in the vestibule (utricle) rather than by influencing the fluid in the canals. He shows on this hypothesis how a change in position of the head will change the direction of the nystagmus. This monograph on a difficult and important subject will be welcomed by physiologists and otologists. It is a fitting account of painstaking experimental work conducted over a number of years by one who has become an adept with the difficult technic required.

Diagnostik und Therapie der Kinderkrankheiten mit speziellen Arzneiverordnungen für das Kindesalter. Ein Taschenbuch für den praktischen Arzt. Von Prof. Dr. F. Lust, Direktor des Kinderkrankenhauses (Bad. Landesanstalt für Säuglings- und Kleinkinderfürsorge) in Karlsruhe. Third edition. Paper. Price, 9 marks, 6 pfennigs. Pp. 465. Berlin: Urban & Schwarzenberg, 1923.

This is a simple compendium of the diseases of children, much abbreviated but covering almost the whole field. Following the chapters on actual diseases there is a second part devoted to drugs, and a third to hospitals and sanatoriums, the latter, of course, being confined almost altogether to those found in Germany. The book is not superior in any way to many similar books in the English language.

Studies in Mental Deviations. By S. D. Porteus, Professor of Clinical Psychology, and Director Mental Clinic, University of Hawaii. Cloth. Price, $4. Pp. 276, with 13 illustrations. Vineland, N. J.: The Training School, Department of Research, 1922.

This book, dedicated to the Training School at Vineland, N. J., is a summary statement of work done with the maze and other tests devised by the author. The presentation is technical and statistical, and assumes, for the most part, that the reader is familiar with the tests and their scoring. The aim of the writer is stated to be the establishment of scales for measuring some traits of personality which will be of value to teachers and others having the care of mental defectives as a guide to the probable behavior and aptitude for occupation. In the main, the author has limited himself to the consideration of simple mental defects, and excludes the groups he speaks of as psychopathic and delinquent, in spite of the broader nature of his title. He is by no means clear as to the distinguishing features. The features studied are: certain body measurements, including "brain capacity" (by which is meant skull capacity or brain volume); the Porteus maze tests; a series of traits devised from adjectives descriptive of the conduct of the children and from which a social inefficiency rating has been devised; a "form and assembling test," which is described in detail; an educational attainment scale, and an industrial rating scale. These are correlated with one another and with the Binet scale. The material is somewhat disconnected, and its practical bearing will be discernible only to those who are thoroughly familiar with psychometric methods.

Die kretinische Entartung nach anthropologischer Methode. Bearbeitet von Dr. Ernst Finkbeiner. Mit einem Geleitwort von Professor Dr. Karl Wegelin, Direktor des Pathologischen Instituts der Universität Bern. Paper. Price, $4.80. Pp. 431, with 23 illustrations. Berlin: Julius Springer, 1923.

This is an exhaustive treatise on endemic cretinism. It begins with a detailed exposition of the various theories concerning the cause of cretinism, none of which, the author concludes, are satisfactory. The author concludes that there must be something in race predisposition; especially in certain race mixtures. The second part is a minute and detailed description of the symptoms and physical signs of cretinism. One wonders how, in a single lifetime, so much material could have been gathered, and the detail is such as to be overwhelming. In this portion, too, are described the various relationships of the cretin to his community and his psychic development. The third part is devoted to a discussion of the nature and causes of cretinism, together with points on differential diagnosis and prognosis, and the fourth to an estimation of the possibilities of combating cretinism, the treatment and its effects. The whole is followed by a bibliography of 647 numbers. This important work is worthy of careful attention by any one interested in endemic cretinism.

Formulary. A List of Drugs and Preparations Selected as Official for Use in Peking Union Medical College Hospital. Prepared under the Direction and Supervision of the Hospital Committee of the Peking Union College. Cloth. Pp. 39. Peking: Peking Union Medical College, 1922.

It is encouraging to note that, in a country where modern medicine has hardly a foothold, there is a spot where prescriptions in the hospital are based on a scientific selection of drugs—a fact that applies to only a few hospitals in the United States. In China, the Peking Union Hospital Medical College, in its worthy endeavor to rationalize materia medica, has established a formulary, wherein are described the drugs, mostly nonproprietary, which may be prescribed and dispensed in the hospital. This formulary was published by the Hospital Committee with two objects in mind, first, to promote the teaching of rational drug therapy within the institution, and, second, to secure the greatest degree of economy compatible with the welfare of the patients of the hospital. To secure the first aim, it has been the intention of the Hospital Committee to eliminate, so far as possible, all irrational mixtures and useless drugs, encouraging reliance on drugs or mixtures of known value. From the standpoint of economy, it has seemed advisable to limit the number of drugs and special preparations required to be carried in stock to the minimum, and to eliminate needlessly expensive drugs when others are known to possess the same therapeutic value. No information is given as to dosage, except in the case of preparations or mixtures peculiar to this formulary. According to the committee, it is expected that the formulary will be used in conjunction with "Useful Drugs," published by the Council on Pharmacy and Chemistry of the American Medical Association. In general, the formulary is drawn up along the lines of "Useful Drugs," but omits all pharmacologic or therapeutic discussion. Eighty preparations that are described in "Useful Drugs" are not included in this formulary, while twenty-three remedies not described in "Useful Drugs" have been incorporated. This difference is due, to a considerable extent, to the relative availability and cost of drugs in two widely separated countries. In the back of the booklet is a "purgatory list," consisting of twenty-six preparations, which, for various reasons, have not been admitted to the formulary, but are to be kept in stock in the pharmacy. It is hoped that most of them will not be admitted, such as cystopurin, heroin, rhinitis tablets and thymus gland. In many American hospitals, even of the better sort, it is not uncommon to find bottles in the medicine case bearing proprietary names instead of the official U. S. Pharmacopeia designations, and to notice the use of a code of proprietary jargon. As a measure to overcome this condition it well might be insisted, as is the case in the hospital in Peking, that medicine cases contain, whenever possible, the nonproprietary substance; that the same general rule should be applicable to prescriptions, and that the nurses should be trained to *use* the nonproprietary designations. The Peking Union Medical College Hospital Committee is to be congratulated on its modern attitude and on its recognition of a high ethical standard in the prescribing of drugs as witnessed by their little formulary.

Die Medizin der Gegenwart in Selbstdarstellungen: Hoche: Kümmell: Marchand: Martius: Roux: Wiedersheim. Herausgegeben von Prof. Dr. L. R. Grote, Privatdozent an der Universität Halle a. S. Boards. Price, $2. Pp. 227, with 6 illustrations. Leipzig: Felix Meiner, 1923.

These volumes represent part of a series, conceived by a German publisher, to present the knowledge and thought of the period. The essays are written by the men who have made the advances and discoveries recorded. The series on philosophy consists of four volumes. In the present two volumes, noted physicians of Germany give brief autobiographies and follow with statements of their contributions to medical science and their opinions as to the eventual value of such contributions in relation to the growth of medicine. There is naturally some unevenness in presentation, but all of the papers are of interest, coming as they do from men who have reached the heights in their work. Particularly noteworthy, because of their literary style, are the contributions of Wilhelm Roux and Felix Marchand.

Medical Diagnosis for the Student and Practitioner. By Charles Lyman Greene, M.D., Attending Physician, St. Luke's Hospital, St. Paul. Fifth edition. Cloth. Price, $12. Pp. 1453, with 637 illustrations. Philadelphia: P. Blakiston's Son & Co., 1922.

It is only necessary for one to read this book in order to realize the great amount of work involved in its production, for diagnosis covers a very large part of the field of medicine. It is evident that the author's intention was to make the work a practical one and, to facilitate its use, a comprehensive symptom index and marginal headings have been added. What the author considers the essential, or perhaps more important, factors in a diagnosis are put in italics, thus making them more easily grasped by the eye and perhaps more impressive on the mind. That this method of presenting the subject has met with success is evidenced by the fact that five editions of the work have been published. In this edition, more than a hundred pages of new matter have been added, much of this dealing with newer instruments of precision used in the examination of cardiovascular conditions. Notwithstanding this addition of considerable new matter, the work has been kept within a convenient size for ready reference.

Tratado de Ginecología. Por M. Hofmeier, Profesor de Obstetricia y Ginecología de la Universidad de Wurzburgo. Constituyela 16, edición de la orba de Carlos Schroeder, Enfermedades de los órganos Genitales de la Mujer. Traducido Directamente del Alemán. Paper. Pp. 651, with 307 illustrations. Barcelona: P. Salvat, 1922.

This is a Spanish translation of the sixteenth edition of Schroeder's textbook, as devised by Hofmeier. In this revision an effort has been made to bring it up to date by discarding superseded material and incorporating the latest knowledge. There is the usual anatomic introduction, although, curiously enough, no reference is made to physiology. Some parts are in evident need of further revision, as the old statistics on cancer of the uterus show. The bibliography seems too exclusively German, and no one glancing at this book would imagine any gynecologic work had ever been done outside the former central empires. Practically the one foreign reference throughout the book is in the chapter on cancer of the uterus to The Journal of 1889. Thus, in the chapter of sterility no attention has been paid to the work performed in this country by McCollum, Osborne, Mendel and Reynolds on the effect of diet on reproduction nor to Rubin's method of diagnosis and treatment.

Bacteriology. A Study of Microörganisms and Their Relation to Human Welfare, Discussing the History of Bacteriology, the Nature of Microörganisms and Their Significance in Connection with Pathology, Hygiene, Agriculture and the Industries. By H. W. Conn, Ph.D., and Harold J. Conn, Ph.D., Soil Bacteriologist at the New York Agricultural Experiment Station. Cloth. Price, $4. Pp. 441, with 48 illustrations. Baltimore: Williams & Wilkins Company, 1923.

This volume was prepared by its authors primarily for college classes in first year bacteriology, but also for the general reading public interested in the growth and development of this comparatively new science. No doubt the history of bacteriology has seldom been better presented than in this volume; that is, more concisely, accurately or interestingly. The chapters on this subject should arouse and maintain interest in every reader. The book is divided into four parts, the first dealing with the history of bacteriology and with the general characteristics of bacteria; the second with the nonpathogenic organisms and their relation to the processes of life, and the third with the pathogenic organisms. The final part is technical, and deals with the laboratory side. As has been said in reference to the section on history, this book is well written. The explanations of the processes are brief and accurate. When opposing theories are presented, they are given in an unbiased manner so that the reader may realize the exact state of the subject. Finally, the volume is exceptionally well edited and printed.

Schäffer's Therapie der Haut- und venerischen Krankheiten mit besonderer Berücksichtigung der Behandlungstechnik für Aerzte und Studierende. Bearbeitet von Dr. Herbert Stranz. Sixth edition. Cloth. Price, 12 marks. Pp. 493, with 87 illustrations. Berlin: Urban & Schwarzenberg, 1922.

The sixth edition of this work is a revision of Schäffer's book by Dr. Herbert Stranz. New material has been added and the therapy of skin and venereal diseases brought up to date. It is a complete outline of the methods used in this particular branch of medicine. It is unfortunate, however, that this book, in common with other German works, has so many proprietary drugs in the formulas.

Miscellany

TREATMENT OF TYPE I CASES OF PNEUMONIA WITH TYPE I ANTIPNEUMOCOCCUS SERUM

At the last annual meeting of the American Society for Clinical Investigation, Dr. Augustus Wadsworth, director of the Division of Laboratories and Research of the New York State Department of Health, reviewed previous study of the serum therapy of pneumonia, and recorded the results of treatment with antipneumococcus Type I serum in 445 additional cases: 277 from the civilian population, and 168 from the army camps. The variation in mortality of pneumonia, the difficulty of securing satisfactory control series of untreated cases, the potency or lack of potency of the serum used, and the selection of serious cases or delay in treatment, affect profoundly the significance of the statistical reports. In addition there are fundamental conditions underlying the development and course of pneumococcus infection of the lung which determine to a large extent the limitations of serum therapy in pneumonia.

An analysis of cases treated with a serum of known, high potency, produced by one laboratory and by uniform methods, illustrates strikingly the significance of these different factors. A group of 151 miscellaneous cases tabulated since 1915 gave a mortality of 21.86 per cent., while the mortality in the 218 untreated cases for the same period was 18.81 per cent. The detailed study of the fatal cases treated with serum, however, suggests the extent to which the selection of cases and delay in treatment affected these statistics. In one city, 126 additional cases were reported treated with this serum. The mortality was 13.6 per cent., as contrasted with a mortality of 19 per cent. in 126 untreated cases. The conditions were more satisfactory and uniform and the results possibly more significant in this series, but the selection of cases and delay in treatment were evident.

In the following group of cases from the army camps there was little or no selection of cases, and all were treated with serum of the same high potency as that used in the previous group. In an outbreak of 400 cases of pneumonia with a total mortality of 20 per cent., sixty-three Type I cases were treated with a mortality of 8 per cent. Eighteen Type I cases untreated showed a mortality of 39 per cent. Seventy-two Type I cases of another outbreak were treated with two deaths, or a mortality of 2.8 per cent., as contrasted with a mortality of 25 per cent. in untreated cases and 20.39 per cent. in the total of 701 cases. A miscellaneous group of thirty-three Type I cases collected from various camps were treated with no deaths. Thus, 168 cases were treated with this serum with a mortality of 4.16 per cent., and the mortality in untreated cases varied from 20 to 39 per cent., probably averaging between 20 and 25 per cent. on a conservative estimate.

In conclusion, Dr. Wadsworth said that although it is impossible to foretell the results of serum therapy in individual cases, and although there are cases in which the serum will not bring about recovery, it is evident that antipneumococcus Type I serum of high potency, when promptly administered in adequate dosage, is of definite practical value in the treatment of Type I infections of pneumonia.

THE CHEMISTRY OF THE BLOOD IN EPILEPSY

At the last session of the American Society for Clinical Investigation, April 30, 1923, William G. Lennox called attention to the results of determination of the following constituents of the blood in 100 epileptic patients: nonprotein nitrogen, urea nitrogen, amino-acid nitrogen, uric acid, creatinin, sugar and alkali reserve. Practically all determinations were within the limits of normal; the values bore no relationship to the time or frequency of convulsions. Similar determinations were made on the blood of seven epileptic patients during and following prolonged starvation. Starvation was absolute, except for water, and continued for from eleven to twenty-one days. All these patients showed remarkable increase of the blood uric acid (from a prestarvation level of 3 to 5 mg., to a starvation peak of 8 to 16 mg. per hundred cubic centimeters of blood). This increase was found to be due to a failure of the kidneys to eliminate uric acid. It occurred in a normal individual who underwent a short fast. In one of the patients, at the end of starvation, the nonprotein and urea nitrogen rose, respectively, to the remarkably high concentration of 300 and 240 mg. per hundred cubic centimeters of blood. It is believed that these great fluctuations in the nonprotein nitrogenous constituents of the blood during fasting have nothing to do with the fact that the patients were epileptic. During starvation, convulsions were decreased; therefore, the observations furnish additional evidence that in epilesy convulsions are not initiated by increase of uric acid, nonprotein nitrogen or urea nitrogen in the blood.

Venereal Disease in Scotland.—On a survey of all the statistics and estimates, it may be assumed that in Scotland, with a population of about four and three-quarter millions, 12,000 new cases of syphilis, on the very lowest computation, are annually acquired. Two thirds of these are in men. Each year in Scotland, the new infections of gonorrhea are from 35,000 to 70,000. At any given time, at the lowest estimate, 2 to 3 per cent. of the total population are infected by one or other of the venereal diseases. In the populous areas, the minimum figure is 5 per cent. for men and 2 per cent. for women.—T. F. Dewar: *Proc. Roy. Soc. Med.* **16**:84 (Aug.) 1923.

Medicolegal

Infection by Typhoid Fever an "Accident"

(Frankamp v. Fordney Hotel et al. (Mich.), 193 N. W. R. 204)

The Supreme Court of Michigan says that the supply of water in Saginaw was thought to be impure. To get water of a better quality, the hotel company put down an artesian well on its own property and piped the water from it throughout the hotel, except in the pool room. Jan. 15, 1922, the plaintiff entered the employ of the hotel company as head waitress. She roomed and boarded in the hotel until February 23, when she was taken sick with typhoid fever, which she contended was the result of drinking the water from the artesian well. Soon after she was taken sick, she was removed to a hospital. It was some time before she could resume work. The department of labor and industry made an order granting her an award of $14 a week during the period of disability, and $675.54 for medical attention, which award is here affirmed.

The court found no Michigan case directly in point. In *Adams* v. *Acme White Lead & Color Works*, 182 Mich. 157, 148 N. W. 485, it was held that there could be no recovery for occupational diseases such as lead poisoning, but it is evident that the occupation of head waitress in a hotel does not subject one to the liability of acquiring an occupational disease, and that typhoid is not an occupational disease. How could the plaintiff foresee that, if she drank the water supplied to her in the hotel, she would be attacked with typhoid? In *Johnson* v. *Fidelity & Casualty Company*, 184 Mich. 406, 151 N. W. 205, it was argued that death as the result of ptomain poisoning did not create liability under the insurance policy there sued on, but the court asked why should it be said that there is no liability when the assured, intending to take nourishing food, in fact took tainted food, which resulted in ptomain poisoning and death? Why is not the same principle involved when, as in the instant case, one drinks contaminated water, when it was supposed she was drinking pure water? The court holds that the contraction of typhoid is an accident within the meaning of the workmen's compensation act.

Did the plaintiff contract typhoid in the course of her employment, or was the award based on guess, speculation and conjecture? Counsel said that where the typhoid germs came from was a matter of conjecture. The plaintiff's hours of work were from 7 to 9:30 a. m., from noon until 2 p. m., and from 6 until 8 p. m. She admitted that between those hours she was out of the hotel making calls, and occasionally took an automobile ride; and counsel said that it might as well be urged that she got the typhoid germs from something outside the hotel. But the plaintiff testified that the only water she drank was from the deep well; and after she was taken sick her attending physician caused a sample of the water to be analyzed, and it developed that the water was contaminated. The commissioner said that, not being able to determine any other source of infection, it would seem plausible that infection was caused through contaminated drinking water; and the local health officer gave it as his opinion that the plaintiff contracted the typhoid in the hotel. The court treats the evidence as sufficiently showing that the plaintiff contracted the typhoid in the course of her employment, and holds that the award was not based on guess, speculation and conjecture.

Objection to Testimony of Physician Waived

(Chaffee et al. v. Kaufman et al. (Kan.) 214 Pac. R. 618)

The Supreme Court of Kansas holds that objection to the testimony of a physician touching the mental incompetence of a testator, when such physician's information was acquired through his professional attendance on the testator, is waived when the defendant, who objects to such testimony, introduces as witnesses on his own behalf other physicians, who similarly acquired their information and who likewise testify as to the mental capacity of the testator. The defendants in this case were a son and a daughter of the testator, the executor of his will, and a lodge to which he bequeathed $1,000. The court says that objection was made to a physician who had professionally attended the testator testifying as to whether the latter was or was not of sound mind, on the ground that it was a privileged communication; and his testimony may be conceded to have been incompetent, unless the objection to it was waived. But the defendants called two physicians who had professionally attended the testator up to the time of his death, and they, too, testified as to his mental condition, their testimony being favorable to the defendants. Without doubt, therefore, the privileged nature of the testimony of the physician first mentioned was waived, when the defendants introduced testimony of other physicians of the same privileged character, in their own behalf. This rendered it unnecessary to decide whether a waiver of the privilege by all the heirs of a deceased testator is requisite before the confidential information of an attending physician can be disclosed. Of course, the lodge could not be heard to complain of the evidence, nor was it clear that the executor could complain. The privilege is granted by the statute in deference to the private feelings of the patient and in deference to the sensibilities of the members of his family, who are his heirs at law. Other litigants have no concern in the supposed indelicacy of exposing such private matters to public hearing.

Evidence of Negligence—Membership in Association

(Stoskoff v. Wicklund (N. D.), 193 N. W. R. 312)

The Supreme Court of North Dakota, in reversing a judgment for $5,748.60 damages for alleged malpractice that was rendered in favor of the plaintiff, and in granting the defendant a new trial, says that the plaintiff, a man, aged 70, had a corn on the little toe of his right foot. He treated it himself for several weeks, and then consulted the defendant, who told him that the condition had become so bad that it would be necessary to remove the toe, and a few days later the plaintiff submitted to an operation. The wound did not heal, and the defendant said that another operation would be necessary, and one was performed. It appeared that at the time of the first operation the plaintiff was suffering from arteriosclerosis and diabetes, and that the defendant, after a cursory examination, became aware of the arteriosclerosis, but gave no treatment to remedy the plaintiff's general physical condition prior or preparatory to the operations. Finally, gangrene having developed, the defendant advised that it would be necessary to amputate the foot, and suggested that, as there were no proper facilities at that place, the plaintiff should go elsewhere to have it done, and he went to Rochester, Minn., where, after he had received treatment on account of his diabetic condition, his leg was amputated above the knee, this being deemed necessary at that time in order to save his life.

The plaintiff testified that the defendant never advised him that he had arteriosclerosis or diabetes, and never made any inquiries as to his age, weight, health or physical condition; that the only treatment given was an occasional dressing of the foot and the application of, first, a black salve, and, later, a powder; that no diet was prescribed, and no direction given for his care. The defendant, on the other hand, testified that he was aware of the arteriosclerosis prior to the first operation, and that when the foot did not heal after it, he made a further examination and tests and learned of the diabetic condition; that he prescribed necessary and proper medicine and attention, and directed that the plaintiff be put on the proper diet to remedy the diabetes; that at the time of the first operation there was necrosis of the tissue and bone of the little toe; that the second operation was for the purpose of removing sloughing tissue in order that there might be better drainage and that the process of healing might begin; and that he advised the plaintiff of his condition generally and specifically.

The court believes that, on the whole record, there was evidence which might warrant the jury in making its finding of negligence. Both the plaintiff and the defendant were agreed on the rule that a physician is held only to the exercise of the skill and learning of the profession generally in the community in which he practices. Applying that rule under the facts as shown, if the jury saw fit to give credence to the testimony of the plaintiff and his witnesses, rather than to that of the defendant, it would be warranted in making a finding of negligence. But the burden was on the plaintiff to establish, by a fair preponderance of the evidence, those things essential to the recovery of a verdict. He must establish not only negligence on the part of the defendant, but also that the result obtained was the proximate consequence of that negligence; and the court does not think that it could be said from the evidence in the case that the loss of the plaintiff's leg was established to have been the proximate consequence of the defendant's negligence. In other words, the mere fact of the loss of a leg under the care of a physician, although negligence on the part of such physician is established, is not in itself sufficient to sustain a verdict for damages, in the absence of evidence tending to show that such loss was the proximate consequence of negligence.

Another important point is that, as the court states it, in an action for malpractice, in which the plaintiff, in making his case, on cross-examination of the defendant under the statute, inquired whether the defendant was a member of the Northwestern Medical Association, and, being answered in the affirmative, he further asked whether the defendant had reported the case to the association, and again whether it was not one of the purposes of the association to protect physicians against actions for malpractice, the court holds that there was prejudicial error, even though the objections interposed to such questions were sustained by the trial court, and the witness not required to answer. By objection, the matter was particularly called to the attention of the jury.

On Liability for Negligence of Officers in Selecting Servants and Physicians

(Hamburger v. Cornell University (N. Y.), 199 N. Y. Supp. 369)

The Supreme Court of New York, Appellate Division, Third Department, in reversing a judgment obtained by the plaintiff, says that she had a verdict of $25,000 for the loss of the sight of an eye resulting from an explosion of chemicals in the course of an experiment that she was performing in the chemical laboratory of the defendant. The negligence alleged and sought to be proved was that the defendant had not exercised due care, in that it had not placed competent persons in charge of the dispensing of chemicals from the stock room from which the plaintiff received a portion of the chemicals used by her in the experiment, and had not made proper tests of the chemicals before permitting their use by the students, even though they were purchased in bulk in the original packages from reputable and accredited manufacturers, chemists and dealers. The plaintiff contended, among other things, that the rule exempting a charitable corporation from liability to a beneficiary does not extend to a case of negligence of its managing officers in selecting incompetent servants. But this court is unable to conceive of any good reason for a rule which differentiates in the case of a charitable institution between the negligence of a servant or agent in carrying out details of work assigned to him and the negligence of an agent, although an officer of the corporation, in selecting the servant who causes the injury to a beneficiary of the charity.

The foundation of the rule in New York State exempting a charitable corporation from liability for the negligence of its servants, causing injury to beneficiaries, is that of waiver. It is not that the relation of master and servant does not exist between the charitable corporation and an employee, but that the consequences of the application of the doctrine of respondeat superior (let the master or superior answer) are waived by the beneficiaries in accepting the benefits of the charity. While charitable institutions, such as hospitals, have been exempted from liability for the negligence of nurses and physicians, because as between them and the hospital the doctrine of respondeat superior does not apply, one of the reasons assigned is that the physician is not subject to the direction of the hospital as to the manner of performing his operation. The rule in such a case is additional to and independent of the rule of waiver exempting such a charity, and applies as well to a lay civil corporation supplying the services of a medical practitioner in connection with its undertaking.

The rule as to the duty to select competent medical practitioners arose originally in the steamship cases, because the steamship companies owed a duty imposed by statute to carry a duly qualified medical practitioner and a proper and necessary supply of medicines. So far as such cases rest on the principle that, as between the physician and the company, the relation of master and servant does not exist, they are illustrative of the reason for a similar rule applicable to hospitals in general; but there the analogy ends. The further qualification that, in the case of a lay civil corporation, a corporation other than a charitable one, it would be responsible for negligence in selecting medical practitioners has apparently crept into the hospital cases in the course of applying old rules to new situations, when there was no necessity for qualifying the statement of the old rule.

This court holds to the doctrine, which it concludes to be a manifestly logical development of the law of this jurisdiction, that a charitable corporation is not liable for injury to a beneficiary for the negligence, either of its managing officers in selecting incompetent servants and employees or of servants and employees selected with care. That is now the settled law of Massachusetts.

Death of Injured Person Caused by Anesthetic

(Hornetz v. Philadelphia & Reading Coal & Iron Co. (Pa.), 120 Atl. R. 662)

The Supreme Court of Pennsylvania, in affirming a judgment that affirmed an award under the workmen's compensation act for compensation for the death of the claimant's husband, says that in the course of his employment he sustained a compound fracture of the index finger of his right hand. He went to a hospital the next day for an operation. His death was due to dilatation of the heart, which was caused by the anesthetic administered to him in order that a surgical operation might be performed on his injured finger. The injury to his finger was "violence to the physical structure of his body." The violence caused the injury, the injury caused the operation, the operation caused the anesthetization, the anesthetization caused dilatation of the heart, and dilatation of the heart caused death. Hence there was a causal connection between the original violence and the subsequent death.

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, Washington, D. C., Oct. 15-20. Dr. Luther C. Peter, 1529 Spruce St., Philadelphia, Secretary.

American Association of Railway Surgeons, Chicago, Oct. 18-20. Dr. L. J. Mitchell, 29 E. Madison St., Chicago, Secretary.

American Child Health Association, Detroit, Oct. 15-17. Dr. Philip Van Ingen, 125 East 71st St., New York, Secretary.

American Public Health Association, Boston, Oct. 8-11. Mr. A. W. Hedrich, 370 Seventh Avenue, New York, Secretary.

Association of Military Surgeons of the United States, Carlisle Barracks, Pa., Oct. 4-6. Col. James Robb Church, Army Medical Museum, Washington, D. C., Secretary.

Central Neuropsychiatric Association, St. Louis, Oct. 20. Dr. Karl A. Menninger, Topeka, Kan., Secretary.

Central States Pediatric Society, Detroit, Oct. 18-19. Dr. H. T. Price, Westinghouse Building, Pittsburgh, Pa., Secretary.

Delaware State Medical Society, Middletown, Oct. 8-9. Dr. W. O. La Motte, Industrial Trust Building, Wilmington Secretary.

Medical Association of the Southwest, Kansas City, Mo., Oct. 8-13. Dr. E. H. Skinner, Rialto Building, Kansas City, Mo., Secretary.

Minnesota State Medical Association, St. Paul, Oct. 10-12. Dr. Carl B. Drake, Guardian Life Building, St. Paul, Secretary.

Mississippi Valley Medical Association, Hot Springs, Ark., Oct. 9-11. Dr. John L. Tierney, University Club Bldg., St. Louis, Secretary.

Nevada State Medical Association, Reno, Sept. 28-30. Dr. Horace J. Brown, Thoma-Bigelow Building, Reno, Secretary.

New England Surgical Society, Boston, Oct. 18-19. Dr. P. E. Truesdale, 151 Rock Street, Fall River, Mass., Secretary.

Pennsylvania, Medical Society of the State of, Pittsburgh, Oct. 1-4. Dr. W. F. Donaldson, Jenkins Arcade, Pittsburgh, Secretary.

Southern Medical Association, Washington, D. C., Nov. 12-15. Mr. C. P. Loranz, Empire Building, Birmingham, Ala., Secretary.

Tri-State District Medical Society, Des Moines, Iowa, Oct. 29-Nov. 1. Dr. William B. Peck, 82 Stephenson Street, Freeport, Ill., Managing Director.

Vermont State Medical Society, Bennington, Oct. 11-12. Dr. W. G. Ricker, St. Johnsbury, Secretary.

Virginia, Medical Society of, Roanoke, Oct. 16-19. Mr. G. H. Winfrey, 104½ W. Grace St., Richmond, Secretary.

Wisconsin, State Medical Society of, Milwaukee, Oct. 3-5. Mr. J. G. Crownhart, 558 Jefferson St., Milwaukee, Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Hygiene, Baltimore

3: 357-485 (July) 1923

Biologic Study of Diphtheria Bacillus. II. Morphology of Pure Line Strains. H. M. Powell, Baltimore.—p. 357.
Id. III. Property of Agglutination in Pure Line Strains Derived from Common Parent-Cell. H. M. Powell, Baltimore.—p. 362.
Study of Normal and Immune Hemagglutinins of Domestic Fowl with Respect to Their Origin, Specificity and Identity. C. E. Bailey, Baltimore.—p. 370.
Anaerobes from Water Samples. P. D. Meader and E. A. Bliss, Baltimore.—p. 394.
*Diagnosis of Smallpox by Paul Method. J. M. Scott and C. E. Simon, Baltimore.—p. 401.
Control of Hookworm Disease. XXII. Migration and Position of Infective Hookworm Larvae in Soils. D. L. Augustine, Baltimore.—p. 416.
Id. XXIII. Experiments on Factors Determining Length of Life of Infective Hookworm Larvae. D. L. Augustine, Baltimore.—p. 420.
Correlation Between Food and Morphology of Termites and Presence of Intestinal Protozoa. L. R. Cleveland, Baltimore.—p. 444.
Studies on Relationship Between Insect Flagellates and Leishmania. E. R. Becker, Baltimore.—p. 462.
Survival of Bacteria in Pupal and Adult Stages of Flies. R. W. Glaser, Princeton, N. J.—p. 469.

Diagnosis of Smallpox by Paul's Method.—Paul's method was tested by Scott and Simon on 104 rabbit eyes, of which thirty-six represented normal controls; fourteen had been inoculated with cowpox vaccine, eight with the contents of varicella vesicles, and eighteen with the contents of smallpox vesicles and pustules. In addition, the test was carried out with corneas that had been inoculated with the vesicular contents from herpes febrilis, herpes zoster, herpes genitalis, pemphigus, dermatitis herpetiformis, ringworm, pure cultures of pyogenic organisms, and with nasopharyngeal swabbings from normal persons and cases of varicella in various stages of the disease. In every case the macroscopic Paul test, in the sublimate bath, was followed by a careful histologic examination in reference to the existence of lesions which could be mistaken for those caused by the variola-vaccinia virus. Of eighteen cases of variola (fourth to eighth day of disease) seventeen were positive to the test, and in all eighteen cases the histologic picture was indicative of variola. Fourteen cases of vaccinia all reacted positively. In other diseases the negative reactions were marked.

American Journal of Medical Sciences, Philadelphia

2: 157-312 (Aug.) 1923

*Use of Fat in Diabetes Mellitus and Carbohydrate-Fat Ratio. W. S. Ladd and W. W. Palmer, New York.—p. 157.
*Simple Classification of Lymph Gland Enlargements, Bases on Glands Removed for Diagnosis. H. Fox and D. L. Farley, Philadelphia.—p. 170.
*Physiology of Pineal Body. Y. Izawa, Okayama, Japan.—p. 185.
*Relation of Addison's Disease to Amyloidosis. M. McCutcheon, Philadelphia.—p. 197.
*Lymphatic Obstruction: Nonparasitic Elephantiasis. L. T. Gager, New York.—p. 200.
*Anatomic Basis for Functional Murmurs. J. Epstein, New York.—p. 208.
*Paroxysmal Ventricular Tachycardia: Report of Case of Unusual Type. D. Felberbaum, New York.—p. 211.
Costodiaphragmatic Adhesions and Their Influence on the Respiratory Function. W. S. Middleton, Madison, Wis.—p. 222.
*Diagnosis of Tubal Pregnancy. E. Novak, Baltimore.—p. 228.
Alkali Reserve of Cerebrospinal Fluid in Various States of Central Nervous System. R. Isaacs, Cincinnati.—p. 237.
*Buffer Solutions in Intestinal Diseases. J. S. Hepburn and H. M. Eberhard, Philadelphia.—p. 244.
*Creatininemia: Based on Study of Fifteen Hundred Blood Chemical Analyses. H. M. Feinblatt, Brooklyn.—p. 249.
*Action of Germanium Dioxid in Pernicious Anemia. M. E. Alexander, Waterbury, Conn.—p. 256.
Antiseptic and Bactericidal Properties of Isopropyl Alcohol. D. H. Grant, Elizabeth, N. J.—p. 261.
*Reactions of Asthmatics and Passive Transference of Hypersusceptibility. A. De Besche, Christiania, Norway.
Differential Diagnosis of Diabetes. H. J. John, Cleveland.—p. 275.

Use of Fat in Diabetes Mellitus.—The carbohydrate-fat (antiketogenic-ketogenic) ratio, which leads to an increase in production of ketone bodies was determined by Ladd and Palmer in eleven cases of diabetes mellitus and one normal person. For practical purposes, the carbohydrate-fat ratio of 1 : 4, calculated from the formula

$$\frac{F}{G} = \frac{\text{Fat in gm.}}{0.58 \text{ gm. P} + \text{gm. CH}}$$

is the most serviceable in the construction of diets when it is desired to obtain a maximum caloric intake with a minimum in the form of carbohydrate. The authors submit their findings in spite of the great advances made in the treatment of diabetes by Banting and others, because they feel that adequate dietary control will remain the basis of treatment for many cases, especially those of the milder type. Furthermore, if an extract can enable the body to burn a known amount of carbohydrate, a knowledge of the carbohydrate-fat ratio will permit the use of fat in amounts which will insure the greatest energy possible, especially in the severest cases. Attention is called to the error which may occur in the use of tables for calculating food values.

Classification of Lymph Gland Enlargements.—Fox and Farley make a grouping of cases based on the type of cell primarily responsible for the enlargement. The groups into which the cases fall correspond, first, to a theoretical system, based on what is possible when the component parts of lymphatic tissue become hyperplastic, and, second, to types of pathologic characters and clinical behavior. The work also illustrates that certain leukemic and neoplastic forms of lymphadenopathy cannot be diagnosed solely on the basis of clinical signs, but that data acquired by adenectomy must be available for this purpose.

Physiology of Pineal Body.—From Izawa's work it appears that the pineal body's chief function is to repress the premature development of the sexual organs in the female as well as in the male.

Relation of Addison's Disease to Amyloidosis.—A case of Addison's disease is reported by McCutcheon which was associated with widespread amyloidosis involving the cortex of both suprarenals. The amyloidosis apparently resulted from a large hypernephroma. It is held likely that the rarity with which amyloid disease produces the Addison syndrome is not dependent on the preservation of the suprarenal medulla, but rather on the fact that the cortex is not completely destroyed by the infiltration, many cell groups escaping. In the present instance, the destruction of cortex seems to have been severe enough to determine the appearance of Addison's disease.

Nonparasitic Elephantiasis.—Five cases of persistent edema associated with thickening of the subcutaneous tissues and minor skin changes are reported by Gager. The edema is hard, white and not accompanied by sensory changes. The absence of frank inflammation at the onset or during the course of the disease is striking. The general similarity of these cases to what has been described as trophedema and dystrophic edema is pointed out. Except for the lack of a hereditary or familial character, this type of edema bears a remarkable resemblance to the disease first described by Milroy. Edema as found in these patients, in the light of recent knowledge, appears to be due to obstruction of the lymphatic channels and may be classified as elephantiasis of a nonparasitic type. Surgical treatment of these cases alone gives a good prognosis as regards cure.

Anatomic Basis for Functional Murmurs.—Epstein discusses a murmur frequently heard in children and young adults which cannot be traced to embryologic cardiac malformation, endocardial valvular deformity, or to myocardial disease. Because of its uncertain etiology it has received many names which are used carelessly and interchangeably. The uncertainty in the origin of this murmur has also led to its being either totally disregarded or too seriously evaluated. It is therefore of considerable importance for theoretical as well as for practical reasons to put this murmur on a certain scientific basis. Since the origin may be traced to a defective cardiomuscular tonicity, the condition may properly be called myatonia cordis, and the murmur itself myatonic murmur. The diagnosis rests on the fact that the murmur is an isolated objective sign without subjective symptoms and without a history of a previous heart-damaging illness. The prognosis is generally good, but there is always an element of uncertainty, because a perfectly normal heart does not murmur. The treatment is that of the patient and not of the heart.

Paroxysmal Ventricular Tachycardia.—Felberbaum cites a case of paroxysmal ventricular tachycardia in which the impulse traveled alternately and regularly through each ventricle. Only one other case of a similar nature has so far been recorded. The mechanism of its production is discussed. Digitalis intoxication is a possible cause for this serious arrhythmia. The danger lies in the transition of the paroxysm into ventricular fibrillation and sudden death.

Diagnosis of Tubal Pregnancy.—The most important diagnostic symptoms of tubal pregnancy, according to Novak, are the menstrual history, the pelvic pain and the presence of a unilateral tender mass in the pelvis. The diagnosis of the tragic or cataclysmic cases is as a rule comparatively simple.

Use of Buffer Solutions in Intestinal Diseases.—In the treatment of intestinal acidity recourse has been had by Hepburn and Eberhard to two buffer solutions, the phosphate buffer solution and the citrate buffer solution. The phosphate buffer solution was prepared by mixing a one-fifteenth molar solution of primary potassium phosphate and a one-fifteenth molar solution of secondary sodium phosphate in the ratio of 0.5 c.c. of the former to 9.5 c.c. of the latter. The citrate buffer solution was prepared by mixing a one-tenth molar solution of secondary sodium citrate, and an exactly one-tenth normal solution of carbonate-free sodium hydroxid in the ratio of 4 c.c. of the former to 6 c.c. of the latter. Of the two buffers, the citrate solution was used more frequently, since it possessed a greater alkali reserve and, therefore, was able to neutralize more acid before its reaction was reduced to that of normal feces. The solutions are administered by rectal injection. The results have been extremely encouraging.

Creatininemia. — Fifteen hundred blood chemical analyses were made by Feinblatt to study creatinin retention in conditions in which it might possibly occur. There was no selection of cases. The blood values exceeded 2.5 mg. per hundred cubic centimeters in forty-three patients. An analysis of this group showed that in all there were other unmistakable evidences of renal deficit. Forty cases were diagnosed as glomerulonephritis, while the other three patients were anuric. Fourteen patients attained figures of 10 mg. or over per hundred cubic centimeter. All of these patients died within seventeen days, the average length of life being four days. Of fifteen patients who yielded figures from 5 to 10 mg., eleven were dead within seventeen days, averaging six days. Three others have since died. One of the latter finally succumbed to a cerebral hemorrhage after having attained normal blood chemical values. Of twenty-one patients with readings ranging from 2.5 to 5 mg., sixteen are now dead.

Action of Germanium Dioxid in Pernicious Anemia. — Observations were made by Alexander in three cases of pernicious anemia, in which germanium dioxid was administered at the rate of 100 mg. per kilogram of body weight. No clinical improvement was noticed in any of the cases and the hemoglobin and erythrocytes showed no increase during the period of observation Arsenic and iron, administered hypodermically after the germanium was stopped, lead to an increase of hemoglobin and erythrocytes, also to symptomatic amelioration.

Reactions of Asthmatics.—Taken in conjunction with the local skin and other reactions in asthmatics, the occasional severe symptoms of anaphylactic shock on injection of asthmatics with horse serum and the demonstration in occasional cases of asthma of complement-binding bodies and precipitin in the serum, the results presented by De Besche, showing that the serum of asthmatics may be the means of transferring hypersusceptibility, strengthens materially the opinion that certain forms of asthma may be regarded as anaphylactic in nature.

American Journal of Ophthalmology, Chicago

6: 631-724 (Aug.) 1923

Local Anesthesia an Adjuvant in Ocular Therapeutics Is Process of Absorption Under Nerve Control? J. A. Lippincott, Monte Carlo, France.—p. 631.

Vitreous Membranes on Iris with Adherent Leukoma of Cornea. Y. Yoshida, Kyoto, Japan.—p. 636.

Slit Lamp Studies of Hernia of Vitreous. Relations to Cataract Operations. L. C. Peter, Philadelphia.—p. 644.

Bactericidal Power of Argyrol. R. C. Cheney, Boston.—p. 648.

Serous Tenonitis. W. L. Benedict and M. S. Knight, Rochester, Minn. —p. 656.

Effect of Blood Transfusion on Retinitis of Pernicious Anemia. H. L. Goss, Rochester, Minn.—p. 661.

Surgical Anatomy of Lacrimal Sac. J. H. Bailey, Brooklyn.—p. 665.

Effect of Increase of Intensity of Illumination on Acuity, and Intensity of Illumination of Test Charts. C. E. Ferree and G. Rand, Bryn Mawr, Pa.—p. 672.

Variations in Normal Visual Acuity in Relation to Retinal Cones. A. Cowan, Philadelphia.—p. 676.

Eye Shield to Prevent Delirium Following Senile Cataract Operation. L. M. Gurley, Johnstown, Pa.

Knife Blade in Orbit. A. O. Pfingst, Louisville.—p. 681.

Dacryoadenitis Following Bronchopneumonia. H. McI. Morton, Minneapolis.—p. 682.

Heterophoria and Astigmatism Charts. L. W. Fox, Philadelphia.—p. 684.

Meter Measure for Retinoscopy. W. M. Goldnamer, Chicago.—p. 685.

American Journal of Tropical Medicine, Baltimore

3: 269-367 (July) 1923

*Treatment of Malaria. M. F. Nunez, Barranquilla, Colombia.—p. 269.

Granuloma Inguinale. O. M. Gruhzit, Detroit.—p. 289.

*Methods of Administering Anthelmintics to Remove Whipworms: New Method. S. M. Lambert.—p. 297.

Kala-Azar in Sudan with Special Reference to Its Treatment by Tartar Emetic. R. G. Archibald, Khartoum.—p. 307.

*Serologic Reactions in Yellow Fever. P. P. Grovas, Mexico.—p. 325.

Fleas of Panama, Their Hosts and Their Importance. L. H. Dunn, Ovid, N. Y.—p. 335.

Tropical Bedbug in Relation to Transmission of Relapsing Fever in Panama. L. H. Dunn, Ovid, N. Y.—p. 345.

New Species of Anopheles in Louisiana: Anophelis Atropos D. & K. G. E. Beyer, New Orleans.—p. 351.

Treatment of Malaria.—In a series of 8,000 cases occurring in tropical practice, Nunez says the mortality was reduced by proper treatment to 0.2 per cent. for general malaria, and to 6 per cent. for the malignant types. The arsphenamins promptly abort acute attacks in all forms of malaria, and are specific in the tertian variety. Neo-arsphenamin in concentrated solutions—as much as 0.9 gm. in 2 c.c.—fulfils all essential requirements of the higher dilutions. The technic of injection is given. Neo-arsphenamin by rectum is efficacious.

Intravenous Administration of Oil of Chenopodium for Hookworms.—Oil of chenopodium, injected intramuscularly, Lambert says, has little vermicidal action on hookworms, but in one case apparently had a marked action on whipworms. Oil of chenopodium, injected intravenously, in doses of from 1.5 to 2 c.c., in three cases apparently had a marked vermicidal action on *Trichuris,* little action on *Ascaris,* and none on hookworms. This finding suggested to Lambert that the intravenous injection of suitable anthelminthics may prove an effective method of removing these worms. In view of its crude form, the intravenous use of oil of chenopodium is not recommended as a routine treatment, but this method may be practicable with more refined products.

Serologic Reactions in Yellow Fever.—Serum from 183 cases of yellow fever, seventeen cases of other diseases and twenty-three normal persons was studied by Grovas for the purpose of determining the existence of specific agglutinins for *Leptospira icteroides.* The results showed that the serum of persons attacked by yellow fever acquires agglutinating properties for the leptospira which are demonstrable by the beginning of the second week of the disease. Serum from persons who had had yellow fever years previously usually gave negative reactions. Normal serum or serum from diseases other than yellow fever do not contain agglutinins for *Leptospira icteroides.* On the other hand, serum from recently vaccinated persons usually gives positive agglutination. The facility of the technic and the precision of the procedure makes it the choice for diagnosis. Agglutination by the serum is differentiated from spontaneous agglutination by being always accompanied by immobilization and frequently by lytic phenomena. The lysins probably appear in the serum at the same time as the agglutinins. Pfeiffer's reaction was constantly present in the serum from seventeen persons convalescent from yellow fever. It was negative in the serum from a case on the eighth day of illness. The immunizing property of the serum, as evidenced by a positive Pfeiffer reaction against *Leptospira icteroides*, makes its appearance late, perhaps after the second week, being especially easy to demonstrate during convalescence. The Pfeiffer reaction is, therefore, of less practical applicability in diagnosis than agglutination, but it constitutes valuable confirmatory evidence of yellow fever. In Grovas' experience, complement fixation is subject to numerous sources of error, which deprive this reaction of all practical usefulness.

Archives of Neurology and Psychiatry, Chicago

10: 141-266 (Aug.) 1923

*Diencephalic Centers Controlling Associated Locomotor Movements. H. Mella, Boston.—p. 141.
*Value of Ventriculography. Experience Based on Forty Cases. F. C. Grant, Philadelphia.—p. 154.
*Xanthochromia and Increased Protein in Spinal Fluid Above Tumors of Cauda Equina. H. Cushing and J. B. Ayer, Boston.—p. 167.
*Concussion of Spinal Cord with Clinical Picture of Amyotrophic Lateral Sclerosis. G. B. Hassin, Chicago.—p. 194.
*Spontaneous Cerebral Lesions in Monkeys: Their Significance in Experimental Pathology. B. Lucke, Philadelphia.—p. 212.
*Chronic Intestinal Amebiasis: Special Reference to Neuropsychiatric Manifestations. H. W. Wright, San Francisco.—p. 228.
Intercostal Nerve Variations. H. J. Prentiss, Iowa City, Iowa.—p. 232.

Diencephalic Centers Controlling Associated Motor Movements.—Ablation experiments made by Mella on cats seem to show that in the subthalamic region is an area which, when removed, causes cessation of the automatic locomotor movements associating the fore and hind legs. When this area is left intact in decorticate preparations these movements are present. Serial transections with observations on the locomotor movements, show that the area controlling this function lies from 5 to 10 mm. cephalad to the tentorium. Here the only structures found consistently are the body of Luys and certain characteristic motor cells.

Value of Ventriculography.—In fifteen of forty cases examined by Grant the localization by the ventriculogram was exact. In eight others the localization, while unconfirmed, seems most probably correct. In four cases the ventriculogram proved to be entirely misleading, owing to errors in technic. In three cases the possibility of tumor was excluded by this means. In three cases, owing to an error in technic, Grant was not able to demonstrate the air on the roentgenogram after injection into the ventricles. Two patients have had a ventriculogram made and the diagnosis seems clear. Five patients died, a mortality of 12 per cent.

Xanthochromia and Increased Protein in Spinal Fluid Above Caudal Tumors.—The diagnosis of caudal tumors on the basis of their neurologic symptoms alone Cushing and Ayer point out is not always easy. The determining factor may be the cerebrospinal fluid findings. It is well known that the fluid caudad to a tumor shows marked pathologic changes generally attributed to stasis and transudation into a closed cavity, but similar changes, though of less degree, are present in the fluid cephalad to the tumor. In the five cases reported, these fluids have all shown xanthochromia and excess of protein with the practical absence of nucleated cells.

Concussion of Spinal Cord.—Hassin records the case of a man, aged 60, who tripped on a wire and fell, striking the right shoulder and almost "going head over heels." He evidently did not lose consciousness for he got up and went to work, though he felt sharp pain in the "upper spine." About four weeks later he noticed weakness in the right hand; five months after the injury, there was weakness in the left hand, and eleven months after the accident the legs became weak. The weakness was accompanied by wasting and some difficulty in walking (he could not run up stairs or walk rapidly). There was no complaint of pain, headache or vertigo, nor of gastro-intestinal, genito-urinary, deglutitional, speech or visual disturbance. The diagnosis lay between amyotrophic lateral sclerosis and trauma of the vertebral column secondarily involving the spinal cord. The clinical findings and the history pointed strongly to pressure on the spinal cord by a callus formation of the fourth or fifth cervical vertebra, though the possibility of amyotrophic lateral sclerosis was considered. Laminectomy was performed. No evidences of fracture or dislocation nor of a dural lesion were found, except a line of roughening on the inner aspect of the lamina of the fourth cervical vertebra. The patient survived the operation, but left the hospital unimproved and two weeks later succumbed to pneumonia. The pathologic findings were widespread degeneration of the ventral horns with the formation of microscopic foci of softening, especially in the lower portion of the cervical enlargement of the spinal cord; secondary degeneration of some fibers of the crossed pyramidal tract, lateral limiting zone and the adjacent portion of Gowers' tract.

Spontaneous Cerebral Lesions in Monkeys.—Histopathologic study made by Lucke of the brains from twenty-two apes and monkeys disclosed in nine animals lesions similar to those found in man. Of particular interest was the occurrence, in three animals, of nonsuppurative meningo-encephalitis, resembling the lesions of epidemic encephalitis, acute poliomyelitis and certain other diseases. Cerebral arteriosclerosis occurred in four animals, in two of which marked calcification of the vessels and focal areas of necrosis and gliosis were present. In one animal a solitary tubercle was found in the pons. In two animals acute suppurative meningoencephalitis was present; this was associated in one case with a pontile abscess. The conclusion is reached that the interpretation of cerebral lesions in "experimental" monkeys requires caution, since definite "spontaneous" changes were found in more than 40 per cent. of the animals studied.

Chronic Intestinal Amebiasis.—Twenty-five cases of amebic infection with *Endameba hystolytica* had the following syndromes in order of frequency: (1) neurasthenic syndrome with mental depression; (2) toxic syndrome with myocardial irritability simulating hyperthyroidism; (3) polyneuritic syndrome; (4) arthritic syndrome with reflex nerve pains and deposits in the foramina of the vertebrae. All presented gastro-intestinal syndromes characterized by poor appetite, flatulence and chronic constipation, with occasional diarrhea.

Boston Medical and Surgical Journal

189: 91-124 (July 19) 1923

*Treatment of Heart Disease. W. H. Robey, Boston.—p. 91.
Uterine Fibromyoma: Compilation of End-Results in Three Hundred Cases Treated by Operation. P. E. Truesdale, Fall River, Mass.—p. 97.
Measles in New Bedford. H. G. Rowell, New Bedford, Mass.—p. 101.

189: 219-268 (Aug. 16) 1923

Convulsive Toxemia of Pregnancy and Its Treatment. R. McPherson, New York.—p. 219.
*Basal Metabolism. III. Errors of Clinical Determination. W. H. Stoner, Philadelphia.—p. 232.
*Basal Metabolism. IV. Selection of Normal Standards. W. H. Stoner, Philadelphia.—p. 239.
*Basal Metabolism. V. Tables of Values of Dreyer's Formulas. W. H. Stoner, Philadelphia.

Treatment of Heart Disease.—Robey states that a patient with an anginal type of heart disease has taken sodium nitrite, three or four times a day, for the last fourteen years, and it has done nothing but good. An old lady who lived to be 86, and who had mild symptoms of angina pectoris, took spirits of glonoin every day for six years with considerable benefit. Patients with angina pectoris and failing heart power have never, in Robey's experience, had the progress stayed by digitalis.

Errors in Basal Metabolism Determination.—The various possible errors of the clinical determination of basal metabolic rate are evaluated and discussed by Stoner from the standpoint of minimizing or eliminating them. The errors of greatest magnitude are those of faulty preparation of the subject.

Normal Standards of Basal Metabolism.—The standards of Harris and Benedict and of Dreyer are recommended by Stoner for adults of both sexes and for male children. For girls below 12, the standards of Benedict and Talbot, and for those from 12 to 18, the standards of Benedict are recommended. Hybrid, conciliatory, arbitration standards are condemned. More important than the choice of a standard is the necessity, on account of the wide variation in the results obtained by calculation from the various standards, for the diagnostician to acquaint himself with these standards and to know which is used in the calculation of results reported to him.

Dreyer's Formulas Evaluated. — Dreyer's formulas for expected heat production based on age and weight and for theoretic weight based on sitting height and chest circumference are reviewed by Stoner. Values of the formulas for expected heat production are tabulated for males from 16 to 80, and from weights 25 to 125 kilograms.

Indiana State Medical Association Journal, Ft. Wayne

16: 241-270 (Aug. 15) 1923

Hypertension and Nephritis. J. G. Carr, Chicago.—p. 241.
Laryngeal Diphtheria in Smaller Communities. B. N. Lingeman, Crawfordsville.—p. 248.
Streptococcus Hemolyticus Infection of Nose, Accessory Sinuses and Mastoid Cells. J. C. Boone, South Bend.—p. 249.
Drainage of Eyes. G. W. Spohn, Elkhart.—p. 250.

Iowa State Medical Society Journal, Des Moines

13: 325-364 (Aug. 15) 1923

Treatment of Diabetes with Insulin. E. B. Winnett, Des Moines.—p. 325.
Public Health Legislation. Needs of State. R. P. Fagen, Des Moines.—p. 327.
Postoperative Comfort in Tonsil Cases. G. F. Harkness and J. E. Rock, Davenport.—p. 331.
Muscle Rigidity. Its Diagnostic Value. C. A. Boice, Washington.—p. 335.
Fracture of Patella. J. L. Augustine, Ladora.—p. 339.
Responsibility of Health Officer in Protecting Public Water Supply. J. J. Hinman, Jr., Iowa City.—p. 343.
Fat Reactions in Appendicitis and Cholecystitis. A. Kolodny, Iowa City.—p. 346.
Fistula of Rectum. C. J. Drueck, Chicago.—p. 350.
Surgical Aspects of Uterine Malpositions. J. A. Pettit, Portland, Ore.—p. 352.

Journal of Comparative Psychology, Baltimore

2: 431-509 (Dec.) 1922

*Effects of Cigar and Cigaret Smoking on Certain Psychologic and Physiologic Functions. II. Blood Pressure and Heart Rate. R. L. Bates, Baltimore.—p. 431.

3: 147-239 (June) 1923

Performances in Certain Mental Tests of Children Classified as Underweight and Normal. E. E. Nicholls.—p. 147.
Comparison of Certain Mental and Physical Measurements of School Children and College Students. E. M. Stalnaker.—p. 181.

Effect of Cigar and Cigaret Smoking on Blood Pressure and Heart Rate.—According to Bates the effects on healthy young adults of smoking a cigar or three cigarets, are to produce a rise in systolic and diastolic blood pressure and in heart rate. This rise varies in amount and in rapidity, from reactor to reactor, and from day to day for the same reactor. The rises in blood pressure usually amount to only a few millimeters above the previous average level, and are in almost all cases less than ten, but may in some cases be over twenty millimeters. The rise in heart rate is irregular; less than ten per minute in most cases, but may be as much as twenty. The normal irregular variations in blood pressure, due to various causes, are practically as great as the variations which may be ascribed to tobacco, but the normal variations in heart rate are less significant than the tobacco effects. The blood pressure and heart rate subside to "normal" in from twenty to thirty minutes. In some cases this subsidence occurs before the finishing of the cigar or cigarets; in other cases, the decline does not appear, and the rise may even be continued for some minutes after the cessation of smoking. In other cases, the cessation of smoking is marked by an immediate decline in blood pressures and heart rate. While it seems probable that the time elapsing after the beginning of smoking is a more important factor than the discontinuance, this cannot be clearly made out from the records so far obtained. How far this effect is due to absorbed smoke products, and how much to the psychologic factors involved in the smoking process, remains to be discovered.

Journal of Immunology, Baltimore

8: 239-321 (July) 1923

Some Relations Between Hydrogen Ion Concentration and Antigenic Properties of Proteins. I. S. Falk and M. F. Caulfield, New Haven, Conn.—p. 239.
Complement Deficient Guinea-Pig Serum. R. R. Hyde, Baltimore.—p. 267.
Studies in Specific Hypersensitiveness. Relative Susceptibility of American Indian Race and White Race to Poison Ivy. O. Deibert, E. F. Menger and A. M. Wigglesworth, New York.—p. 287.
*Biochemic Race Index of Koreans, Manchus and Japanese. H. Fukamachi, Fukuoka, Japan.—p. 291.
*Vaccine Treatment of Asthma. F. M. Rackemann and L. B. Graham, Boston.—p. 295.
Serologic Reactions in Isolated Rabbit Lungs. I. Reaction to Histamin and to Vaughan's Protein Split Product. W. H. Manwaring and H. D. Marino, Palo Alto, Calif.—p. 317.

Biochemic Race Index of Koreans, Manchus and Japanese.—Fukamachi's work shows that Koreans are of intermediate type (of Hirschfeld), though not far from the Asio-African type. Manchus belong to the Asio-African type. The Japanese belong to an intermediate type that is quite different from that of the Koreans and Manchus. The biochemical race index gradually decreases in Japan from south to north.

Vaccine Treatment of Asthma.—The method of making autogenous vaccines and of treating patients with emphysema, chronic bronchitis and with bacterial asthma is described by Rackemann and Graham. Ninety patients have been treated with autogenous vaccines. A predominating organism was found and used in twenty-nine cases, with good results in eleven and fair results in eleven. In sixty-one cases there was no predominating organism, but a selection from several autogenous vaccines was made on the basis of the local reactions following the test dose. Good results occurred in thirteen and fair results in fourteen. Forty-one patients have been treated with stock vaccines likewise selected on the basis of the local reactions, with good results in sixteen and fair results in twelve. Whatever vaccine is used, good results occured only in those cases in which the various doses of the vaccine were followed by local reactions at the site of inoculation. The importance of the local reaction plus the fact that the results with stock vaccines are as good or better than those with autogenous vaccines gives rise to the impression that the action of all vaccines in asthma is nonspecific. Of the entire series of 131 patients, nine have been "cured"; thirty-one have been definitely benefited; thirteen have been relieved temporarily, but fifty-four have not been relieved at all.

Journal of Industrial Hygiene, Boston

5: 109-148 (Aug.) 1923

*Carbon Monoxid Asphyxia: Artificial Respiration. C. K. Drinker, K. R. Drinker, L. A. Shaw and A. C. Redfield.—p. 109.
*Final Report of Commission on Resuscitation from Carbon Monoxid Asphyxia. Treatment of Carbon Monoxid Asphyxia.—p. 125.
Mental Factors in Industrial Hygiene. C. Macfie Campbell.—p. 130.
Phagocytosis of Lead Compounds and Their Influence on Activity of Leukocyte. J. Fine.—p. 138.

Carbon Monoxid Asphyxia.—The possibility that acute cardiac dilatation and failure of the right ventricle may occur in subjects poisoned by illuminating gas as a result of excessive artificial respiration by positive pressure apparatus (pulmotor and lungmotor) has been tested by the Drinkers et al. on cats. It is shown that no evidence as yet exists by which manual methods of artificial respiration can be evaluated in satisfactory physiologic terms. The probabilities are that the Schafer method is much more efficacious than is ordinarily believed. An account is given of attempts at artificial respiration on the bodies of persons, dead but a short time, and the impossibility of obtaining data on the efficiency of manual methods from such experiments is confirmed.

Resuscitation from Carbon Monoxid Asphyxia.—The Commission has found no evidence to indicate that artificial respiration apparatus operating by positive pressure, such as the lungmotor or the pulmotor, produces results in resuscitation from gas poisoning superior to those obtained by the use of the Schafer prone pressure method of resuscitation alone. The Commission is of the opinion that the employment of such devices may often do actual harm, and strongly recommends that the prone pressure method be employed. The Commission recommends the use of the carbon dioxid-oxygen inhalations developed by Henderson and Haggard as a treatment for gas poisoning.

Journal of Infectious Diseases, Chicago

33: 113-192 (Aug.) 1923

Acid Agglutination of Paratyphoid Bacilli. W. E. Gouwens, Chicago.—p. 113.
*Diphtheric Vaginitis in Children. A. L. Van Saun, New Haven, Conn.—p. 124.
Studies on Yeast. VI. Continuous Growth of Saccharomyces Cerevisiae in Synthetic Mediums. E. I. Fulmer and V. E. Nelson, Ames, Iowa.—p. 130.

*Studies of Fusiform Bacilli and Spirochetes. IV. Occurrence in Tonsils and Adenoids. I. Pilot and J. Brams, Chicago.—p. 134.
*Studies in Fusiform Bacilli and Spirochetes. V. Occurrence in Otitis Media Chronica. I. Pilot and S. J. Pearlman, Chicago.—p. 139.
Appearance and Persistence of Typhoid Agglutinins in Rabbits. T. D. Beckwith and E. M. Jones, Berkeley, Calif.—p. 142.
*Life Cycle of Bacillus Fusiformis. R. Tunnicliff, Chicago.—p. 147.
Streptococci of Feces and Mouth of Cows. V. Studies of Streptococci. S. H. Ayers and C. S. Mudge, Washington, D. C.—p. 155.
Diplococcus Associated with Caseous Lymphadenitis and Pneumonia of Sheep. R. S. Spray, Chicago.—p. 161.
*Agglutination Studies of Clostridium Botulinum. W. A. Starin and G. M. Dack, Chicago.—p. 169.
Anticomplementary Action of Fresh Bovine Serum. I. F. Huddleson, East Lansing, Mich.—p. 184.

Diphtheric Vaginitis in Children.—A search made by Van Snan of the available literature for the last thirty years yielded only twenty-six cases of diphtheric vaginitis in children. Primary diphtheria of the vagina is said to have occurred but six times in the series, and in some of these cases it was not quite clear that a more extended examination might not have revealed another avenue of infection. Apparently, bacteriologic examinations were made in fifteen of the cases; virulence tests were made in but six of these. A number of the cases occurred in children physically below par. The mortality does not seem to have been higher in diphtheric vaginitis than in other forms of diphtheria. Four deaths were reported in the series collected. The duration of the disease would seem to have been anywhere from one to four weeks, as a rule. One additional case is reported.

Fusiform Bacilli in Tonsils.—Fusiform bacilli were found by Pilot and Brams in the extirpated tonsils of eighty-two of 100 children, and in fifteen of forty-six adenoids. Spirochetes appeared in 25 per cent. of the tonsils, especially in the actinomyces-like granules. In the adenoids, they were demonstrated in only two instances. Associated with them in both tonsils and adenoids were streptococci of the hemolytic and viridans types, and other bacteria.

Bacteriology of Chronic Otitis Media.—In the chronic fetid discharges form the middle ear Pilot and Pearlman found fusiform bacilli, spirochetes together with streptococci, pneumococci and diphtheroids. Nonfetid discharge did not harbor the bacilli and spirochetes. The fusiform bacilli and spirochetes appeared identical with those about normal teeth, tonsils, adenoids and in putrid infections of the mouth and lungs.

Life Cycle of Bacillus Fusiformis.—The pure culture of *Bacillus fusiformis* under observation by Tunnicliff was extremely pleomorphic, forming straight and wavy, nonmotile threads of various lengths, the bacilli and filaments staining blue with Giemsa stain, and bodies inside the organism bright pink. Under certain conditions these bodies appear to fall out of the threads and develop into motile spirilla with from one to ten curves; or more frequently the spirilla develop from the bodies in the interior of the cell and later emerge from the end of the thread, or the filament ruptures leaving them free. The spirillum now seems to degenerate, and when stained with Giemsa shows both within and without elongated, slightly pointed blue bodies containing deeply staining granules at their ends, resembling short the fusiform bacilli seen in early cultures. The spirillar and bacillary cycles appear to be connected also by a symplastic stage, when a mass of bodies is formed due to changes in the organisms, from which bacilli and threads emerge. These observations tend to confirm the theory that fusiform bacilli and spirilla are different forms in the life cycle of one organism.

Agglutination Studies of Claustridium Botulinum.—The immunization of rabbits by young vegetative cells of *Cl. botulinum*, *Cl. sporogenes*, and *Cl. putrificum*, Starin and Dack assert, results in the formation of specific agglutinins, three intraperitoneal injections being sufficient to call forth a considerable amount of agglutinins. Similar injections of rabbits with spores of these strains did not result in the production of agglutinins. Rabbits tolerate the injection of vegetative cells well, but the injections of spores, detoxified so as to be harmless for mice, result in the death of a large proportion of the rabbits after from five to seven injections. From the bodies of the animals that died, it was possible to isolate cultures which were morphologically, culturally, and in the matter of toxin production, identical with *Cl. botulinum*.

Journal of Metabolic Research, Morristown, N. J.

3: 1-199 (Jan.) 1923

Effect of Purification of Casein on Its Food Value. C. Funk, J. B. Paton and L. Freedman, New York.—p. 1.
*Insulin. 2. Influence of Carbohydrate and Protein on Diabetes and Insulin Requirement. J. W. Sherrill, Morristown.—p. 13.
*Insulin. 3. Influence of Fat and Total Calories on Diabetes and Insulin Requirement. F. M. Allen, Morristown.—p. 61.
*Possible Sources of Insulin. C. H. Best and D. A. Scott, Toronto. —p. 177.
*Effect of Germanium Dioxid on Blood. J. H. Muller and M. S. Izard, Philadelphia.—p. 181.

Influence of Carbohydrate and Protein on Insulin Requirement in Diabetics.—Sherrill reports a series of experiments concerning the insulin requirement of diabetic patients as modified by additions, withdrawals and substitutions of foods, particularly carbohydrate and protein. Apparently carbohydrate has a stronger glycosuriac effect and creates a higher insulin requirement than the caloric equivalent of any other kind of food. Protein ranks below performed carbohydrate in respect to glycosuric effect and insulin requirement when the substitution is made on a basis of either equal caloric value or theoretical glucose content. Though hypoglycemia may be prevented by sufficiently large quantities of protein, this influence is surprisingly feeble and by no means in proportion to the theoretical glucose value. Assumption of a specially powerful glycosuric influence of protein, on the ground either of its specific dynamic or a supposed toxic action, is thus proved to be contrary to fact. There is no constant scale of insulin dosage for the assimilation of any given quantity of carbohydrate. The ratio between grams of glucose and units of insulin varies widely not only in different patients but also in the same patient under different conditions. Glycosuria and insulin requirement are governed to a very important degree by the total caloric value of the diet.

Influence of Fat on Insulin Requirement in Diabetes.—According to Allen, the insulin requirement of the organism is governed not only by carbohydrate but also by fat and all other elements entering into the diet or metabolism. It remains uncertain whether insulin is directly concerned in total metabolism, or whether it is specifically related to the assimilation of glucose alone and only in some secondary or indirect manner with the metabolism of other foods. It can only be said that the body cells somehow require insulin for their nutrition and consume it at a rather rapid rate in their life processes. Its anabolic function is probably as important as its catabolic function. The minimum insulin requirement compatible with sugar freedom may apparently be as low as 4 units per day in a young child, but is probably 12 units or more for an adult. The need for insulin is related quantitatively to the body mass as well as to the amount of food to be metabolized. Under comparable conditions of nutrition, the insulin requirement of children is lower absolutely but higher per kilogram than that of adults. The maximum insulin requirement is created by temporary emergencies, such as infection or acidosis, from causes which are not understood. The maximum ordinary requirement is created by luxus diets and increases of weight. The experiments showing the influence of fat, total calories and body weight on the insulin requirement confirm in all details the investigations on which the undernutrition treatment of diabetes was founded. The theoretical position is thus strengthened on both sides. On the one hand, the undernutrition treatment is justified as against opposed dietary proposals. On the other hand, the exact correspondence of the results with insulin to the former modifications of tolerance by diet supports the belief that insulin is the true internal secretion of the pancreas and that diabetes is due solely to a deficiency of insulin.

Possible Sources of Insulin.—The authors' experiments tend to show that a chemical body resembling insulin, so far as the effect on the blood sugar of normal rabbits is concerned, is present in vegetable material. In collaboration with Banting, the authors have been able to obtain an insulin-like material in considerable quantities from the blood of the ox, dog, rabbit and man.

Effect of Germanium Dioxid on Blood.—Chemical and spectroscopic analyses lead Muller and Iszard to the belief that germanium dioxid injected into the system is reduced to the monoxid in the tissues of the animal, probably resulting in the addition of germanous oxid to the hemoglobin of the cells of the venous blood. Subsequent oxygenation of such blood in the lungs then releases the germanium from the cells by converting it into the dioxid, and anhydrid of an acid comparable with carbonic acid, but nonvolatile. The latter appears simply to dissolve in the plasma, where it is forced to remain and return to the tissues with the arterial blood. Here reduction very likely again takes place, reproducing germanous oxid and completing the cycle. These reactions, if true, plainly indicate that germanium in the blood stream may act as an oxygen carrier, and explain in part the physiologic effect which this element produces in the animal system, resulting in erythropoiesis.

Journal of Parasitology, Urbana, Ill.

9: 183-252 (June) 1923

Life History of New Schistosome, Schistosomatium Pathlocopticum Tanabe, Found in Experimentally Infected Mice. B. Tanabe, Boston.—p. 183.
Morphology and Life History of Herptomonas Muscae-Domesticae in North American Muscoid Flies. E. R. Becker, Baltimore.—p. 199.
Occurrence of Taenia Saginata in North China. R. G. Mills, Peking, China.—p. 214.
*New Type of Ameba (Caudamoeba Sinensis) Parasitic in Man Observed in North China. E. C. Faust, Peking, China.—p. 221.
Larval Characters in Genus Sarcophaga. F. M. Root, Baltimore.—p. 227.
Complement Fixation Test of Schistosomatium Pathlocopticum and Its Group Reaction with Schistosoma Japonicum. B. Tanabe, Boston.—p. 230.
Occurrence of Ancylostoma Braziliense De Faria 1910 in Philippine Islands. S. T. Darling.—p. 234.

New Parasitic Ameba in Man.—A new ameba from man is described by Faust. He proposes the name *Caudamoeba sinensis*, nov. gen. nov. spec. The organism was found in material from four dysentery patients. It is phagocytic for red blood corpuscles and for bacteria and in two instances was the only micro-organism in the stool suspected of being pathogenic. Cases containing only this organism in the stools gave a typical history and manifested symptoms of amebic dysentery. Emetin is a specific for the infection. The organism succumbs in the course of a few treatments and does not reappear in the stool after a course of treatments. In this respect it is apparently more amenable to treatment than *Endameba dysenteriae*.

Kansas Medical Society Journal, Topeka

23: 201-234 (Aug.) 1923

End Results of Suprapubic Prostatectomy. V. C. Hunt, Rochester, Minn.—p. 201.
High Blood Pressure in Pregnancy: Etiologic Factors. M. W. Hall, Wichita.—p. 204.
Fundamentals of Basal Metabolism. R. L. Haden, Kansas City, Kan.—p. 207.
Aids in Diagnosis. J. T. Scott, St. John.—p. 211.

Laryngoscope, St. Louis

33: 483-564 (July) 1923

Clinical Studies of Vestibular and Auditory Tests in Intracranial Surgery. W. P. Eagleston, Newark, N. J.—p. 483.
Prevalence of Hay-Fever. William Scheppegrell, New Orleans.—p. 535.

Maine Medical Association Journal, Portland

13: 299-322 (July) 1923

Physician of Future. E. R. Kelley.—p. 299.

Mental Hygiene, Albany, N. Y.

7: 449-672 (July) 1923

Colony and Parole Care for Dependents and Defectives. C. Bernstein, Rome, N. Y.—p. 449.
Delinquency and ex-Soldier. W. F. Lorenz, Mendota, Wis.—p. 472.
More Community Aspects of Feeblemindedness. G. Hamilton, New York.—p. 485.
Classification of Mental Defectives. H. W. Potter, New York.—p. 509.
Neuropsychiatric Work in Industry. A. Scott, New York.—p. 521.
Education of Nurse in Principles of Mental Hygiene. J. P. Wilkinson, Weare, N. H.—p. 538.
General Paralysis in State Hospitals for Mental Disease. E. M. Furbush.—p. 565.
Study of One Hundred Feebleminded Girls with Mental Rating of Eleven Years or Over. G. L. Wallace, Wrentham, Mass.—p. 579.
Mental Hygiene Work in England. M. J. Powers, New York.—p. 588.
Defective Child—What Can Be Done for It. N. L. Perkins, Detroit.—p. 595.

Michigan State Medical Society Journal, Grand Rapids

22: 323-382 (Aug.) 1923

*Survey of Thyroid Enlargement Among the School Children of Grand Rapids. T. Reed, Grand Rapids.—p. 323.
Venereal Prophylaxis. E. S. Browning, Grand Rapids.—p. 325.
Future of Medicine. H. B. Britton, Ann Arbor, Mich.—p. 328.
Relation of Edentulous Jaws to Systemic Disease. C. A. Teifer and J. F. Wood, Muskegon.—p. 332.
Significance of Appendiceal Stasis as Demonstrated by Barium Meal. W. A. Evans, Detroit.—p. 334.
Personal Experiences with Infantile Paralysis. R. G. Tuck, Brown City.—p. 338.

Survey of Thyroid Enlargement in Michigan.—The general prevalence of enlargement of the thyroid among the school children of Grand Rapids was not appreciated until Reed and Clay completed their survey. Thirty per cent. of the children examined were found to have enlargement ot the thyroid. It was twice as common among girls as among boys. The health department of Grand Rapids feels that goiter prevention is a public health measure; that being of interest to the general public health, it can, therefore, best be taken care of by public health officials through the organization of public school nurses and physicians. Consequently, the school children of Grand Rapids are at present being given tablets containing iodin.

Minnesota Medicine, St. Paul

6: 431-472 (July) 1923

Orthopedic Surgery of Upper Extremity. A. Steindler, Iowa City, Iowa.—p. 431.
Clinical and Laboratory Study of Hypertension. E. L. Gardner, Minneapolis.—p. 436.
Sheppard-Towner Bill as Administered in Minnesota by State Board of Health Division of Child Hygiene. E. C. Hartley, Minneapolis.—p. 442.
Interrelation of Gynecology and Urology. H. M. N. Wynne, Minneapolis.—p. 445.
Obstetrics (One Thousand Cases), as Seen by Country Practitioner. A. Kuhlmann, Melrose.—p. 449.
Cerebral Pneumography as Aid in Early Diagnosis of Hydrocephalus. O. S. Wyatt, Minneapolis.—p. 454.
Epilepsy: Its Present Status. W. H. Hengstler, St. Paul.—p. 457.

6: 473-522 (Aug.) 1923

Unusual Findings in Roentgenography of Head. C. C. Sutherland, Rochester, Minn.—p. 473.
*Meckel's Diverticulum as Etiologic Factor in Intestinal Obstruction: Report of Three Cases. J. A. Johnson, Minneapolis.—p. 479.
*Functional Tests in Heart Disease. T. Ziskin, Minneapolis.—p. 484.
*Tuberculosis of Epididymis. S. R. Maxeiner and R. H. Waldschmidt, Minneapolis.—p. 492.
Tuberculosis in School Children. J. A. Myers, Minneapolis.—p. 497.
Hypothyroidism. A. M. Snell, Mankato, Minn.—p. 503.
Surgical Relief of Dysmenorrhea. C. C. Kennedy, Minneapolis.—p. 507.

Meckel's Diverticulum Causes Intestinal Obstruction.—Johnson reports three cases. In one case a Meckel's diverticulum was found about 18 inches from the ileocecal junction. The tip of this and a fibrous band had become adherent to the root of the mesentery just above the promontory of the sacrum. A loop of small intestine had passed under this band and had become obstructed. In the second case a Meckel's diverticulum was adherent to the ileum sac of an inguinal hernia, causing angulation of the ileum with obstruction. In the third case a band from a Meckel's diverticulum was adherent to the ileum. The band and diverticulum being drawn in by a peristaltic wave caused intussusception and obstruction. Johnson asserts that Meckel's diverticulum is probably an etiologic factor in more than 2 per cent. of all mechanical obstructions.

Functional Tests in Heart Disease.—The majority of tests devised to determine the efficiency of the heart, Ziskin says, are of little value. The only functional test at present is the patient himself. A thorough study of the history and symptoms of the case, together with a complete physical examination, will give more information as to the functional capacity of the heart than all tests combined.

Tuberculosis of Epididymis.—Fifteen cases of tuberculosis of the epididymis are reported by Maxeiner and Waldschmidt. Ten showed extragenital tuberculosis before the operation. The average duration of symptoms was nine and one-half months before operation. Pain was present in thirteen cases. In twelve cases, the first symptoms arose in the lower pole of the epididymis. Ten cases were bilateral. In five cases, one testis was so badly involved that it had to be removed. Eight patients report their general health to be improved, while seven report their general condition unchanged. One patient had tuberculosis of one kidney, which was removed before the operation on the testis. A second patient developed tuberculosis of both kidneys postoperatively. Treatment should be general, as well as local.

Missouri State Medical Association Journal, St. Louis

20: 263-302 (Aug.) 1923

*Chronic Pneumonitis Following Influenza. A. L. Anderson, Springfield.—p. 263.
Mobilization of Ankylosed Joints by Operation. F. D. Dickson, Kansas City.—p. 266.
Prevention of Deformities in Acute Surgical Lesions in Children. W. R. Rainey, St. Louis.—p. 271.
Some Practical Points in Handling of Malnutrition in Older Children. B. S. Veeder, St. Louis.—p. 276.
Some Obstetric Problems. F. T. Van Eman, Kansas City.—p. 278.
Gastric Hyperacidity as Etiologic Factor in Pyorrhea Alveolaris. J. I. Tyree, Joplin.—p. 281.
Recognition and Treatment of Postoperative Complications. F. W. Bailey, St. Louis.—p. 285.

Chronic Pneumonitis Following Influenza.—Anderson discusses cases which so far as history and physical examination are concerned apparently are cases of tuberculosis. But on further observation, this impression is not confirmed by finding tubercle bacilli in the sputum or by the course of the complaint. All of these patients give a history of having had influenza, and in most of the cases, pneumonia followed. Some of them had been having pulmonary and heart symptoms from two to three years. They complained of weakness, shortness of breath, especially on exertion, nervousness, pains in the chest and coughing, the last symptom varying in intensity. Some had only a slight morning cough associated at times with hoarseness and raising but little sputum; while others had rather a distressing cough through the day, with considerable amount of sputum. Sometimes this would be streaked with blood, but in none had the sputum ever been found positive for tubercle bacilli. The general appearance of the patients varied. Some had maintained normal body weight, while others had lost considerably and appeared undernourished. Anderson urges that careful examinations be made in these cases to avoid error in diagnosis.

New Jersey Medical Society Journal, Orange

10: 253-288 (Aug.) 1923

Insulin Therapy. M. J. Synnott, Montclair.—p. 253.
Principals of Deep Roentgen-Ray Therapy. J. Roemer, Paterson.—p. 255.
Causes and Prevention of Deformities of Pelvis. B. F. Buzby, Camden.—p. 257.
Cancer of Pancreas; Report of Cases. H. I. Goldstein, Camden.—p. 262.
Lobar Pneumonia. A. B. Dochez, New York City.—p. 274.
Medicinal Treatment of High Blood Pressure. C. G. Cumston, Geneva, Switzerland.—p. 276.

New York Medical Journal and Medical Record, New York

113: 73-132 (July 18) 1923

Acrodermatitis Chronica Atrophicans and Its Relation to Scleroderma. F. Wise, New York.—p. 73.
*Study of Death of Full-Time Extrauterine Fetus in Situ and Its Scientific Value. J. Oliver, London, Eng.—p. 81.
Case of Primary Sarcoma of Spleen. H. C. W. DeBrun, New York.—p. 85.
Cell Ionization and Its Relation to Malignant Neoplasms. D. C. A. Butts, Philadelphia.—p. 89.
Medical Education and Some Medical Views Abroad. J. S. Diamond, New York.—p. 93.
Gravity Method of Blood Transfusion. T. L. Fisk, New York.—p. 981.
*Miliary Carcinosis. E. H. Funk and B. L. Crawford, Philadelphia.—p. 101.
Significance of Gastro-intestinal Disturbances in Early Pulmonary Tuberculosis. S. A. Savitz, Philadelphia.—p. 104.
Antibody Relationship of Members of Streptococcus and Bacillus Coli Groups. J. F. Anderson and W. B. Ellinger, New Brunswick, N. J.—p. 105.
Repairing the Human Machine. F. C. Elton, New York.—p. 107.
Why Does not Prohibition Prohibit? S. D. Hubbard, New York.—p. 108.

Relation of Extra-Uterine Fetus to Its Placenta.—Supporters of the mechanical theory of the functioning of the placenta allege that by the physical laws of diffusion, filtration and osmosis all the nutrient processes occurring through the placenta can be understood and explained. Oliver, on the contrary, maintains that even the passage of the diffusible mineral substances which the fetus requires cannot be accounted for by physical laws, because the specific needs of the embryo for growth and development are very different from the nutrient needs of the mother, and because the relative proportions of the mineral and other substances circulating in the mother's blood are very different from the relative proportions which the placenta is required to furnish for the development and growth of the fetus. The mere fact that certain substances capable of filtration when thrown into the blood of the mother pass into the circulation of the fetus, is no criterion, but a careful study of the conditions, as a whole, as they obtain in the case of the full time extra-uterine fetus in its relation to its placenta is of the greatest scientific value.

Miliary Carcinosis.—The clinical history and physical findings in the case cited by Funk and Crawford suggested an acute tuberculosis either of the localized type known as acute bronchopneumonic tuberculosis or the pulmonic form of acute miliary tuberculosis. At the necropsy, instead of finding miliary tuberculosis, the lesions present were those of a miliary carcinoma. The gross appearance of the lung was so like that of a miliary tuberculosis that at first glance it was considered tuberculous. A feature which caused some comment was the absence of any evidence of an old lesion of tuberculosis at the top of the lungs. On examining the other organs, however, especially the liver, the malignant character of these miliary nodules became apparent. In the liver they were somewhat larger, several approaching 0.5 to 1 cm. in diameter, rather sharply defined against the surrounding liver tissue, firm on section, and free from caseation. An ovarian cyst removed almost twenty months before might have had malignant changes. Sections revealed the changes of adenocarcinoma.

Philippine Journal of Science, Manila

23: 1-121 (July) 1923

Distribution of Dipterocarpaceae: Origin and Relationships of Philippine Flora and Causes of Differences Between Florals of Eastern and Western Malaysia. E. D. Merrill, Manila.—p. 1.
Life History of Horse Oxyurid (Oxyuris Equi). B. Schwartz.—p. 35.
*Metabolism Experiments with Filipino Students in United States. F. O. Santos, New Haven, Conn.—p. 51.
Philippine Sharks. A. W. C. T. Herre, Manila.—p. 67.
New Philippine Paussid, Synonimical Notes on Pachyrrhynchus, and New Species of Latter. W. Schultze, Manila.—p. 77.
Night and Day Rates of Elongation of Banana Leaves. S. F. Trelease, Baltimore, Md.—p. 85.
Potassium Ferrocyanid as Reagent in Microscopic Qualitative Chemical Analysis of Common Alkaloids. H. I. Cole, Manila.—p. 97.
*Hookworm Disease: Clinical Entity in Philippine Islands. C. N. Leach, B. Schwarts, F. D. Leach and F. G. Haughwout, Manila.—p. 105.

Metabolism Experiments on Filipino Students.—Nitrogen metabolism experiments were conducted by Santos to find out whether it is possible for Filipinos who have resided one year or more in the United States and have become accustomed to American diet to remain in nitrogen equilibrium when given a Filipino diet of rice, fish, meat and vegetables. The four subjects showed positive nitrogen balances when given their native diet, and this diet as selected furnished enough calories for the nutritive equilibrium.

Hookworm Disease in Philippines.—The existence of hookworm disease in the Philippines is recorded by Leach et al. This appears not to have been done before. The incidence of hookworm infestation can be expected to vary from 40 to 90 per cent. in certain rural districts. In this paper discussion is limited to hookworm disease in Cebu. Of 125 patients admitted to hospital during November, 1922, forty-four were hookworm positive. Most of the cases presented a blood picture that might readily be mistaken for that of a primary anemia. No case presented an eosinophilia above 7 per cent. All patients received treatment with carbon tetrachlorid on the basis of 1 c.c. of the drug to each 5.5 kilograms of body weight. Aside from slight dizziness and drowsiness, none exhibited the slightest untoward effects from the treatment. A hypersecretion of mucus in the intestinal tract, persisting for a number of hours after the treatment, was noted in nearly every case. No delayed untoward effects from the drug were observed when all subjects were inspected five days after treatment.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2: 215-268 (Aug. 11) 1923

*Applications of Physiology to Medicine. II. Ventricular Fibrillation and Sudden Death. J. A. MacWilliam.—p. 215.
*Mental Deficiency in Its Social Aspects. W. A. Potts; E. F. Pinsent and others.—p. 219.
Segregation of Mental Defectives. H. Devine.—p. 224.
Sterilization of Mental Defectives. R. A. Gibbons.—p. 226.
Organization for Supervision of Mental Defectives. C. M. Campbell.—p. 229.
Heredity and Social Conditions Among Mentally Defective. F. Mott.—p. 230.

Cause of Death from Ventricular Fibrillation.—Death from ventricular fibrillation, according to MacWilliam, is due to a failure of the heart's action, essentially different from cardiac (or myocardial) failure, in the sense of exhaustion of the contractile power of the cardiac muscle; a verdict in the latter sense would usually be, in cases of sudden death, fallacious. While such exhaustion of contractility is of common occurrence in disease, it is a gradual process, leading to more and more marked impairment of the pumping power necessary to maintain a good circulation and of the power to respond to the increased demands of muscular exercise, etc. There is no ground for the assumption that a sudden loss of power can occur, that is, that muscular fibers endowed with contractility adequate for a tolerably good blood pressure and blood flow should abruptly become enfeebled or paralyzed, apart, of course, from the sudden action of violent poisons or such gross causes as asphyxia, obstruction of coronary supply, hemorrhage, etc. What really happens in the supervention of ventricular fibrillation is a misapplication of contractile energy; it is thrown away in a turmoil of fruitless activity, a disastrous change occurring in muscle that may be already more or less limited in power, or that may, on the other hand, be possessed of vigor more than sufficient for the ordinary needs of the circulation. This often occurs in a heart showing no failure of rhythmicity, excitability, or contractility.

Social Aspects of Mental Deficiency.—The importance of the subject of mental defect, in Pott's opinion, is not fully realized. The number of mental defectives is large and the problem is intimately interwoven with most social difficulties. In the control of venereal disease, mental defectives constitute one of the great difficulties, for they neither protect themselves against disease, nor realize the importance of treatment, especially of continuing it until the disease is cured. Chronic drunkenness, though not pathognomonic of mental defect, often claims as victims men and women whose judgment and self-control are so poorly developed as to constitute a form of feeblemindedness. Illegitimacy also is a problem that cannot be considered regardless of mental defect. In work with criminals and delinquents punishment cannot help those who require treatment or reeducation. In dealing with the problem of the unemployed, many of whom are said to be unemployable, one of the first steps should be to sort out the mentally defective. So, too, with war pensions and "shell shock" cases. Some of these are, always have been, and always will be mentally defective. The sooner these are weeded out the better for them and for those who, both by their past record and their future possibilities, are entitled to skilled and expensive treatment. Defectives always have existed, and always will exist. It is not certain that there is a bigger percentage than there used to be. It may only be that the circumstances and conditions of present civilization make them more obvious. The principal cause is heredity; therefore, segregation, even if only partial, will reduce the number. But heredity, although the outstanding cause, is not the only cause. The statistics which seemed at one time to lead almost inevitably to the conclusion that heredity was the only factor that mattered have been shown to have been unduly stressed. In some cases this was due to the fact that what was likely to be inherited was not mental defect, but a psychopathic make-up; in others, notably some of the American records, the figures were based not on scientific investigation, but on hearsay evidence obtained long after the unsatisfactory ancestor was dead. Those who have the care of the mentally defective and all other social workers must join hands to combat the racial poisons, syphilis and alcohol. Other known unfavorable agencies must not be forgotten, such as infectious disease of the mother during pregnancy. Toxins and bad environment must contribute in some cases to the incidence of mental defect. Once mental defect is established little can be done to eradicate it. The great opportunity is at the antenatal clinic. Highly skilled medical practitioners are essential there; in addition, a high standard of national health, especially among married women, must be achieved. It is in the school clinic that the opportunity occurs for recognizing and scheduling the pathologic or asocial child. The more efficient the supervision, the more thorough the early investigation, the fewer persons will have to be segregated later. The public must be taught that those who are segregated are being treated and not punished, that it is the only way in which they can lead happy and useful lives. The institutional life essential for them is arranged not only for their benefit, but also in the interests of their normal brothers and sisters, who are often seriously handicapped by the presence of a defective in the home or the school. Sterilization has always appeared to Potts an irrational procedure, because in nearly every case in which it could be justified the unfortunate defective must still be segregated; he is a menace to society in other ways than the breeding of other degenerates. The sterilized delinquent will go on stealing and giving trouble to the police. Feebleminded young women could not be sterilized and then turned loose to spread venereal disease broadcast.

Irish Journal of Medical Science, Dublin

5: 1-55 (July) 1923

*Rotunda Lying-In Hospital, Clinical Report for Year 1921-1922. G. FitzGibbon, J. S. Quin, and G. W. Theobald.—p. 1.

Obstetric Statistics from Rotunda Lying-In Hospital.—In the extern maternity of the Rotunda Lying-In Hospital, 2,021 women were attended in 1921-1922 during confinement; 152 were cases of abortion or miscarriage. There were eleven cases of placenta praevia; eight were central; one marginal, and two lateral, with no mortality; all were treated by bringing down a leg after version in those cases with a cephalic presentation. One case of concealed accidental hemorrhage ended fatally, the patient being dead on arrival of the assistant. Five cases of hemorrhage were treated by vaginal plugging, four were cases of accidental hemorrhage, one was a miscarriage. There were ten deaths postpartum, hemorrhage being the cause of five in cases in which the delivery of the infant was managed by midwives. One woman died of sepsis on the eleventh day after a normal delivery, another woman died on the fourth day after a protracted labor with marked inertia. One woman died of cardiac disease, having severe decompensation, and one died of a condition suggestive of pulmonary edema. In the intern maternity, 1,715 patients were confined, including forty-two abortions or miscarriages before the twenty-eighth week. Eight deaths occurred in the intern maternity. Two were from secondary abdominal pregnancies; two were due to putrid endometritis following unduly protracted labors; one death was due to double lobar pneumonia, and one each to cardiac disease, intestinal obstruction and rupture of the cervix and cardiac debility. Fifteen presentations were persistent occipitoposterior. There were five cases of face presentation. Brow presentation occurred twice. Transverse presentation was found in four single fetus gestations and in four cases of twins. In twelve cases the cord prolapsed; in three the fetus was dead. Version was done in twenty-two cases, seven for placenta praevia, three for prolapse of cord, eight for malpresentation, other than with twins in which transverse presentations were changed four times. Cephalic version was done in one primipara for a breech presentation with a medium degree of contracted pelvis, and once for breech presentation in the first of twins. Craniotomy was done three times, once for impacted face, once in a case of secondary abdominal pregnancy following rupture of the uterus early in pregnancy and once for posterior sacculation of the uterus following a ventral suspension in which the fundus had become firmly fixed. Perforation was done three times, once for hydrocephalic head associated with eclampsia, once for toxemia with a very large fetus, and once for contracted pelvis and a breech presentation with complications. Evisceration was done in a case of prolapsed arm in a patient with eclampsia. There were 136 cases of definite pelvic contraction. Labor was terminated by the aid of pubiotomy in eight cases. A full analysis is made of all complications, of which there were many.

Japan Medical World, Tokyo

3: 153-180 (July 15) 1923

*Investigation of Pneumonic Plague. M. Tsurumi, C. Hara, M. Ima, T. Awok and T. Sakamoto.—p. 153.
*Action of Body Temperature on Testicle. N. Fukui.—p. 160.
On Centralizing the Control of Epidemics in Orient. T. Watabiki.—p. 163.

Pathology of Plague Pneumonia.—In nine out of thirteen instances studied by Tsurumi et al., the pathology of plague pneumonia was chiefly a hemorrhagic sero-exudation and in the remaining four instances it was a cellular exudation. The clinical progress of pneumonic plague is very rapid, death relieving the victim in less than eighty hours in all cases subjected to necropsy. This rapid progress is believed to be due to the virulent toxicity.

Action of Body Temperature on Testis.—The destruction and disappearance of the generative cells and hypertrophy of the interstitial tissues of the testes, Fukui says, are due to the action of heat in the local tissue, or in other words, the body temperature. In this he also finds the cause of the descent of the testis in mammals.

Journal of Biochemistry, Tokyo

3: 1-167 (July) 1923

Germicidal Action of Hydrosol of Copper. M. Kusunoki.—p. 1.
Fatty Acids Obtained from Cephalin. Compounds of Amino-ethyl Alcohol with Saturated and Unsaturated Fatty Acids. R. Koganel.—p. 15.
Effect of Calcium Oxid and Calcium Carbonate on the Decomposition of Soy Bean Cake and Herring Cake in Two Different Soils. K. Miyake and K. Nakamura.—p. 27.
Preparation of Testes Nucleic Acid. T. Tadokoro and T. Takahashi.—p. 55.
*Analytical Studies on Urinary Calculus. M. Iwano.—p. 67.
Studies on Phlorhizin Glycosuria. I. Phlorhizin Glycosuria and Renal Activity. T. Nagayama and T. Yokota.—p. 83.
*Studies on Some Factors in Coagulation of Blood. K. Kuwashima.—p. 91.
Splitting of Starch by Amylase. I. K. Harada.—p. 149.

Analysis of Urinary Calculi.—Four hundred and eighty-seven urinary calculi were analyzed chemically by Iwano and found to be composed chiefly of urate, phosphate, oxalate and carbonate of alkaline earth metals such as sodium, potassium, ammonium, calcium, and magnesium, and of cystin, though the latter was rarely found. In most cases, especially in phosphate and cystin calculi, the organic framework was always present, and when the mass of calculi was dissolved away in dilute mineral acid or alkali, it came out as loose flocculi. In a few cases some foreign bodies, such as straw, paper strings, cotton strings, wax and gauze were observed in the center of the concretions, apparently serving as a nucleus in the formation of the calculus. The peripheral part of such calculi mostly consisted of phosphate. As to the mode of mixture of each constituent composing the same calculus, the following points were noted. The phosphate existed in nearly all calculi except one, which was formed simply of uric acid or urate. The uric acid or urate was present alone or, when mixed, chiefly with oxalate or phosphate, but never with cystin and carbonate. The carbonate occurred in most cases as a calcium salt associated with the phosphate and always with its magnesium salt. The cystin was free or mixed with various amounts of phosphate and when the latter attained to a considerable amount, a trace of carbonate was sometimes present. Xanthin, indigo, carbonate, or cholesterol calculi were present in this series. Taking into consideration the structural and chemical properties of calculi, Iwano offers the following classification:

Calculi
- I. Nonlaminated calculi
  - a Simple calculi
  - b Mixed calculi
    - 1. Uric acid (urate) calculi
    - 2. Phosphate calculi
    - 3. Oxalate calculi
    - 4. Cystin calculi
- II. Laminated calculi
- III. Foreign body calculi

Factors in Coagulation of Blood.—The special effect of calcium for the activation of prothrombin into thrombin, Kuwashima says, is shared by strontium. Calcium accelerates the coagulation of blood not only through the activation of prothrombin into thrombin, but by promoting the formation of fibrin from fibrinogen by thrombin. Thrombin is stable at the temperature below the body temperature. Its activity is maximal at body temperature. The identification of tissue thromboplastic substance with kephalin was confirmed. Cholesterol exerts no influence on the coagulation of plasma. Cholic acid, in great amount, retards the coagulation both in the presence and absence of kephalin. Kephalin has no effect on the coagulation of fibrinogen by thrombin, but in large excess it tends to decrease the coagulation velocity.

Lancet, London

2: 267-316 (Aug. 11) 1923

Surgery of Thyroid. A. J. Walton.—p. 267.
*Etiology of Kala-Azar and Tropical Sore. B. Blacklock.—p. 273.
Kohler's Disease of Tarsal Scaphoid. H. H. Greenwood.—p. 274.
Symphysiotomy, Craniotomy and Cesarean Section. A. E. Chisholm.—p. 276.
Tuberculosis of Pericardium. E. W. Waller.—p. 278.
"Baker Eczema." A. R. Tankard.—p. 279.
Hernia of Vermiform Appendix Through Hesselbach's Triangle. M. W. Snodgrass.—p. 280.

Etiology of Kala-Azar and Tropical Sore.—Blacklock stresses the relation of plant bugs to kala-azar, because, he says, if these bugs, which live usually on plant juice and are capable of harboring flagellates in their gut and in their salivary glands, are able to bite man, it would be a strong argument for investigating their habits and bionomics before dismissing them from consideration in connection with kala-azar and tropical sore. A cotton stainer, which is apparently restricted very closely to certain species of food plant, is capable of biting man. The species of bug is *Dysdercus superstitiosus.* On dissecting specimens of this bug Blacklock found that they were heavily infected in various portions of the alimentary canal with a *Herpetomonas.* This protozoon was also found in one case in the celomic fluid.

Medical Journal of Australia, Sydney

2: 27-54 (July 14) 1923

*Investigation of Immunity Reactions in Hydatid Disease: Preliminary Report. K. D. Fairley.—p. 27.
*Case of Cerebral Aneurysm Simulating Meningitis. S. Gillies.—p. 37.
Acute Appendicitis with Lobar Pneumonia. A. Pryde.—p. 38.

2: 55-82 (July 21) 1923

Feeblemindedness and Delinquency. M. Gamble.—p. 55.
Hospital Problem in New South Wales. W. Epps.—p. 59.
Salpingitis with Sinus to Groin. H. H. Schlink.—p. 67.

Precipitin Test for Hydatid Disease.—A modified precipitin test is described by Fairley which gives results practically identical with those of the complement fixation test. An antigen that will keep satisfactorily, for some months at least, is readily prepared, while the technic of the test is so simple that it can easily be done without special preliminary laboratory training. The Casoni intradermal test bears no constant relation to the serologic tests, but is useful and often gives a positive reaction in patients with hydatid disease who have failed to react to the complement fixation and precipitin tests.

Cerebral Aneurysm Simulating Meningitis.—The case of cerebral aneurysm reported by Gillies seems worthy of record on account of its close simulation of recurring meningitis, the unusual site of the aneurysm on the base of the left side of the medulla, its recurring rupture, the localization of the headache to a spote on the left frontal region (the side of the aneurysm), the youth of the patient (22), the signs of stimulation of the pituitary body shown by polyuria and glycosuria, the gradual evolution of the signs of chronic nephritis during eight years from a condition compatible with the diagnosis adolescent albuminuria, the absence of discoverable cause for the progressive renal and vascular involvement.

South African Medical Record, Cape Town

21: 293-316 (July 14) 1923

Major Amputations. G. R. Thomson.—p. 295.
Genital Prolapse. R. L. Impey.—p. 296.

Tubercle, London

4: 481-528 (Aug.) 1923

Tuberculosis in Indians. C. A. Sprawson.—p. 481.
*New Graphic System of Lung Signs. J. Somme.—p. 488.
Ten Years' Experience of Sanatorium Benefit. J. D. Macfie.—p. 496.

New Graphic System of Lung Signs.—In attempting to devise a new method for solving the problem of giving a graphic representation of râles, Somme has one sign for all except crepitation and subcrepitation. This sign is a short, slanting line. It is attached to a main line running vertically, slanting, horizontally, in a curved or straight line through the whole of the area over which the râles are heard. In this manner repetition of the sign is rendered superfluous. Overloading of the chart is avoided, and the impression it gives is much clearer. The time required to record these signs is also much reduced. The size of râles is indicated by the position of the short, slanting line on the main line; small râles are indicated by the râle sign being attached to the upper end of the main line, whereas when the râles are coarse the râle sign is attached to the bottom of the main line. Râles of intermediate size are indicated by the râle sign being attached to the center of the main line. In this manner fine, medium, and coarse râles can be indicated, and the principle is sufficiently elastic to permit of further differentiation in the size of râles. The number of the râles is indicated in three grades (more or fewer grades may be employed, if necessary) by adding to the number of the short slanting line on the main line. The degree of resonance is indicated by one to three short, slanting lines attached to the left side of the main line, whereas the râle signs are attached to its right side. The degree of moisture is indicated from one to three dots. The loudness of râles is indicated in all the desired number of grades by drawing the main line either as a whole or as a broken or dotted line.

Annales de l'Institut Pasteur, Paris

37: 627-709 (July) 1923

*Kidney Functions in Mosquitoes. E. Roubaud.—p. 627.
Research on Immunity in Horse Ascarids. S. Metalnikow.—p. 680.
*Contagion of Tuberculosis in Guinea-Pigs. P. Remlinger.—p. 686.

Kidney Functions in Mosquitoes.—The full title of Roubaud's article is "The Discords in Kidney Function in Mosquitoes, and Their Biologic Consequences." He presents arguments to demonstrate the importance of closer study of the habits, the biology and especially the excreting functions, and the conditions that are favorable to the destruction of the ova of the species of mosquitoes we are anxious to exterminate. His research has demonstrated a frequent lack of adaptation to conditions required for normal existence of the mosquitoes. The phenomena of hibernation are in this category. He suggests various means to profit by the biology of mosquitoes in prophylaxis of malaria.

Contact Contagion of Tuberculosis in Guinea-Pigs.—The remarkable feature of contagion of tuberculosis in guinea-pigs in laboratories and breeding places is that it is so rare. Although guinea-pigs are exceptionally susceptible, and in spite of the manifold opportunities for contagion in laboratories and breeding establishments, contact contagion is extremely rare. Remlinger's comment is that we are a long way yet from knowing all about tuberculosis.

Bulletin de l'Académie de Médecine, Paris

89: 467-497 (May 1) 1923

*Apparatus to Induce Artificial Respiration. G. Panis.—p. 469.
*Syphilitic Disease of the Lung. E. Sergent and H. Durand.—p. 478.
*Fibrous Pulmonary Tuberculosis in Old Syphilitics. E. Sergent and P. Cottenot.—p. 485.
*Pulmonary Tuberculosis in Ex-Soldiers. E. Rist.—p. 492.

Apparatus for Artificial Respiration.—Panis' apparatus applies artificial respiration according to the Schäfer method.

Syphilis of the Lung.—Sergent and Durand discuss the syphilitic changes found in the lungs at necropsy in two cases free from tuberculosis. Sergent and Cottenot insist that the discovery of fibrous pulmonary tuberculosis should always start an investigation for syphilis. As long ago as 1913, Sergent called attention to fibrous tuberculous lesions as a sign of syphilis, and he now states that syphilis was manifest in all but twenty-three of 100 cases of fibrous tuberculosis with tubercle bacilli in the sputum. Specific treatment, far from aggravating the tuberculosis, had a decidedly favorable action.

Tuberculous and Other Disabled Ex-Soldiers Before the Board of Review.—Rist testified in 48.4 per cent. of the 167 cases examined by the board of review, that the alleged disability was nonexistent or had been cured. In fourteen the tuberculosis was cured.

90: 35-68 (July 10) 1923

*Tracheobronchial Glandular Disease in Children. L. Bernard and Vitry.—p. 41. Conc'n, p. 69.
*Early Diagnosis of Uterine Cancer. A. Siredey.—p. 54.
Advertisement Denouncing Breast Feeding. P. Cazeneuve.—p. 60.
Actinomycosis of the Face. A. Sartory and G. Canuyt.—p. 65.

Tracheobronchial Glandular Disease in Children.—Bernard and Vitry protest against the prevalent assumption that glandular disease in school children is necessarily tuberculous. In 400 children repeatedly examined with serial tuberculin tests under roentgen-ray control, there was a group of 194 with unquestionable enlargement of the glands. The roentgen-ray and physical findings were approximately the same in all, but tuberculin tests were repeatedly negative in 64, although nearly all in this subgroup had been classed as tuberculous. In 15, the supposed adenopathy had vanished on reexamination soon afterward. In Marfan's experience, fully 50 per cent. of the children under 6 with enlarged tracheobronchial glands responded negatively to tuberculin tests. There are usually associated opaque patches in the lung, when the tuberculin test is positive. Nobécourt ascribes these nontuberculous tracheobronchial lesions to chronic infection of adenoids and tonsils. He found serial tuberculin tests constantly negative in 62 per cent. of the children with adenoid vegetations examined, and in 57 per cent. of the children with both adenoids and enlarged tracheobronchial glands. Even when tuberculin tests are positive, this does not prove that the adenopathy is necessarily tuberculous. Bernard and Vitry, in concluding the discussion, dwelt on the dire consequences liable when a child is mistakenly labeled tuberculous.

Early Diagnosis of Cancer.—Siredey expatiates on the harmlessness and vital importance of cutting out a fragment for examination when there is irregular bleeding from the uterus, no matter how slight. If the bleeding keeps up, negative findings should not be relied on. In eight cases described, the routine biopsy had revealed incipient malignant disease of the uterus. Too often the physician waits for more decided symptoms to explain the slight irregular bleeding, and thus the favorable stage for intervention slips past.

90: 69-95 (July 17) 1923

Neurovaccine. L. Camus.—p. 79.
Radiography Under Radioscopic Control. Lomon.—p. 89.
*Synthetic Culture Mediums for Tubercle Bacilli. G. Kuss.—p. 91.

Culture Mediums for Tubercle Bacillus.—Kuss commends two culture mediums, which he describes, as providing unusually favorable conditions for growth of tubercle bacilli. The bacilli take up nourishment from the acids of the medium, and the latter is planned to produce optimal acidity. They contain asparagin, phosphoric acid or sulphuric acid, glycerin and citric acid, and the tuberculins made with these mediums are said to be unusually potent.

Bulletins de la Société Médicale des Hôpitaux, Paris

47: 1051-1086 (July 6) 1923

Insulin in Treatment of Diabetes. M. Labbé.—p. 1051.
*Tuberculous Pericarditis. F. Masselot et al.—p. 1058.
Acute Leukemia in Tuberculosis. A. Pissavy et al.—p. 1066.
Phlebitis from Mumps in Adult. Pilod.—p. 1070.
Pathologic Anatomy of Chronic Gastritis. F. Ramond and C. Jacquelin.—p. 1073.
Septicemia from Staphylococcus Aureus. E. de Massary and J. Rachet.—p. 1079.
*Autohemotherapy in Local Skin Infections. P. Merklen and F. Hirschberg.—p. 1081.

Tuberculous Pericarditis.—The tuberculosis had spread from the mediastinal glands to the pericardium and right lung, in the man aged 30. The only positive clinical sign of the tuberculous process with vegetations in the pericardium was the increase in the area of dulness over the heart. This enlargement of the heart, in the absence of hypertension and valvular disease, can be due only to pericarditis.

Autohemotherapy in Local Infections. — Merklen and Hirschberg report 8 cases of furunculosis and 6 of other local skin processes in which treatment was by injections daily or on alternate days of from 4 to 15 c.c. of the patient's own blood repeated two or three times. No effect was apparent in 3 of the 8 furuncle cases, but all the others showed marked improvement, and the rapidity with which this occurred was remarkable in some cases. The venous blood was reinjected into the buttock at once. If no benefit is apparent by the third injection, it seems useless to persist. Ravaut, Sicard and others regard the effect as a kind of vaccine therapy, especially effective in suppurating skin affections, but Nicolas and Gaté explain it as a kind of hemoclastic shock.

47: 1087-1126 (July 13) 1923

*Medicolegal Importance of Latent Syphilis. L. Desclaux.—p. 1088.
*Defective Ossification of Skull and Clavicles. A. Léri and Trétiakoff. —p. 1091.
*Acute Encephalitis with Ocular Paralysis. Léri and Trétiakoff.—p. 1098.
*Gastric Crisis in Tabes. D. Danielopolu.—p. 1102.
*Cerebrospinal Meningitis. P. Brodin, R. Marquézy and M. Wolf.—p. 1107.
*Diagnosis of Pulsus Alternans. A. Clerc and G. Perrochaud.—p. 1111.
Multiple Xanthomas. B. Barker Beeson (Chicago).—p. 1116.
Hemorrhage in the Cerebellum. G. Guillain et al.—p. 1120.
Pulsation in Varicose Veins. C. Laubry and P. Merklen.—p. 1123.

Latent Syphilis and Workmen's Compensation.—The spontaneous fracture of the femur while carrying a 50 pound weight on the shoulder was explained by latent syphilis. In a second case, osteitis of the ribs had been ascribed to an industrial accident. It had healed, leaving mediastinitis. Desclaux proved that latent syphilis was responsible for the whole, and was probably antecedent to the accident.

Defective Ossification of Skull and Clavicles.—Léri analyzes the necropsy findings in a typical case of what Marie has described under the name of cleidocranial dysostosis. In 1921, Apert had compiled seventy cases; the case here illustrated is the fourth with the necropsy findings. They showed evidences of an intra-uterine inflammatory process in brain and meninges.

Acute Encephalitis.—The woman, aged 52, suddenly developed absolute apathy, refusing food, but without fever, paralysis or other sign of nervous derangement. After four days of this, high fever, coma and paralysis of the ocular muscles followed, with death the same evening. Necropsy disclosed subtotal softening of the corpus callosum with numerous small foci of encephalitis.

Gastrogram in Tabetic Crises.—The graphic record of the motor function of the stomach and the absence of the oculocardiac reflex during the gastric crisis of tabes seem to throw some light on the mechanism of the latter.

Meningitis Simulating Malaria.—The young woman with cerebrospinal meningitis had apparently recovered under serotherapy by the ninth day. She had been given a polyvalent antiserum, 10 c.c. by the vein, 230 c.c. intramuscularly, and 240 c.c. intraspinally. Intense pruritus and other symptoms of serum sickness developed during the following week, and then came a period of what seemed to be malarial chills and fever on alternate days. During the fever there was a return of some of the meningitic symptoms, but during the intervals she felt well. The blood and spinal fluid seemed to be sterile until the end of the fourth week, when meningococci were found in the spinal fluid. An attempt was then made to induce a "serum shock"; 1 c.c. of the antiserum was injected intravenously, diluted 1 : 10 in 0.9 per cent. sodium chlorid solution, at 11 : 30 a. m. Fifteen minutes later, 5 c.c. was injected. One hour later a severe shock developed, the teeth chattering in the chill, the temperature running up to 104 F., the pulse 120. By the next day all the symptoms had disappeared, and convalescence was soon complete. In the discussion that followed, Netter reported two cases in which a severe anaphylactic shock followed intravenous injection of the antiserum, and it proved impossible to revive one of the patients. Since then he has abandoned the intravenous route. Sergent reported a case of the intermittent malarial type which had long resisted subcutaneous and intravenous serotherapy, but subsided at once after vaccine therapy by the vein, which induced a violent shock.

Diagnosis of Pulsus Alternans.—Clerc and Perrochaud show by a typical case the importance of electrocardiography for the differential diagnosis of pulsus alternans.

Gynécologie et Obstétrique, Paris

8: 1-99 (July) 1923

*Puerperal Fever: History. A. Couvelaire.—p. 1.
*Present Conception of Puerperal Fever. M. Brouha.—p. 11.
*Prophylaxis of Puerperal Fever. E. Hauch.—p. 36.
*Means to Combat Puerperal Fever. E. Alfieri.—p. 63.

History of Puerperal Fever.—This was the opening address at the Puerperal Fever Congress at Strasbourg in August. Couvelaire concludes his historical sketch with the statement that neither serotherapy nor vaccine therapy has proved successful in treatment often enough to be convincing. The method of shock treatment, introduced by Widal, Abrami and Brissaud in 1913, injecting some heterogenous protein intravenously, is still in the tentative stage.

Present Conception of Puerperal Fever.—Brouha remarks in the course of this study of the etiology, pathologic anatomy and prophylaxis of puerperal fever, that coitus during the last two months of gestation is dangerous. The streptococcus was cultivated from under the prepuce in more than 50 per cent. of the men examined. The pregnant should be warned against touching the genital organs with the hand. Hot soapy water, applied with sterilized cloths freely to the vulva every day, helps to reduce the bacterial flora. It seems to be the general opinion that prophylactic vaginal douches are useless, and may do more harm than good in a normal vagina.

The Diagnosis and Prognosis of Puerperal Fever.—Hauch recalls that almost any pathogenic micro-organism may be responsible for puerperal fever, but hemolytic streptococci can be incriminated in 80 per cent. Virulent streptococci are sometimes found in the vagina of women before and after delivery, normal in every way. These women seem to have been vaccinated by their own bacteria, and suffer no harm from them, but, transferred to another parturient, they may entail a catastrophe. In his service, the parturients are all isolated, and the room is disinfected after the woman is transferred to the ward for the puerperium. Preventive serotherapy and vaccine therapy have not given conclusive results yet, but they have been good enough to encourage further research in this line. These experiments have all been made with streptococci, but we cannot be sure beforehand what bacteria will be responsible for the puerperal fever if it develops. The logical way would be to prepare an autogenous vaccine from each micro-organism found in the vagina of the pregnant woman, but this of course is impracticable.

Treatment of Puerperal Infection.—Alfieri's review of the various measures that have been applied in treatment of puerperal infection, confirms the importance of an early diagnosis and the folly of trusting to expectant or merely symptomatic treatment. He is inclined to agree with Mangiagalli that the morbidity and mortality are determined by the way in which the virulence varies from case to case and from epidemic to epidemic, regardless of whatever treatment may be applied.

Journal de Chirurgie, Paris

22: 1-112 (July) 1923

*Chronic Woody Thyroiditis. G. and R. Monod.—p. 1.

Chronic Ligneous Thyroiditis.—G. and R. Monod conclude from analysis of fifteen published cases and three personally observed (with necropsy in one), that chronic woody thyroiditis may subside spontaneously or only after total or partial thyroidectomy, or under treatment for syphilis. In three of the published cases, death occurred suddenly from suffocation. They ascribe the affection to syphilitic sclerosis, involving the trachea as well as the thyroid. The danger is from the trachea, and tracheotomy is required at the slightest menace of suffocation. The cicatricial stenosis that may follow the lesions in the trachea must also be heeded. One of their three patients was a woman, aged 38, and the diagnosis had been cancer of the thyroid. There was no pain or fever, and roentgen treatment was planned, but the microscope showed merely chronic inflammation in an excised scrap, and the positive Wassermann reaction gave the clue. Under arsenical treatment the whole subsided in two months, and there has been no recurrence during the nearly three years since. In the third case, the syphilitic stenosis of the trachea was accompanied by cellulitis in neck and mediastinum.

Lyon Chirurgical

20: 293-420 (June) 1923

Ectasia and Stenosis of Lacrimal Passages. Rollet and L. Bussy.—p. 293.
*The Pfannenstiel Incision in Gynecology. M. Patel and M. Vergnory.—p. 299.
*Trophic Disturbance After Severing the Sciatic. J. Hertz.—p. 328.
*Trophic Ulceration of Stump. P. Oudard and G. Jean.—p. 336.

The Pfannenstiel Incision in Gynecology.—Patel and Vergnory conclude from their study of various incisions in gynecologic surgery that the Pfannenstiel is destined to be used more and more, as it wards off eventration.

Trophic Lesions After Severing of the Sciatic Nerve.—Hertz reports the healing in forty-eight hours after periarterial sympathectomy of ulcers on the foot that had resisted all other measures for years. The left sciatic nerve had been severed by a bullet, and almost total paralysis followed, with talipes equinus, pains and perforating ulcers in the foot. The foot was straightened by tenotomy, and the nerve was released from its cicatricial bed and wrapped in an animal membrane; periarterial sympathectomy nineteen days later completed the cure. Reexamined eight months later, the gait is nearly normal, the leg regaining its strength more and more, the skin in perfect condition. Only slight pains remain.

Trophic Lesions in Stump.—The trophic ulceration in the edematous stump had dried by the next day after periarterial sympathectomy, and by the tenth day had almost completely healed. By the fifteenth day no trace of it was left, and the stump is now soft and supple. The trophic disturbances had been of nearly five months' standing.

Revue Médicale de la Suisse Romande, Geneva

43: 417-480 (July) 1923

*Ether-Oil by the Rectum for Anesthesia. M. Gueissaz-de Dardel.—p. 417.
Cancer in Switzerland. A. Renaud.—p. 433.
Traumatic Neuroses in the Insured. Julliard.—p. 469. Idem. Piccard.—p. 475.

Anesthetization of Children with Ether-Oil by the Rectum.—The advantages of this method for operations on the face are extolled, especially for children. Twenty-seven cases are reported in detail. The anesthesia was perfect in 14, and perfect in 4 so far as the operation was concerned. It failed completely in 3, and partially in 6; in these the amount of ether used was less than 2 gm. per kg. of body weight.

Pediatria, Naples

31: 801-856 (Aug. 1) 1923

*Etiology of Measles. G. Caronia.—p. 801.
*Experiences with Kala-Azar. W. L. Yakimoff.—p. 811.
*Disease of the Pineal Gland. A. Laurinsich.—p. 817.
*Subperiorbital Abscess. V. F. Madon.—p. 834.

The Micro-Organism Causing Measles.—Caronia announces that the micro-organism responsible for measles passes through an ultramicroscopic phase in the cycle of its development, but otherwise appears as a small diplococcus on special anaerobic culture mediums. He obtained cultures of it from the blood, the bone marrow, cerebrospinal fluid and nasopharyngeal secretions of children in the prodromal and eruptive phases of measles. The blood serum of measles patients, especially in the eruptive stage and in convalescence, is rich in specific agglutinins, amboceptor and opsonins for the micro-organism obtained in the cultures. Young rabbits inoculated by the vein with large amounts of blood from measles patients developed a clinical picture resembling human measles. The same micro-organism that was cultivated from the measles patients could be cultivated from the blood serum of the animals, and their serum developed specific antibodies for the micro-organism isolated from the human cases. Inoculation of healthy children with inactivated or attenuated cultures of this micro-organism conferred immunity to measles on the children, and none thus treated has contracted measles under the most rigid tests. Their blood responds to serologic tests for this diplococcus. On the other hand, inoculation of three healthy children, aged 2 and 3, with large and repeated doses of recent cultures of the micro-organism (intramuscularly) induced a typical but attenuated form of measles. His research has thus confirmed and amplified the work of Nevin and Bittman. The incubation period was twelve or thirteen days, and the prodromal period was unusually protracted. The eruption was brief but intense and universal, accompanied by high fever, but both rapidly disappeared. There were no complications, no sequelae. The serologic reactions were positive, and the micro-organism could be constantly cultivated from the blood and the filtrates of the secretions from the nose and throat. The only culture mediums on which the diplococcus developed were of the catalyzing Di Cristina or the Tarozzi-Noguchi types. It is easy to trace the development of the diplococcus into, through and beyond the ultravisible phase of its cycle of development.

Kala-Azar.—Yakimoff was able to cultivate the Leishman bodies from the blood of 7 of 19 children with kala-azar in Turkestan, and from 3 of 4 adults; that is, in 43.4 per cent. of the total 23 cases. In 31 cases of supposed malaria he corrected the diagnosis to kala-azar, and in two children, aged 2 and 2½ years, he found both the Leishman bodies and the malaria plasmodium in the blood.

Disease of the Pineal Gland.—Laurinsich compares a case personally observed with those on record, having compiled a total of fifty-six cases in males and twenty-two in females. The ages ranged from 6 days to 75 years. The majority of the patients had not reached puberty. His patient was a girl, aged 7, who for two years had had occasional attacks of sudden fever, vomiting, intense headache in vertex and occiput, and transient paralysis of the legs. The secondary sexual characters were like those of an adult woman, although the child was short for her age. The Wassermann reaction was positive in the child and in both parents. The sella turcica was normal. Attempts at treatment with pineal gland extract were begun but not continued, as the child was taken away by its parents.

Subperiorbital Abscess.—Madon successfully evacuated the abscess in the girl, aged 10. It was evidently secondary to an inflammatory process in the ethmoidal sinus from acute rhinitis. The pulse was only 64, and dropped to 60 after the operation, but was 80 by the end of the week.

Archivos Latino-Amer. de Pediatría, Buenos Aires

17: 401-480 (June) 1923

Arsphenamin Treatment of Congenital Syphilis. H. Davidsohn.—p. 401.
*Facial Paralysis in Acute Poliomyelitis. Victor Escardó y Anaya.—p. 414.
Case of Congenital Megacolon. S. E. Burghi and A. Volpe.—p. 425.
*Classification of Gastro-Intestinal Derangement in Infants. C. Ferreira.—p. 432.
Internal Hydrocephalus Simulating Brain Tumor. J. Obarrio.—p. 446.
Lumbar-Sacral Funiculitis in Child After Typhoid. J. M. Estapé.—p. 462.
Sclerosis of the Face After Typhoid. A. A. Ugón.—p. 465.

Facial Paralysis in Acute Poliomyelitis.—Escardó recalls that Uruguay has suffered more from acute poliomyelitis than any other country in South America. There have been five epidemics of about 100 cases each, since 1906. During the latest epidemic, facial paralysis was so common that he has had 54 children with facial paralysis under treatment already in 1923, while the cases of facial paralysis in the preceding ten years totaled only 54. In 10 cases this year the facial paralysis was the only symptom; in 2 it was associated with other signs of poliomyelitis, and in one case an infant presented facial paralysis with meningeal symptoms before the paralysis of the legs developed. He thinks we must accept a form of acute poliomyelitis with paralysis restricted to the face. The facial paralysis in all the cases this year has persisted longer than usual, and proved exceptionally resistant to treatment. In one case described, there was paralysis of the neck as well as of the right face, legs and left arm. The case confirms Figueira's contention that the cephaloplegia to which he has called attention is a form of acute poliomyelitis.

Classification of Gastro-Intestinal Derangement in Infants.—Ferreira describes and compares the doctrines of Czerny, Langstein and Finkelstein with those of pediatrists in America and other countries. His quotations show that the German doctrines are not accepted by many of the leading pediatrists of the world, while others adopt them only in part.

Deutsches Archiv für klinische Medizin, Leipzig

142: 241-378 (June) 1923

*The Reaction of the Blood in Disease. H. Strauss et al.—p. 241.
*The Osmotic Resistance of Erythrocytes. H. Simmel.—p. 252.
Gaseous Interchanges in the Obese. H. R. Plaut.—p. 266.
Histopathology of Infectious Chorea. Slauck.—p 279.
*Pathogenesis of Severe Anemia. M. Mandelstamm.—p. 287.
*Paralysis of Intestinal Capillaries. F. Limper.—p. 296.
Ferment Content of Duodenal Juice. L. Bogendörfer and G. Kühl.—p. 301.
Bacteria Content of Small Intestine. Bogendörfer and Buchholz.—p. 318.
*Bilirubin in the Urine. K. Hoesch.—p. 330.
Resistance Tests of Human Muscle. E. Jacobi.—p. 340.

The Actual Reaction of the Blood in Diabetes, Heart and Kidney Diseases.—This article from Volhard's service states that the normal p_H of the blood is between 7.29 and 7.37, averaging 7.33. But this gives no information as to the actual reaction of the tissues, and all our methods of examination show merely the reaction of the tissue fluids. The findings in thirteen typical cases of heart or kidney disease and normal controls are compared.

Osmotic Resistance of the Erythrocytes.—Simmel ascribes much of the confusion in regard to this subject to the errors inherent in the best technic to date. He presents a new method which obviates these errors, and describes the findings with it in various pathologic conditions. The test solution is made with 8.2 gm. sodium chlorid; 0.2 gm. each of potassium chlorid and magnesium chlorid; 0.2 gm. calcium chlorid; 0.1 gm. NaH_2PO_4, and 0.05 gm. $NaHCO_3$ in the liter. This fluid has a freezing point of -0.56 or -0.57, corresponding to normal blood serum, and this is the unit 1. The fluid is diluted in six pipets to 0.7; 0.6; 0.5; 0.4; 0.3, and 0.2. Blood is added to each and well shaken, and the pipets are set aside for an hour or two at most, at room temperature. Then the erythrocytes in each pipet are counted in the counting chamber. Comparison of the findings in the six pipets gives what he calls the resistance picture. It conforms to the findings with other reliable tests.

Pathogenesis of Severe Anemia.—Mandelstamm reports a case of fatal chronic anemia with atypical blood findings and polyps in the intestines. In connection with this case, he discusses the differential diagnosis and the pathogenesis of severe anemias.

Capillary Paralysis of the Intestines.—Limper has examined the intestines in ten cases presenting the clinical picture of capillary paralysis (Göppert). After six to fourteen days of influenza, a sudden aggravation developed, with pallor, cyanosis around the mouth, imperceptible pulse, distention of the abdomen, and death in a few hours. Necropsy in this anaphylactic pseudo-enteritis showed, macroscopically, inflammation in the bowel, but the microscope refuted this, revealing the extreme dilatation of the capillaries, crowded with erythrocytes, the arteries and veins only moderately filled.

Bilirubin in the Urine.—Hoesch analyzes the chemical behavior and estimation of bilirubin in the urine, its amount and significance.

Deutsche medizinische Wochenschrift, Berlin

49: 741-774 (June 8) 1923

*Psychoses of Pellagra Type. K. Bonhoeffer.—p. 741.
Metro-Endometritis and Metropathy. H. Sellheim.—p. 748. Conc'n.
Disinfection of Field of Operation. T. v. Miltner and H. Schlee.—p. 750.
*Dwarf Growth. C. Mau.—p. 751.
*Early Diagnosis of Congenital Syphilis. E. Hofmann.—p. 753.
Relations Between Skin and Immunity. Müller.—p. 754. Reply. Klemperer.—p. 755.
*Vasomotor Angina Pectoris. V. Savic.—p. 756.
*Decapsulation of Kidney in Eclampsia. A. Niedermeyer.—p. 756.
Roentgen-Ray Diagnosis of Chronic Appendicitis. S. Weinstein.—p. 757.
Principles of Version and Extraction. M. Henkel.—p. 758.
Lymphocyte Reaction in Prognosis of Tuberculosis. Katona.—p. 760.
Fracture Simulating Luxation of the Femur. R. Voigt.—p. 761.
Tonsil Partly Enucleated by Trauma; Spontaneous Healing. F. Rehr.—p. 761.

Psychoses of Pellagra Type at Berlin.—Bonhoeffer reports ten cases since 1919, all in women, extremely undernourished, with necropsy findings in all but three who are still under treatment. In four of the cases the psychosis developed after a three months' stay in the hospital, the patients refusing to eat. Several were debilitated by excessive menstrual hemorrhages. Cystic colitis was the predominant finding in the bowel, and some patients presented this and all the other symptoms of pellagra except the skin changes. It is possible that the skin changes might have been brought out by irradiation. None of the patients had eaten corn-meal.

Dwarf Growth.—In one of the two cases of extreme nanism described, congenital syphilis of the pituitary seems to have been the main factor. In the other case, removal of a congenital goiter causing suffocation, at the age of 3 weeks, was evidently responsible for the nanism and backward mental development. Under thyroid treatment and thyroid grafting, considerable improvement was evident. It might have been better to have shifted the thyroid to some other location, without removing it. The operator supposed he had resected only half of the thyroid, but he must have removed nearly the whole of it.

Early Diagnosis of Syphilis.—Hofmann regards a positive Wassermann reaction in the retroplacental blood as the most reliable means at our disposal for detection of syphilis in dubious cases. In a number of cases, this gave the first clue to existing syphilis which had escaped all previous diagnostic measures. Systematic routine examination of the retroplacental blood would give an oversight of the prevalence of syphilis in a community.

Vasomotor Angina Pectoris.—The pain does not spread to the arm, and there is no special apprehension of death with this vasomotor angina pectoris. There are usually other signs of vasomotor instability. In a case described, in a woman, aged 22, the attacks have always yielded to calcium chlorid and a sedative. The acro-asphyxia accompanying the attack first gave the clue to its nature.

Decapsulation of Kidney in Eclampsia.—Niedermeyer here reports a second case in which decapsulation of one kidney unquestionably saved the young woman's life after the coma from the eclampsia had lasted several hours, with total anuria. The convulsions had kept up after evacuation of the uterus (seventh month), but ceased at once after the operation, and the coma passed into a quiet slumber.

49: 775-806 (June 15) 1923

No Claim for Workmen's Compensation in a Case of Fatal Lymphogranulomatosis. H. Dürck.—p. 775. Conc'n, p. 808.
*Estimation of Hardness of Muscles. E. Mangold.—p. 777.
Clinical Import of Gas Interchanges in the Tissues. Lipschitz.—p. 778.
*Chronic Constipation in Women. Asch.—p. 781.
*Epidemic of Extragenital Syphilis. O. Grütz.—p. 782.
*Speed of Sedimentation in Internal Disease. K. Kovács.—p. 785.
*Phlorizin Test of Liver Function. B. Mendel.—p. 787.
Itching as Initial Symptom of Allergic Shock. D. Klinkert.—p. 787.
The Reaction to Quartz Lamp Treatment in Pulmonary Tuberculosis. H. Gödde.—p. 788.
Tuberculin Treatment of Asthma. M. Arjeff.—p. 791.
*Another Instance of Drug Amblyopia. G. Abelsdorff.—p. 792.
*Boas' Treatment of Hemorrhoids Without the Knife. A. Alexander.—p. 792.
Training the Public in Hygiene. E. Liefmann.—p. 793.

Estimation of Hardness of Muscles.—Mangold comments on the instructive findings with the sclerometer described. It is proving useful in estimating cadaveric rigidity, in physiologic research on athletes, and in determining the tension in the eye, but above all as an aid in differential diagnosis of tumors, edema, and contraction of organs, and to supervise the course under treatment.

Chronic Constipation in Women.—Asch explains that there is so much space in the female pelvis, in comparison, that the accumulation of feces does not cause as much discomfort as in men, and the impulse to defecation is liable to pass unheeded in women. In his suggestions for hygiene of bowel functioning, he warns that the one mass of feces induces the impulse to defecation only once, as a rule. After this, it is merely in the way of the next batch of stool. Bathing and swimming are useful in combating constipation, as the air in the bowel seeks to rise to the surface of the horizontal body. It thus exerts a kind of internal massage on the loops of the intestines, especially when aided by self-massage in the water.

Epidemic of Extragenital Syphilis.—Grütz relates that a thrashing machine making its rounds in a farming district in Holstein had a crew of twenty-four men. They were married and lived in different villages, assembling for work and dinner daily. One developed a severe throat affection and within a short time fifteen others of the crew developed the same. The tonsils alone were affected at first, and the malady proved to be extragenital syphilis in all but the first man. He was known to be living with a venereally diseased woman in a remote village. The circumstances demonstrated that this was the source for the epidemic. Grütz comments on the fact that the intact mucosa had escaped the invasion of the spirochete; it settled only on the tonsils, and several of the men escaped entirely.

Speed of Sedimentation of Erythrocytes in Internal Diseases.—Kovacs applied Westergren's technic (described in these columns, Oct. 22, 1921, p. 1379) to 450 patients with various internal diseases. The amount of sedimentation in one hour gives us another aid in differential diagnosis. In certain internal diseases, the blood is found to contain substances which promote sedimentation, while in others, sedimentation is checked. Acceleration of sedimentation is an unfavorable sign in tuberculosis, as it points to an active process. In 14 cases of gastric cancer, acceleration was always pronounced. With liver disease and gallstones, sedimentation was generally abnormally retarded, but it proceeded normally in 67 cases of simple gastro-intestinal ulcer free from complications, as also in 24 of cardiovascular and 18 of kidney disease, and in 9 cases of exophthalmic goiter or other endocrine derangement. As the speed of sedimentation is never increased in normal conditions outside of pregnancy, acceleration should always warn of the presence of some morbid process.

Phlorizin Liver Test.—Mendel states that intravenous injection of 5 mg. of phlorizin is followed in a few minutes by intense glycosuria. This lasts for from forty to sixty minutes, as a rule, in the healthy, fasting subject. With a diseased liver, the glycosuria keeps high much longer, sometimes for two hours. The glycosuria was lengthened proportionately also in dogs after injury of the liver. The fasting subject is given 0.5 liter of water to drink at once after the injection of the phlorizin, and again at the beginning of the second hour. This usually renders the catheter unnecessary. Until the urine responds positively to the Nylander test, it is examined every three minutes for the first half hour and then every five minutes. Tests on twenty patients with liver disease and twenty healthy controls confirmed the value of a normal response as a sign that the functional capacity of the liver is not substandard.

Ethyl Hydrocuprein Amblyopia.—The woman, aged 26, was given three doses of 0.25 gm. ethyl hydrocuprein (optochin) in treatment of pneumonia in 1914. Total blindness followed, but vision gradually improved to 6/20 and 6/35, which is the present condition. The pupils still react naturally, but the disks are blanched; the retinal vessels are narrow, and there are white patches in the retina. Sclerosis of the vessels is manifest in these depigmented areas. Abelsdorff has compiled fifty-five cases of visual disturbance from ethyl hydrocuprein, and several presented this combination of injury of the optic nerve, retina and choroid which is peculiar to ethyl hydrocuprein.

Treatment of Hemorrhoids Without the Knife.—Alexander declares that Boas' bloodless method of treating hemorrhoids is the most promising of all nonsurgical measures, and that the future belongs to the nonoperative methods. Boas' method was described in these pages, Feb. 14, 1920, p. 497, and May 29, 1920, p. 1548. Alexander says that twenty-two of twenty-four patients treated in this way were cured at once and permanently at a single sitting. The two others required another sitting. The cure was complete in five or six days in some; others required from sixteen to eighteen days.

Münchener medizinische Wochenschrift, Munich

70: 725-760 (June 8) 1923

*Treatment of Lymphogranulomatosis. H. Chaoul and K. Lange.—p. 725.
*Immunization Against Puerperal Infection. G. Maroudis.—p. 727.
Problems in General Paralysis. K. Pönitz.—p. 729.
*Dyes as Antiseptics. E. Baumann.—p. 731. Conc'n, p. 775.
*Severing Adhesions in the Pleura. R. Korbsch.—p. 734.
Toxins and Accessory Toxins in Antivenins. R. Kraus and R. Botelho.—p. 736.
Rupture in Tubal Pregnancy. G. B. Gruber and E. Kratzeisen.—p. 736.
*Protein Therapy in Ankylosis of the Spine. K. Graf.—p. 737.
*Rachitic Curvature of the Spine. F. H. Watermann.—p. 739.
The Flatfoot Question. E. Fischer.—p. 740.
*Blood Pressure from Psychologic Standpoint. O. Clauss.—p. 741.
*Tearing Out of Tendons. B. Günther.—p. 742.
Ambulatory Pneumothorax Treatment. Apel.—p. 742.
Treatment of Neuralgias. H. Curschmann.—p. 743.
Organization of Public Health System. G. Seiffert.—p. 744. Conc'n.

Roentgen-Ray Treatment of Lymphogranulomatosis.—Chaoul and Lange report full restoration of earning capacity and survival for from eight months to three years in eight of their twelve cases of severe lymphogranulomatosis. The others died from gastric cancer, sarcomatous degeneration of glands in the neck, or other intercurrent disease. There was a slight recurrence in one of the eight, but it yielded promptly to renewed irradiation. This success was realized with small doses and large fields, each field receiving a total of only 60 or 80 per cent. of the skin erythema dose, given in the course of six or eight weeks. The course was repeated three months later, and again in the following year. A complete cure was never realized.

Louros' Prophylactic Immunization Against Puerperal Infection.—The Journal described (June 23, 1923, p. 1885) Louros' success with active and passive immunization of pregnant women and parturients by means of an antistreptococcus vaccine. Maroudis relates that this method has now been applied to 71 women before gynecologic operations, 367 pregnant women, 862 parturients, and 24 at the time of a gynecologic operation. The total morbidity in 1,229 women thus immunized was 3.25 per cent. while it was 8.38 per cent. in a group of 786 not injected with the vaccine. The mortality was respectively 0.16 and 1 per cent. in the two groups. The results were the more gratifying as the Athens hospital is an old building, with 150 beds, and twice this number of refugees were taken in at one time.

Antisepsis with Dyes.—Baumann's charts condense the experiences of eight years' comparative study of various disinfectants in the statement that methyl violet is decidedly more potent than any other dye used for disinfection purposes.

Endothoracal Severing of Pleural Adhesions.—Korbsch describes the Jacobæus method of endothoracal pneumolysis as he applied it, in three typical cases out of his larger experience. It is not adapted for broad adhesion of surfaces, but otherwise he regards it as essential progress for both diagnosis and treatment.

Protein Therapy in Vertebral Ankylosis.—Graf reports two cases in which some improvement followed parenteral injection of a protein, supplemented by systematic exercises, especially swimming.

Treatment of Rachitic Curvature of the Spine in Young Children.—Watermann has found that placing the young child prone often exerts a favorable influence on curvature of the spine in rickets. This may obviate the necessity for a plaster bed. To keep the child in the proper position to combat the scoliosis, he fastens the child's toys to the side of the bed corresponding to the curve of the scoliosis. Two children with opposite scoliosis can have the sides of their beds placed together to influence the curvature as they turn to visit with each other.

Blood Pressure Measurements as an Emotional Trauma.—Clauss argues that it is often unwise to fasten the patient's attention on his blood pressure. It is not justified objectively, while the psychic trauma may be disastrous.

Traumatic Tearing Out of Tendons.—A man was getting on a train, just starting, when the door slammed and caught his left forefinger while he was thrown off the train by the jerk. The finger thus amputated had hanging from it two tendons, 22 and 27 cm. long.

70: 761-794 (June 15) 1923

•Alleged Stimulating Action of Roentgen Rays. G. Holzknecht.—p 761.
Cause of Negative Wassermann Reaction in Rabbit Cerebrospinal Fluid. F. Plaut and P. Mulzer.—p. 762.
•Epidemic of Poliomyelitis. L. Schall.—p. 763.
Sources of Errors in Sedimentation Tests. O. Gragert.—p. 765.
Gastric Digestion in Young Infants. S. Rosenbaum.—p. 767.
•Acute Perforation of the Stomach. W. Horn.—p. 771.
•Prophylaxis of Lye Accidents. V. Zimanyi.—p. 772.
•Giant Growth of Child. A. Fein.—p. 772.
Clamp for Compression of Aorta. G. Haselhorst.—p. 773.
Improved Lamp for Microscopy. P. Rosenberg.—p. 774.
Unreliability of Testimony of Eye Witnesses in Medical Matters. Engelhorn.—p. 774.
•Influence of Chilling on Spirochetes. A. Kissmeyer.—p. 775.
Differential Diagnosis of Acute Appendicitis. A. Krecke.—p. 778.
Advice Stations for Venereal Disease. H. Loeb.—p. 781.

Alleged Stimulating Action of Roentgen Rays.—The Germans for years have been quoting what they call the Arndt-Schulz law, which states that small doses of anything have a stimulating action, moderate doses paralyze, and large doses kill. Holzknecht refuses to accept this law, at least as applying to the roentgen rays, declaring that they never have a stimulating action, no matter how small the dose. Their action is always destructive.

Epidemic of Acute Poliomyelitis in Tübingen in 1922.—Schall states that 70 of the 139 cases he has been studying were in children under 4. In 83 of the 90 cases in which the particulars of the onset were known, there had been fever. Symptoms of meningitis were evident in 13 at the onset; paralysis developed in 107, and 14 cases terminated fatally. The epidemic began in a school of younger children, with an epidemic of a catarrhal affection of the upper air passages, so severe that the school was closed. The teacher developed an acute pulmonary process in addition, and died, after a period of paralysis which first suggested the true nature of the epidemic. This catarrhal, influenza-like onset predominated throughout the epidemic, so that the differential diagnosis was impossible until the paralysis developed. In one institution, 14 infants presented symptoms suggesting influenza, one after the other, in the course of a month, and 3 of these infants developed persistent poliomyelitic paralysis. The data presented confirm the assumption that abortive cases of poliomyelitis prevail in every epidemic, and that the cases with paralysis are only those with an exceptionally severe course. That even the abortive cases confer immunity, seems to be demonstrated by certain experiences that have been reported, but it is unquestionably true that certain cases of supposedly mild influenza may be in reality acute poliomyelitis, capable of transmitting the disease to others. The physician can convince the public of this fact more readily than he can convert them to acceptance of the vague and mysterious conception of "healthy virus carriers." In the majority of Schall's cases, the interval between the febrile onset and the paralysis was from three to six days, but in 2 infants the intervals were sixteen and twenty-three days, the paralysis coming then like a bolt from a clear sky.

Acute Perforation of the Stomach.—Horn estimates that perforation occurs in about 8 per cent. of all gastric ulcers, while it is rare with gastric cancer. In a case described, the minute perforation was in the center of a small, supposedly simple, circumscribed hard ulcer, and the perforation was merely sutured, with gastro-enterostomy. The course of the case soon demonstrated that the lesion had been malignant.

Accidents from Lye.—Zimanyi states that in the last three years 10 per cent. of the patients in the nose and throat department of the Budapest hospitals have been cases of stenosis of the esophagus from corrosion by lye. A similar unprecedented prevalence has been reported from Berlin, families economizing by making their own soap. The accidents generally occur from the lye being mistaken for drinking water, and he urges that this could be prevented by compulsory addition of some disagreeable volatile oil. This would not interfere with the legitimate use of the lye.

Giant Growth of Child.—Fein ascribes the anomaly in the boy, aged 8, to some lesion in the pineal gland, but is unable to prove this. The child is 145 cm. tall, and weighs 43 kg. The sex glands and secondary characters are nearly those of an adult, the voice deep. The sella turcica is normal; the pineal body is not visible in the roentgenogram.

Resistance of Spirochaeta Pallida to Cold.—Kissmeyer was able to make cultures from a strain of *Spirochaeta pallida* that had been kept three months at minus 16 C. (3.2 F.).

Zentralblatt für Chirurgie, Leipzig

50: 1017-1048 (June 30) 1923

*Treatment of Pyogenic Processes of the Face. A. Läwen.—p. 1018.
*Progressive Furuncle of the Face. W. Rieder.—p. 1024.
*Chronic Gastritis and Gastric Ulcer. G. E. Konjetzny.—p. 1026.
Danger of Catgut Infection. K. Propping.—p. 1028.
Roll Knee Joint versus Schede-Habermann Knee Joint. C. ten Horn.—p. 1030. Comment. F. Sauerbruch.—p. 1031.

Treatment of Progressive, Pyogenic Processes of the Face.—During the past three years, Läwen has had three fatal cases of furuncle of the upper lip and one fatal case from carbuncle of the neck. In all these cases, repeated extensive incisions had been made. In one case of furuncle of the upper lip, in which the progress was downward, he had ligated the jugular vein. Malignant furuncle of the upper lip is characterized by high fever, chills, vomiting and a rapidly fatal course. Läwen has been experimenting of late with local injections of the patient's own blood. The lip was taken between the fingers and through the margin the soft parts were infiltrated with blood. Usually from 30 to 40 c.c. was sufficient. He injected mainly into the healthy tissue surrounding the inflammatory area. So far he has not been able to try the method in a severe malignant case, but in mild cases the injection of the patient's own blood has seemed to aid in effecting a rapid cure.

Progressive Furuncle of the Face.—Rieder used to inject from 1 to 2 c.c. of the patient's own blood into the center of the furuncle. Of late he has used, in place of blood, ordinary horse serum. The furuncle is opened wide by a crucial incision keeping inside the infected tissue so as not to extend the infection through the circulation. To this whole infiltrated area he applies tampons dipped in diphtheria antitoxin or horse serum. The result is surprising; the process is arrested and the slough is extruded usually after twenty-four hours. Fresh granulations appear in two or three days, and the margins of the skin are drawn together with adhesive tape. For smaller furuncles, a subcutaneous injection of 1 c.c. of horse serum into the center of the furuncle, without incision, is sufficient.

Chronic Gastritis and Gastric Ulcer.—Konjetzny says that it has long been known that gastritis of distant regions of the gastric mucosa may be associated with gastric ulcer, but little attention has been paid to the fact. Kalima (Helsingfors) has subjected a large series of preparations from resected stomachs to a thorough anatomic analysis. In 100 per cent. of the cases there was more or less gastritis present—diffuse or in foci. Konjetzny has always found chronic gastritis in stomachs resected for chronic duodenal ulcer, and in a large number of recent ulcers.

Casopis lekaruv ceskych, Prague

62: 333-360 (March 31) 1923

*Spontaneous Inversion of Uterus After Delivery. J. Janota.—p. 333.
*Zonular Keratitis in Seeing Eyes. J. Janku.—p. 334. Conc'n.
Relation of Silicic Acid to Pulmonary Tuberculosis. J. Skokan and O. Stanel.—p. 340. Conc'n, p. 398.
Kielland's Forceps. J. Jerie.—p. 346.

Spontaneous Inversion of Uterus After Delivery.—Janota describes a case of inversion of the uterus immediately following spontaneous expulsion of the placenta, ten minutes after delivery of the baby. No manipulation (Credé, or traction on the cord) had preceded. Part of the cervix was not inverted. Reposition in ether anesthesia was followed by complete recovery without fever.

Zonular Keratitis in Seeing Eyes.—Janku reviews the literature, and publishes five cases of primary and four cases of secondary zonular keratitis in seeing eyes. He publishes nineteen microphotographs of the sections he made in these patients, and one case of gerontoxon.

62: 389-416 (April 14) 1923

*Significance of Assimilatory Conditions for Variability of Dimensions of Body. J. Krizenecky and V. Cetl.—p. 389.
*Pneumococci in Morbilli. A. Doskocil.—p. 396.

Significance of Assimilatory Conditions for Variability of Dimensions of Body.—Krizenecky and Cetl conclude from their experiments on tadpoles, that the intensity of assimilation processes is a very important factor in the variability of growth. The variability is optimal only in a certain degree of intensity of these processes. Increased and decreased assimilation inhibits variability. They point out, however, that this applies only to quantitative differences of assimilation. Qualitative changes may have a specific action.

Pneumococci in Measles.—Doskocil cultivated pneumococci from blood in all of his cases of measles complicated with pneumonia. In older children, the culture was sometimes positive even if they had no clinical signs of pneumonia. In younger children, the bacteremia preceded the inflammation of the lungs. He considers it as a secondary infection.

Acta Scholae Medicinalis, Kioto

5: 75-202 (Oct.) 1922. English and German Edition

Laryngeal Musculature of the Japanese. K. Nihonsugi.—p. 75.
Pharmacologic Research on Surviving Rabbit Muscle. Y. Ishikawa. —p. 123.
Aberrant Bundle in Pons Region in the Japanese. K. Shimada. —p. 139.
The Corneal Epithelium of Warm-Blooded Animals in Tissue Culture. S. Matsumoto and H. Ishimaru.—p. 167.
Action of Drugs on Resected Rabbit Intestine Muscle.—H. Inoue. —p. 175.

5: 203-337 (Feb. 10) 1923. English and German Edition

Behavior of Leukocytes Under Various Conditions. I. T. Minaki. —p. 203. Idem. II. Idem.—p. 243.
*Interference with Blood Supply of Testes. K. Koyano.—p. 275.
*Intravenous Infusion of Physiologic Saline. T. Tsurumaki.—p. 303.
*Exophthalmic Goiter. K. Tsuji.—p. 329.

Changes in the Testes from Disturbance in Circulation.—Koyano reports the results of both clinical and experimental experience when the circulation of the blood in the testes was interfered with in various ways.

Intravenous Infusion of Physiologic Saline Solutions.—Tsurumaki experimented with both physiologic salt solution and the Ringer-Locke solution. The latter is eliminated more rapidly and completely, and seems to damage the organs less than physiologic sodium chlorid solution.

Exophthalmic Goiter.—Tsuji reports experimental and clinical studies on the etiology and treatment of exophthalmic goiter. The benefit from suprarenal treatment is shown in subsidence of abnormal sweating, of digestive disturbance, and of the bronzing and emaciation—which testifies that the suprarenals are responsible for these elements in the clinical picture.

Mitteil. a. d. Med. Fak. Univ., Tokyo

29: 421-624 (Dec. 9) 1922. German Edition

*Research on Hemolysis. Y. Fujimori.—p. 421.
*Primary Disease of Lymphatic Tissue. T. Kodama.—p. 433.
*Resection of Ribs for Empyema. M. Saito.—p. 477.
*Origin of Hyperacidity. S. Yaoita.—p. 521.
*Pathogenesis of Heart Failure in Pneumonia. K. Kakinuma.—p. 587.

Research on Hemolysis.—In this second communication, Fujimori discusses the action of glucose in arresting hemolysis in certain species of animals. No inhibiting action was apparent in man and dogs.

Primary Disease of Lymphatic Tissue.—Kodama's profusely illustrated study includes what he calls a new group of lymphomas, a systematic lymphosarcomatosis, besides Kundrat's lymphosarcomatosis, and lymphatic and sarcoid leukemia, and pseudoleukemia.

Pleural Empyema.—Saito applied Schede's operation in four of seventeen cases of empyema of the chest. He gives the details of the seventeen cases, and insists on the instructive findings when the cavity is rinsed out and its capacity thus measured daily, as a guide to treatment.

Tests of Stomach Function.—Yaoita calls attention to sources of error and discrepancies in the findings with the Mathieu and Strauss methods of investigation, and describes what he says is a new reliable method he has devised to estimate secretory conditions in the stomach. He uses creatinin for his test, as this does not irritate the stomach, and normally never occurs in this organ, and as it is neutral, it does not modify the acidity, while it can be titrated with precision by the color reaction.

Heart Failure in Pneumonia.—Kakinuma gives eight folding tables to chart the results of his study of the weakening of the circulation in experimental pneumococcus pneumonia in rabbits. Various means to modify the blood pressure were applied, and the findings were compared with normal controls. The heart seems to be influenced by the infection at the same time or earlier than the vasomotors. He seeks to explain the difference between the American and the German findings in this line. His position is intermediate.

30: 1-206 (Dec. 29) 1922. German Edition

Metabolic Findings in Four Cases of Addison's Disease. K. Gyotoku and M. Momose.—p. 1.
Atypical Proliferation of Epithelium After Implanting Paraffin with Soot in Rabbits' Lungs. K. Ibuka.—p. 35.
Postmortem Splitting of Glycogen in the Liver. G. Kira.—p. 51.
Experimental Study of Calcium and Magnesium Metabolism. I. Kishi.—p. 91.
*Influence of the Thymus on Growth. H. Katsura.—p. 177.

Influence of the Thymus on Growth.—Katsura investigated this problem by feeding thymus tissue or extract, by cultivation of tissues outside the body, and by removing the thymus. The work was done mainly on chickens.

Mitteil. a. d. Med. Fak. Univ. Fukuoka, Japan

6: 255-393, 1922. English and German Edition

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7: 1-419, 1923. German Edition

Experimental Research on Resorbing Power of the Gallbladder. H. Iwanaga.—p. 1.
*Acute Necrosis of the Pancreas. R. Ohno.—p. 31.
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Bastardization of Castor Oil Plants. R. Koketsu.—p. 401.

Treatment of Acute Necrosis of the Pancreas.—Ohno discusses the etiology of acute hemorrhagic necrosis of the pancreas, ascribing it to the toxic action from the products of destruction of tissue by the proteolytic trypsin. He analyzes the share of the toxic action of the pancreatic juice in the destructive process, and reports the results of efforts to induce active and passive immunization of dogs by intraperitoneal injection of pancreatic juice, trypsin and pancreatin. Eight dogs were thus immunized until they could bear the thousandfold otherwise fatal dose of the destructive pancreatic juice. He concludes his report with an urgent appeal to apply immunization along these lines in prophylaxis and treatment of acute clinical hemorrhagic necrosis of the pancreas, of spontaneous or operative origin. He found a combination of active and passive immunization most effective. The immune serum of dogs given preliminary treatment with pancreatin neutralized the hundred and fifty-fold fatal dose. Among the points he brought out by his research is that the combination of bile with enterokinase increased the proteolytic power of pancreatic juice over a thousandfold.

Digestive Potency of Pancreatic Juice.—In continuing his research on pancreas function, Ohno found that all the proferments have a specific digestive action, without requiring activation. The action of trypsinogen is least pronounced of the three.

Blood Transfusion.—Torii concludes from his extensive research that mishaps in transfusion of blood may be traceable to acute dilatation of the heart or the use of new rubber tubes, as well as to discrepancies in blood grouping. He presents an illustrated description of an apparatus for blood transfusion which, he thinks, will obviate many of the drawbacks of other methods, by its automatic gravity valve.

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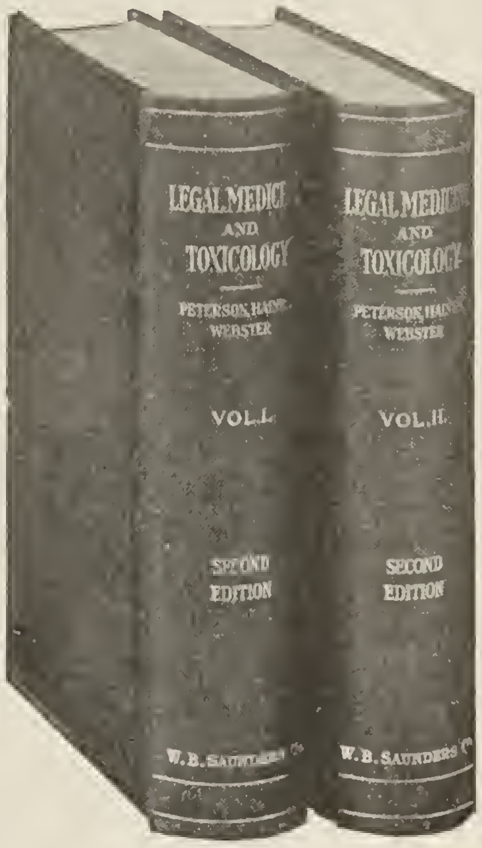
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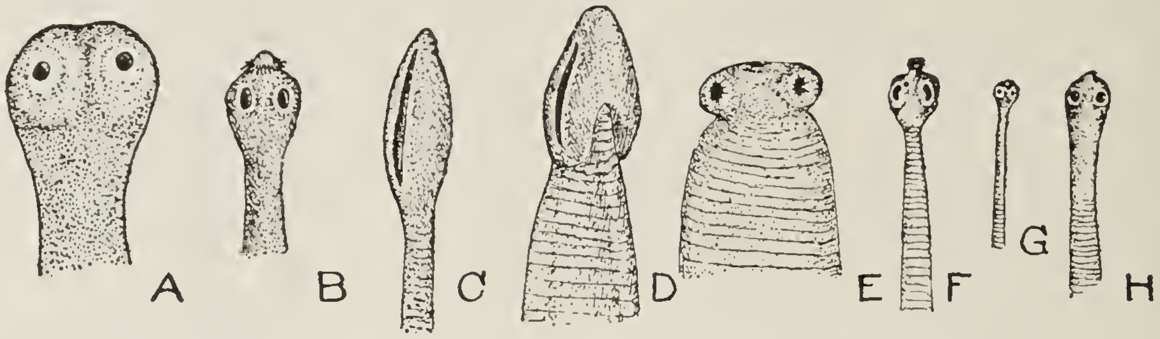

These heads of some of the adult tapeworms found in man are drawn about 10 times natural size. A, beef tapeworm; B, pork tapeworm; C, fish tapeworm; D, heart-headed tapeworm; E, African tapeworm; F, double-pored dog tapeworm; G, dwarf tapeworm; H, rat tapeworm.

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ADDRESS ALL COMMUNICATIONS TO THE AMERICAN MEDICAL ASSOCIATION, 535 N. DEARBORN ST., CHICAGO

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List of State Medical Associations appeared in this space last week; National Societies three weeks ago. Corrections will be appreciated.

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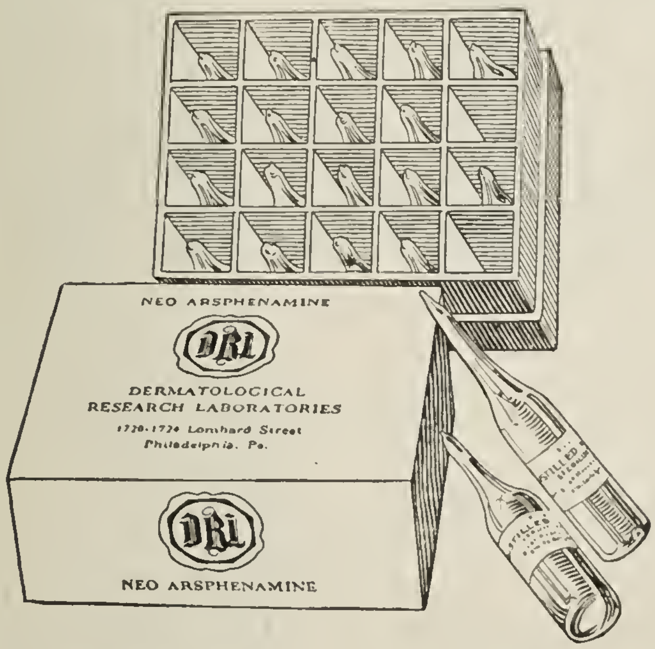

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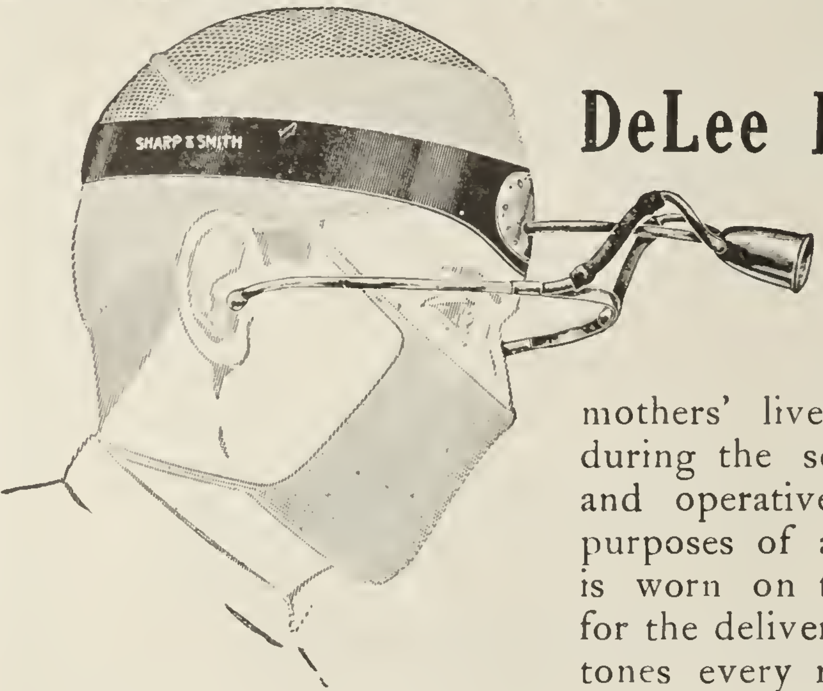

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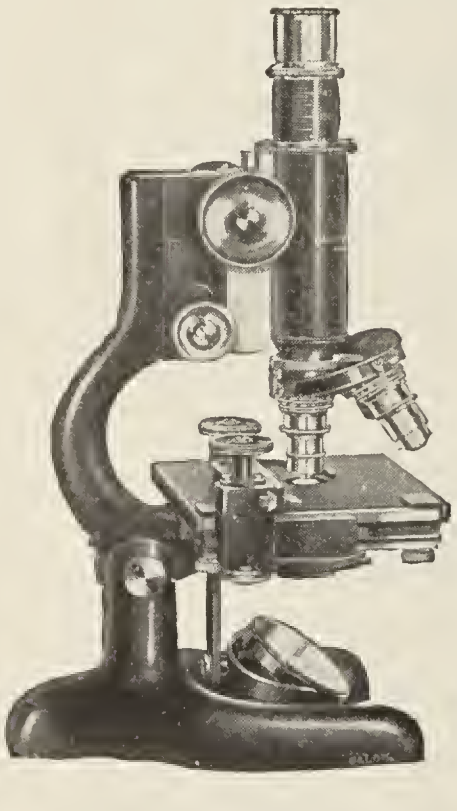

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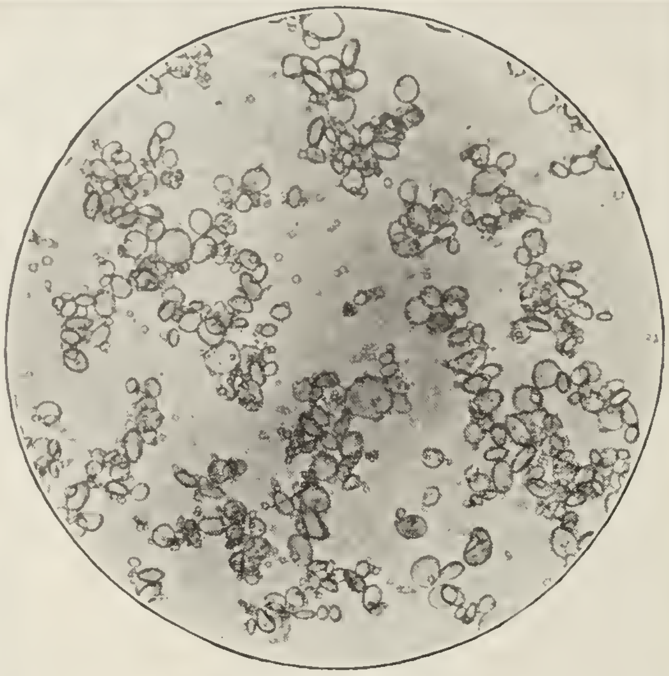

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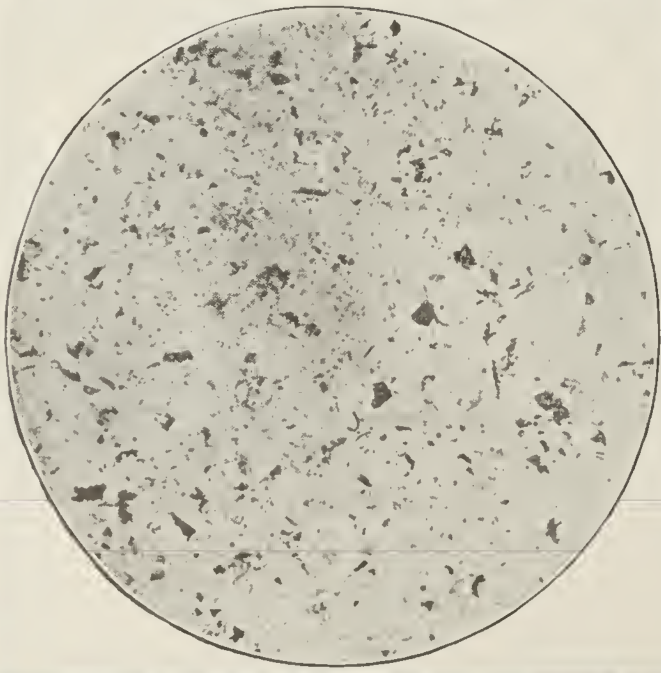

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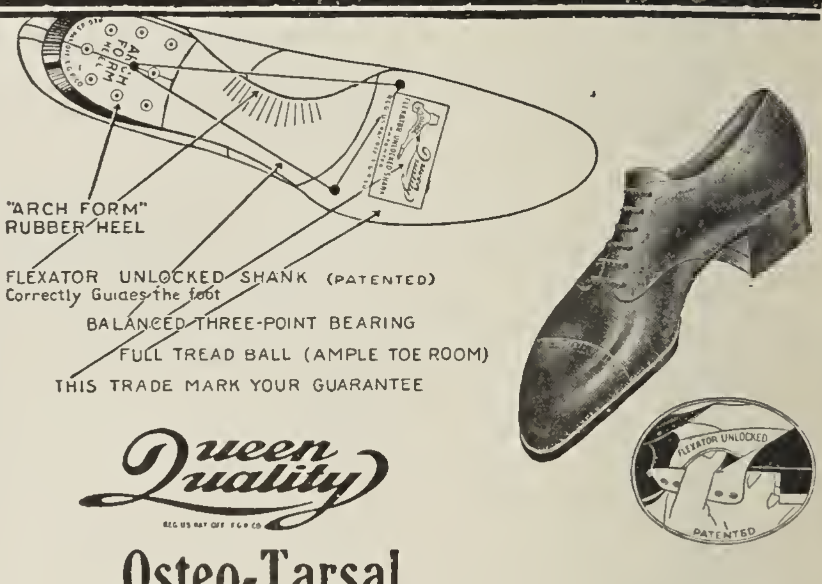
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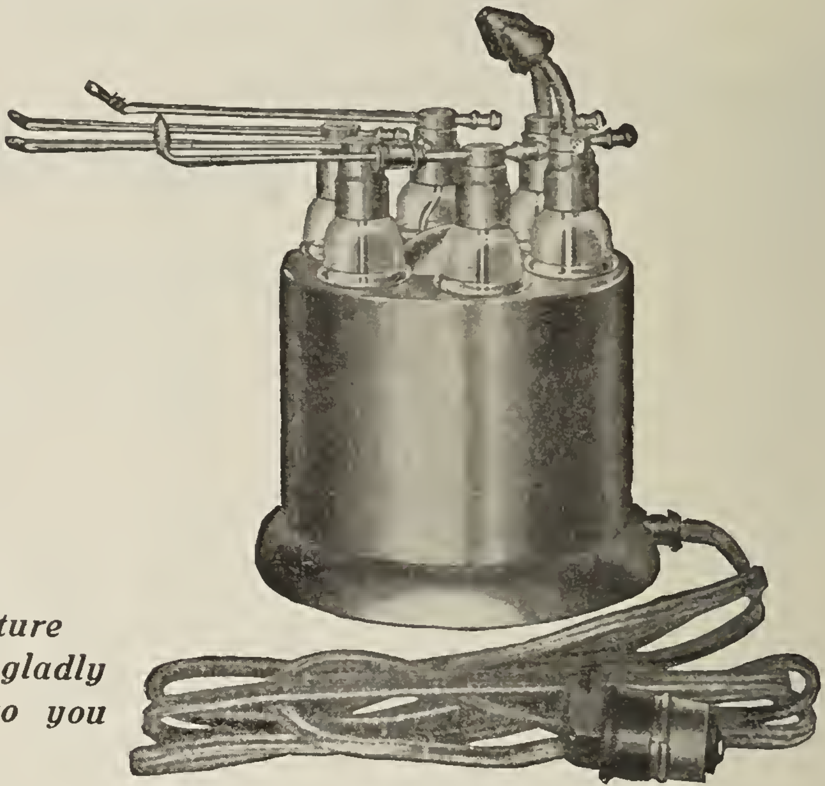

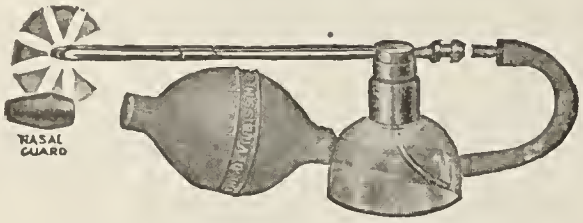

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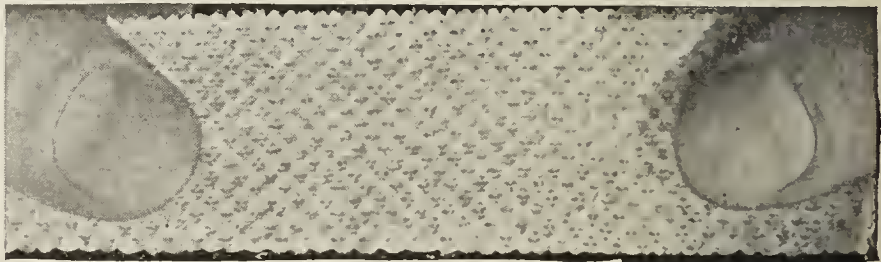

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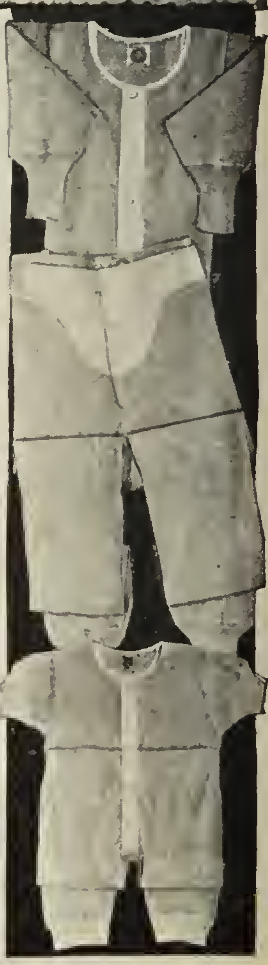

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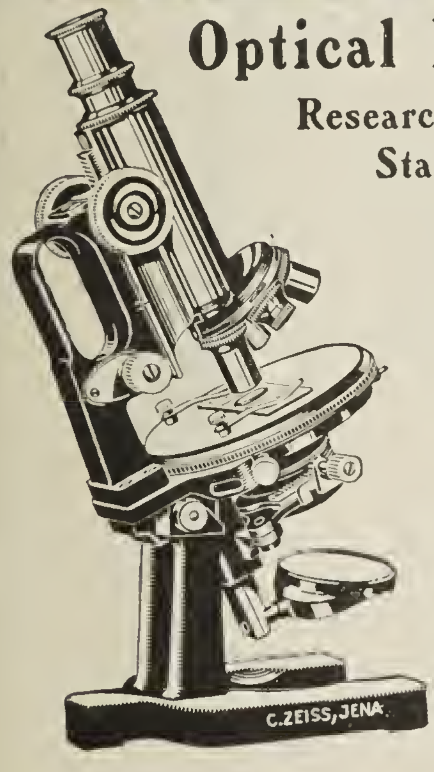

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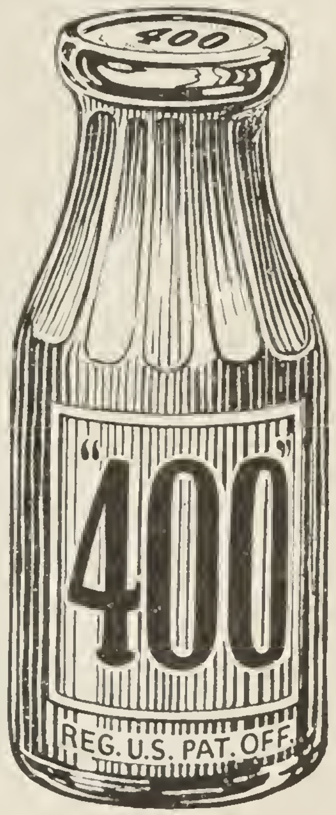

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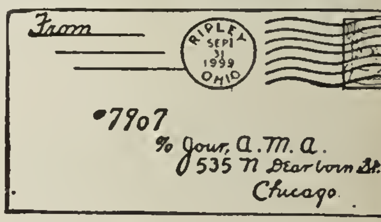

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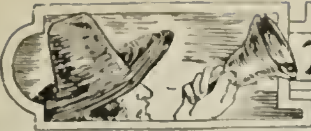

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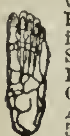

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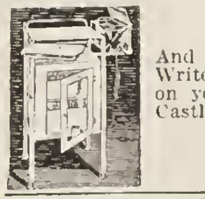

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F—— S——

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"The dirty crooks!" he exclaimed, and dashed back to the restaurant.

"Look here!" he bawled at the manager. "You've cheated me. I'm short twenty-seven calories."

The managed gazed at him coldly.

z"We can do nothing for you," he observed. "You should have noted that sign."

MacIntyre looked at the wall and read:

"Count Your Calories Before Leaving the Restaurant."—*American Legion Weekly.*

◆

As Girls Make Up

New York Star

The bolt of lightning came down between Mrs. Carney and her sister, and ripped off a good deal of plaster.

(Continued on page 24)

(Continued from page 20)

WANTED—ASSISTANT PHYSICIAN AT Soldiers' Home in Massachusetts; single, Gentile; graduate Class A school; Mass. registration necessary; salary $1,500 a year and maintenance. Add. George H. Maxfield, M.D., Soldiers' Home, Chelsea, Mass. B

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WANTED—ASSISTANT — REGISTERED in Pennsylvania; $200 monthly; house, office and equipment furnished; permanent position; must be good worker. Add. 6776 B, % AMA.

WANTED—ASSISTANT PHYSICIAN, ESSEX County Hospital for Mental Diseases, Cedar Grove, N. J.; salary ranging from $1,800 to $2,400 per year, with maintenance. Add. Dr. Guy Payne, Superintendent, Cedar Grove, N. J. B

WANTED—AN ASSISTANT INDUSTRIAL physician and surgeon; recent graduate with hospital experience preferred; position is full time and the work consists of first aid, minor surgery, redressings, ordinary x-ray work, employment and routine examinations, etc.; unless available at once, do not reply; a personal interview is desired; salary is $225 per month. Address all communications to Mr. C. D. Porch, Manager Du Pont Dye Works, P. O. Drawer 928, Wilmington, Del., attention of Dr. R. A. Lynch, Chief Surgeon. B

WANTED — AN ASSISTANT PATHOLOGIST in a large hospital (Pennsylvania); one who has had considerable experience in autopsy work and in diagnosing surgical tissues; service is large and varied; salary $250 per month. Add. 6748 B, % AMA.

WANTED — FIRST ASSISTANT PHYSICIAN for a large, well established and nationally known tuberculosis sanatorium in the middle west; unusual opportunities for clinical and research work; give age, qualification, references and salary desired in first letter. Add. 6767 B, % AMA.

WANTED — ASSISTANT PHYSICIANS (men) at Central Indiana Hospital for Insane; applicants must be single and have had at least one year of general hospital experience or one year's experience in a hospital for the insane; preference will be given to those who desire to devote their time to a study of mental and nervous diseases; in writing state age, height and weight; also whether now employed in a similar institution. For particulars address the Superintendent, Dr. George F. Edenharter, Indianapolis, Ind. B

WANTED—PATHOLOGIST TO DO LABORATORY and x-ray work in 75-bed growing hospital; Illinois city of 70,000; desirable permanent position for competent man with executive ability; salary and percentage basis considered; references and full details first letter. Add. 6478 B, % AMA.

WANTED—PATHOLOGIST (SINGLE man) at Central Indiana Hospital for Insane; in writing state age, height and weight; also give general and specific experience. For particulars address Dr. George F. Edenharter, Superintendent, Indianapolis, Ind. B

WANTED—ASSISTANT IN LARGE CONTRACT and general practice; Pennsylvania; must be man of ability, strictly upright and a hustler; salary $150 per month, board and room; at expiration of year will turn over practice to man who can qualify; state nationality, medical education, age, weight, religion, etc. Add. 6720 B, % AMA.

WANTED—A RECORD KEEPER NEEDED for record department, 100-bed hospital. Add. 6667 B, % AMA.

WANTED — ASSISTANT PHYSICIAN IN mine contract practicce in west Pennsylvania; under 35 years, single, Protestant; salary $200 per month, room furnished, with all conveniences. Add. 6722 B, % AMA.

WANTED—ASSISTANT PHYSICIAN, State Sanatorium for Tuberculosis, eastern Pennsylvania; single man preferred; salary $1,400 to $1,800 per year, depending on experience and ability; in answer give full particulars. Add. Medical Director, Hamburg State Sanatorium. B

WANTED—IMMEDIATELY—JUNIOR ASSISTANT physician, state hospital for mental disease, situate Weston, W. Va.; single man preferred; initial salary $150 per month. Add. Cecil Denham, M.D., Superintendent Weston State Hospital, Weston, W. Va. B

WANTED — WEST VIRGINIA — ASSISTANT, with aspiration to become an associate with an older man in eye, ear, nose and throat practice; should have at least one year special postgraduate training; 25 to 35 years of age; Protestant, Gentile; preferably single; give particulars in first letter, stating salary expected for first six months; small photo. Add. 6745 B, % AMA.

WANTED — CHICAGO INTERNIST OFfers opportunity for Class A graduate; office and research work; state qualifications. Add. 6783 B, % AMA.

WANTED — ASSISTANT — PHYSICIAN for mining contract practice in Pennsylvania; young married man preferred; must be licensed in Pennsylvania; good opportunity for right man; good salary from the start. Add. 6679 B, % AMA.

WANTED — ASSISTANT — SINGLE, IN large eye, ear, nose and throat practice in central western city; salary $200 per month with board and room; send photo and state particulars as to age, education, experience, religion, etc. Add. 6646 B, % AMA.

WANTED — TEXAS — ROENTGENOLOGIST desiring location in southwestern city with fine climate and excellent opportunities, can secure a one-half interest in well-established laboratories; details given to those really interested; personal interview preferred. Add. 6638 B, % AMA.

PHYSICIANS WANTED

PHYSICIANS WANTED—DOCTORS wanted immediately for salaried appointments in hospitals, sanatoriums, industrial plants, railroad companies, mining and contract practice. Apply "The Medical Echo," 30 Cowdrey Ave., East Lynn, Mass.

WANTED—RESIDENT PHYSICIAN FOR sanitarium treating mental and nervous cases only, located in Ohio; must be graduate of accredited medical school and give first-class references as to character; salary $2,400 a year and maintenance; married man preferred; will sell part interest if desired. Add. 6757 C, % AMA.

WANTED—DOCTOR — OPENING IN A small town of 150 population, with large surrounding territory; nearest doctor 10 miles; have good schools, churches, railway facilities; splendid productive country; we need a doctor; no hospital, electric lights or other strictly modern conveniences; don't answer if not interested. For further information address Lester C. Hoppes, Corbin, Kan. C

WANTED—YOUNG PROTESTANT PEDIATRICIAN for group in southwest; ability and geniality desired; no investment required. Add. 6653 C, % AMA.

WANTED—RESIDENT PHYSICIAN FOR ambulatory division of tuberculosis sanatorium; recent graduate preferred; single; complete clinical and x-ray laboratories; also dispensary in connection with university; a splendid opportunity for study of diseases of the chest; please send photograph and all particulars with first letter; salary $1,200, with full maintenance. Add. Dr. O. O. Miller, Box 540, Louisville, Ky. C

WANTED—PHYSICIAN — MINNESOTA— Large country practice will be turned over to physician purchasing office outfit, supplies and small block of stock in new modern hospital located 10 miles distant; small amount of cash will handle. Add. 6703 C, % AMA.

(*Continued on next page*)

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Makers of Lighting Devices since 1874

(Tonics and Sedatives Continued)

A PLURIGLANDULAR POEM

We offer here a rhymed review, of cryptogenic glands,
That we our knowledge may renew, and cope with sleek brigands
Who laud the syringe therapy of chromaffin remote
And vouchsafe paradise regained in gonads of the goat.
The fount of manly vigor, with sprightly step and gait
Too soon is spent, when to repent is quite inadequate.
Thus quoth a would-be poet, philospher and sage,
Peruse this and you'll know it, for glands are quite the rage.

PITUITARY

We learn from this science that eunochoid giants have increment preadolescent,
That acromegalics and oxycephalics result when it grows effervescent.
Increase of the flow after sixteen or so causes bow legs and hypertrichosis,
The stomach's voracious while speech is loquacious, and a study will show osteosis.
While dolorous dystrophy, fat infantile, and the syndrome of old Dr. Frohlich
Prevails with the fore-lobe atrophic the while, and a sella quite large and too thick.
There's girdle type plumpness and lavendar lips, with rear lobe inert or subnormal,
And tapering ankles and sinuous hips, evinced at affairs yclept formal.

ADRENALS

In hyperadrenia goose pimples are seen, peripheral vasoconstriction,
The cortex is thickened, maturity quickened, and often tobacco addiction.
The syndrome of languor to algid fatigue denotes these two glands below par,
Cyclic alternation from blues to elation, dementia praecox is not far.

THYROID

The facies of cretins we all have observed, research on thyroid is replete,
There is dryness of skin, and the hair won't stay in, due to cellular toxins effete.
There's digital tremor and palpebral twitch in hyperthyroid of Basedow,
First keen mental tension, then dire apprehension and feeling of impending woe.

THYMUS, PINEAL, MAMMARY

Persistence of thymus and pineal glands holds sex infantile and forlorn,
Atrophy premature, causes sexual lure, and whiskers the youngsters adorn.
Mammary secretion, placental extract, are both known to depress menstruation,
The ruminant cow and omnivorous sow eat the latter at time of gestation.

LESSER ENDOCRINES

The lean diabetic with rules dietetic, now faces the future and smiles,
Feels new life within, due to pure insulin, extracted from Langerhans' Isles.
The crypts duodenal and cells perirenal, and Kupfer's big cells in the liver,
Hassel's cells intrasplenic also cryptogenic, abet this endogenous river.
From Ribes', parotid, and glands subcarotid, and megaloblasts of long bones,
To cells coccygeal and rests perineal, exude synergistic hormones.
Adenous innervation and interrelation with wonders of ages still ranks,
For example, in mumps, how the antigen jumps, baffles even the endocrine cranks.

GONADS

The paramount wonder of endocrine glands, the gonads, or seed of the race,
Give man his deep voice and his sinewy hands, and woman her beauty of face.
The cells of Sertoli, or is it Leydig, secrete a complex protamine,
Causing chivalrous folly like that of Sir Raleigh, who ruined his robe for the Queen.
We've read of Herr Steinach, Serge Voronoff, too, implanting and vasoligation,

(Continued on page 26)

(Continued from preceding page)

WANTED—PHYSICIANS — PERMANENT situations on staff for male, also female physician; opportunity for advancement excellent. Apply State Colony, Gardner, Mass. C

WANTED — YOUNG PHYSICIAN FOR clinical laboratory work, including running of Wassermanns; also history taking, physical examinations, etc., in small Chicago institution. Add. 6729 C, % AMA.

WANTED — CHIEF RESIDENT, 150-BED general hospital in central Pennsylvania, approved for intern training; salary $1,500, with full maintenance in the hospital. Add. 6740 C, % AMA.★

WANTED — PHYSICIAN—EXPERIENCED in modern psychiatric work; must have ability and personality; give references in first letter; state age; good salary, steady position; the best surroundings; licensed to practice in state of Connecticut; 40 minutes from New York. Answer Drawer 469, Postoffice, Greenwich, Conn. C

WANTED — THOROUGHLY COMPETENT eye, ear, nose and throat man for group in southwest city; department well established; if interested, give comprehensive report of experience and qualifications; also age, social state, race, religion, etc. Add. 6738 C, % AMA.

WANTED — TWO RESIDENT PHYSICIANS; single; Gentile; one appointment to be made at once; the other January 1; 200-bed general hospital, approved by the American College of Surgeons; new surgical and obstetrical wing, costing $250,000, just opened; $100 per month, with maintenance. Edward S. Crosland, M.D., St. Joseph's Hospital, Lancaster, Pa. C

WANTED—RESIDENT PHYSICIAN (woman) in 150-bed hospital for contagious diseases; position offers good experience in pediatrics and pulmonary work; apply, giving age, education, training and references. Add. 6627 C, % AMA.

WANTED—OPENINGS IN WELL ESTABLISHED clinic in southern California for internist who is keen diagnostician, urologist experienced also in dermatology and pathologist familiar with metabolic work, tissue examinations and serology; in application give age, religion, qualifications, references, salary expected and recent photograph. Add. Dr. H. D. Newkirk, Johnston-Wickett Clinic, Anaheim, Calif. C

WANTED—CLASS A PHYSICIANS, PATHOLOGISTS for salaried positions; internists, assistants, surgeons, hospitals, contract, industrial, group, appointments; if you desire a permanent position anywhere send for application form. Aznoe's National Physicians' Exchange, 30 N. Michigan. Chicago. C

INTERNS WANTED

WANTED — INTERNS, TWO, FOR GENERAL hospital, 166 beds; average 120 patients; all accident cases; Pennsylvania Railroad treated outpatient department; good living conditions; $25 per month and maintenance; four interns on service. Apply Superintendent Altoona Hospital, Altoona, Pa.★ D

WANTED — INTERN, JAMAICA HOSPITAL, for one year, Jamaica, L. I., N. Y.; very active general service; $30 per month with uniforms, room and board. D

AN EXAMINATION IS ANNOUNCED FOR medical intern at St. Elizabeth's Hospital, Washington, D. C. It is now open to applicants, and applications can be filed at any time. The examination is of the assembled type, and consists in the submission, in the application form, of a statement in regard to education and experience. The positions are open to male or female applicants. There are three vacancies. The service is rotating and covers an acute medical service, tuberculosis and chronic medical service and a surgical service. The basic pay is $1,200 per annum and full maintenance. There is a bonus of $20 per month in addition until July 1, 1924, if the individual's service is satisfactory. Leave of absence with pay for 30 days may be granted during the year, at the discretion of the superintendent of the hospital. The period of service is for one year, and may be followed by an internship in the psychiatric service, at the option of the applicant. Successful candidates will receive immediate appointment. Application forms can be obtained by addressing the Superintendent of the hospital, or the Secretary of the Fourth Civil Service District, Washington, D. C.★ D

WANTED—INTERN — ONE WITH PREvious hospital experience; salary $50 per month and maintenance. Apply C. L. Eggert, Superintendent Woman's Hospital, Detroit, Mich.★ D

WANTED—TWO INTERNS — 12-MONTH rotating service and splendid experience; full maintenance and $50 monthly. Add. Sister Superior, St. Anthony's Hospital, Terre Haute, Ind.★ D

WANTED—HOSPITAL FOR RUPTURED and Crippled, 321 East 42d St., New York City, one resident intern for one year orthopedic service, beginning Oct. 1, 1923; 2 interns for orthopedic service, beginning Feb. 1, 1924; only graduates from Class A medical school, having had a general hospital, internship, need apply. Write to Superintendent, inclosing credentials.★ D

WANTED — TWO INTERNS FOR NEW Class A 75-bed general hospital; graduates from Class A schools only; salary $300 per annum. Apply with full particulars to Superintendent, Mount Sinai Hospital, Hartford, Conn. D

WANTED — TWO MORE INTERNS TO complete quota of four, 225-bed hospital; rotating service and splendid experience; allowance $25 per month and maintenance. Add. Sister Superior, St. Joseph's Hospital, Denver, Colo.★ D

WANTED—TWO GRADUATE INTERNS, rotating service; 110-bed general hospital; $25 per month and accident fees. N. I. Parr, M.D., Superintendent, Franklin Square Hospital, Baltimore, Md.★ D

WANTED — FOUR INTERNS AT ONCE for twelve months' rotating service in a new 225-bed hospital. Apply Superintendent, City Memorial Hospital, Winston-Salem, N. C. D

WANTED—TWO INTERNS. APPLY TO Superintendent, Lutheran Hospital, Franklin Ave., Cleveland, Ohio. D

WANTED—TWO INTERNS AT ONCE TO complete house staff, 250-bed hospital; one year rotating service; teaching institution; full maintenance and $25 monthly; none except graduates from Class A schools accepted. Add. 6700 D, % AMA.★

WANTED—FIRST-CLASS INTERN IN 100-bed, modern hospital, registered in the state of Ohio and recognized by the American College of Surgeons; reply immediately. Add. 6697 D, % AMA.

WANTED — INTERN AND ASSISTANT for thirty-bed general hospital; excellent opportunity to learn x-ray work, laboratory technic and internal medicine; $50 per month and maintenance. The Bulluck Hospital, Wilmington, N. C. D

WANTED—INTERN FOR HOSPITALS IN all parts of United States and Canada; send for application form. 350, Aznoe's National Physicians' Exchange, 30 North Michigan, Chicago. D

REPRESENTATIVES WANTED

WANTED — REPRESENTATIVES — MEN who want a high grade proposition and a good income; a publisher of medical journals wants a few energetic, well educated solicitors; this work is with the medical profession exclusively and good territory is open; instruction and all supplies furnished free; also solicitors now calling on physicians can make some extra money with these journals as a side line; men of good personality and selling ability should investigate at once. For further information add. 5008 JJ, % AMA.

LABORATORY TECHNICIANS WANTED

WANTED — CLINICAL LABORATORY technician; prefer one with x-ray experience; one thoroughly trained in serology, histological technic, blood chemistry, urinalysis; modern hospital and clinic; salary $100 and maintenance. Add. Wheatland Hospital, Wheatland, Wyo. V

WANTED — A THOROUGHLY TRAINED laboratory technician and x-ray operator; female; must be well educated, competent and capable of doing the most exacting laboratory diagnosis; good health; permanent position in resort town; in reply send references, photograph and salary expected. Add. 6555 V, % AMA.

(Continued on next page)

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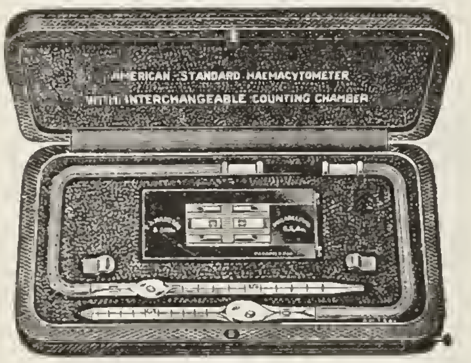
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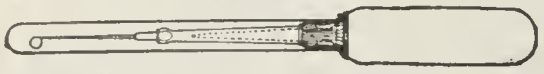

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The Scientific Glass Instrument Co. **Northfield, N. J.**

A CLASSIFIED Advertisement inserted in **THE JOURNAL** is accessible to about TWO-THIRDS of the medical profession.

(Tonics and Sedatives Continued)

But barren and crude is their surgery rude to recompense youth's dissipation.
The flirting of flapper and vampire, from social whirl down to the moron,
Henceforth is construed that she is imbued with histamines from her oophoron.
But when in fourth or fifth decade her thinning hair senescence spells,
Dried glands of ewe can ne'er renew her scirrhous interstitial cells.

CONCLUSIONS

For this much we know, there is decrease of flow, as Time takes immutable flight,
And sorrow and tears, apprehension and fears, but hasten the Shadow of Night.
So let us conserve our gland tissue, give ear to endogenous truth,
Old age, so they say, is the wasting away, of endocrines innate to youth.
Be gently indulgent, but never effulgent, avoid excess, worry and strife,
Consider this message, hexameter presage, of endocrine essence of life.

RALPH W. HOFFMAN.

◆

It Happened in California

Dear T. and S.—One of my friends was waiting in a drug store the other day when an Italian, quite dirty, apparently a scavenger, came in and asked for some breath sweetener. He didn't want Sen-sen and he didn't want something else the clerk offered him, so a clerk standing nearby suggested in an undertone: "Sell him some saniflush."

W. C. A.

◆

And Echo Answers: "How, Indeed?"

Journal Texas State Med. Soc.

I believe fear and expediency are the two things that drive us into radical operations. We haven't got the courage to stand to our task and fight this trouble at this time. If cesarean section is such a fine thing for a woman who has eclampsia, how are we going to treat the woman who has post-mortem eclampsia?

◆

EACH MAN'S SHARE

A doctor, an architect and a bolshevik were discussing as to the priority of their occupations.

The doctor said:

"When Adam's side was opened and a rib removed to make woman, there was a surgical operation—medicine was the oldest trade."

The architect said:

"Yes, but when the earth was made, out of chaos, there was the building process, the use of materials according to a plan. The architect's is still older."

The bolshevik smiled and said:

"But who supplied the chaos?"—*Farm Life.*

◆

Out of the Mouths of Babes

Chicago Tribune

Chicago, Sept. 3.—I am 11 years old and my name is Marguerite Parsons.

I have heard my mother and father talking about criminals and I thought that instead of hanging the criminal why wouldn't it be a good scheme to use them for medical use and if they pull through whatever the operation is they have paid for what he has done and if they don't pull through why it doesn't matter. MARGUERITE PARSONS.

◆

A Logical Conclusion

Waterloo (Iowa) Courier

The surgeons at a Kansas City hospital operated on a woman the other day and took out 43 sections of wire bed spring, three odd pieces of spring wire, two hairpins and two door locks with screws attached. The patient's name was withheld, but she must have been one of those women who are always going around looking for a scrap.

(Continued from preceding page)

WANTED—ABOUT OCTOBER 15 BY INTERNIST in Connecticut, a well-trained female technician to conduct laboratory; in reply state age, training, nationality, religion and salary expected. Add. 6761 V, % AMA.★

WANTED — LABORATORY TECHNICIAN who is graduate nurse, by group in western Washington city; permanent; state qualifications, minim salary and give references in first letter. Add. 6636 V, % AMA.

WANTED—WOMAN LABORATORY TECHNICIAN and x-ray operator in 60-bed southern hospital; give experience, references and salary wanted. Add. 6608 V, % AMA.

WANTED — LABORATORY TECHNICIAN for private laboratory, competent to do routine blood, urinalysis, Wassermanns, cultures and tissue work; in reply give experience and salary expected. Dr. Marcus Haase, 901 Exchange Bldg., Memphis, Tenn. V

WANTED—A COMPETENT TECHNICIAN for a laboratory in a small modern hospital; one assistant supplied; state qualifications and give references. Add. 6635 V, % AMA.

WANTED—THOROUGHLY TRAINED laboratory technicians and x-ray operators; male and female; for positions in all parts of the country; must be competent and well educated; A1 references required; correspondence solicited. Aznoe's National Physicians' Exchange, 30 N. Michigan, Chicago. V

NURSES & DIETITIANS WANTED

WANTED—GRADUATE NURSE, OF AGGRESSIVE personality, who likes and will do part time visiting nursing for an insurance company, with remainder of time devoted to general office and laboratory assistance. Box 1446, Boise, Idaho. T

WANTED — REGISTERED NURSE TO take charge of 15-bed hospital, Iowa; apply at once, stating qualifications. Add. 6790 T, % AMA.

WANTED — OPERATING ROOM SUPERVISOR for a 50-bed hospital, accredited training school; one of the best locations in Wyoming; salary $100 and maintenance. 125 M, Aznoe's Central Registry for Nurses, 30 N. Michigan, Chicago. T

WANTED — REGISTERED NURSE FOR first aid industrial hospital; 6,500 employees; city of 18,000 population, Indiana; Protestant woman, 30-40; state fully qualifications, experience and description. Add. 6709 T, % AMA.

WANTED—SUPERINTENDENT OF nurses, assistant superintendents, surgical, general duty, instructresses, laboratory technicians, dietitians desiring hospital positions anywhere in United States, write for free book. Aznoe's Central Registry for Nurses, 30 N. Michigan, Chicago. T

LOCATIONS WANTED

WANTED—GOOD LOCATION IN NORTHEAST New Jersey, suburb or growing community, where competition is light, preferred; will pay for information resulting in acceptance. Add. 6770 E, % AMA.

WANTED—THE NAME OF EVERY TOWN in the United States without a physician, and the name of every doctor with an established practice for sale. Aznoe's National Physicians' Exchange, 30 N. Michigan, Chicago. E

WANTED — LOCATION — PREFERABLY city 20,000 or more, middle states; will purchase practice, join group, accept position; graduate Class A university; scientific degree; experienced private practice; completing six years' training large hospitals; mainly surgical; competent obstetrician and major surgeon; Gentile, American; excellent references. Add. 6743 E, % AMA.

WANTED — LOCATION — GRADUATE good school, aged 36; 11 years large general practice; energetic, good personality, mixer, Mason; desires location in city 3,000 or more; state reciprocating with Oklahoma; prefer western; would combine with surgeon or group; had large experience pediatrics and obstetrics; will invest in good proposition; available about November. Add. 6746 E, % AMA.

WANTED—POSITION BY WOMAN PHYSICIAN, experienced in eye, ear, nose and throat, assistantship, association with group or location; states reciprocating with Illinois. Add. E. Morgan, 933 West 53d St., Los Angeles, Calif. E

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WANTED—SITUATION—NURSE WISHES position as general office assistant to one or more physicians; in or near Chicago; or laboratory work in medical laboratory; will appreciate kindness and pleasant surrounding more than high salary. Add. 6749 W, % AMA.

WANTED—POSITION DESIRED IN DOCTOR'S office by dietitian trained at Johns Hopkins Hospital with practical experience in New York hospital; can figure food values; explain diets and and methods of food preparation to patients. Add. Dietitian, Box 57, Baldwin, Ga. W

WANTED — POSITIONS, SUPERINTENDENT of nurses, assistant superintendents, surgical, general duty nurses, dietitians, laboratory technicians, furnished promptly anywhere in United States; no charge for this service. Aznoe's Central Registry for Nurses, 30 N. Michigan, Chicago. W

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WANTED—ASSOCIATION OR PARTNERSHIP by surgeon having had best of training and experience in general surgery and diagnosis; special work in gynecology and urology; several years' successful practice; married; Mason; American; F.A.C.S.; prefer midwest or west coast and progressive small city if work is there; will be in Chicago for clinical congress; answer in detail. Add. 6786 H, % AMA.

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WANTED—POSITION AS LABORATORY technician in progressive hospital; B.S. degree; 4 years' experience; competent in clinical pathology, bacteriology, chemistry and serology. Add. 6752 I, % AMA.

WANTED—POSITION BY EXPERIENCED technician; college graduate; in hospital, laboratory or physician's office, in New York state or the east; can do routine laboratory procedure, tissue work, routine bacteriology, blood chemistry and immunology. Add. Ruth C. Cole, 915 Newell St., Utica, N. Y. I

WANTED—GRADUATE NURSE DESIRES position as x-ray technician in doctor's office, clinic or hospital; state particulars and salary paid. Add. 6750 I, % AMA.

WANTED — YOUNG WOMAN DESIRES position in x-ray laboratory; university degrees of B.A. and M.Sc.; several years' experience in university physics laboratory; practical hospital experience in x-rays and radium. Add. 6760 I, % AMA.

WANTED—WOMAN PHYSICIAN WANTS appointment; M.D., University of Illinois; 5 years surgical assistant; 8 years' European service; very well qualified; excellent credentials. 381, Aznoe's National Physicians' Exchange, 30 N. Michigan, Chicago. I

WANTED—A POSITION AS OFFICE ASSISTANT to busy physician and surgeon; qualified to keep all records and accounts, do office dressings, laboratory work, etc.; 5 years' experience; references furnished; female; unmarried. Add. 6789 I, % AMA.

WANTED — ASSISTANTSHIP OR PARTNERSHIP with eye, ear, nose and throat man; am just completing course in postgraduate school; have had experience in general practice; good references. Add. 6773 I, % AMA.

(Continued on next page)

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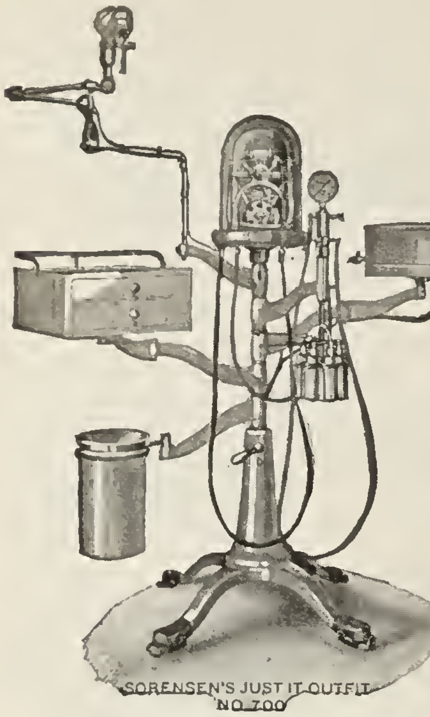

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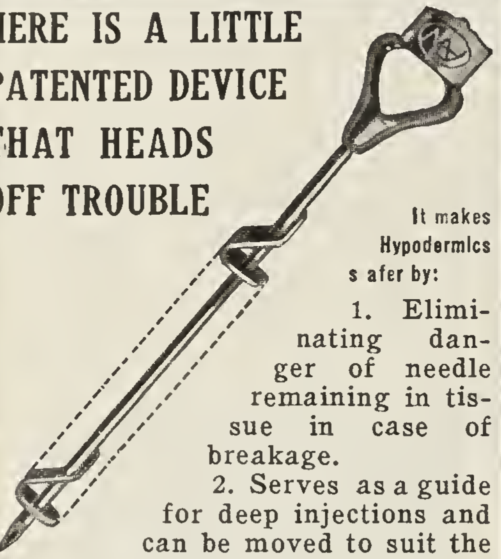

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Books Received

Books received are acknowledged in this column, and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

OUTLINES OF MEDICAL ZOÖLOGY, With Special Reference to Laboratory and Field Diagnosis. By Robert W. Hegner, Professor of Protozoölogy, Department of Medical Zoölogy, School of Hygiene and Public Health, The Johns Hopkins University, William W. Cort, Associate Professor of Helminthology, Department of Medical Zoölogy, School of Hygiene and Public Health, The Johns Hopkins University, and Francis M. Root, Associate in Medical Entomology, Department of Medical Zoölogy, School of Hygiene and Public Health, The Johns Hopkins University. Cloth. Price, $2.40. Pp. 175, with illustrations. New York: The Macmillan Company, 1923.

KYSTOSKOPISCHE TECHNIK. Ein Lehrbuch der Kystoskopie, des Ureteren-Katheterismus, der Funktionellen Nieren-Diagnostik, Pyelographie, Intravesikalen Operationen. Von Dr. Eugen Joseph, A.O. Professor an der Universität Berlin. Paper. Price, $3.60. Pp. 221, with 262 illustrations. Berlin: Julius Springer, 1923.

NISSLS BEITRÄGE ZUR FRAGE NACH DER BEZIEHUNG ZWISCHEN KLINISCHEM VERLAUF UND ANATOMISCHEM BEFUND BEI NERVEN-UND GEISTESKRANKHEITEN. Herausgegeben von F. Plaut und W. Spielmeyer. Zweiter Band. Heft I. Paper. Price, $1.80. Pp. 128, with 72 illustrations. Berlin: Julius Springer, 1923.

LES HÉPATITES AMIBIENNES, AUTOCHTONES ET COLONIALES ET LEUR TRAITEMENT. Par F. Françon, Ancien interne des hôpitaux de Paris, et J. Hutinel, Interne des hôpitaux de Paris. Avec une Préface de M. le Professeur Chauffard. Paper. Price, 10 francs. Pp. 132. Paris: Gauthier-Villars et Cie, 1923.

CANCERS DU REIN DE LA GLANDE SURRÉNALE ET DES VOIES URINAIRES SUPÉRIEURES. Par P. Lecène, Professeur à la Faculté de Médecine de Paris, et G. Wolfromm, Préparateur à la Faculté de Médecine. Paper. Price, 16 francs, 50 centimes. Pp. 207, with 32 illustrations. Paris: Gaston Doin, 1923.

CHEMISTRY INORGANIC AND ORGANIC WITH EXPERIMENTS. By Charles Loudon Bloxam. Revised by Arthur G. Bloxam, F.I.C. and S. Judd Lewis, D.Sc., F.I.C. Eleventh edition. Cloth. Price, $9. Pp. 832, with 310 illustrations. Philadelphia: P. Blakiston's Son & Co., 1923.

THE OPHTHALMIC YEAR BOOK. Volume XIX, Containing Bibliographies, Digests and Indexes of the Literature of Ophthalmology for the Year 1922. Edited by Edward Jackson and William H. Crisp. Cloth. Pp. 390, with 3 illustrations. Chicago: Ophthalmic Publishing Co., 1923.

TEACHER'S DIETETIC GUIDE CONTAINING STATE BOARD REQUIREMENTS IN DIETETICS AND STATE BOARD EXAMINATION QUESTIONS. Paper. Given gratis with each copy of Pattee's Practical Dietetics. Not sold separately. Pp. 142. Mount Vernon, N. Y.: A. F. Pattee, 1923.

THEORETISCHE BIOLOGIE VOM STANDPUNKT DER IRREVERSIBILITÄT DES ELEMENTAREN LEBENSVORGANGES. Von Professor Dr. Rudolf Ehrenberg, Privatdozent für Physiologie an der Universität Göttingen. Paper. Price, $2. Pp. 348. Berlin: Julius Springer, 1923.

SECOND REPORT OF THE MINERS' NYSTAGMUS COMMITTEE, Medical Research Council. Special Report Series, No. 80. Paper. Price, 9 pence net. Pp. 33. London: His Majesty's Stationery Office, 1923.

CANCER DE L'INTESTIN. Par J. Okinczyc, Professeur agrégé à la Faculté de Médecine de Paris. Paper. Price, 16 francs, 50 centimes. Pp. 236, with 78 illustrations. Paris: Gaston Doin, 1923.

SECOND REPORT OF THE ASSOCIATION FOR THE PREVENTION AND RELIEF OF HEART DISEASE. Paper. 1922.

(Continued from preceding page)

WANTED—POSITION AS LABORATORY technician in hospital or with group; young woman experienced in all clinical laboratory procedures; bacteriology, serology, blood chemistry, tissue work, etc.; graduate of Vanderbilt University; special laboratory training; one year head technician in general hospital laboratory; references. Add. 6787 I, % AMA.

WANTED — LADY PHYSIOTHERAPIST with 2 years' experience in U. S. Public Health and Veterans' Bureau hospitals, wishes employment in orthopedic hospital or physician's office. Add. 6771 I, % AMA.

WANTED—GRADUATE NURSE DESIRES superintendency position, tuberculosis sanitarium; 8 years' experience; good executive. Add. 6769 I, % AMA.

WANTED—ASSOCIATION—YOUNG MAN, Class A graduate, with older man; have fine training in surgery and diagnosis; energetic, ethical and morally responsible; want to develop with man who is worthy of confidence. Add. 6657 I, % AMA.

WANTED—GENTLEMAN (MASON) seeks position as office and business manager to group physicians or institution in Detroit, Philadelphia or New York City; experienced executive; references. Add. 6784 I, % AMA.

WANTED — GRADUATE REGISTERED nurse wishes a position in eye, ear, nose and throat office; have had two years' experience in this work; can give best of references. Add. 6774 I, % AMA.

WANTED — BY A WOMAN PHYSICIAN, an institutional position; have had experience in psychiatric, tubercular, general hospital and laboratory work, including Wassermanns; recent internship in approved hospital; registered in three states. Add. 6779 I, % AMA.

WANTED—POSITION IN HOSPITAL, sanatorium or institution wanted by experienced and efficient dentist; graduate class A college; three years' experience in hospital and private practice; two years in dental corps. Add. 6440 I, % AMA.

WANTED — TO ASSIST BUSY MAN—Class A graduate; 2 years' internship; married; 28 years of age; good training in surgery, heart and lung and obstetrics; institutional work also acceptable. Add. 6718 I, % AMA.

WANTED—BY COMPETENT INTERNIST and neurologist with laboratory and x-ray knowledge and capable general practitioner, position in group, sanitarium, hospital or other appointment in the west; prefer coast; details on request. Add. 6719 I, % AMA.

WANTED—SUPERINTENDENCY OF HOSpital or association with active group; physician and surgeon, 43 years of age, perfect health, graduate New York State Medical College, 1908; also licensed pharmacist; Protestant, Mason; acting health officer and custodian of supplies of this county 10 years; experience of 15 years' general practice; during last 5 years have built, equipped and successfully superintended hospital beginning with seven beds, increasing to 120 beds today; thoroughly conversant with all methods of modern hospital progressive activities; reason for changing, opportunity here limited; will accept position or association only where unusual opportunities for advancement are offered; available at once; am considered expert diagnostician and therapist; capable surgical assistant; salary asked, $5,000, conditionally to be increased upon proof of ability. Add. 6731 I, % AMA.

WANTED—ROENTGENOLOGIST, EXPERIenced, wants location; will work salary or commission, or both; must be ethical, first-class place, with future offered for loyalty, interest and ability; reasons and particulars for those interested. Add. 6690 I, % AMA.

WANTED — POSITION — LABORATORY technician, university graduate; 7 years' experience; all routine, including Wassermanns, blood chemistry; hospital, laboratory or office work, bookkeeping, collecting, where laboratory work is wanted; good references. Add. 6656 I, % AMA.

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WANTED — ASSISTANTSHIP TO SURgeon by Class A man; 10 years' experience; some general work not objectional; aged 36; married; professional appearance; must stand personal investigation; references given and required. Add. 6660 I, % AMA.

WANTED—BY RADIOLOGIST—F.A.C.P.—Completing year's study abroad; holding Cambridge diploma; 4 years' experience; hospital and private; excellent reference; seeks appointment with individual, group or hospital; available October 1. Add. 6676 I, % AMA.

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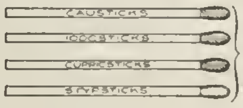

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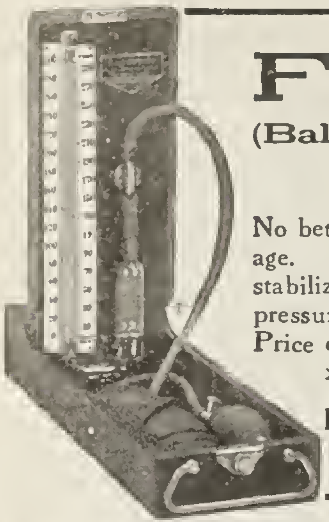

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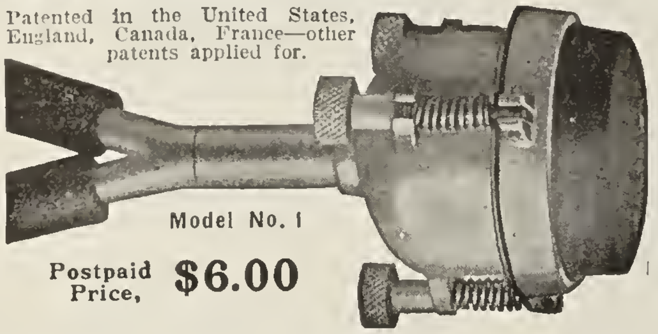

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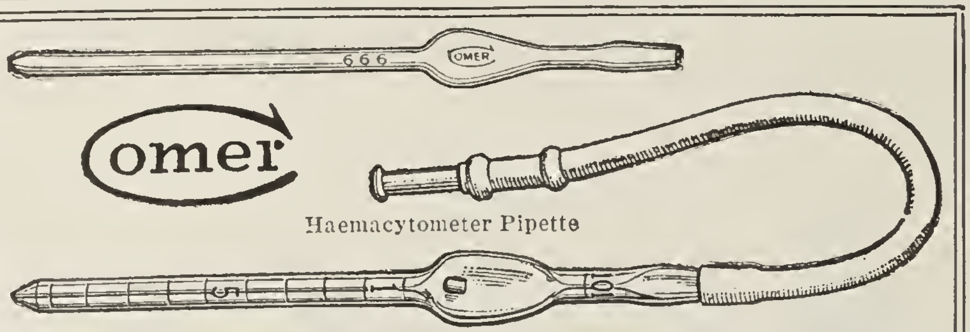

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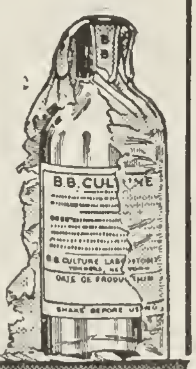

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WHAT YOU WANT—WHERE TO GET IT

"Shop Around" in the MEDICAL MART—Page 21

(Continued from preceding page)

FOR SALE — KANSAS — ONE OF THE best unopposed locations in state; good town, good business, good collections; $500 for office; $3,000 for residence; will introduce. Add. Dr. G. B. Kierulff, Melvern, Kan. N

FOR SALE—KANSAS—$8,000 TO $10,000 practice; town 700; 30 miles from Kansas City; Santa Fe R. R.; hard roads, natural gas and electricity; thickly settled, prosperous community; one old doctor opposing; leaving account health; drugs, equipment, $1,500; case records, $1,000; terms. Add. 6768 N, % AMA.

FOR SALE—KANSAS LOCATION—VERY progressive city; established several years; will introduce buyer; several good appointments; total business, 1919-1922, $24,427; good assortment instruments, drugs; price, $1,600. Add. 6634 N, % AMA.

FOR SALE—LOUISIANA — $5,000 PRACtice free to purchaser of nice home and office; on national highway and railroad; population 500; splendid Protestant community; churches and high school; diversified farming; hill section; going to city. Add. 6788 N, % AMA.

FOR SALE — WESTERN MARYLAND— $6,000 practice in growing town of 3,000; no real estate; office in house; several appointments transferable; opportunity unlmited; will introduce; equipment and practice, $15,000; specializing. Add. 6781 N, % AMA.

FOR SALE—MICHIGAN — PRACTICE IN Detroit; 7-room brick bungalow with office in basement; in rapidly growing district; equipment optional; am leaving to specialize. Add. James G. Stein, 9114 12th St., Detroit, Mich.; phone Empire 3712. N

FOR SALE—NORTHERN MINNESOTA— Town 600; practice and part of equipment cheap; no competition; good town; going to specialize; must be cash; no triflers; rare opportunity; act at once; appears once only. Add. 6780 N, % AMA.

FOR SALE — NORTHEAST MISSOURI— $6,000 practice; most fertile section of state; beautiful prairie country; good roads; auto year round; 800 population; electric lights; main line railroad; $40,000 new school building; $500 for office equipment, cash or note; residence optional; low price for quick deal. Add. 6732 N, % AMA.

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FOR SALE—MISSOURI — ONE OF THE best eye, ear, nose and throat locations in state; good town to live in; collections good and plenty of work; referred work from four leading physicians guaranteed to competent operator. Add. 6639 N, % AMA.

FOR SALE—MISSOURI — SUCCESSFUL practice in largest health resort in middle west; thoroughly equipped for class of cases that come throughout the year; strictly office and hotel practice; no night calls; no long drives; cash fees. Add. 6778 N, % AMA.

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FOR SALE — CENTRAL NEW YORK— Beautiful village; prosperous farming country on railroad near city; good general practice free to purchaser of drugs, instruments, equipment; $400; terms if desired; available now; specializing. Add. 6777 N, % AMA.

FOR SALE — NEW YORK—$5,000 PRACtice, office equipment and drugs of a deceased physician; village of 500 near Utica; must use horse for winter driving. Add. 6534 N, % AMA.

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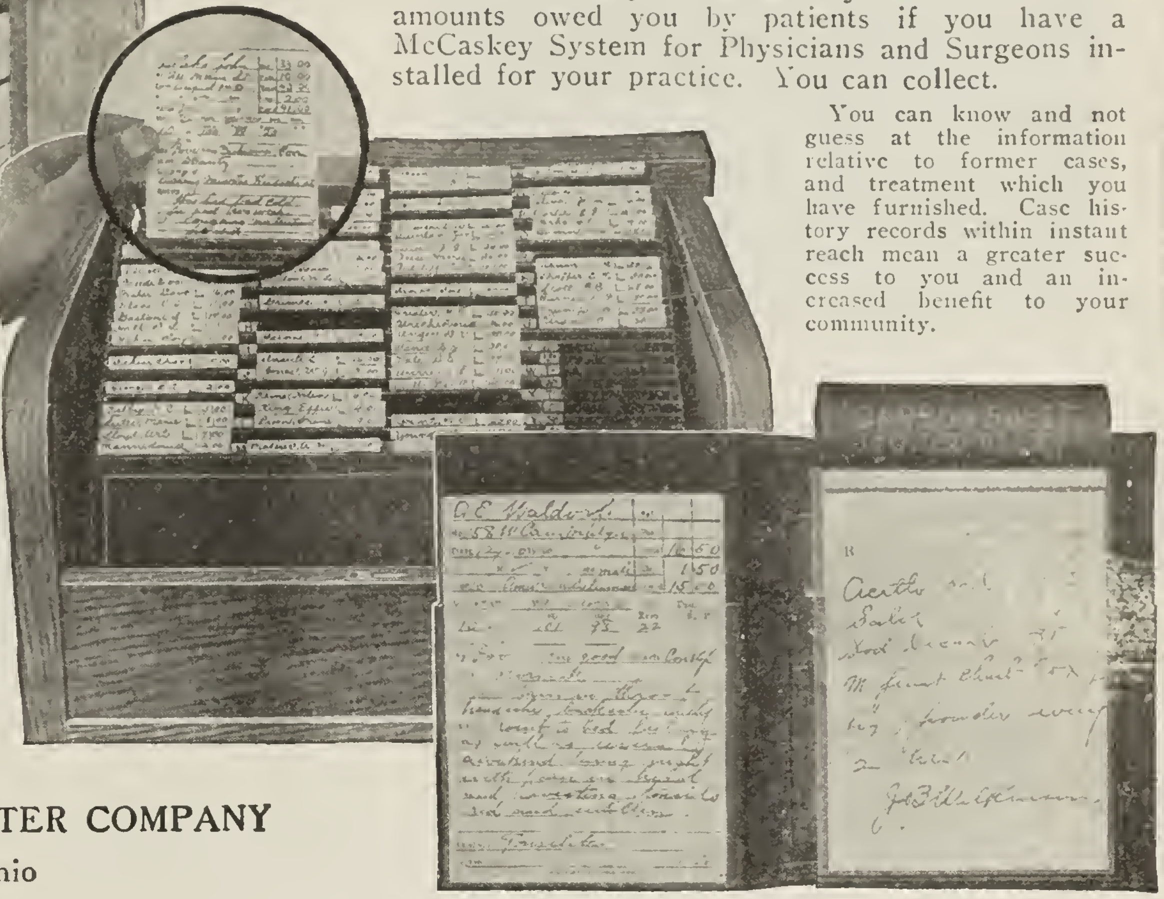

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FOR SALE--NORTHEAST OHIO — $8,000 practice; town 1,000 population; electric lights, paved streets; improved roads; territory 10 to 20 miles; first grade high school, lodges, fine churches, picture show, good stores; want to sell office equipment; residence optional; will sell on payment plan if desired. Add. 6762 N, % AMA.

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FOR SALE—PENNSYLVANIA—GENERAL practice; established 17 years; yearly income $10,000; population 60,000; on Delaware River, 14 miles from Philadelphia; diversified industries; 12-room house; garage; all conveniences; in heart of town; property values increasing rapidly; price, $20,000; failing health reason for selling. Add. 6765 N, % AMA.

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A BUYING GUIDE

Use the MEDICAL MART

PAGE 21

FOR SALE — WEST VIRGINIA — TWO towns, 1 mile apart; population 5,000; 8 miles from city 50,000; two hospitals; plenty surgery; best industrial location in state; good roads; 6-room offices, drug store attached, $15,000 in 1922; collected $30,000 in 1922 from medicine and surgery exclusive of drug store; one competitor in town 1 mile away; for sale by buying drug store, office equipment, etc.; household goods optional; reasonable to buyer who will come at once; must be gone by October 1, as have hospital position in large city which I must fill by this date; half cash, balance terms. Wire at once if mean business. Add. 6758 N, % AMA.

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THERE IS NO ABSOLUTE RULE FOR making safe investments, but unbiased information from those in close touch with the investment field is always helpful. The Brookmire Economic Service provides information that is widely used by investors throughout the U. S. Their Booklet D 26 will be sent to any physician upon request. See page 20. QQ

ARE YOU BUYING BONDS, DOCTOR? An interesting booklet, "The Bond That's Guaranteed," will be sent you on request, by the Prudence Co., Inc. See Adlet, page 21. QQ

"MR. PETERS TELLS HOW TO INVEST," is the title of the booklet every investing physician should read. It will be sent free on request to any physician. Write to the T. L. Miller Bond & Mortgage Co. See Adlet on page 21. QQ

MISCELLANEOUS

MALT PREPARATIONS FOR INFANT feeding. If you have difficult cases complicated by constipation or marasmus, Borchert's Malt preparations properly introduced into the infant's diet may bring about the desired results. Borchert's Malt Sugar is more than 85 per cent. pure maltose. You can have literature and samples on request. See announcement, page 27. KK

"YOU CAN LEAD A HORSE TO WATER but you can't make him drink." Likewise, the mother can set a glass of milk before the child, but she can't make him drink. To overcome the dislike which so many children have for milk, a new attractive dairy drink is now offered. It is called "400", and is not only gaining great popularity among the general public, but is also commanding attention of health authorities in schools and other places where it is desired to increase the consumption of milk. "400" is made and distributed under license by local milk dealers throughout the United States. If made in your city we will see that you get a supply. Write for details. See announcement, page 15, this Journal. KK

SELECTION OF UNDERWEAR HAS SO important a bearing on one's physical comfort and well-being that the Associated Knit Underwear Manufacturers deem it worth while to call the attention of the physicians to certain facts regarding garments worn next to the skin. Their booklet, "First Principles of Underwear and Health," is interesting and full of splendid information. It will be sent on request. See page 25. KK

AN IDEAL HOBBY FOR THE PHYSICIAN. Outside your working hours, you want some agreeable diversion. If you like animals and animal life and want to have a hobby with possibilities for real profit, raising silver foxes is worthy of investigation. U. S. Silver Fox Farms, whose advertisement appears on page 28, will be glad to send you some very interesting literature on this subject. KK

FOR THE MEDICAL STUDENT AN ideal microscope is the Bausch & Lomb FFS8. It is illustrated and described on page 10, this Journal, and more complete details will be gladly furnished on request. KK

WHEN YOUR PATIENTS COMPLAIN OF foot discomfort caused by improper shoes, why not go to the seat of the trouble and recommend a shoe, such as the Queen Quality? Its special advantages are described and illustrated on page 12, this Journal. Interesting literature will be sent you on request. KK

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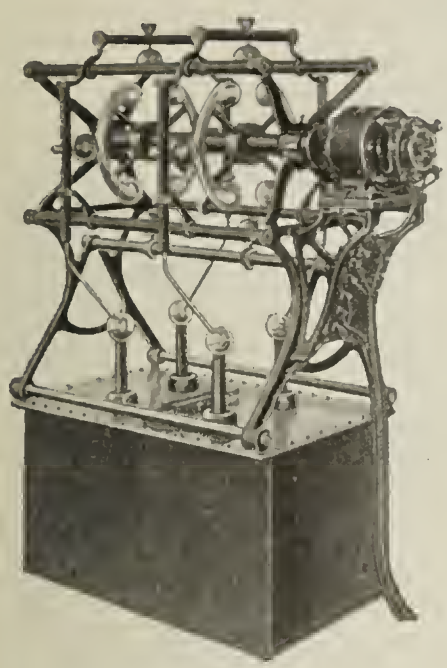

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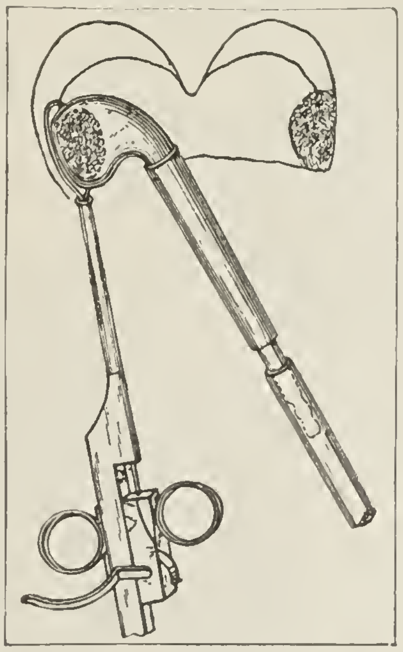

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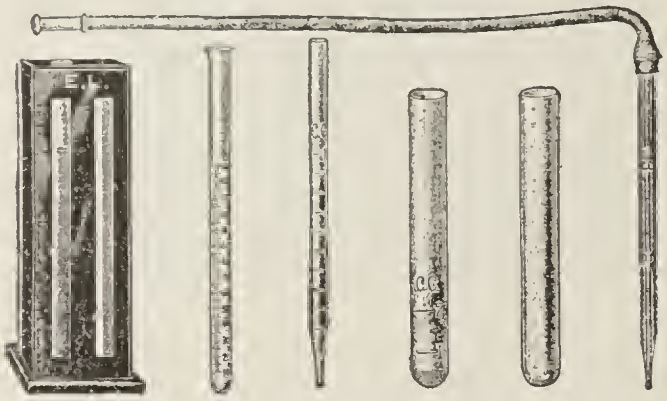

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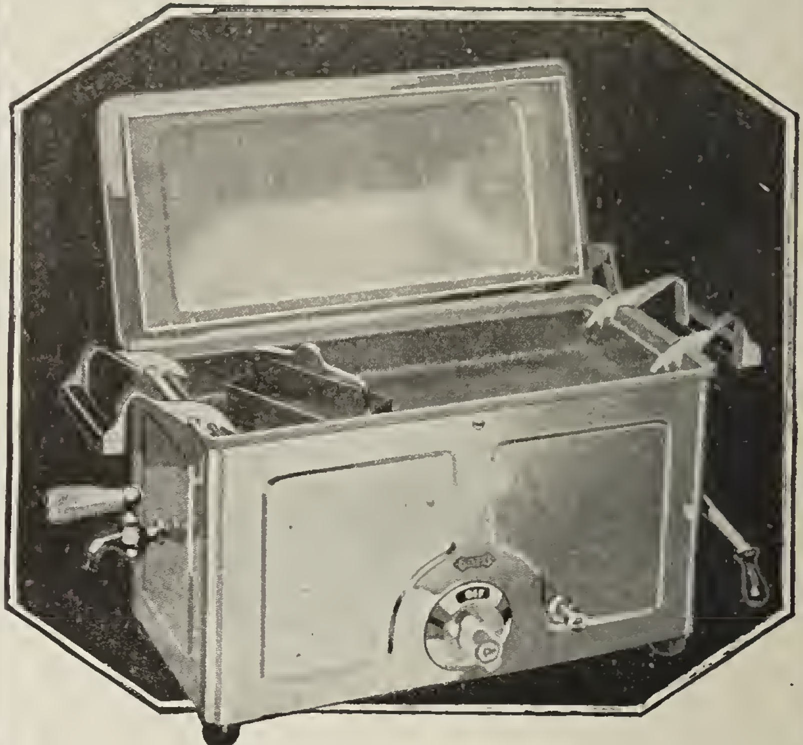

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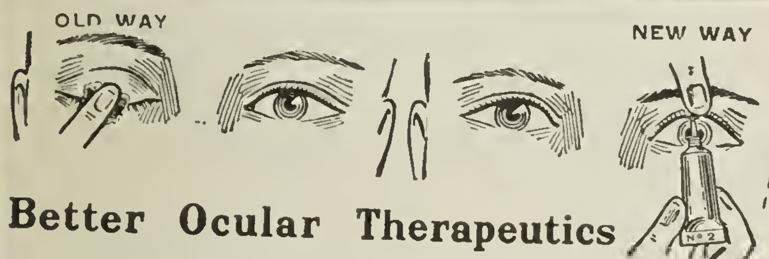

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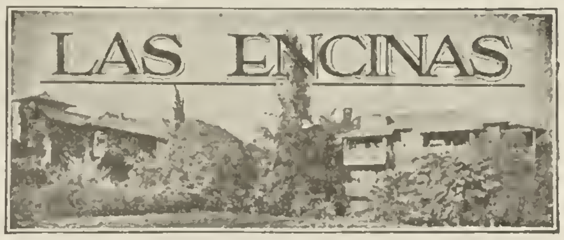

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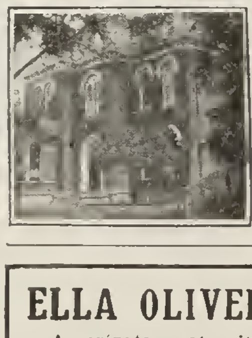

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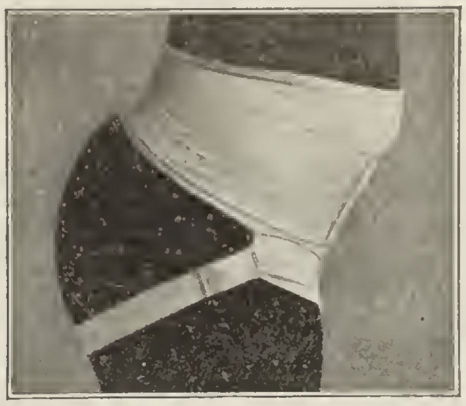

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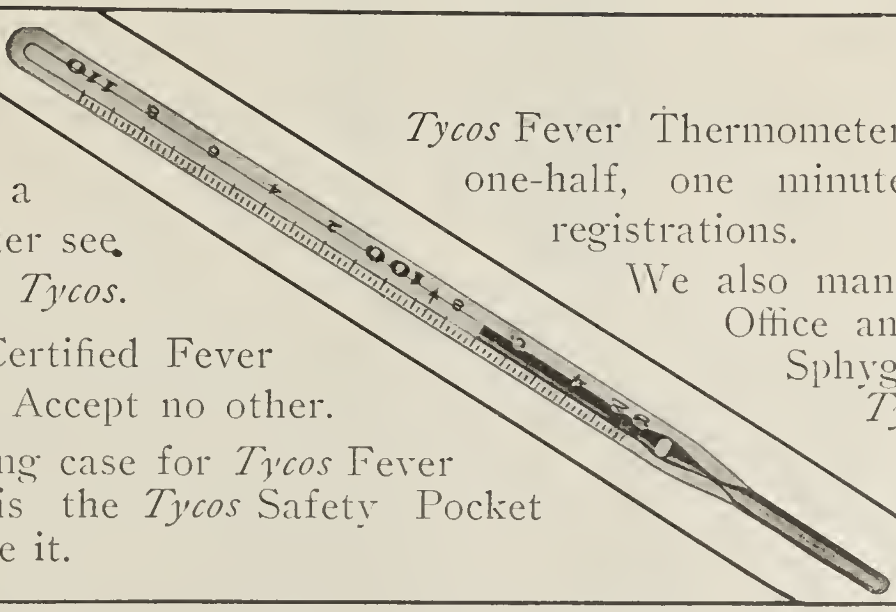

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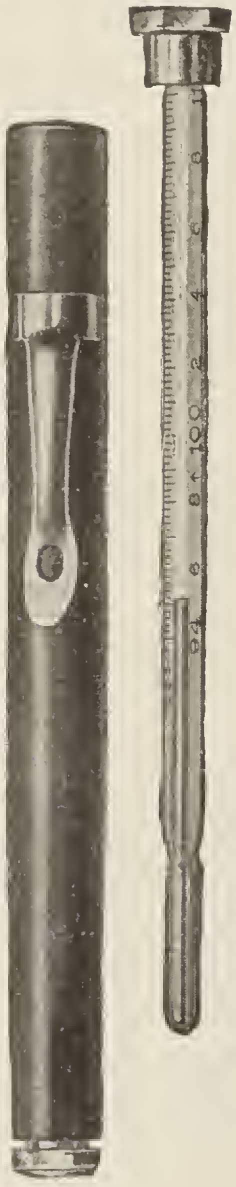

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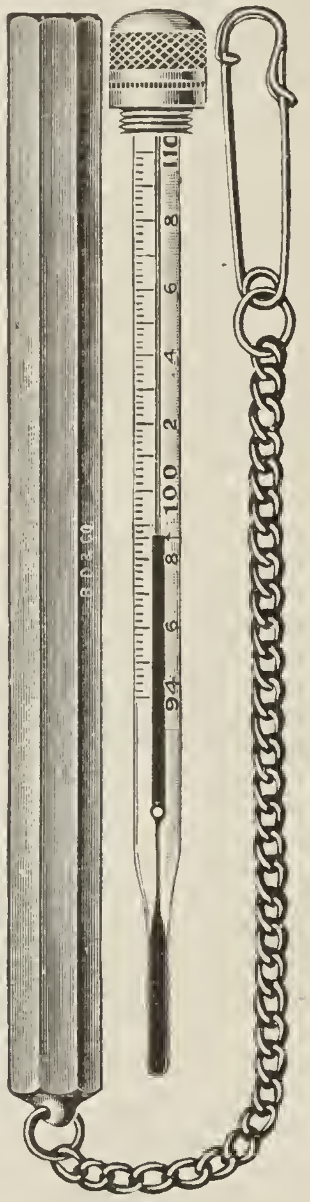

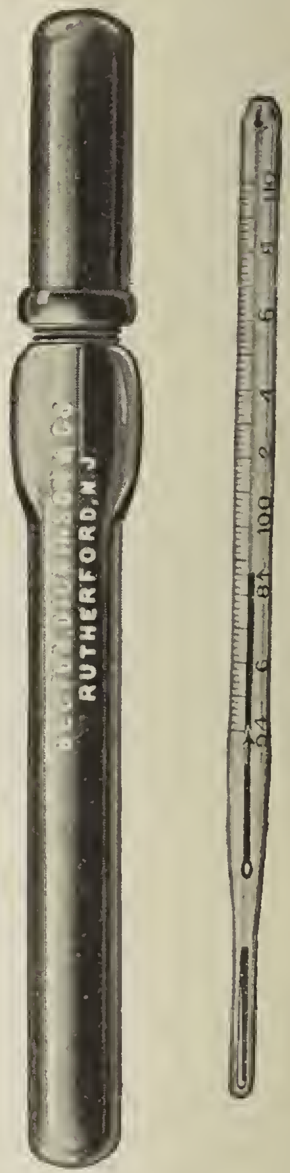
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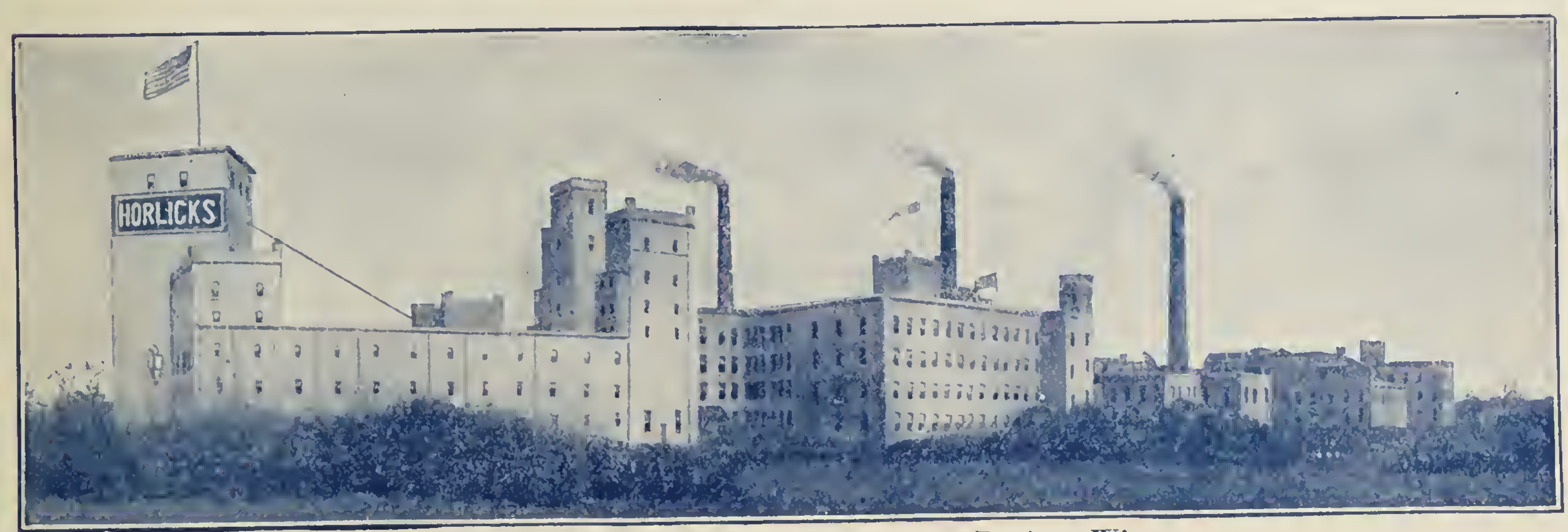

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